

AFRICA DEVELOPMENT AFRIQUE ET DÉVELOPPEMENT

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Special Issue on
**Agrarian Change, Food Security, Migration and Sustainable Development
in Senegal and Zimbabwe**

Numéro spécial sur
**Changement agraire, sécurité alimentaire, migration et développement durable
au Sénégal et au Zimbabwe**



Guest Editors / Rédacteurs invités
Rama Salla Dieng, Geoffrey Banda & Walter Chambati

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AFRIQUE ET DÉVELOPPEMENT**

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Introduction: Agrarian Change, Food Security, Migration and Sustainable Development in Senegal and Zimbabwe

Rama Salla Dieng*, Geoffrey Banda** &
Walter Chambati***

Background

African countries face multiple developmental, economic, social and industrial transformation hurdles, especially in the era of sustainable development and sensitivity to environmental damage. As late-comer industrialisers, there is some catching up to do, but they need to navigate complex, international, legal and institutional agreements that early industrialisers did not face. Given the environmental concerns, it is not surprising that the development thrusts encouraged are in agriculture and not in heavy industry. At the same time, many African countries are grappling food security, rural–urban and cross-border migration, and social, economic with industrial transformation challenges (Mkandawire 2001; Buijn, Van Dijk and Foeken 2001; Diop 2008; Tsikata 2009; Patnaik, Moyo and Shivji 2011; Sall et al. 2011; Cheru and Modi 2013; Hall, Scoones and Tsikata 2015; Cross and Cliffe 2017; Bredeloup 2015; Jha, Chambati and Ossome 2021; Adesina 2021). This special issue brings together a broad range of papers exploring some of the myriad complexities faced by African countries. It focuses on Senegal and Zimbabwe, a western and a southern Africa country. The choice of countries was purposive as the editors had active networks in Zimbabwe and Senegal, and bringing together two

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countries with different economic histories and socioeconomic dynamics could help to highlight a greater diversity of key issues concerning agrarian change, food security, migration and sustainability.

In Senegal, post-1960, food security has been a central preoccupation of successive development strategies, all of which have made agriculture a priority sector. As a result, the country has experienced limited structural transformation and diversification has become an important policy to reduce its vulnerability to shocks and crises (including climate change, droughts and financial and food crises). Undernourishment in the country decreased sharply, from 24 per cent in 2001 to 11.4 per cent in 2011 to 7.5 per cent in 2019 (World Bank Development Indicators 2021), and monetary poverty decreased slightly, from 42.8 per cent in 2011 to 37.8 per cent in 2018/2019 (ANSD 2021). Despite these improvements, challenges remain: for example, food riots have occurred over the last decades, including the March 2021 events which resulted in fourteen casualties. Other issues the country seeks to address include labour migration, economic diversification, livelihood prospects and youth employment, increased social differentiation and the rural-urban dynamics of agrarian and climate change.

Zimbabwe, which has faced food insecurity challenges over the last two and half decades, provides an opportunity to examine, within and outside the context of radical fast-track land redistribution, issues of migration, food security and the emergence of the maize innovation ecosystem. The macroeconomic crisis that engulfed the country in the 2000s combined with climatic shocks deflated food production capacity even in rural sectors where land was not redistributed (e.g. communal areas and plantation estates) (Moyo 2011; Binswanger-Mkhize and Moyo 2012). Imports and aid, have featured prominently in the country because domestic production of staple cereals declined substantially from 2002, and household and national food insecurity as well as dependence on food welfare transfers, increased (Moyo et al. 2014). A recovery in food production was spurred by an expansive state input subsidy programme from around 2016, but it continues to be interrupted by adverse climatic conditions (Mazwi et al. 2019). Notwithstanding the cereal surpluses achieved in some years, substantial sections of the population still suffer food shortages. For instance, the 2020/21 season recorded the highest cereal surplus in the history of the country, yet up to a third of the population of 15.6 million people was estimated to be food insecure (WFP 2021). Moreover, the number of food-insecure people tend to fluctuate throughout the season, reaching as much as 56 per cent of the rural population in the lean season and dropping to about 21 per cent as harvests come in (ibid). Since one of the key staples,

maize, is predominantly produced by small-scale farmers for their own consumption, the scale and temporal variability and the spatial distribution of access to food in relation to nourishment and social vulnerability is not well understood (Moyo et al. 2014). In the context of heightened stresses on urban livelihoods, marked by deindustrialisation and limited employment opportunities, the implications of land access through the Fast Track Land Redistribution Programme (FTLRP) on rural-urban migration trends and tendencies are also yet to be adequately comprehended (Scoones & Murimbarimba 2021). These are some of the issues that the articles in this collection grapple with.

The articles in this issue were first presented at a symposium in June 2019 in Dakar, organised by the University of Edinburgh (Centre of African Studies – CAS; Science, Technology and Innovation Studies – STIS; and the Global Academy of Agriculture and Food Security – GAAFS), the Sam Moyo African Institute of Agrarian Studies (SMAIAS) in partnership with the African Institute for Economic Development and Planning (IDEP), and the think tank l'Initiative Prospective Agricole et Rurale (IPAR). We hope that this collection will contribute to decentring knowledge production on Africa and amplifying the voices and context-sensitive perspectives of young African scholars who constitute the majority of authors of this special issue.

Articles on Senegal

Six articles on Senegal analyse the intersections of food security, rural-urban and cross-border dynamics and migration for improved rural livelihoods, within the context of climate change and natural resource management. The first three articles focus on food security, agriculture and labour migration in northern Senegal and the implications of these factors for livelihoods. Cissokho investigates how food security and irrigated agriculture fare in the context of recession and migration in Tuabou, a Soninke locality in the region of Bakel, Senegal. He shows an increased dependence on remittances in the three decades after Senegalese independence as agriculture was gradually abandoned and emigration rose. However, post the 1990s, remittances decreased sharply because of the collapse of migration networks, which eventually led to food insecurity. The author reflects on contemporary transformations in receding and irrigated agriculture and the impact on livelihoods, using households as a unit of analysis.

Ba and Diop discuss food security in the context of climate change and transformations in agro-pastoral activities in the Matam Region (north-east Senegal), specifically the Ferlo and the Middle Valley of Senegal. They argue

that in the Matam Region climate change is a significant threat, illustrated by the drop in rainfall and higher temperatures at unusual times. They review the outcomes of desertification, loss of arable land and pasture, reduced water levels for irrigation, drinking and other productive activities, as well as household livelihood coping strategies.

Dieng examines labour migration in the horticulture sector of fresh fruits for export, which has demonstrated a steady growth in the last decade and is being considered as a potential alternative industrialisation pathway to manufacturing. In this context, Dieng uses an intersectional feminist political economy lens to show that care chains are an invisibilised dimension of the circulation of labour and rural-urban dynamics, despite being central to food security and the social reproduction of migrant workers in horticulture. As a result, care chains in the context of labour migration illustrate increased social differentiation and pose new/changing challenges for policy.

Diédhiou, Cissé and Dabo present a case study from the south of Senegal, Ziguinchor, where a land rush in urban areas created an unprecedented need for employment, mobility, housing and food. They focus on food security in a city dominated by urban projects, and discuss the mutation(s) of agricultural spaces especially within the context of precarious land tenure for farming families, raising questions about the place of agriculture in land development but also its capability for short food chains – local food production for local populations.

Similar to Ba and Diop ; Mané, Diombaty, Cissé, Ba (Ibrahima), Ba (Rawane) and Diallo consider food security in the context of climate change, using a cashew nut case study in the Fogy-Kombo in Casamance, southern Senegal. They argue that cross-border mobility has been used as a coping strategy by rural populations to improve their livelihoods in this highly ethnically diverse and unstable region.

The last article on Senegal, by Ka, Diakhaté and Ba, focuses on the sustainability of natural resources, specifically fisheries in the context of oil and gas exploitation at three Senegalese offshore stations: Sangomar, Cayar and Saint-Louis. The authors analyse the socioeconomic consequences of the decline of the fisheries systems, such as the layoff of fishers and the migration of young fishermen to Europe. They highlight the need to identify coping mechanisms and resilience strategies that encourage economic diversification.

Articles on Zimbabwe

Six articles focus on Zimbabwe. Banda adopts a periodisation approach to analyse the transition of food security in Zimbabwe since the colonial period. Using an innovation ecosystem lens, he examines the maize sub-

sector, focusing on technological capabilities in breeding and extension services, financial institution architecture and state support for agriculture, and bridging institutions that supported technology adoption and innovation diffusion.

Beyond the state's role in evolving national food security trends, Mafongoya demonstrates how women small-scale farmers in a dry communal area exercise their agency by drawing upon various types of social capital, including bonding, bridging and linking, to advance food security at the household level. Using four group projects as case studies, namely Food For Assets (FFA), community gardening, Boer goat production and the Fushai credit scheme, he finds that food access, household income and availability of other social needs were bolstered when all three elements of social capital were present.

Turning to the role of agency, Tawodzera's contribution focuses on a different geographical zone to examine how poor people in a peri-urban district on the periphery of the capital city, Harare, cope with food insecurity challenges amidst rising poverty levels. He delineates four major strategies adopted by households to cope with food insecurity: reliance on urban farming; dependence on rural food and monetary remittances; utilisation of employment opportunities in the surrounding farming lands; and participation in, as well as dependence on, informality.

Tekwa assesses the role of improved access to land for previously land-poor small-scale farmers from the communal areas, as a result of the redistributive land reforms, in addressing what he terms the 'triple challenge' of household food insecurity, unemployment and migration. The study, anchored on a transformative social policy approach, utilises primary data to contrast the food security status of land beneficiaries and non-beneficiaries. It reveals that access to more land not only increased household food security and rural incomes, but also opened up new employment opportunities for both women and men. This was found to act as a restraint to both rural-to-urban and international migration.

Chambati furthers the debate on the social and economic outcomes of Zimbabwe's land reforms by examining, from a Marxist political economy perspective, the consequences of the peasantry's enhanced access to land on the dynamics of rural labour migration. Using empirical evidence from two rural districts, Goromonzi and Kwekwe, he demonstrates that while there were many peasant beneficiaries, land shortages were not completely eradicated and the new farm labour markets depended on the super-exploitation of landless migrants. His findings contradict conventional wisdom that migration is a deliberate diversification strategy of household

labour to enhance livelihoods. Rather, resistance to proletarianisation undergirded the struggles of farm labourers as they largely sought autonomous land-based social reproduction outside the wage economy.

Vhumbunu examines the possibility, rationality, utility, practicality and mechanics of designing and implementing staple crops processing zones (SCPZs) in Zimbabwe. He argues that agro-processing nodes possessing high agricultural potential need to be identified so that food productivity, processing and marketing can be enhanced. The study uses the agricultural development theory as well as the food security-rural-urban-migration nexus as the conceptual framework to argue that despite multiple threats to food security, the concept of SCPZs has potential as an intervention mechanism.

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References

- Adesina, J., ed., 2021, *Social Policy in the African Context*, Dakar: Council for the Development of Social Science Research in Africa (CODESRIA) / Conseil pour le développement de la recherche en sciences sociales en Afrique.
- Agence Nationale de la Statistique et de la Démographie (ANSD), 2021, Enquête Harmonisée sur les Conditions de Vie des Ménages (EHCVM), Senegal, <https://www.ansd.sn/ressources/publications/Rapport-final-EHCVM-vf-Senegal.pdf>
- Binswanger-Mkhize, H. and Moyo, S., 2012, Recovery and Economic Growth of Zimbabwe Agriculture, Harare: World Bank.
- Bredeloup, S., 2015, Introduction: Terrains revisités en migrations africaines, *Africa Development / Afrique et Développement*, Vol. 40, No. 1, pp. 1–17, <https://www.jstor.org/stable/afrdevafrdev.40.1.1>

- Cheru, F., and Modi, R., 2013, *Agricultural development and food security in Africa: The impact of Chinese, Indian and Brazilian investments*, London, UK: Bloomsbury Academic.
- Cross, H., and Cliffe, L., 2017, A comparative political economy of regional migration and labour mobility in West and Southern Africa, *Review of African Political Economy*, Vol. 44, No. 153, pp. 381–398, <https://doi.org/10.1080/03056244.2017.1333411>
- Bruijn, M., Van Dijk, R., and Foeken, D., eds, 2001, *Mobile Africa: Changing Patterns of Movement in Africa and Beyond*, Leiden: Brill, <https://brill.com/view/title/7568>
- Diop, M. C., 2008, *Le Sénégal des migrations: Mobilités, identités et sociétés*, Paris: Editions Karthala, Centre de recherche sur les politiques sociales, ONU-Habitat.
- Hall, R., Scoones, I., and Tsikata, D., eds, 2015, *Africa's Land Rush: Rural Livelihoods and Agrarian Change*, new edition, Woodbridge, UK: James Currey Publishers, <http://www.jstor.org/stable/10.7722/j.ctt16vj222>
- Jha, P., Chambati, W., and Ossome, L., 2021, *Labour Questions in the Global South*, Cham: Springer Books, <https://econpapers.repec.org/bookchap/sprsprbok/978-981-33-4635-2.htm>
- Mazwi, F., Chemura, A., Mudium, G. and Chambati, W., 2019, The Political Economy of Command Agriculture in Zimbabwe, *Agrarian South: Journal of Political Economy*, Vol. 8, No. 1–2, pp. 232–257.
- Mkandawire, T., 2001, Thinking about developmental states in Africa, *Cambridge Journal of Economics*, Vol. 25, No. 3, pp. 289–313, <https://www.jstor.org/stable/23600389>
- Moyo, S., 2011, Changing Agrarian Relations After Redistributive Land Reform in Zimbabwe, *Journal of Peasant Studies*, Vol. 38, No. 5, pp. 939–966.
- Moyo, S., Sitko, N., Meyer, F. and Butaumocho, B., 2014, Zimbabwe's Food Grain Economy Study, Harare: World Bank.
- Patnaik, U., Moyo, S. and Shivji, I., 2011, *The Agrarian Question in the Neoliberal Era: Primitive Accumulation and the Peasantry*, London: Pambazuka Press.
- Sall, M., Tall, S. M., Samb, A., and Tandian, A., 2011, *Climate change, adaptation strategies and mobility: Evidence from four settlements in Senegal*, London, UK: International Institute for Environment and Development (IIED) and Human Settlements Programme.
- Scoones, I., & Murimbarimba, F., 2021, "Small Towns and Land Reform in Zimbabwe", *The European Journal of Development Research*, 33(6), 2040–2062. <https://doi.org/10.1057/s41287-020-00343-3>
- Tsikata, D., 2009, Gender, land and labour relations and livelihoods in sub-Saharan Africa in the era of economic liberalisation: Towards a research agenda, *Feminist Africa*, Vol. 12.
- World Food Programme (WFP), 2021, Zimbabwe Annual Country Report 2021, Harare: WFP.



La durabilité des systèmes halieutiques sénégalais dans un contexte d'exploitation des hydrocarbures : réflexion géographique à partir des territoires de la Grande-Côte

Rougyatou Ka*,
Boubacar Ba** & Mouhamadou Mawloud Diakhate***

Résumé

Cet article pose la problématique de la durabilité des systèmes halieutiques dans le contexte de l'exploitation des ressources pétrolières et gazières au Sénégal (Sangomar offshore, Cayar offshore et Saint-Louis offshore). Ces ressources stratégiques s'insèrent, voire s'incrustent dans des territoires de fortes traditions halieutiques. Lesquels ont su jouer un rôle déterminant dans la sécurité des ménages sénégalais en leur assurant la sécurité alimentaire et l'équilibre social, en sus de l'équilibre de la balance commerciale. Mais sont-ils suffisamment préparés pour résister aux mutations d'origine pétro-gazière tout en assurant la stabilité des systèmes halieutiques traditionnels? Cette question commence à prendre forme dans les territoires de pêche de la Grande-Côte (Cayar et Saint-Louis) déjà infléchis par la crise halieutique issue des effets combinés du changement climatique et des pressions anthropiques sur les ressources. Ces territoires connaissent une baisse de leur production halieutique, à laquelle s'ajoutent la mise au chômage technique des acteurs de la pêche et la migration clandestine des jeunes pêcheurs vers l'Europe. Dans un tel contexte, une mise en prospective de ces systèmes halieutiques s'impose pour, d'une part, identifier des mécanismes de durabilité relatifs au maintien de leur vocation halieutique, et, d'autre part, élaborer des stratégies de diversification économique.

Mots-clés : système halieutique, système gazier, durabilité, Cayar–Saint-Louis, Sénégal

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Abstract

This article raises the issue of the sustainability of fisheries systems in the context of the exploitation of oil and gas resources in Senegal (Sangomar offshore, Cayar offshore and Saint-Louis offshore). These strategic resources are part of, or even embedded in, territories with strong fishing traditions. They have played a decisive role in the security of Senegalese households by ensuring food security and social balance, in addition to the balance of trade. But are they sufficiently prepared to withstand the changes caused by oil and gas while ensuring the stability of traditional fisheries systems? This question is beginning to take shape in the fishing territories of the Grande-Côte (Cayar and Saint-Louis), which have already been affected by the fisheries crisis resulting from the combined effects of climate change and anthropic pressure on resources. These territories are experiencing a decline in fish production, in addition to the technical unemployment of fishermen and the clandestine migration of young fishermen to Europe. In such a context, a prospective analysis of these fishing systems is necessary in order to identify sustainability mechanisms for maintaining their fishing vocation and to develop economic diversification strategies.

Keywords: Fishing system, Gas system, Sustainability, Cayar-Saint-Louis, Senegal.

Introduction

La pêche maritime constitue une des principales sources de sécurité alimentaire, de revenus de l'humanité¹. Avec une production annuelle mondiale estimée en 2016 à 171 millions de tonnes de poissons² pour une valeur de 362 milliards de dollars, le secteur halieutique et aquacole permet à plus de 3,2 milliards de personnes de satisfaire plus de 20 pour cent de leurs besoins en protéines animales (le double dans les pays en développement où les besoins en protéines animales sont essentiellement assurés par la pêche de subsistance). Il procure aussi à plus de 500 millions de personnes un emploi et des conditions de vie acceptables (FAO 2018). Ces chiffres sont révélateurs de deux réalités : d'une part, le caractère indispensable du secteur halieutique pour assurer la sécurité alimentaire et la viabilité des moyens d'existence des communautés qui en sont tributaires, d'autre part, la nécessité de préserver les écosystèmes marins devenus de plus en plus vulnérables, sous les effets combinés des pressions anthropiques et du changement climatique.

La vulnérabilité des océans et des systèmes halieutiques pose des questions substantielles dans de nombreux pays en développement, notamment le Sénégal où le secteur des pêches constitue un levier pour l'alimentation et le

développement économique et territorial (Niang 2009 ; FAO 2017 ; ANSD 2018). La dépendance de l'économie sénégalaise et des communautés littorales aux activités halieutiques³ a encouragé, dès le début du XXIe siècle, des stratégies d'adaptation du secteur au contexte international de rationalisation des ressources maritimes (chapitre XVII de l'Agenda 21 et le Code de conduite de la pêche⁴ de 1995). Ce dernier fait suite aux problèmes de durabilité nés de la stratégie productiviste observée à partir de la deuxième moitié du XXe siècle (Chauveau & Samba 1990). Si les années 2000 ont vu naître au Sénégal le vœu de concilier le « principe d'une gestion équilibrée des ressources halieutiques et les impératifs socioéconomiques et territoriaux des activités de pêche » (ANSD 2010 : 210), les années 2010 marquent officiellement le lancement de *la gestion durable des ressources halieutiques* comme programme phare du cadre politique national, le Plan Sénégal émergent⁵ (PSE). Ce programme mise sur la restauration des stocks de poissons, l'aménagement des pêcheries et la promotion de la cogestion des pêches. Malgré la poursuite de ces efforts étatiques, soutenus par d'autres programmes d'organisations non gouvernementales⁶, le secteur de la pêche est loin de s'inscrire dans la voie de la durabilité. Des défis (raréfaction des ressources halieutiques, insécurité alimentaire et économique, vulnérabilité des territoires de pêches, au chômage des jeunes, etc.) subsistent et concourent à la remise en cause de la durabilité des systèmes de pêche, surtout dans le nouveau contexte de l'exploitation des hydrocarbures au Sénégal (Figure 1).

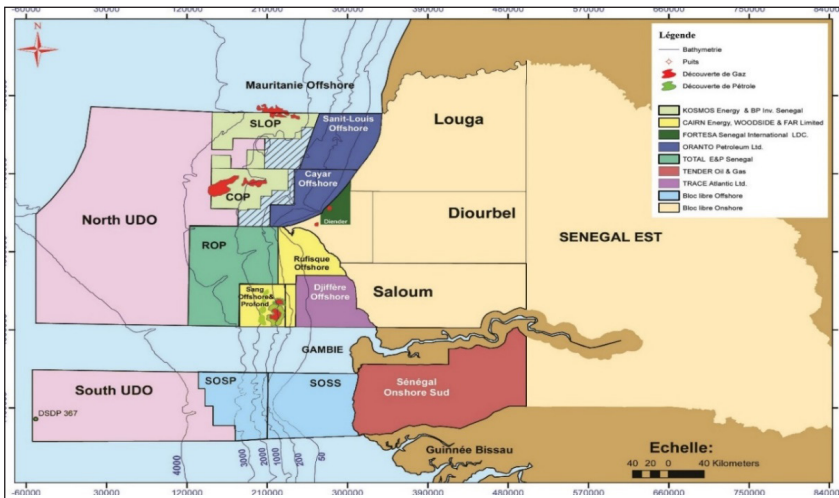


Figure 1 : Blocs d'exploration et de découverte des hydrocarbures au Sénégal
Source : www.itie.sn

Entamée depuis la période pré-indépendance (Bonnin *et al.* 2016), l'exploration du potentiel en hydrocarbures dans le bassin sédimentaire sénégalais n'a donné de résultats significatifs qu'à partir de 2014 avec la découverte d'importantes quantités de ressources pétrolières (tableau 1). Cette première série de découvertes (quatre découvertes) sera rehaussée en 2016 avec les résultats de recherche de Kosmos Energy qui s'arrêtent à trois découvertes de gaz dites de classe mondiale (Figure 1 et tableau 1) dans les blocs de Saint-Louis offshore profond (une découverte, Grand Tortue, partagée entre la Mauritanie et le Sénégal) et de Cayar offshore profond (deux découvertes exclusivement sénégalaises, Teranga et Yakaar).

Tableau 1 : Estimation des hydrocarbures enfouis dans les mers sénégalaises en 2017

Découvertes pétrolières	Découvertes gazières
<p>Depuis 2014, quatre découvertes pétrolières sont faites dans le bloc Sangomar offshore profond :</p> <ul style="list-style-type: none"> • FAN : 250 millions de barils • SNE : 630 millions de barils (en plus de 70 milliards de m³ de gaz naturel) • FAN Sud : 50 millions de barils • SNE Nord : 100 millions de barils <p>Les réserves pétrolières sont estimées à 1030 millions de barils (hors Dôme Flore⁷).</p>	<p>Depuis 2016, trois découvertes de gaz ont été faites dans les blocs de Saint-Louis offshore profond et de Cayar offshore profond au travers de trois puits :</p> <ul style="list-style-type: none"> • Grand Tortue Ahmeyim : 20 Tcf (560 milliards m³) dans le bloc Saint-Louis offshore profond • Teranga : 5 Tcf (140 milliards de m³) • Yakaar : 15 Tcf (420 milliards de m³) dans le bloc Cayar offshore profond <p>Les réserves gazières sont estimées à 1 120 milliards de m³.</p>
<p>Le développement de la phase 1 du projet Sangomar et de la phase 1 du projet Grand Tortue Ahmeyim (situé à la frontière sénégal-mauritanienne) étant en cours, les premières productions pétrolières et gazières sont attendues en 2023⁸. Les travaux de prospection pétro-gazière continuent et d'autres découvertes sont attendues (Figure 1).</p>	

Source : www.itie.sn

Ces ressources à haute valeur ajoutée réservent au Sénégal une place de choix dans l'échiquier des grands pays producteurs. Elles peuvent rehausser le développement économique du Sénégal, à l'image du secteur minier, dont la contribution dans les exportations nationales est de 37,88 pour cent (TIE Sénégal 2021). Ensemble, les deux secteurs ont généré en 2020 la somme de 185,20 milliards de FCFA⁹ affectée à 90,58 pour cent au budget de l'État

(*ibidem*). À l'échelon des territoires, il faut mentionner que ces types de ressources ne se traduisent pas toujours par un développement territorialisé et entrent même en conflit avec les secteurs de base. Cette conclusion est la plus partagée par les études de cas sur le secteur extractif dans les pays africains (Nigeria, Angola, Congo-Brazzaville, etc.) et son rôle dans le développement des territoires (Gary *et al.* 2003 ; Campbell 2010 ; Azizi *et al.* 2016). Au Sénégal, les difficultés de développement se lisent dans la faible contribution de ce secteur à l'emploi (0,22 %) selon ITIE-Sénégal en 2020 et dans les zones minières où l'insertion des industries extractives s'est souvent soldée par une « exclusion territoriale » avec une série de conséquences allant de l'expropriation foncière à la perte d'activités économiques en passant par les problèmes de reconversion professionnelle (Diallo 2015 ; Amnesty International 2014).

Dans ce contexte se pose le défi de la stabilisation et de la durabilité des systèmes de pêche, qui restent, malgré toutes les contraintes, un des piliers de la sécurité alimentaire, de l'emploi des jeunes et de la stabilité socioéconomique des ménages des communautés littorales.

Problématique de recherche

L'histoire des économies extractives en Afrique est révélatrice de la complexité des dynamiques afférentes autour de la relation entre ressources naturelles et développement des territoires. Elle s'est progressivement forgée autour d'un cercle vicieux : expropriation territoriale, perte d'activité économique de base et problèmes de reconversion/d'insertion professionnelle. Ce fossé entre l'exploitation des ressources minérales et le développement des territoires tend à valider les idées négatives projetées sur les expériences minérales africaines, où l'exploitation des ressources serait synonyme de « malédiction », à travers un « syndrome de mal développement » (Gary *et al.* 2003; Campbell 2010 ; Azizi *et al.* 2016). Plus que cela, il rend compte du problème de l'insertion des projets extractifs, fortement extravertis, dans le tissu territorial, et, par là même, de la difficulté de leur alliance avec les dynamiques porteuses d'un développement territorialisé.

Au Sénégal, les projets pétroliers (Sangomar offshore sur la Petite-Côte) et gaziers (Cayar offshore et Saint-Louis offshore sur la Grande-Côte) ont la particularité de s'insérer, voire de s'incruster dans des territoires à forte tradition halieutique. Pionniers de la territorialisation de l'espace côtier sénégalais, ces systèmes halieutiques, impulsés par des dynamiques endogènes (localisées) et exogènes (nationales/internationales), ont jusque-là constitué, avec leurs homologues (maraîchage sur la Grande-Côte et tourisme sur la Petite-Côte), l'épine dorsale de l'économie sénégalaise en termes de

recettes en devises et d'emplois des jeunes et des femmes (ANSD 2018). Plus important encore, ils ont joué un rôle déterminant dans la sécurité des ménages sénégalais en termes d'alimentation, d'apport nutritionnel et d'équilibre social. Du fait de leur ancrage territorial, ils ont contribué à l'élargissement des emblèmes nationaux (*le ceebu jen national*¹⁰). Il est alors légitime de se demander si ces systèmes halieutiques, qui ont produit, au fil des ans, des marqueurs économiques et territoriaux sur l'espace littoral sénégalais, sont prêts pour faire face aux mutations d'origine pétro-gazière. Quelles sont les possibles implications sur la disponibilité en quantité et en qualité de la production halieutique? Qu'advient-il des 600 000 emplois directs et indirects que procure le secteur halieutique? Comment optimiser la mise en exploitation des hydrocarbures pour une dynamique territoriale inclusive et profitable aux systèmes halieutiques?

Ces questionnements nous ont poussés à proposer cette recherche à portée prospective sur le développement des systèmes halieutiques. Notre contribution est structurée autour de la question de recherche sur la durabilité des systèmes de pêche de la Grande-Côte face aux risques environnementaux et d'exclusion territoriale issus des projets gaziers. Dans ce contexte gazier, nous mettons à l'épreuve l'hypothèse d'une vulnérabilité des systèmes de pêche dans leur future cohabitation avec le système gazier sur l'espace marin, une vulnérabilité qu'une approche systémique permet d'appréhender dans une perspective de systèmes de pêches durables.

Cadre théorique

L'étude repose sur deux soubassements théoriques : la durabilité et la systémique territoriale. Ils sont appliqués aux territoires de pêches, futurs lieux de productions du gaz.

Durabilité des systèmes de pêche

Le concept de « durabilité » s'est introduit dans le domaine des pêches à partir des années 1990 dans la foulée de la théorie du développement durable introduite par le *Rapport de Brundtland* en 1987, consacrant la théorie de l'éco-développement de l'économiste Ignacy Sachs (1980). Si le développement durable est défini en 1987¹¹, c'est le Sommet international de la terre à Rio en 1992 qui détermine ses leviers : économique, social, environnemental et institutionnel. Il se résume dès lors à une forme d'économie encadrée qui se trouve au juste milieu entre les exigences économiques (performances), sociales (équité et égalité) et environnementales (préservation du milieu naturel) du développement. Dans ce cas, un système productif ne saurait être durable s'il n'intègre le « triptyque de la durabilité écologique, de la

viabilité économique et de l'équité sociale» (Clément 2002) et au moins les trois principes majeurs de la sécurité alimentaire, la disponibilité des ressources halieutiques, leur stabilité et leur accessibilité¹².

C'est donc dans ce croisement des concepts de sécurité alimentaire et de développement durable que se trouve la théorie de la « pêche durable » devenue depuis les années 2000 la substance d'un grand nombre de programmes politiques. Alors, pourquoi cette nécessité de ramener le débat de la durabilité dans le domaine de la pêche en considérant le caractère renouvelable des ressources halieutiques? Dans son ouvrage intitulé *De la liberté des mers*, Grotius (1609), faisant fi de leur caractère renouvelable, prône un accès libre aux ressources halieutiques : « la pêche en mer est libre, car il est impossible d'en épuiser les richesses¹³ ». Ce rythme effréné de l'exploitation des ressources halieutiques par la pêche de capture a conduit à la situation de la raréfaction des ressources consécutive à la diminution et/ou à l'absence de renouvellement des stocks de poissons. C'est à partir de là qu'une réflexion s'est forgée autour du concept de « pêche durable » afin de rendre intelligible les initiatives mondiales pour la protection des ressources halieutiques que le sommet de Rio de 1992 permit de lancer et que le Code de conduite de la pêche systématisa en 1995 (FAO 1995). Concrètement, il s'agit de penser la pêche dans un cadre systémique qui engage les systèmes d'exploitation des ressources dans une interaction intelligente avec l'écosystème marin, producteur et support de ceux-ci. Cette collaboration doit être organisée et réglementée par des cadres législatifs, politiques et intentionnels de dimensions locale, nationale, sous-régionale et internationale.

Dans le contexte sénégalais, les débuts de la « pêche durable » remontent à la veille des années 2000 avec l'élaboration d'un nouveau Code de la pêche en 1998 (réadapté en 2015), suivi de la Lettre de politique sectorielle (LPSPA 2016-2020) et de projets et programmes de promotion de la gestion durable des ressources halieutiques. Bien qu'encourageantes, ces initiatives n'ont pas encore réussi à redorer le secteur de la pêche, surtout de la pêche artisanale, qui occupe l'essentiel du cadre halieutique national. La pêche durable se cherche encore au Sénégal. Elle ne saurait s'apprécier efficacement dans un cadre fermé, avec des interactions internes au secteur. C'est une question qui s'envisage dans un cadre plus englobant, prend en compte les autres activités maritimes, en l'occurrence les activités d'exploration et d'exploitation des hydrocarbures.

Les projets d'hydrocarbures ne riment pas avec la durabilité écologique de leur milieu d'insertion. De nombreuses études établissent ces liens peu féconds entre exploitation pétro-gazière et protection des écosystèmes marins et les ressources qu'ils contiennent (Patin 1999 ; Semelin [s. d.] ; Kloff & Wicks [s. d.] ; Kloff, Wicks & Siegel¹⁴ 2010).

Dans le contexte d'émergence d'un système pétrolier dans la zone maritime de la Mauritanie au début des années 2000 (pays frontalier du Sénégal), Kloff, Wicks, et Siegel (2010), Kloff, Wicks (s. d.) et Semelin (s. d.), ont mis en exergue des menaces auxquelles ce milieu est confronté. Celles-ci sont relatives à la biodiversité marine, la stabilité et la productivité des océans, la santé des peuplements marins, les poissons notamment. Elles concernent la réduction des volumes de capture, le dérèglement du cycle des upwellings et des migrations des poissons, la diminution de la production primaire. À la lumière de ces études, l'étude postule un système halieutique menacé dont la préservation pourrait s'envisager dans une perspective systémique.

La systémique territoriale pour comprendre les dynamiques halieutico-gazières

La systémique prend ses racines dans la Théorie des systèmes territoriaux (Moine 2006). Considérée comme le système territorial de référence, la Grande-Côte, avec ses composantes (sous-systèmes), ses structures (acteurs économiques, sociaux, politiques) et l'environnement relationnel qui les lie (relations horizontales, verticales, transversales), offre un espace pertinent d'analyse des dynamiques aux rétroactives symétriques et/ou dissymétriques qui accompagnent le cycle itératif de formation/fonctionnement d'un territoire (Raffestin 1980). Deux sous-systèmes sont considérés : le système halieutique, jusque-là moteur de son développement territorial, et le système gazier en devenir, dont les horizons territoriaux restent indécis. L'interaction de ces sous-systèmes expose la Grande-Côte à de vives questions de territorialité, exprimant des rétroactivités tantôt positives et qui pourront fortifier certains systèmes dans le cadre d'une complémentarité territoriale, tantôt négatives, et, dans ce cas, ils pourront générer la reconversion de certaines vocations territoriales qui ont mis du temps à se construire. Elle n'exclut pas la perspective d'avoir un nouveau système reflétant cette (re)configuration territoriale : système « halieutico-gazier » ou « gazier-halieutique » suivant le degré d'interactivité et les dynamiques qui le portent. Cette systémique territoriale prend forme autour de deux concepts dont il importe de préciser le contenu : le système halieutique et le système gazier.

Employé de manière interchangeable avec la notion de « territoire halieutique », le *système halieutique* représente, au sens de Corlay (1993), une construction économique et socio-spatiale résultant de la rencontre de trois éléments : l'écosystème marin, le socio-système et l'espace halieutique. Dans ce travail, il matérialise la mise en exploitation des ressources halieutiques (milieu marin) par les communautés littorales et les interactions et interdépendances issues de cette transformation des ressources halieutiques en produits

alimentaires et en moyens de stabilité socioéconomique. Dans le contexte cayarois et saint-louisien, il constitue une unité socioéconomique et spatiale où interagissent depuis longtemps ressources biologiques et populations humaines. Ce système halieutique est appelé à interagir avec un système (nouveau), le système gazier en devenir sur l'espace littoral sénégalais. Ce dernier se saisit, dans une conception systémique, des ressources gazières qui, au-delà de la dimension ressource territoriale, fait référence aux dynamiques (politiques, économiques, sociales et environnementales) induites par les projets gaziers, depuis l'exploratoire jusqu'à la production.

Cadre méthodologique

L'étude s'inscrit dans une démarche méthodologique essentiellement qualitative, axée sur la revue documentaire, la collecte de données de terrain et l'analyse des données collectées.

La revue de la documentation a pris deux orientations. Dans un premier temps, elle a mis en lumière des documents abordant les dynamiques halieutiques au Sénégal. Pour des données statistiques plus localisées¹⁵, les Services départementaux des pêches maritimes de Thiès et de Saint-Louis ont été d'un grand apport. Les données recueillies ont permis d'apprécier les systèmes de pêches étudiés à travers l'évolution de leur valeur productive, de la réglementation et des outils de gestion des ressources halieutiques, et à travers les défis auxquels ils font face et leurs enjeux de durabilité. Le second temps de la documentation a concerné les projets extractifs et leur lien avec leur territoire d'insertion¹⁶.

La collecte des données de terrain a été effectuée à Cayar et Saint-Louis, les deux principaux centres de pêche de la Grande-Côte et les deux futures villes gazières du Sénégal. Ont été interviewés les acteurs directement concernés par la pêche artisanale (pêcheurs, mareyeurs et transformatrices). Toutefois, la priorité a été accordée aux pêcheurs, qui effectuent d'ailleurs les activités de capture en mer et devront partager leurs lieux de pêche avec les plateformes gazières en installation (à Saint-Louis par exemple). Les interviews ont porté sur les défis de la pêche au Sénégal et dans leur zone, sur leurs perceptions de l'industrie gazière et leurs préoccupations, sur les opportunités de développement dans une perspective de collaboration juste et équitable entre système halieutique et système gazier.

Pour rendre intelligibles les données collectées, une analyse thématique a été privilégiée, ce qui a permis de structurer les résultats en trois axes : le diagnostic des systèmes halieutiques de façon à déclinier leurs défis, les enjeux de l'exploitation gazière, et les perspectives de durabilité des systèmes halieutiques étudiés.

Prémices d'une crise du système halieutique et remise en cause de sa durabilité ?

Du fait de sa contribution à l'économie nationale (1,6 % du PIB national en 2018¹⁷), la pêche joue un rôle socioéconomique crucial en termes de sécurité alimentaire nationale, de création d'emplois et de richesses, de stabilité socioéconomique des ménages, d'équilibre de la balance commerciale, avec près de 300 milliards en recettes d'exportation (DPM 2018). Cette multifonctionnalité¹⁸ de la pêche repose sur un potentiel halieutique estimé à environ 500 000 tonnes de poissons par an (ANSD 2010). Classé en deux groupes, ressources pélagiques et ressources démersales¹⁹, ce potentiel de pêche permet au secteur d'afficher des résultats appréciables sur les plans quantitatifs, par exemple sur les débarquements (Figure 2), les exportations, l'alimentation (satisfaction des besoins alimentaires des Sénégalais) et l'emploi des jeunes.

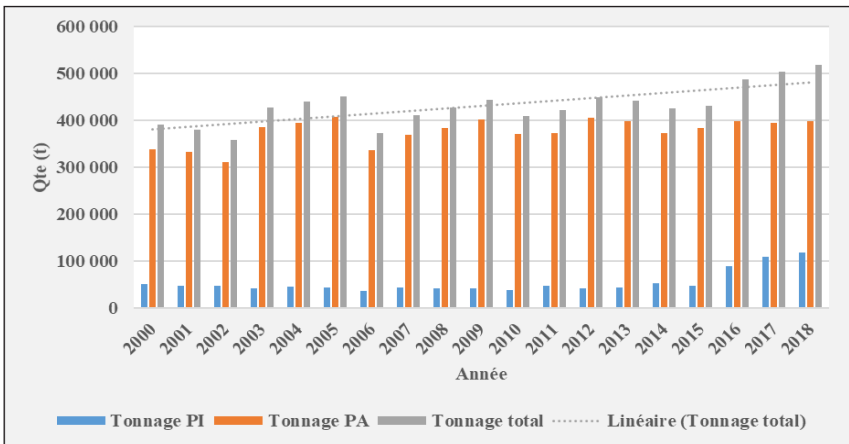


Figure 2 : Évolution de la production halieutique au Sénégal sur la période 2000 à 2018

Source : DPM 2000-2018

De 2000 à 2018, la production halieutique sénégalaise a évolué de 33 % en passant de 390 256 tonnes à plus de 500 000 tonnes. Cette hausse de la production halieutique et le rôle capital qu'elle joue dans l'équilibre de la balance commerciale du Sénégal (deuxième secteur exportateur derrière le secteur minier) ne doivent pas occulter les difficultés du secteur. Il s'agit de difficultés qui, non résolues, peuvent noyer le secteur de la pêche dans une crise profonde, déstabiliser des équilibres territoriaux locaux et plus spécifiquement le sous-secteur de l'alimentation. D'ailleurs, l'irrégularité

de la production annuelle (Figure 2), avec une moyenne ne dépassant pas 430 000 tonnes sur la période considérée, est un fait récurrent caractéristique. Avec un rythme de renouvellement inversement proportionnel à celui des activités de capture, le potentiel halieutique sénégalais tend à se réduire du fait des « déséquilibres socioéconomiques et environnementaux qui résultent de la surexploitation des ressources halieutiques et de l'utilisation de certains modes d'exploitation néfastes²⁰ ».

L'activité halieutique affaiblie par le changement climatique

La vulnérabilité climatique des pêcheries est la substance d'un grand nombre de programmes d'études sur la gouvernance des ressources halieutiques au niveau mondial. Certaines de ces études, comme celle d'Allison *et al.* en 2009²¹, se sont attachées à dresser le profil de vulnérabilité des pêcheries. Elles ont mis en avant des effets probables du changement climatique sur l'activité halieutique, allant de la réduction de productivité halieutique (extinction de certaines espèces, prolifération d'algues toxiques) à l'acidification des océans résultant de « l'absorption par les océans du CO₂ en excès » en passant par l'élévation du niveau des mers. Leur analyse des 32 pays les plus vulnérables révèle une forte exposition des systèmes de pêche des pays de l'Afrique subsaharienne. Faisant partie des cinq premiers pays abritant les pêcheries les plus vulnérables (Allison *et al.* 2009²²), le Sénégal subit les déséquilibres de son écosystème marin. Leurs conséquences sont perceptibles au travers du ralentissement des cycles de renouvellement des stocks de poissons et des upwellings côtiers (Mbaye, Thiam & Fall 2018), même dans leur zone de prédilection (territoires abritant des fosses sous-marines comme Cayar). Ces upwellings représentent d'ailleurs la principale source de production primaire des sardinelles qui occupent 70 pour cent des débarquements de la pêche artisanale et sont la principale source de sécurité alimentaire du Sénégal. La pêcherie de sardine rejoint ainsi celle des démersales côtières, déclarée en état de raréfaction depuis le début du XXI^e siècle (MPTM 2001). La pêche artisanale, une activité essentiellement côtière²³, qui assure la sécurité alimentaire du pays, et 94 pour cent des emplois directs et indirects du secteur de la pêche, est ainsi menacée quant à sa durabilité.

En effet, la figure 3 ci-dessous confirme la tendance baissière des ressources halieutiques dans la zone maritime ouest-africaine, l'une des plus poissonneuses au monde²⁴ du fait de la présence du courant des Canaries et des alizés maritimes. D'un potentiel côtier supérieur à 5 tonnes au km² dans les années 1960, la zone côtière sénégalaise est passée à moins de 1 tonne de poissons en 2000.

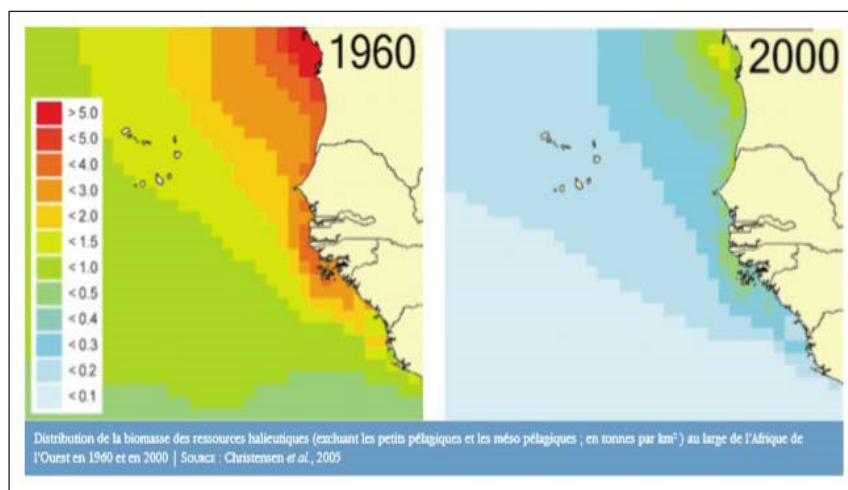


Figure 3 : Estimations de la biomasse des ressources halieutiques (hors petits pélagiques) en tonnes/km² en 1960 et 2000

Source : CNEE (2018:41)

Toutefois, le facteur climatique n'est pas l'unique source de vulnérabilité. D'autres facteurs sont invoqués pour expliquer l'instabilité du secteur halieutique, en l'occurrence les pressions anthropiques qui contribuent, peut-être autant, aux difficultés de ce secteur.

Des pressions sur les ressources halieutiques

Le rapport des Nations unies sur la gouvernance des ressources halieutiques au Sénégal précise au moins deux facteurs de raréfaction des ressources halieutiques au Sénégal : la surexploitation des ressources, surtout les démersales côtières, l'utilisation de techniques de pêche néfastes et la non application de la réglementation maritime (PNUE 2004). À ces facteurs s'ajoute l'extraversion de plus en plus prononcée du secteur, laquelle se lit à travers le développement des usines exportatrices des produits halieutiques et de la fabrique de farine de poisson (PNUE 2004; Centre de formation David Boilat-Mbour 2017).

L'intrusion du fait industriel dans le secteur halieutique a culminé avec la crise alimentaire de 2008 et le besoin d'externalisation des usines agroalimentaires des pays européens et asiatiques. En plus des conséquences environnementales (Centre de formation David Boilat-Mbour 2017), le développement des industries halieutiques sur le littoral s'est fait au détriment des systèmes productifs locaux. Il a installé les

acteurs locaux dans une concurrence déloyale opposant dans l'accès à la ressource les acteurs de la transformation artisanale aux industriels, dont le nombre ne cesse de croître. En 2017 par exemple, plus d'une quinzaine d'usines de fabrication de farine de poisson sont dénombrées sur le littoral sénégalais (Centre de formation David Boilat-Mbour 2017). Concernant les usines exportatrices tournées vers la Corée et l'Europe, elles participent à la structuration territoriale de beaucoup de localités du littoral nord, dont Yoff et Cayar. Si les premières citées (fabriques de farine de poisson) s'intéressent davantage aux ressources pélagiques – matière première de la transformation artisanale – les secondes (exportatrices) misent sur les espèces démersales pour satisfaire la clientèle européenne et asiatique. Le rapport des Nations unies susmentionné alertait en 2004 sur les rétroactions négatives de l'extraversion du secteur halieutique et ses effets sur les stocks de poissons démersaux, car elles aboutiraient à « une surexploitation des espèces démersales côtières [et pélagiques], tout en créant des tensions sur les prix des espèces consommées localement » (PNUE 2004:18). À ces risques de raréfaction des espèces démersales et pélagiques s'ajoute, au compte des industries halieutiques en expansion, l'accélération de l'acidification et du réchauffement des mers sénégalaises, mais s'ajoutent également d'autres pressions d'origine anthropique²⁵, telles que le fort impact de la pêche industrielle et le développement des pêches illégales, non déclarées et non réglementées (INN).

Au-delà de ces facteurs d'ordre anthropique, l'effort de pêche est aussi soutenu par certains déficits de cohérence des initiatives politiques qui encadrent le secteur.

Les paradoxes dans la gouvernance halieutique

L'analyse du dispositif réglementaire et de gestion des ressources halieutiques laisse apparaître des incohérences dans la volonté de l'État de développer une pêche durable au Sénégal. D'un côté, les politiques étatiques soutiennent la préservation des ressources à travers la création des Aires marines protégées (AMP), l'interdiction de certains outils de pêche (par exemple, le Code de la pêche interdit l'utilisation du monofilament), l'instauration du repos biologique (issu des concertations entre les acteurs en 2016²⁶), l'immatriculation des pirogues et l'instauration des permis de pêche artisanale, l'aménagement de bassins piscicoles pour réduire la pression sur les ressources maritimes et le développement d'outils de gouvernance durable des pêcheries²⁷, etc. Bien qu'il soit opposé à la surexploitation des ressources, l'État continue de soutenir diversement l'effort de pêche en

renouvelant des accords de pêche qui donnent accès aux navires étrangers à l'espace maritime sénégalais, en subventionnant des moteurs en faveur de la pêche artisanale (attribution de 5 000 nouveaux moteurs en 2016, sans reprendre les anciens moteurs²⁸), en poursuivant les accords d'autorisation de construction d'usines (farine de poisson et exportatrices de produits halieutiques). Finalement, la gouvernance des pêches s'apparente à une balance déséquilibrée à deux plateaux : un premier plateau positif qui montre des outils plus élaborés pour la promotion de la gestion durable et un second plateau négatif qui matérialise le manque d'opérationnalisation de ceux-ci.

La combinaison des facteurs climatiques, humains et politiques accroît la « vulnérabilisation » du secteur de la pêche et les fragilités socio-économiques des communautés tributaires de ce secteur. Ils confortent cette conclusion de la FAO (FIDA 2014:15) selon laquelle « partout dans le monde, la viabilité de nombreuses activités de pêche est déjà compromise par une gestion irraisonnée et une gouvernance défailante qui favorisent la surpêche et la dégradation de l'environnement ». Cette assertion soulève deux observations : d'une part, elle pose les enjeux qui se prêtent à la durabilité de l'activité halieutique et à la pérennisation des systèmes productifs locaux, et, de l'autre, elle lance le débat de l'irréversibilité du tournant économique des territoires halieutiques de la Grande-Côte face à la nouvelle équation gazière.

Insertion des systèmes gaziers dans les territoires de pêche de la Grande-Côte sénégalaise : quels enjeux ?

Les séries de découvertes de gaz de classe mondiale réalisées dans les blocs de Saint-Louis offshore profond et de Cayar offshore profond (Figure 4) sur la Grande-Côte sénégalaise (estimées en 2016²⁹ à hauteur de 1 120 milliards de m³) promettent au Sénégal une place de choix dans les circuits de distribution des produits gaziers aux alentours de 2023. Si la décision d'investissement est prise en 2018 pour Grand Tortue/Ahmeyin (GTA) à Saint-Louis offshore par le Sénégal et la Mauritanie, les réserves gazières de Cayar offshore (Teranga et Yakaar), exclusivement sénégalaises, ne sont pas encore en exploitation. La phase de développement (installation des infrastructures pour l'exploitation) a démarré en mars 2019 pour le projet GTA.

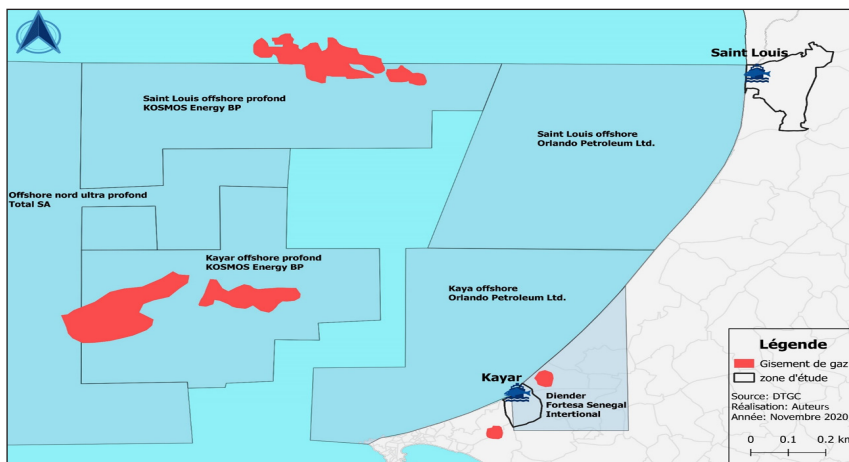


Figure 4 : Les systèmes gaziers sur la Grande-Côte sénégalaise

Désormais pays gazier, le Sénégal se prépare à affronter son destin sur la mise en valeur de ces ressources stratégiques. Si ces dernières peuvent être un stimulateur de son environnement économique et territorial comme elles l'ont été pour la Malaisie, le Botswana et la Norvège, elles peuvent au contraire se traduire en un véritable frein des systèmes économiques de base ; c'est le cas dans plusieurs pays africains où le rêve d'un lendemain extractif meilleur s'est transformé en une déstabilisation des systèmes économiques locaux et nationaux.

Dynamiques extractives, le syndrome du « mal développement des territoires » ?

La littérature disponible sur la rente extractive en Afrique conforte l'idée selon laquelle les ressources extractives seraient un frein aux systèmes économiques préexistants. En 2003, Gary *et al.* se sont penchés sur la dynamique économique des États pétroliers du golfe de Guinée. Dans ces pays, les projets extractifs créaient une « économie d'enclave » qui refuse toute connexion avec les secteurs de productions territorialisées, entraînant dans le territoire national une opposition entre des espaces qui seraient perçus « utiles » et d'autres qui le seraient beaucoup moins, et pire, ils généreraient ou feraient cohabiter des déséquilibres (économiques et sociaux) qui pourraient à terme saper la cohésion nationale. Se pose ici le problème du rôle attendu des projets extractifs, notamment celui de leur capacité à agir en tant que moteur du développement, d'une part, et, de l'autre, comme facteur de diffusion de progrès au-delà des territoires

d'extraction et d'exploitation. Jusqu'ici, peu de pays africains ont pu réussir cela. En 2010, Campbell *et al.* ont analysé tour à tour la situation de mal développement qui a accompagné l'extraction minière au Ghana (baisse du PIB), en Guinée (défis persistants de développement et de réduction de la pauvreté), au Mali (pauvreté et protection de l'environnement à l'ordre du jour), à Madagascar (défis de la protection de l'environnement), au Congo (où les droits humains sont brimés). Quant à Azizi *et al.*, ils ont proposé en 2016 une analyse comparative du partage et de l'usage des rentes dans neuf pays d'Afrique (Algérie, Angola, Botswana, République du Congo, Gabon, Guinée, Maroc, Mauritanie, Nigeria). Cet exercice leur a permis de pointer la mal gouvernance des ressources extractives pour expliquer les nombreux conflits et crises socioéconomiques qui sévissent dans le Sahel et dans d'autres pays de l'Afrique subsaharienne. Ils proposent de « conjurer la malédiction de la rente minière et pétrolière » (Azizi *et al.* 2016 : 15) pour sortir l'Afrique du sous-développement.

Dans le contexte sénégalais, ce paradoxe des dynamiques extractives se lit dans les zones minières où l'insertion des industries extractives s'est très souvent soldée par une « exclusion territoriale » (Diallo 2015). Cette forme d'expropriation, porteuse de déséquilibres socio-territoriaux, est celle qui s'imprime sur l'essentiel des projets miniers au Sénégal depuis bien longtemps. Qu'il s'agisse à partir de 1950 (Diallo 2015) des Industries chimiques du Sénégal (ICS) de Mboro à Thiès, de l'or de Sabadola à Kédougou en 2009, ou plus récemment du zircon de Diogo sur la Grande-Côte depuis 2012, aucune de ces expériences n'offre *a posteriori* des gages rassurants de développement territorial. Cette réalité préoccupante est exprimée avec force dans le rapport d'Amnesty International de 2014 sur la situation des populations de Khossanto (Kédougou) impactées par l'exploitation de l'or³⁰.

La lecture rétrospective des expériences extractives au Sénégal et un peu plus généralement en Afrique subsaharienne permet d'identifier et de saisir les types de dynamiques auxquelles on pourrait s'attendre du fait de la mise en marche du projet gazier sur la Grande-Côte. Mais également, elle pose une série de questions substantielles sur lesquelles la documentation n'a pas encore donné des réponses suffisantes, du moins pour le cas du Sénégal, novice sur la scène des hydrocarbures en offshore. Quand on s'intéresse à l'exploitation gazière sur la Grande-Côte sénégalaise et aux mutations qu'elle peut entraîner dans la zone, émergent naturellement en priorité les questions relatives à la durabilité de la productivité halieutique, au recours des acteurs de la pêche à d'autres stratégies de survie, notamment la reconversion professionnelle, l'émigration internationale, etc. Ces questions

commencent à prendre forme dans des systèmes infléchis par la crise halieutique susmentionnée et la dynamique de la prospection gazière³¹ : les territoires de Cayar et Saint-Louis, où cette dernière est mise au premier plan par les pêcheurs pour expliquer la tendance baissière (à Cayar) et irrégulière (à Saint-Louis) de la production et les conséquences socioéconomiques qui l'ont accompagnée, affectant la stabilité de ces territoires.

Les systèmes halieutiques de Cayar et de Saint-Louis : entre baisse de production, instabilité économique, migration des jeunes et perspectives gazières

La productivité de l'espace marin cayarois a été attestée dans bon nombre d'écrits historiques sur « les eaux marines sénégalaises³² » du fait de l'existence d'une fosse sous-marine – communément appelée le canyon de Cayar – qui permet la remontée fréquente des eaux poissonneuses. La dynamique de ces upwellings au-dessus des grandes profondeurs de ce canyon, principale source d'enrichissement de la mer, explique la spécialisation précoce de Cayar dans la pêche maritime (Ka 2017). Ce centre de pêche occupe une place de choix dans la pêche artisanale. Selon le Service départemental des pêches maritimes de Thiès à Cayar, il contribue à près de 16 pour cent de la production halieutique nationale – un pourcentage qui peut aller jusqu'à 70 pour cent en saison froide (GRAF s. d.) – et a toujours joué un rôle déterminant dans l'approvisionnement en poissons (frais, salé-séché, ou fumé) des marchés urbains du Sénégal (Dakar, Thiès, Louga, etc.), sous-régionaux (Burkina Faso, République de Guinée, Togo, Mali et Ghana) et internationaux (Italie, Espagne, Grèce, France, Corée du Sud³³) (Ka 2017).

Quant à Saint-Louis, il constitue un centre de référence pour la Grande-Côte du fait de l'expertise confirmée de ses pêcheurs dans la sous-région et de la richesse de son milieu marin. Ce dernier est continuellement enrichi par des apports terrigènes issus « des zones humides à l'embouchure du fleuve qui offrent nourriture et refuge à une biodiversité très variée » (CNEE 2018:26). Malgré l'étroitesse de son espace maritime, situation consécutive à sa position frontalière³⁴, Saint-Louis garde une place de choix dans les débarquements nationaux. En 2012, il a assuré plus de 19 pour cent de la production artisanale nationale.

Cependant, dans le contexte de crise du secteur halieutique, cette place de Cayar et de Saint-Louis dans la pêche artisanale sénégalaise semble menacée. Ces centres commencent à subir des impacts provenant de diverses sources : du changement climatique, de la pression grandissante sur les ressources halieutiques, des incohérences de la politique de gestion des ressources et, depuis les années 2010, de l'imminence de l'exploitation

gazière (Coordinateur du CLPA de Cayar, enquête de terrain, août 2020). Cette menace polymorphe et peut-être irréversible sur la filière halieutique s'exprime de plusieurs façons ; tantôt c'est la baisse de la production halieutique, tantôt c'est la mise au chômage technique des acteurs directs et indirects de la pêche, et depuis une dizaine d'années, le recours à la migration clandestine.

Tendance baissière de la production halieutique : le poids de la prospection gazière ?

L'analyse des chiffres sur les mises à terre à Cayar et à Saint-Louis indique une tendance à la baisse de la production halieutique sur la période 2007-2018 (Figure 5), comparée à celle enregistrée sur la même période au niveau national (Figure 2).

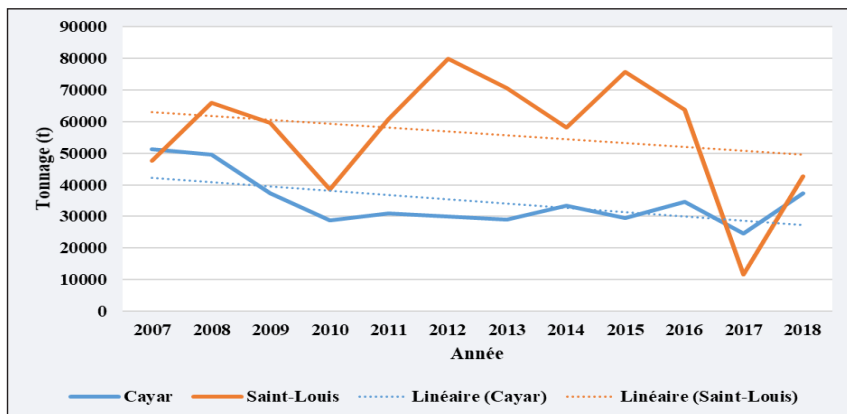


Figure 5 : Évolution de la production halieutique à Cayar de 2007 à 2017

Source : Service des pêches de Thiès et de Saint-Louis

Si, au niveau national, la production annuelle de la PA a augmenté de plus de 8 pour cent en passant de 368 170 tonnes en 2007 à 398 643 tonnes 2018, les centres de Cayar et de Saint-Louis ont enregistré sur la même période une baisse respective de 27 pour cent et 10 pour cent en passant de 51 325 tonnes, 47 582 tonnes à 37 275 tonnes, 42 769 tonnes (Figure 5). Leurs plus faibles productions sont observées en 2017 : moins de 50 pour cent en passant de 51 325 tonnes à 24 716 tonnes pour Cayar, et moins de 75 pour cent en passant de 47 582 tonnes à 11 632 tonnes pour Saint-Louis. Pour expliquer ces contre-performances en 2017, les pêcheurs convoquent, en plus des facteurs de crise analysés en haut, deux autres facteurs : les travaux de prospection gazière pour Cayar, les relations frontalières difficiles entre la Mauritanie et le Sénégal et la concession de leur zone de pêche fertile pour Saint-Louis.

En effet, « *le territoire de pêche de Cayar est en train de perdre sa place dans les dynamiques halieutiques depuis le début des travaux de prospection gazière* », a affirmé le coordonnateur du CLPA de Cayar³⁵. Les acteurs de la pêche se sont rendu compte de quelques bouleversements inhabituels, notamment la diminution des upwelings (dont la fonction a toujours été de fructifier les eaux marines) et la modification de la trajectoire des petits pélagiques. Leur schéma de passage habituel « *Maroc – Mauritanie – Saint-Louis – Fass Boye – Cayar – Yoff – Petite-Côte*³⁶ » s'est modifié pour exclure certaines mers comme celle de Cayar. À leurs yeux, ces bouleversements seraient dus, du moins en partie, aux bruits et vibrations sonores issus des travaux d'exploration. Cette considération des pêcheurs est corroborée par Kloff et Wicks (s. d.) qui ont tenté de faire l'état des lieux des impacts écologiques de l'exploration des hydrocarbures en offshore.

Encadré 1 : Effets probables de l'exploration gazière sur les poissons

Les prises de poissons dans une zone où une étude sismique a été conduite peuvent être réduites temporairement de 40 % (Engas 1996). Les scientifiques de ce domaine estiment que les impacts peuvent être plus profonds et à plus long terme si les études sont menées pendant la migration ou la reproduction des poissons. Par exemple, les poissons migrant en bancs peuvent être dispersés, devenir par la suite des proies faciles pour des prédateurs et peuvent perdre la trace de leur route migratoire. Les études sismiques semblent également avoir un impact important sur les œufs des poissons, les larves et les espèces marines juvéniles dans les zones peu profondes connues comme étant des zones de reproduction.

Source : Kloff et Wicks (s. d.:28)

Pour le cas de Saint-Louis, la forte irrégularité de la production annuelle et les contre-performances de 2017 témoignent de la dépendance de ses pêcheurs à la zone maritime de la Mauritanie. À ce propos, la Direction des pêches maritimes (DPM) rappelle que la « baisse des débarquements notée dans la région est de 82 pour cent entre 2016 et 2017. Cette importante baisse est surtout due à la suspension du protocole de pêche de l'accord d'accès dans la ZEE mauritanienne » (DPM 2017:34). Nous l'aurons compris, la lancinante question des accords de pêche entre la Mauritanie et le Sénégal de 2010 (DPM 2010) s'est encore posée. Elle est d'ailleurs revenue dans chacun de nos entretiens avec les pêcheurs de Saint-Louis sur leurs problèmes et défis : « *Sans la zone maritime de la Mauritanie, nous ne pourrions pas survivre, car ne disposant pas d'espace de pêche assez large et suffisant au vu de notre nombre important*³⁷ ». La DPM comptabilise, en

2018, 4 877 pêcheurs pour le compte de Saint-Louis, un chiffre encore largement sous-estimé, selon les acteurs. Notre observation de la réalité du terrain abonde aussi dans le sens des acteurs. Cette dépendance de la zone mauritanienne concerne officiellement les pêcheurs à la senne tournante qui ciblent les petites sardinelles « *Yaboye Tass ; Yaboye Meureuk ; Dieye bou week ; Dieye bou Nioule ; Lagnelagne ; Cobeu et Weuyoug* ». Quatre cents licences de pêche leur sont accordées³⁸.

Les autres groupes de pêcheurs, les ligneurs et les félé-félé, opèrent aussi dans la zone mauritanienne, mais dans une totale irrégularité, pour capturer des espèces démersales pour les ligneurs, et tous types de poissons pour les félé-félé. Ces pêcheurs mènent des plaidoyers pour « disposer des licences de pêche de la Mauritanie ». Cette question de l'accès aux licences de pêche « *s'impose davantage pour les ligneurs dans le contexte de l'exploitation gazière à Saint-Louis* » (M. Fall, président de l'association des pêcheurs artisanaux ligneurs de Saint-Louis [APAL-SL], enquête de terrain, novembre 2020). Les concessions d'espace maritime que l'État du Sénégal a fait successivement à Kosmos Energy Senegal (exploration) et à BP Senegal (exploitation) portent sur un des lieux privilégiés pour la pêche à la ligne à Saint-Louis : Diattara³⁹, qui serait le seul lieu dont la fertilité biologique est appréciable (M. Fall, *ibidem*). Diattara, partagé entre le Sénégal et la Mauritanie, se situe entre les trois coordonnées suivantes :

- 16°2'48,41" Nord ; 16°35'51,97" Ouest ;
- 16°3'54,17" Nord ; 16°37'17,89" Ouest ;
- 16°4'4,11" Nord ; 16°34'49,53" Ouest (partie mauritanienne, la plus poissonneuse, lieu de captures des ligneurs. Plus on avance vers le nord, plus la capture des espèces nobles comme le « thiof » est importante).

En 2015, avec les travaux d'exploration de Kosmos Energy Senegal, les pêcheurs ligneurs ont subi trois mois (20 novembre 2015 au 20 janvier 2016) d'interdiction d'accès à Diattara. L'emplacement du puits de forage exploratoire (latitude 16°03'10.80"N, longitude 17°37'37.25"O) couvrait une bonne partie de Diattara. Des pertes de production ont été observées durant toute la durée des travaux. Dans le cadre des installations pour l'extraction gazière (encadré 2), ces contraintes reviennent encore.

Une forme d'exclusion territoriale accompagne ces installations. La figure 6 montre la localisation des installations de Grand Tortue dans l'espace Diattara, avec les cinq balises qui l'encadrent⁴⁰.

Encadré 2 : Infrastructures gazières en installation dans l'espace maritime de Saint-Louis

Les installations qui ont démarré en mars 2019 :

Des infrastructures sous-marines et canalisations : douze de puits de développement, gazoduc, manifold, etc.

Un système de production sous-marin de gaz de grand diamètre (SPS), le système sous-marin le plus profond installé par BP à ce jour.

Un FPSO : pour le traitement du gaz naturel avant son acheminement vers le FLNG.

Raccordement du système sous-marin de 80 km du FPSO au réseau de pipelines d'exportation de 35 km entre le FPSO et le terminal gazier.

Une unité flottante (ou FLNG en anglais) de gaz naturel liquéfié (GNL) d'une capacité d'environ 2,5 millions de tonnes de GNL par an (2,5 mmtpa) et un stockage intégré de GNL de 125 000 m³.

Un Hub/Terminal : incluant un brise-lame de 1 250 m de longueur.

Source : www.itie.sn



Figure 6 : Balisage de l'espace marin pour la sécurisation des installations

Source : Enquête de terrain (2020)

Cette emprise du projet GTA sur Diattara (Figure 6) justifie la forte interrogation des pêcheurs à la ligne sur les alternatives. En attendant l'aboutissement des pourparlers entre les deux pays, les pêcheurs à la ligne continueront, pour assurer leur survie, à exercer frauduleusement dans la zone mauritanienne.

L'instabilité socioéconomique des ménages pêcheurs

« *La pêche ne nourrit plus son homme*⁴¹. »

Le temps serait-il désormais révolu où les pêcheurs se limitaient à leur activité de prédilection pour couvrir leurs besoins vitaux et assurer la sécurité économique et sociale de leur ménage? Ce questionnement et la temporalité qu'il ouvre sont une nouvelle problématique à laquelle doit répondre la pêche durable, car les dynamiques halieutiques ont été le fil rouge de la territorialisation de cet espace à travers le développement infrastructurel, l'arrivée massive des réfugiés écologiques du monde rural et la modernisation renforcée des habitations, etc. (Ka 2017). La contraction prononcée des mises à terre et la concurrence déloyale dans l'accès aux ressources face au pouvoir d'achat des industries exportatrices et de fabriques de farine de poisson (surtout pour les femmes transformatrices) éteignent progressivement le développement socioéconomique qui prévalait dans l'espace halieutique cayarais et saint-louisien⁴². Comme les temps forts du secteur halieutique sont en train d'être révolus, les pêcheurs (vieux, jeunes) se mettent à développer des stratégies d'adaptation qui s'apparentent plutôt à des initiatives de survie. À Cayar par exemple, les vieux pêcheurs-paysans s'orientent de plus en plus vers la pluriactivité en s'initiant au maraîchage, domaine dans lequel ils affrontent des contraintes inhérentes au rétrécissement de l'espace maraîcher dans le sud des Niayes du fait de l'avancée du front urbain, de la salinisation des nappes phréatiques, de l'absence ou de la diminution de la pluviométrie et des pressions sur les ressources en eau, et enfin de l'exploitation minière (Zircon). Quant aux jeunes, ils explorent des stratégies non dépourvues de danger. À Saint-Louis, où les pêcheurs ne peuvent compter que sur leur expertise halieutique, les stratégies tournent autour de la migration halieutique nationale (d'un centre de pêche à l'autre, du nord au sud) et sous-régionale (Mauritanie, Gambie, Guinée). Les jeunes les plus désespérés empruntent la même voie que ceux de Cayar : la migration internationale irrégulière.

Crise de l'économie halieutique et ampleur de l'émigration clandestine

« *Cayar a toujours possédé son propre aéroport où les pêcheurs n'avaient nul besoin de visa pour réussir. Mais actuellement, avec la baisse de la productivité, les jeunes pêcheurs s'adonnent de plus en plus à la migration vers l'Europe*⁴³. »

Les migrations de pêcheurs s'observent dans l'espace ouest-africain depuis bien longtemps (Binet, Failler & Agossah 2010a). Celles des pêcheurs sénégalais se sont développées dans les années 1970-1980 avec les avancées technologiques qui permirent aux pêcheurs d'aller plus loin en mer (*ibidem*).

Si les facteurs qui les sous-tendent sont, d'après Binet, Failler et Agossah (2010b), de plusieurs ordres (économique, écologique, technologique et politique), elles se limitaient « à l'échelle du littoral ouest-africain » (Binet, Failler & Agossah 2010a:14). Les années 2000 marquent l'ouverture des pêcheurs, sénégalais notamment, à la migration internationale, même si, pour y arriver, ces derniers font fi des dangers de la mer.

Les années 2006-2007 constituent la période de référence des premières vagues de migration clandestine des pêcheurs vers l'Europe. Les causes en étaient la réduction de la production halieutique, qui était passée de 451 000 tonnes en 2005 à 370 000 tonnes en 2006, soit une baisse de 22 pour cent, et la faible valeur économique commerciale de certaines captures. Cet état de fait a déclenché en 2006 des vagues d'émigration illégale des pêcheurs sénégalais, dont plusieurs jeunes Cayarois, vers l'Europe (Ba 2007 ; Sall & Morand 2008 ; Sow, Marmer & Scheffran 2016). L'expérience de 2006 s'est récemment répétée en 2018 et s'est soldée par un bilan lourd pour la jeunesse cayaroise : plusieurs morts, des prisonniers (candidats au voyage avorté, capitaines et organisateurs de voyages accusés de traite d'êtres humains, etc.). La migration clandestine s'est encore renforcée en 2020 pendant la crise sanitaire mondiale : la Covid-19. Cette crise a eu de lourdes conséquences sur les systèmes de pêches et leurs dynamiques économiques (FAO 2020 ; Ka 2021). L'un des mécanismes de résilience des pêcheurs fut d'affronter les dangers de la mer pour rejoindre le continent européen. Un autre lourd bilan, jusque-là mal estimé, a été enregistré. Par exemple, dans la nuit du 24 octobre 2020, une pirogue de 200 passagers a chaviré en mer, occasionnant 140 morts d'après l'Organisation internationale de la migration (OIM), un bilan qu'elle qualifie du « plus lourd pour le pays pour l'année 2020⁴⁴ ».

La crise de l'économie halieutique a donc installé les territoires de la Grande-Côte dans un processus de perte de leurs forces vives (jeunesse) en quête de mieux-être. Les nombreux et douloureux événements vécus par la communauté des pêcheurs confortent les doutes négatifs sur cette perspective gazière et les conséquences néfastes des travaux de prospection gazière sur le secteur halieutique.

Pour une durabilité des systèmes halieutiques ?

L'analyse des systèmes de pêche au Sénégal met en exergue l'incertitude de leur avenir face aux défis du changement climatique, des pressions anthropiques et de l'exploitation des hydrocarbures au Sénégal. Cependant, les acteurs de la pêche ont du temps, relativement suffisamment pour se poser les bonnes questions afin de faire face à ce que Gaston Berger⁴⁵ aurait

appelé « l'accélération des changements ». Cet exercice prospectif permettrait, d'une part, d'éclairer le débat sur l'avenir de l'activité halieutique et des dynamiques socioéconomiques qu'ils propulsent, d'autre part, d'envisager des stratégies durables, indispensables aux lendemains de ces systèmes en mutation. Sur l'avenir des systèmes halieutiques en contexte d'exploitation des hydrocarbures, les professionnels de la pêche, notamment ceux de Cayar et de Saint-Louis, émettent au moins deux positions partagées : l'une concerne le maintien de la vocation halieutique de leur territoire, et donc la préservation de l'environnement marin, et la seconde porte sur leurs perspectives de repositionnement pour le développement durable des systèmes de pêche.

Le maintien de la vocation halieutique des territoires gaziers, le combat de l'heure

Ce plaidoyer sur le maintien des identités territoriales des futurs lieux d'exploitation des hydrocarbures renseigne sur les relations intrinsèques qui existent entre une communauté donnée et les ressources qu'elle a territorialisées dans le cadre des relations entre espaces et société. Étant témoins du processus d'exclusion territoriale – développé plus haut – qui accompagne les projets miniers au Sénégal, les pêcheurs posent cet impératif pour écarter d'éventuelles menaces qu'on pourrait assimiler à un « syndrome gazier ». Ces « cultivateurs du poisson », qui dépendent directement de la mer, considérée à juste titre comme un « champ de culture », ne cachent pas leurs inquiétudes face à l'idée d'une exclusion territoriale qui s'est traduite dans le contexte minier par des expropriations (champs et habitations), une perte d'activité économique de base et des problèmes de reconversion professionnelle (Diallo 2015). Dans une logique préventive, les pêcheurs de Cayar et de Saint-Louis marquent leur fermeté : il est « impensable de parler de Cayar ou de Saint-Louis sans poisson ». Selon le coordinateur du Conseil local de la pêche artisanale (CLPA) de Cayar, « *le poisson a plus de valeur que le pétrole* » (Ka & Ka 2019:4). Certes, les ressources pétro-gazières peuvent générer des milliards, mais cette manne financière ne satisfera certainement pas toutes les couches de la population. Compte tenu de la chaîne de distribution des poissons et des possibilités de développement de la chaîne de valeur halieutique (commercialisation/transformation) jusqu'à l'intérieur des terres, la pêche est porteuse d'un développement territorialisé relativement durable; d'où l'intérêt qu'ils ont à préserver leurs précieuses ressources halieutiques, qu'ils appellent « notre *téranga* » (*ibidem*).

Toutefois, ces acteurs sont conscients de l'article 5 du Code pétrolier sur la propriété des ressources, qui rappelle que « tous les gisements ou

accumulations naturelles d'hydrocarbures sur le territoire de la République du Sénégal sont la propriété du peuple sénégalais. L'État en assure la gestion et la valorisation dans les conditions prévues par le présent code⁴⁶ ». Comme ils ne peuvent pas contraindre l'exploitation des hydrocarbures et qu'ils n'envisagent pas d'abandonner leur activité, le mieux serait de penser à des alternatives pour s'adapter et faire face aux éventuelles mutations qu'induiront les projets pétro-gaziers.

La préservation du milieu marin, un défi majeur

La durabilité des systèmes halieutiques implique de trouver le juste milieu entre les enjeux économiques, sociaux et environnementaux de l'exploitation gazière. Autrement dit, une cohabitation juste entre système halieutique et système gazier est nécessaire. Des initiatives législatives et institutionnelles ont été prises ou sont en train d'être prises. Sur le plan législatif, il y a l'élaboration des codes pétrolier et gazier et des projets de réformes pour la protection de l'environnement (projets de codes de l'environnement, de la biodiversité, du littoral, projet d'évaluation environnementale stratégique (EES). Les aménagements et réformes institutionnels concernent principalement la Direction des hydrocarbures, la création du COSPETROGAZ et son cadre opérationnel, le GESPETROGAZ, la filialisation de PETROSEN avec PETROSEN HOLDING, PETROSEN AVAL et PETROSEN AMONT. Il s'agit là d'initiatives certes rassurantes pour la transparence⁴⁷ environnementale, mais toujours est-il que des efforts restent encore à faire dans les processus d'évaluation environnementale des projets d'hydrocarbure. Les conclusions inquiétantes de l'examen de l'EIES du Projet Grand Tortue Ahmeyim (CNEE 2018) consolident ce besoin d'efforts supplémentaires pour une meilleure prise en compte de l'environnement marin et des autres systèmes productifs comme la pêche. Ces conclusions stipulent que les impacts de l'exploitation sur la pêche sont sous-évalués. Des initiatives peuvent être prises, notamment le renforcement des études d'impacts environnementaux et sociaux (EIES) en termes de procédures et suivi-évaluation, l'évaluation des fonds marins à des fins de cartographie (quantitative et qualitative) effective des stocks, et le développement d'études sur la qualité des ressources halieutiques pour éviter d'éventuels impacts de l'exploitation des hydrocarbures sur la santé des consommateurs. La vigilance doit être de mise pour la préservation et la sécurisation des sources de production primaire des ressources halieutiques comme les zones humaines (Saint-Louis) et les zones d'upwelling intense (canyon de Cayar). Dans le contexte ouest-africain, Kloff, Wicks, et Siegel (2010:67) proposent une perspective plus radicale : « les écosystèmes vulnérables comme les zones

humides côtières, les coraux d'eau profonde ou les bancs de coquillages et les zones d'upwelling intense devraient être entièrement protégés et déclarés comme zones interdites d'accès "no-go zones" ».

De la viabilité de l'avenir post-gazier dans les territoires halieutiques?

La durabilité des systèmes halieutiques sera tributaire de la capacité d'anticipation et d'ajustement des acteurs du secteur face aux mutations. Autrement, la conception et l'élaboration de stratégies durables restent le (seul) horizon des acteurs. Ces plans devraient s'inscrire sur une double temporalité : améliorer le système de la gouvernance halieutique et faire de la pluriactivité une ressource d'avenir.

La reconsidération systémique du cadre de gouvernance du secteur halieutique dans un contexte de mutations s'affiche au premier plan dans les stratégies de développement durable des territoires de pêche. Elle passe par l'harmonisation, l'actualisation et l'application des outils de gestion des pêcheries⁴⁸, l'amélioration de la gestion des Aires marines protégées⁴⁹ (AMP) et des zones de nourricerie, etc. Pour faire face à la raréfaction des ressources et soutenir les pêcheurs nationaux, l'enjeu diplomatique doit être posé. Si la zone maritime sénégalaise manque de poissons, pourquoi envisager et consolider des accords et licences de pêche? La carte diplomatique pourrait aussi concerner les relations du Sénégal avec ses voisins. Comment stimuler des politiques de collaboration sous-régionale sur le long terme, pour rendre les déplacements des pêcheurs plus faciles et intégrés?

Au-delà de la reconsidération de la gouvernance halieutique, des pistes de reconversion professionnelle et de diversification des activités devraient être envisagées, d'autant plus que les 600 000 emplois⁵⁰ que procure le secteur ne peuvent pas tous être sauvegardés et qu'il est désormais impossible de dépendre uniquement de la pêche pour survivre. La recherche pourrait être orientée vers le développement de la chaîne de valeur halieutique et du secteur aquacole pour capter les plus-values du secteur des hydrocarbures et alimenter des initiales locales; vers la cartographie des métiers dans ces territoires halieutiques pour avoir la situation de référence et évaluer le niveau d'impact de l'exploitation gazière sur l'économie locale; vers la mise en place de consortiums locaux pouvant permettre aux acteurs locaux de bien se positionner sur les marchés des activités annexes au secteur des hydrocarbures.

Conclusion

La durabilité des territoires halieutiques sénégalais est une question globale du développement du Sénégal, mais plus spécifiquement, elle est une interrogation sur l'avenir de l'activité halieutique dans une zone géographique où s'invite désormais une autre perspective économique portée par l'exploitation du gaz. Cette convergence de la pêche et du gaz s'inscrit presque naturellement dans un contexte de crise lié au changement climatique, aux facteurs anthropiques et à des politiques parfois inadaptées. Elle s'insère aussi dans le cadre de la mise à l'épreuve de la territorialisation du développement au Sénégal où les territoires halieutiques, territoires d'insertion des ressources pétrolières, cherchent à préserver leur vocation territoriale pour garder leur rôle dans le système alimentaire et sanitaire des Sénégalais et dans l'économie nationale. Structurée autour de la systémique territoriale, cette réflexion a permis d'aboutir à une analyse de l'environnement contextuel de l'activité halieutique, au diagnostic des territoires halieutiques, à la compréhension des enjeux de la dynamique extractive (en Afrique et au Sénégal), à une proposition de clés de lecture pour une gouvernance assortie d'outils de durabilité territoriale. Cette mise à nu de la complexité des défis et enjeux afférents à la gouvernance des ressources naturelles a débouché sur des pistes de durabilité concernant des stratégies de maintien de la vocation halieutique des territoires en question, et des perspectives de développement de la pluriactivité qui seront facilitées par les plus-values du nouveau secteur en construction. Bref, ce sont les capacités des acteurs (publics, privés, locaux) à saisir les opportunités à la fois contextuelles et tendanciennes des hydrocarbures de façon à bien maîtriser les mutations du secteur halieutique, les adaptations et les reconversions qu'il imposera à ses acteurs. En même temps, l'équilibre entre le développement des hydrocarbures et la préservation de l'écosystème marin reste un défi de taille. Cette question devrait encourager des stratégies systémiques (multidimensionnelles) fédératives des acteurs multiniveaux qui, en plus de ces questions de régulation, s'attacheront à la maîtrise de l'environnement climatique global du secteur halieutique, dont le poids économique et social reste considérable.

Notes

1. «La valeur marchande des ressources et des industries marines et côtières est d'environ 3 milliards de dollars par an, soit 5 pour cent du PIB mondial. Plus de trois milliards de personnes dépendent de la biodiversité marine et côtière pour leurs moyens d'existence.» (MPEM 2017:4)
2. Ce chiffre se partage entre la pêche (79,3 millions de tonnes) et l'aquaculture (dont 80,0 millions de tonnes).

3. La contribution du secteur à l'économie nationale et territoriale est significative : 1,8 % au PIB en 2015 ; plus de 53 100 emplois directs et environ 540 000 emplois indirects, des exportations atteignant 353 millions d'USD en 2015, 43 % de la consommation de protéines animales en 2013, avec une consommation annuelle de 23,9 kg par personne. (FAO 2017)
4. Le Sommet international de la terre en 1992 à Rio sur le développement durable a abouti à des engagements politiques non contraignants et structurés en 40 chapitres qui font l'essence de l'Agenda 21. Le chapitre 17 encourage la protection des mers et des océans par une exploitation rationnelle et durable des ressources maritimes. Faisant suite à cet engagement international, la FAO élabore en 1995 un Code de conduite pour une pêche responsable (FAO 1995).
5. Se référer à la Lettre de politique sectorielle des pêches et de l'aquaculture (LPSPA), 2016-2023.
6. Il s'agit principalement du projet de Gestion durable des ressources halieutiques (GDRH, période 2009-2012) ; de la Cogestion des pêcheries artisanales au Sénégal (COGEPAS, période 2009-2010) ; du Programme régional des pêches en Afrique de l'Ouest (PRAO, période 2010-2015) ; du projet de Gestion concertée pour une pêche durable au Sénégal « PencoGej » de USAID-COMFISH, période 2011-2016 ; du Projet « Feed the Future Senegal Dekal Guedj (faire revivre la mer) » de USAID, période 2020-2024, etc.
7. Le Dôme Flore (Pétrole lourd) est estimé à 1 milliard de barils.
8. Se référer au site des sociétés pétro-gazières Woodside (<https://urlz.fr/iecQ>) et BP Sénégal (<https://urlz.fr/ief7>) pour plus d'informations.
9. Notons la faible contribution du secteur des hydrocarbures aux revenus extractifs (8,68 %). Cette contribution est principalement portée par le gaz naturel produit à Gadiaga (Thiès) et les paiements sociaux des sociétés pétro-gazières (ITIE 2021).
10. Cette expression en langue nationale signifie « riz au poisson » en français.
11. Comme « un développement qui répond aux besoins du présent sans compromettre la possibilité, pour les générations à venir, de répondre à leurs propres besoins » (CMED 1989:40).
12. Voir les publications de B. Ba (2008) et de FAO, Union européenne et Cirad (2022) sur la sécurité alimentaire.
13. Grotius H., *Mare liberum*, 1609, cité par Barrère, E. *et al.* (2017:3).
14. Ces études aident à apprécier les enjeux environnementaux des hydrocarbures en offshore. Elles seraient ces derniers à deux niveaux : les impacts chroniques et les impacts accidentels. Les impacts chroniques accompagnent les opérations d'exploration et d'exploitation offshore. Les levées sismiques (exploration) en milieu marin peuvent occasionner du bruit et des vibrations. Leurs impacts sur le milieu marin vont des modifications comportementales des espèces à la réduction de la productivité de la biomasse primaire. La phase de développement et de production implique des installations lourdes (plateformes, puits, pipelines, circulation de navires) et des rejets de déchets (eaux de production et déchets de production). Les effets des installations (dragage) concernent la diminution de la

fréquentation de la zone immédiate des activités par certaines espèces sensibles au dérangement, les risques pour les espèces peu mobiles et la perte d'habitat pour les poissons. Quant aux déversements de déchets de production, ils restent les plus dangereux pour l'environnement marin, surtout si c'est la méthode «rejet à la mer» (Kloff & Wicks s. d.:30) qui est mise en avant. Les impacts accidentels, quant à eux, sont associés à l'exploitation des hydrocarbures et peuvent être consécutifs aux opérations sur les terminaux, aux accidents de navires pétroliers, des accidents de production (déversements majeurs, explosions, fuites et incendies). Leurs conséquences négatives sur la productivité et la biodiversité marine et les activités économiques qui en dépendent, comme la pêche, peuvent être considérables. Ils exposent le milieu marin à diverses formes d'agression (physiques, chimiques, biologiques) agissant directement ou indirectement sur les pêcheries et leur durabilité.

15. Il s'agit de données statistiques portant sur l'évolution de la production halieutique (quantitative et qualitative), des facteurs de productions (carburant volume et prix), du nombre de pêcheurs, etc.
16. Les plateformes d'information de l'Initiative pour la transparence dans les industries extractives (ITIE) et de Protéger la biodiversité marine face au développement des activités pétrolières et gazières offshore (COBIA) ont été particulièrement intéressantes dans la mobilisation de données présentant les cadres réglementaire, politique, économique et environnemental des hydrocarbures au Sénégal et en Afrique.
17. Ce qui correspond à 10,7 % de la valeur ajoutée du secteur primaire en 2018 (ANSD 2018).
18. Selon le PNUE (2004:22), «Le poisson est [...] devenu une importante source de protéines pour la population sénégalaise en raison du déclin des autres sources de protéines végétales et animales. Le gouvernement sénégalais considère la pêche comme un secteur particulièrement important puisqu'elle a permis de réduire le chômage et contribue à équilibrer la balance des paiements. Les produits halieutiques sont désormais au premier rang des exportations sénégalaises, alors que précédemment, les produits les plus exportés étaient les arachides et les phosphates ».
19. Les ressources pélagiques hauturières (thon, espadon, voilier) et côtières (sardinelle, chinchard, maquereau, etc.) sont quantitativement plus importantes que les ressources démersales profondes (crevette profonde et merlu) et côtières (crevette blanche, rouget, dorade rose).
20. PNUE (2004:18).
21. Allison, E. H., A. Perry, M. C. Badjeck, W. N. Adger, K. Brown, D. Conway, A. S. Halls, G. M. Pilling, J. D. Reynolds, N. L. Andrew, et N. K. Dulvy, 2009, "Vulnerability of National Economies to the Impacts of Climate Change on Fisheries", *Fish and Fisheries*, 10(2): 173–196, étude citée par FIDA (2014).
22. *Ibidem*.
23. Sa zone d'exploitation ne dépasse pas les 6 miles, soit moins de 10 km à partir du côté.

24. « Parmi les caractéristiques remarquables de cette zone, citons les zones humides côtières et le puissant upwelling qui en font l'une des zones de pêche les plus variées et économiquement la plus importante au niveau mondial. » (Kloff & Wicks s. d.:6)
25. Ceci confirmerait la conclusion du Groupe d'experts intergouvernemental sur l'évolution du climat (GIEC 2014 cité par FAO 2018) selon laquelle les dynamiques anthropiques seraient responsables de la plupart des bouleversements climatiques et de leurs conséquences désastreuses sur les écosystèmes.
26. En 2016, les concertations entre les acteurs, l'Administration des pêches et la Recherche sur le repos biologique ont abouti à l'arrêt de la pêche selon le schéma suivant : « démersales » côtières du 1^{er} au 31 octobre 2016 ; « démersales » profondes du 15 novembre au 15 décembre 2016 ; pêche artisanale du poulpe du 15 novembre au 15 décembre 2016. (ANSD 2016)
27. Il s'agit des plans d'aménagement faunique et pélagique, des guides des espèces, des conventions locales, des plans de gestion de la sardinelle, des plans d'adaptation au changement climatique.
28. L'initiation visait la sécurisation des pêcheurs en subventionnant l'achat de nouveaux moteurs pour remplacer les moteurs vétustes.
29. Ces découvertes ont été réalisées par la société Kosmos Energy en 2015 et 2016. Cette société et Timis Corporation ont cédé les parts de 30 % chacun à BP, à travers, respectivement, l'arrêté 3020 du 22 février 2017 et l'arrêté 14912 du 12 août 2017 du ministre en charge des hydrocarbures. BP est ainsi devenu le principal investisseur des projets gaziers au Sénégal, selon le communiqué de presse de Kosmos Energy du 19 décembre 2016.
30. « Au cœur des préoccupations figurent le déplacement des personnes chassées de leurs terres pour faire place aux activités minières et la perte d'accès à la terre et aux ressources naturelles qui constituent pour la majorité des habitants l'essentiel des moyens de subsistance et de l'accès à la nourriture dans la région de Kédougou. » (Amnesty International, 2014:15)
31. Beaucoup de dynamiques organisationnelles ont commencé à se mettre en place au niveau local pour la préservation des systèmes halieutiques. C'est l'exemple de la Plateforme Cayar vision future mise en place le 10 janvier 2019 (Ka & Ka 2019) et du redéploiement des Guet-Ndariens dans d'autres localités (Khar Yalla, Boudioug dans la ville de Saint-Louis).
32. Barry-Gérard 1990, Domain 1980 et Leroux 2005, cités par Senegrosol Consult 2007.
33. Nombreuses sont les industries coréennes qui se sont installées sur le territoire de Cayar au lendemain de la crise alimentaire mondiale de 2008.
34. Coordinateur de l'AMP de Saint-Louis, enquête de terrain, novembre 2020.
35. Enquêtes exploratoires dans le cadre de nos travaux de thèse, décembre 2018 à Cayar.
36. M. Mbaye, président du Comité de pêche de Cayar, vice-président de PAPAS (plateforme des acteurs de la pêche artisanale du Sénégal) et de l'APC (Association des pêcheurs actifs de Cayar), enquête de terrain, août 2020.
37. M. Gaye, pêcheur à la senne tournante, novembre 2020, Saint-Louis.

38. Elles sont attribuées à 200 chefs d'entreprises de pêche artisanale. En effet, la pêche à la senne tournante nécessite deux pirogues, car elle mobilise énormément de matériels de pêche et de mains de pêcheurs. (M. Gaye, *ibidem*)
39. Les lieux de pêche ont leur toponymie, qui reflète leur histoire. Saint-Louis dispose de plusieurs, dont les plus connus sont : « *Diattara, praya, Keerewureywi, Bountouray, Badoguedi, Keerou-Hopital, Keerou-Doss, Keerou Fat Ndiaye Takka Diod; Keerou salsal.* » (Président du comité de gestion de l'AMP, enquête de terrain, janvier 2021)
40. Pour la partie sénégalaise (MB1 : 16°3'54,17" Nord ; 16°37'17,89" Ouest ; MB5 : 16°2'48,41" Nord ; 16°35'51,97" Ouest). Pour la partie mauritanienne (MB2 : 16°6'51,95" Nord ; 16°35'10,71" Ouest ; MB3 : 16°3'46,38" Nord ; 16°34'27,35" Ouest ; MB4 : 16°4'4,11" Nord ; 16°34'49,53" Ouest).
41. Vocables brandis par tous les pêcheurs interrogés (août-novembre 2020).
42. Voir la publication de Ka (2022) sur l'avenir des systèmes halieutiques artisanaux, notamment la transformation artisanale de poissons au Sénégal.
43. Coordinateur du CLPA de Cayar, 1er décembre 2018 à Cayar.
44. D'autres chavirements de pirogues ont été observés durant l'an 2020. Le chiffre officieux de victimes s'arrête à 414 morts.
45. Gaston Berger, 1957, « Sciences humaines et prévision », *Revue des Deux Mondes*, n° 3, p. 417-426, cité par Darcet 1967.
46. Loi n° 2019-03 du 1^{er} février 2019 portant Code pétrolier, Sénégal.
47. À ce propos, le Conseil d'administration de l'ITIE « a reconnu le Sénégal comme pays ayant accompli des progrès satisfaisants dans la mise en œuvre de la Norme ITIE » lors de la première validation en mai 2018. Consolidant ces acquis, le Sénégal s'est encore illustré dans la mise en œuvre de la norme internationale ITIE 2019. En octobre 2021, le CA de l'ITIE internationale a accordé au Sénégal un score global de 93/100 points, ce qui traduit les avancées du Sénégal dans trois domaines : l'engagement des parties prenantes ; la transparence ; et les résultats et l'impact (ITIE 2021:10). Ce score vient conforter la mention « bien » du Sénégal dans le cadre de l'Indice de gouvernance des ressources naturelles (RGI) de NRGI (<https://urlz.fr/ieiK> / <https://urlz.fr/ieiV>).
48. Ces outils sont relatifs aux plans d'aménagement faunique et pélagique, au guide des espèces, aux conventions locales, aux plans de gestion de la sardinelle, aux plans d'adaptation au changement climatique, à la surveillance marine, aux mécanismes d'accès aux ressources, etc.
49. Le Sénégal dispose de 5 AMP créées en 2004 (AMP de Cayar, AMP de Saint-Louis, AMP de Joal Fadiouth, AMP de Bamboung et AMP de Abéné) et de trois autres (AMP de Bétenti, AMP de Foundiougne et AMP de Palmarin Paco). Source (UEMOA-UICN 2010).
50. Ces emplois, estimés depuis les années 1990 à 600 000 (directs et indirects), auraient dépassé 1 million d'employés si l'on comptabilise les « dynamiques annexes allant des porteurs, micro-mareyeurs (lag-lagal), charretiers (borom-sarettes) dans les quais de débarquement aux détaillants dans les marchés (urbains et ruraux) » (Ka 2021:201).

Références

- Amnesty International, 2014, *L'exploitation minière et les droits humains au Sénégal. Remédier à une protection défaillante*, 54 p.
- ANSD, 2018, *Situation économique et sociale nationale du Sénégal (2005-2018)*, consulté le 1er mai 2021 sur http://www.ansd.sn/index.php?option=com_sess&view=sess&Itemid=418
- Azizi, J., Giraud, P.-N., Ollivier T., Tamokoue Kamga, P.-H., 2016, *Richesses de la nature et pauvreté des nations. Essai sur la malédiction de la rente minière et pétrolière en Afrique*, Presses des Mines, collection Économie et gestion (consulté le 12 juin 2019 sur http://actualites.mines-paristech.fr/Donnees/data25/2593-RichNat_Extr.pdf)
- Ba, B., 2008, *Agriculture et sécurité alimentaire au Sénégal*, L'Harmattan, 350 p.
- Barrère, E., Colombat, T., Graille, S., 2017, « La pêche durable, nouvelle stratégie des gros poissons? », Mission agrobiosciences, La lettre électronique, 31 p.
- Binet, T., Failler, P., et Agossah, M., 2010a, *Évolution des migrations de pêcheurs artisans en Afrique de l'Ouest depuis la fin des années 1980, Rapport n° 2 de l'étude relative à l'état des lieux et l'évolution récente des migrations de pêcheurs artisans dans les pays de la CSRP*, IUCN, Dakar, Sénégal, 54 p.
- Binet, T., Failler, P., et Agossah, M., 2010b, *Migrations contemporaines des pêcheurs artisans en Afrique de l'Ouest : synthèse et axes de recherche. Rapport n° 3 de l'étude relative à l'état des lieux et l'évolution récente des migrations de pêcheurs artisans dans les pays de la CSRP*, IUCN, Dakar, Sénégal, 22 p.
- Bonnin, M., Ly, I., Queffelec, B., Ngaido M., 2016, *Droit de l'environnement marin et côtier au Sénégal*, IRD, PRCM, Dakar, Sénégal, 532 p.
- Chauveau, J.-P., et Samba, A., 1990, « Un développement sans développeurs? Histoire de la pêche artisanale maritime et des politiques de développement de la pêche au Sénégal », ISRA, *Réflexions et Perspectives*, vol. 1, n° 2, 21 p.
- Campbell, B., (Éd.), 2010, *Ressources minières en Afrique. Quelle réglementation pour le développement ?* Presses de l'Université du Québec, 255p.
- Centre de formation David Boilat-Mbour, 2017, *La production de farine de poisson. Enjeux pour les Communautés côtières ouest-africaines*, Rapport du 7^e forum de Mbour, 49 p.
- Clément, V., 2002, « Le développement durable : un concept géographique? », publié le 20-07-2004 sur <http://geoconfluences.ens-lyon.fr/doc/transv/DevDur/DevdurScient.htm>
- Commission mondiale pour l'environnement et le développement (CMED), 1989. *Notre avenir à tous (Rapport Brundtland, 1987)*, 349 p.
- Commission néerlandaise pour l'évaluation environnementale (CNEE), 2018, Examen de l'EIES du Projet de production de gaz Grand Tortue Ahmeyim – Phase 1 – Sénégal, 42 pages.
- Corlay, J.-P., 1993, « Le concept d'espace halieutique : réflexions de géographe sur les pêches maritimes à partir du cas danois », in Laloë, F., Rey, H., Duram, J.-L., *Questions sur la dynamique de l'exploitation halieutique*, p. 125-140.
- Darcet, J., 1967, *Étapes de la prospective*, Presses universitaires de France, 337p.

- Direction des Pêches maritimes, DPM, 2000-2018. *Rapports des Résultats généraux des pêches maritimes de 2000 à 2010*.
- Diallo, M. L., 2015, Activités extractives et dynamiques territoriales au Sénégal : étude comparative entre l'or et le phosphate, thèse de doctorat de géographie, 344 p.
- FAO, Union européenne et Cirad, 2022, *Profil des systèmes alimentaires – Sénégal. Activer la transformation durable et inclusive des systèmes alimentaires*, Rome, Bruxelles et Montpellier, France, 34 p.
- FAO, 2020, « Effets de la covid-19 sur les systèmes alimentaires halieutiques et aquacoles », 6 p. Publié le 10 avril 2020, Consulté le 22 mai 2020 sur <http://www.fao.org/3/ca8637fr/CA8637FR.pdf>
- FAO, 2018, *La situation mondiale des pêches et de l'aquaculture. Atteindre les objectifs de développement durable*, 254 p.
- FAO, 2017, *Statistiques sur le secteur halieutique sénégalais*, consulté le 25 juillet 2019 sur <http://www.fao.org/fishery/facp/SEN/en>
- FAO, 1995, Code de conduite pour une pêche responsable, 53 p.
- FIDA, 2014, *Directives pour intégrer la question du changement climatique et prévoir des mesures d'adaptation dans la conception des projets intéressant la pêche et l'aquaculture*, 68 p.
- Gary, I., Ian et Karl, T. L., 2003, *Le fond du baril. Boom pétrolier et pauvreté en Afrique*, rapport Catholic Relief Services, 105 p.
- Graf, s. d., « Évolution de la gestion des ressources halieutiques à Kayar », consulté le 1er janvier 2016 sur <https://urlz.fr/hkVQ>
- ITIE Sénégal, 2021, *Rapport de conciliation 2020*, 207 p.
- Ka, R., 2022. *Se réinventer pour survivre, l'avenir des transformatrices de poisson au Sénégal*, IPAR, 11p.
- Ka, R., 2021, « Le choc économique de COVID-19 sur la pêche artisanale au Sénégal », in A. Ndiaye, C. Gueye et C. O. Ba, *Sénégal post-Covid-19 : Souveraineté et Ruptures*, L'Harmattan Sénégal, ISBN, p 197-210.
- Ka, R., et Ka, I., 2019, *Rapport de l'atelier sur la répartition des revenus issus du secteur des hydrocarbures : la mise en place de plateforme « Cayar vision future »*, 1er décembre 2018, IPAR, 17 p.
- Ka, R., 2017, Dynamique territoriale de la ville de Cayar avant et post-communalisation : approche par analyse diachronique des données satellites, mémoire de master 2 de géographie, Parcours : Espace et Société urbaine, Université Gaston-Berger de Saint-Louis, 192 p.
- Kloff, S., Wicks, C., Siegel, P., 2010, *Industries extractives et développement durable : « Guide de meilleures pratiques pour l'exploitation pétrolière et gazière offshore dans l'Écorégion marine ouest-africaine »*, 136 p.
- Kloff, S., Wicks C. (s. d.), *Gestion environnementale de l'exploitation de pétrole offshore et du transport maritime pétrolier*, 82 p.
- Mbaye, A., Thiam, N., et Fall, M., 2018, « Les zones de pêche protégées au Sénégal : entre terroir du pêcheur et parcours du poisson. Quelle(s) échelle(s) de gestion ? », *Développement durable et territoires* [En ligne], vol. 9, n° 1, mis en ligne le 30 mars 2018, consulté le 30 avril 2019. URL : <http://journals.openedition.org/developpementdurable/11999>

- Ministère de la Pêche et de l'Économie maritime (MPEM), 2017, « Note sur la mise en œuvre de l'ODD14 au Sénégal », consulté le 27 mai 2019 sur <https://urlz.fr/ffGv>
- Ministère de la Pêche et des Transports maritimes (MPTM), 2001, *Stratégie de développement durable de la pêche et de l'aquaculture*, Tome II, 86 p.
- Moine, A., 2006, « Le territoire comme un système complexe : un concept opératoire pour l'aménagement et la géographie », *L'Espace géographique*, p. 115-132.
- Niang, N.-A., 2009, Dynamique socio-environnementale et développement local des régions côtières du Sénégal : l'exemple de la pêche artisanale, thèse de géographie, Université de Rouen, 301 p.
- ONU, 2015, *Programme de développement durable à l'horizon 2030*, A/RES/70/1, 58 p.
- Patin, S., 1999, *Environmental impact of the offshore oil and gas industry*, EcoMonitor Publishing East Northport, N. Y. 425 p. Disponible sur www.offshore-environment.com
- PNUE, 2004, *Mise en œuvre de mesures de conservation et gestion durables des ressources halieutiques : le cas du Sénégal*, Pêche et Environnement, Nations unies, 101 p.
- Raffestin C., 1980, *Pour une géographie du pouvoir*, Paris, Litec, 249 p.
- République du Sénégal, 2020, *Loi n° 2020-06 portant Code gazier*.
- République du Sénégal, 2019, *Loi n° 2019-03 du 1^{er} février 2019 portant Code pétrolier*.
- République du Sénégal, 2015, *Loi n° 2015-18 du 13 juillet 2015 portant Code de la pêche maritime*.
- République du Sénégal, 1998, *Loi n° 98 - 32 du 14 avril 1998 portant Code de la pêche maritime*.
- Sall, A., Morand, P., 2008, « Pêche artisanale et émigration des jeunes africains par voie Piroguière », Karthala « Politique africaine », n° 109, p 32-41.
- Sachs, I., 1980, *Stratégie de l'écodéveloppement*, Paris, Économie et Humanisme, 144 p.
- Semelin, J., s. d., *Synthèse bibliographique à propos des impacts écologiques et des aspects réglementaires de l'exploitation pétrolière en mer*, PRCM en Afrique de l'Ouest, 68 p.
- Senagrosol-Consult, 2007, *L'élaboration d'un Plan d'aménagement et de gestion de l'aire marine protégée de Cayar*, Rapport bilan diagnostic, 90 p.
- Sow, P., Marmer, E., and Scheffran, J., 2016, "En route to Hell: Dreams of Adventure and Traumatic Experiences Among West African 'Boat People' to Europe", in L. Mannik (Ed.), *Migration by Boat. Discourses of Trauma, Exclusion and Survival*, Volume 35, Forced Migration, New York: Berghahn.
- UEMOA-UICN, 2010, *Étude régionale pour le suivi du trait de côte et l'élaboration d'un schéma directeur du littoral de l'Afrique de l'Ouest*, Diagnostic national au Sénégal, ANAT, 139 p.



Résilience à la variabilité climatique et perspectives des activités agropastorales dans la région de Matam, nord du Sénégal

Djibrirou Daouda Ba* & Tégaye Diop**

Résumé

Le Sénégal, pays sahélien, est confronté aux conséquences néfastes de la variabilité climatique du fait de son économie essentiellement agricole très tributaire des conditions climatiques. Ce phénomène se répercute inmanquablement sur la production agricole et l'économie, compromettant ainsi la sécurité alimentaire. Dans la région de Matam, le changement climatique est une menace sensible et plusieurs faits l'illustrent : la baisse de la pluviométrie, des pluies plus intenses et de plus courte durée, une augmentation de la température, etc. Les impacts négatifs sont également multiples : désertification, perte des terres arables et de pâturage, réduction de la disponibilité de l'eau pour les activités productrices. L'objectif de cet article est d'analyser l'impact de la variabilité climatique dans la région et les différentes stratégies de résilience développées par la population pour y faire face. La méthodologie adoptée consiste d'abord à analyser la variabilité interannuelle ainsi que le caractère aride de la zone. Puis la méthode aléatoire simple a été utilisée pour effectuer l'enquête diagnostique relative à la résilience des activités agropastorales. Les résultats ont montré l'irrégularité interannuelle des précipitations et confirment le caractère aride de la région impactant sur les rendements agricoles et sur le couvert végétal. Les résultats ont également montré que l'agriculture reste en grande partie extensive et marquée par la poussée de la riziculture irriguée, avec un début de modernisation.

Mots-clés : sécheresse, changement climatique, désertification, vulnérabilité, adaptation

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Abstract

Senegal, a Sahelian country, is facing the negative consequences of climate change, because of its predominantly agricultural economy, which is highly dependent on climatic conditions. This phenomenon inevitably affects agricultural production and the economy, thus compromising food security. In the Matam region, climate change is a significant threat and several facts can illustrate it: the decrease in rainfall, more intense and shorter rains, an increase in temperature, and so on. There are also multiple negative impacts: desertification, loss of arable and grazing land, reduction of water availability for productive activities. The aim of this article is to analyse the impact of climate variability in the region and the different resilience strategies developed by the population to cope with them. The methodology adopted consists firstly of analysing the interannual variability and the arid character of the area. Then the simple random method was used to carry out the diagnostic survey on the resilience agro-pastoral activities. The results showed the inter-annual irregularity of rainfall and confirmed the arid nature of the region impacting crop yields and vegetation cover. The results also showed that agriculture remains largely extensive and marked by the growth of irrigated rice cultivation, with a start of modernisation.

Keywords: Drought, climate change, desertification, vulnerability, adaptation

Introduction

Le changement climatique préoccupe à la fois les scientifiques et les politiques qui, depuis quelques années, tentent de trouver des solutions à ce problème qui affecte les conditions de vie des populations (Dieye 2010). En effet, en Afrique de l'Ouest, près de 80 pour cent de la population dépend des activités agropastorales (Yaro 2019). Le Sahel, où se trouve la région de Matam, est une des régions les plus affectées par la variabilité climatique au monde (Heinrigs 2010 ; Yaro 2019). Or, depuis quelques décennies, l'agriculture y subit des chocs variés de plus en plus forts, allant des crises alimentaires aux sécheresses et inondations (Yapi-Gnaore *et al.* 2014). Les activités agropastorales en Afrique de l'Ouest restent très sensibles à la variabilité climatique (Ba *et al.* 2018 ; Quarto & Thiam 2018). La région de Matam Sahel, dans le nord du Sénégal, appartient au Sahel, qui est « une terre d'opportunité et de défis », et, en même temps, le changement climatique est aujourd'hui considéré comme une « menace de premier plan » pour la sécurité des pays du Sahel (Heinrigs 2010). La recrudescence des sécheresses a déjà des impacts importants sur les milieux naturels et les systèmes anthropiques (Dieye 2010 ; Ba 2018 ; Sy & Sow 2018). Dès lors, pour aborder les questions de la vulnérabilité face au

changement climatique, dans une perspective de durabilité, les stratégies de développement doivent intégrer de façon complexe tous les facteurs en lien avec le développement, tels que le changement climatique, les migrations, l'évolution démographique, etc. (Heinrigs 2010) Au demeurant, il est établi que la lutte pour la sécurité alimentaire passe par le défi de la résilience à la variabilité et au changement climatiques (Duplantier *et al.* 2012). La variabilité climatique constitue une sérieuse préoccupation des scientifiques et des décideurs, car la pluviométrie « mal maîtrisée » conduit à des phénomènes comme la sécheresse, la dégradation des terres, voire des inondations (Diouf *et al.* 2015). Cette variabilité climatique impacte le secteur agricole des pays en développement avec une intensité particulière et réciproquement, les activités agropastorales extensives sont un facteur aggravant de la variabilité climatique (Yaro 2019).

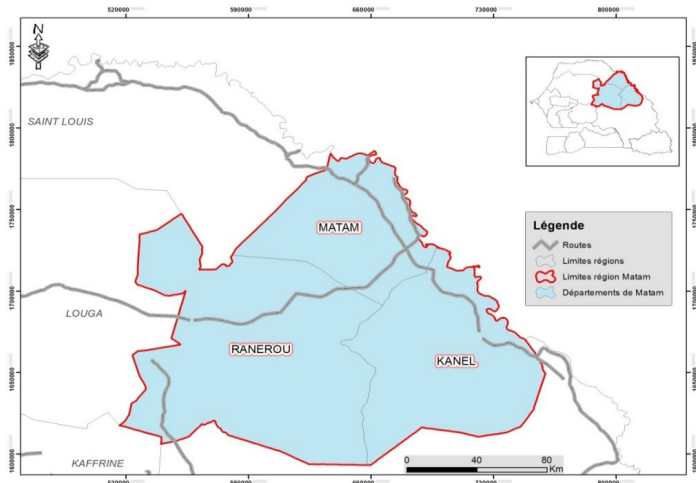
Du fait de sa vocation agropastorale, la région de Matam a un rôle important à jouer dans le cadre du Plan Sénégal émergent (PSE) qui, selon le groupe consultatif (2014), vise, entre autres, la sécurité alimentaire en privilégiant l'intensification et la diversification des productions. Dans le cadre du présent travail, la sécurité alimentaire peut être entendue au sens de la FAO, qui suppose quatre piliers fondamentaux. Il s'agit de la disponibilité alimentaire en qualité et en quantité; de l'accès de tous à des ressources permettant d'acquérir une nourriture adéquate et nutritive; de l'utilisation qui inclut des facteurs non alimentaires comme l'eau potable, l'assainissement ou les soins, et de la stabilité qui suppose que l'accès à la nourriture ne soit menacé ni par des chocs soudains ni par des événements cycliques (FAO cité par Diouf *et al.* 1995:15). De ce fait, la sécurité alimentaire est à la fois un enjeu et une manifestation de la résilience climatique. Cette dernière est étroitement liée à l'adaptation des systèmes socioéconomiques, dont les activités agropastorales, au changement climatique. Mais si la résilience correspond à la quantité ou à l'ampleur des impacts auxquels un secteur peut résister avant de subir une transformation complète, l'adaptation, elle, renvoie à toute activité pouvant réduire les méfaits du changement climatique ou tirer parti de la nouvelle situation qui en découle (GTNO 2017). Le mot résilience dérive du latin « *resilere* » qui signifie revenir ou rebondir. Ce concept, d'abord utilisé dans la physique des métaux, a émergé surtout à partir des années 1970 avec les travaux de Holling en écologie, par souci de l'adéquation entre les besoins humains et la soutenabilité des écosystèmes (Lallau & Thibaut 2009). En raison du changement climatique, la résilience est récemment réapparue dans de nombreux travaux de géographie, de planification de projets agricoles et dans le champ thématique du développement durable avec, en commun, l'objectif de faire face aux conséquences d'un choc (Yaro 2019).

Ainsi, Matam, à l'instar d'autres régions tropicales et sahéliennes, connaît actuellement des transformations majeures de l'agriculture et de l'élevage qui sont caractéristiques d'une transition agraire. La région dispose d'un potentiel énorme pour les activités agropastorales qui occupent la majorité de ses actifs et contribue considérablement à la sécurité alimentaire (Diop 2004 ; Ba 2018). Cependant, cette région est à l'image du reste du Sahel confrontée à des difficultés liées à la sécheresse et à la dégradation du milieu (Sy 2008 ; Ba 2018). Sans mesures d'adaptation appropriées, les systèmes agropastoraux seront fortement fragilisés (Dieye 2010).

L'objectif de cet article est alors d'analyser la relation entre la sécurité alimentaire et les impacts du changement climatique sous l'angle de la résilience des activités agropastorales à la variabilité climatique.

Présentation de la zone d'étude

Sur une superficie de 29 615,5 km², la région de Matam est à cheval sur les régions de Saint-Louis, de Louga, et la région mauritanienne de Gorgol, qui constituent respectivement ses limites nord-ouest, ouest et est. Au sud, Matam est limitée par la région de Tambacounda (Carte 1). La région couvre l'ancien département de Matam, de la région de Saint-Louis, auquel on a ajouté les anciennes communautés rurales de Loguerai Thiolly et de Vélingara de la région de Louga (Ndiaye 2006). La région est située entre 14° 20' et 16° 10' de latitude nord et 12° 40' et 14° 60' de longitude ouest. Elle appartient au bassin inférieur du fleuve Sénégal, qui peut être subdivisé en 4 unités hydrologiques : la haute vallée, la moyenne vallée, la basse vallée et le delta. La zone d'étude couvre donc essentiellement deux aires écogéographiques : la vallée du Sénégal et le Ferlo.



Carte 1 : Localisation de la région de Matam

Données et méthodes

Les données

Les données climatiques utilisées sont collectées à la station de Matam et fournies par l'agence nationale de l'aviation civile et de la météorologie. Elles portent sur la pluviométrie et la température mensuelle sur la période 1961-2018. Le choix de cette séquence s'explique par la disponibilité des données et la pertinence de l'analyse en tenant compte du début de la sécheresse dans les années 1960 (Gaye & Sow 2016 ; Ba 2018 ; Ba *et al.* 2018). Matam est l'unique station synoptique de la région et les données ne présentent aucune lacune.

Parallèlement, une enquête sur la dégradation de l'environnement et les stratégies d'adaptation a été menée à l'aide d'un questionnaire et des entretiens dans les trois départements de Matam. Des descentes ont été effectuées à Ranérou, à Louguéré Thiolly, à Kanel, à Bow, à Sinthiou Bamambé, à Matam, à Boyinadji et à Tiguéré Yéné où un total de cinq cents personnes est interrogé.

Méthodologie

Traitements des données climatiques

Une pluviométrie aléatoire et irrégulière caractérise la région de Matam. La plus longue partie de l'année y correspond à la saison sèche qui alterne avec une courte saison des pluies. Pour mieux faire apparaître ce contraste, l'indice ombrothermique de Gaussen (1994) est utilisé.

$$IG = 2 P/T; \quad (1)$$

Où P signifie précipitations mensuelles;

Et T la température moyenne du mois.

Plusieurs auteurs ont démontré la pertinence de cet indice dans le contexte climatique du Sahel, notamment au Sénégal (Sy 2008 ; Sy 2013 ; Ba 2018).

La segmentation de Hubert permet de détecter plusieurs ruptures, si elles existent dans une série chronologique (Quenum *et al.* 2016).

La procédure de segmentation des séries hydrométéorologiques n'est pas à proprement parler un test statistique. Cette méthode est adaptée à la recherche de multiples changements de moyenne. Son principe est de découper la série en m segments (m de telle sorte que la moyenne de chaque segment soit considérablement différente de celle du segment ou des segments voisins. Toute partition de la série initiale en m segments est une

segmentation. À partir d'une segmentation particulière d'ordre m pratiquée sur une série initiale, on définit :

$$D_m = \sum_{k=1}^{k=m} d_k \text{ avec } d_k = D_m = \sum_{l=i_{k-1}+1}^{l=i_k} (x_l - \bar{x}_k)^2 \quad (2)$$

$k = 1, 2, \dots, m$ rang dans la série initiale de l'extrémité terminale du segment ; la moyenne du segment ; l'écart quadratique entre la série et la segmentation considérée.

Les enquêtes diagnostiques et de perception

Une enquête diagnostique sur l'impact de la sécheresse climatique sur les activités agropastorales dans la région de Matam a été menée. Ainsi, il a été fait recours au questionnaire et aux entretiens avec les personnes-ressources. Le choix du site est fonction de plusieurs critères : le souci d'équilibre entre les départements, les potentialités économiques de la zone, la nature des différentes unités géomorphologiques et leur localisation écogéographique : Diéri, Djédjéngol ou Walo.

Le questionnaire s'intéresse à la dégradation environnementale et aux activités agropastorales. La répartition des personnes enquêtées dépend à la fois des activités exercées et de leur zone de résidence : deux cents dans le département de Matam, deux cents dans le département de Kanel et cent dans le département de Ranérou Ferlo.

La collecte et l'analyse des données ont été faites à l'aide l'application Sphinx.

Présentation et description des résultats

Analyse des données climatiques

La variabilité pluviométrique interannuelle, une caractéristique majeure de la région

La segmentation de Hubert permet d'analyser la variabilité interannuelle de la pluviométrie en mettant en relief les ruptures (Tableau 1).

Tableau 1 : Segmentation de la pluviométrie à Matam de 1961 à 2018

Début	Fin	Moyenne	Écart type
1961	1966	540,3	99,5
1967	1998	319,7	87,3
1999	2018	472,5	124,7

L'analyse de la chronique des précipitations annuelles entre 1961 et 2018 révèle la succession de phases climatiques contrastées à Matam. La station a connu plusieurs ruptures, elle est donc non stationnaire. Ainsi, la période de 1961 à 2018 révèle trois principales phases d'abord de 1961 à 1966 avec une moyenne pluviométrique de 542,267 mm et un écart type de 99,514; ensuite une longue phase allant de 1967 à 1998 avec 319,738 mm pour écart un écart type de 87,394; enfin la dernière phase qui va de 1999 à 2018 avec une moyenne pluviométrique de 472,5 mm, soit un écart type de 124,7. Cette alternance de périodes sèches et d'occurrences relativement humides rappelle l'irrégularité interannuelle des précipitations. Cependant, la phase la moins pluvieuse est la plus longue, en sus, le retour à une certaine pluviosité noté durant la séquence la plus récente, entre 1999 et 2018, ne semble pas suffisant pour remettre en cause la tendance à l'aridification.

L'indice de sécheresse

L'indice ombrothermique de Gaussen a été utilisé pour cerner l'aridité de la région. Il intègre les données pluviométriques et les températures, ces deux éléments étant les plus importants pour comprendre la variabilité climatique. En même temps il permet de ressortir les contrastes saisonniers (Figure 1).

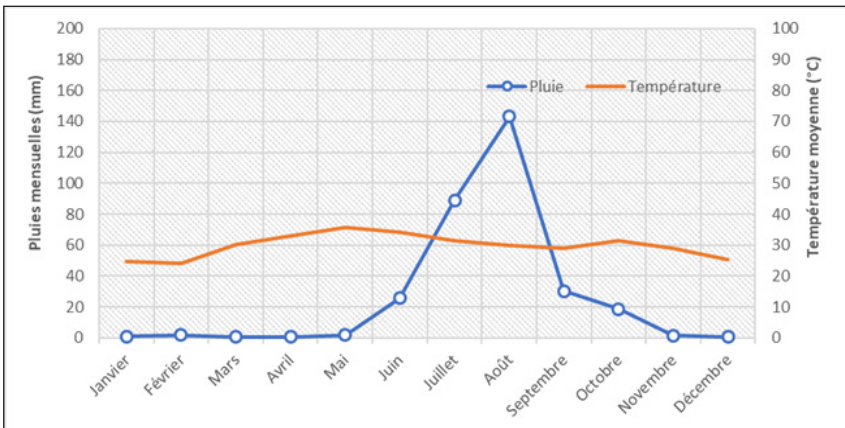


Figure 1 : Diagramme ombrothermique de Gaussen (1994) à Matam (1961-2020)

Pour la construction de ce diagramme climatique, le principe de l'indice de Gaussen ($IG = 2 P/T$) est respecté. À partir de cet indice sont considérés comme mois secs certains pour lesquels les précipitations sont \leq au double de la température moyenne exprimée en degrés centigrades (Gaussen [1954] cité par Sy [2008]).

Le calcul de l'indice confirme le caractère aride de la région de Matam. En effet, sur l'ensemble de la période 1981 à 2020, seuls les mois de juillet et août sont considérés comme humides, le mois d'août étant le plus humide. Les mois de juin et septembre ne peuvent être considérés comme humides que partiellement, respectivement durant leur deuxième et première quinzaine. Neuf mois sur les douze sont donc secs à Matam. Non seulement la pluviométrie avait fortement diminué, mais sa répartition saisonnière était devenue plus imprévisible. Or la distribution des précipitations annuelles dans le temps compte autant que leur quantité relativement aux activités agropastorales.

Cette courte durée de la saison pluvieuse a un impact à la fois sur les rendements agricoles et sur le couvert végétal. C'est en partie ce qui explique le recul de l'agriculture sous pluies. Cette situation, parfois durement ressentie par les éleveurs avec les longues périodes de soudure, est à l'origine de longs déplacements, voire de la mort du bétail, surtout parmi les troupeaux bovins.

Résultats des enquêtes : les contraintes des activités agropastorales

Aussi bien dans le Ferlo que dans le Diéri et le Walo, les populations interrogées de la région ont signalé beaucoup de contraintes liées aux activités culturelles et à l'élevage.

Les contraintes des activités culturelles

L'agriculture est confrontée à plusieurs problèmes qui limitent ses performances (Tableau 2).

Tableau 2 : Les difficultés de l'agriculture

Contraintes	Fréquence %
Cherté des intrants	42,9
Problème de machines	24,2
Manque de moyens et de financements	22
Difficile accès à la terre	9,9
Divagation des animaux dans les champs	7,7
Sécheresse	7,7
Épuisement des sols	7,2
Oiseaux granivores, insectes et rongeurs	5,5
Problème de stockage et d'écoulement	2,2
Main-d'œuvre trop coûteuse	1,1

Le tableau 2 résume les difficultés soulevées par les paysans de la région de Matam en réponse à la question : « Quelles sont les principales difficultés dont souffrent vos activités ? » La sécheresse reste une préoccupation, certes, mais elle vient au même rang que la divagation des animaux dans les champs, loin derrière la cherté des intrants, le manque d'équipement ou encore l'accès à la terre.

Il ressort de l'enquête que l'agriculture est encore, en grande partie, extensive, utilisant un outillage rudimentaire. C'est surtout le cas du département de Ranérou, en marge du processus de modernisation-mécanisation amorcé dans le domaine de la production du riz. Dans cette partie du Ferlo, par exemple, l'agriculture céréalière est essentiellement pluviale et utilise peu d'apports en intrants. Les activités dépendent de la date de démarrage et de la durée de l'hivernage, qui ont des impacts directs sur les rendements céréaliers. La faiblesse et l'irrégularité des crues dans la vallée alluviale sont également liées à la variabilité pluviométrique.

Les productions maraîchères émergent peu à peu sous forme de jardins irrigués ou de champs de décrue. L'agriculture, essentiellement extensive, est liée à une pluviométrie aléatoire avec les sécheresses climatiques fréquentes. C'est ce qui explique la vulnérabilité du secteur.

Contraintes et vulnérabilité du secteur de la production animale

À Matam, les acteurs de la production animale ont recensé plusieurs difficultés lors d'une année menée sur le terrain (Ba 2018). Ces dernières aggravent la vulnérabilité de l'élevage dans le contexte de la variabilité climatique de la région. Les principaux problèmes recensés sont les suivants (Figure 2).

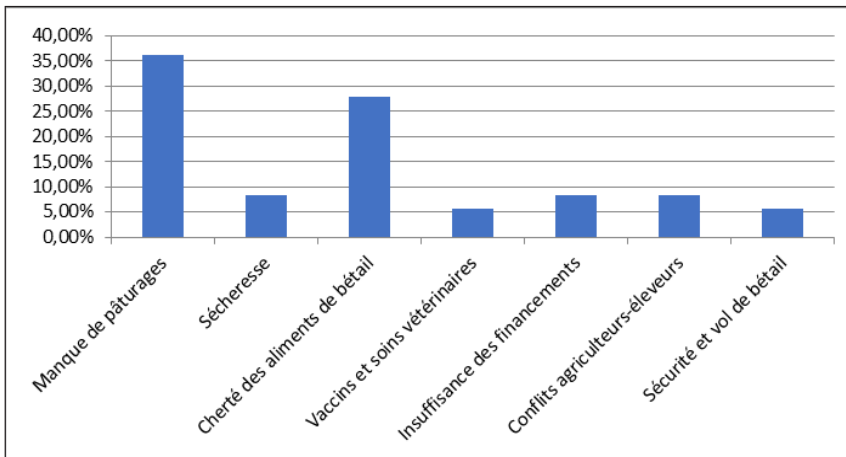


Figure 2 : Les contraintes répertoriées par les éleveurs de Matam

Il apparaît que le manque de pâturages et d'espaces de parcours qui résulte de l'accroissement démographique et de l'essor des aménagements agricoles est la première contrainte à laquelle les éleveurs font face. Les autres problèmes sont liés à la cherté des aliments du bétail et à l'insuffisance de points d'eau pour l'abreuvement. La variabilité climatique, avec les fréquents déficits pluviométriques, est un facteur aggravant.

Avec l'intensification des aléas climatiques, la transhumance de grande amplitude a tendance à disparaître pour faire place aux nomadismes de proximité. Des stratégies de mobilité localisée sont de plus en plus fréquentes. Dans la région, la mobilité spatiotemporelle localisée a été observée dans la vallée. Dans ce secteur, ce sont les éleveurs sédentaires qui développent cette stratégie de mobilité localisée.

Cette stratégie permet d'éviter des conflits avec les agriculteurs autochtones et crée des conditions de coexistence pacifique entre les communautés. De plus en plus, on assiste au renforcement de la surveillance de l'espace et des animaux, à la recomposition du troupeau, au déstockage, à la redéfinition des termes du contrat de pacage et à la constitution de stocks de fourrage, à l'amélioration des performances zootechniques par l'embouche, et, enfin, à l'ensemencement des pâturages. La pépinière de Louguéré Thiolly par exemple, dans le département de Ranérou, réalisée dans le cadre de la Grande muraille verte, entre dans cette logique.

Ce sont donc tous ces enjeux liés à la vulnérabilité qui expliquent la mise en place du fonds national climat (FNC), en adéquation avec les orientations du Plan Sénégal émergent, qui traduit la vision du pays en termes de développement d'ici 2035.

En définitive, la vulnérabilité de la région au changement climatique résulte, à l'instar de la majorité du continent africain, de deux éléments principaux : d'une part, l'existence de multiples contraintes et, d'autre part, sa faible capacité d'adaptation. Comme dans le reste du Sahel, les contraintes tiennent souvent à la dégradation et à la perte totale ou partielle des sols exploitables pour l'agriculture, occasionnée tantôt par l'aggravation de la sécheresse, tantôt par la raréfaction croissante de l'eau et la surexploitation des terres.

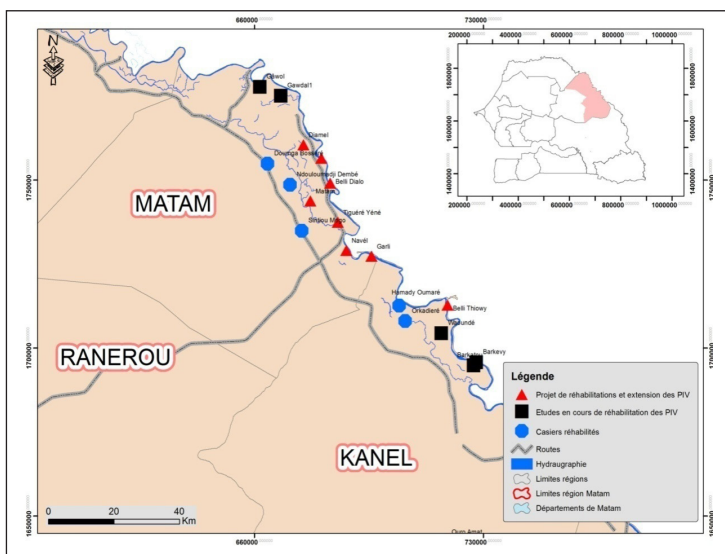
Les éleveurs ont pratiquement tous constaté une baisse du rendement des pâturages. Plusieurs causes sont indexées pour expliquer la situation. Et tous les acteurs ont reconnu l'impact de la variabilité climatique dans cette région de plus en plus aride – déficit pluviométrique et températures généralement élevées.

Résultats des enquêtes sur l'adaptation au changement climatique et les perspectives des activités

Les stratégies d'adaptation des activités agropastorales découlent d'une hausse des températures combinée à une diminution de la pluviométrie. Cette situation a comme corollaire la détérioration des sols et du couvert végétal, le tout dans un contexte de hausse de la pression sur les milieux, d'où la résilience.

L'adaptation des pratiques agricoles au changement climatique

Pour répondre aux exigences de développement et de la sécurité alimentaire, l'État, par l'intermédiaire des services compétents, et les populations, prennent des initiatives et proposent des solutions. C'est pourquoi la SAED a mis en œuvre un important programme d'aménagements hydroagricoles qui repose sur la réalisation de périmètres irrigués et la réhabilitation et/ou l'extension de ceux existants (Carte 2).



Carte 2 : Programme d'aménagements hydroagricoles dans la région

Source : Ba 2018

La carte des aménagements agricoles de la région de Matam laisse apparaître de profondes mutations, récentes ou en cours. En effet, une multitude de projets ont été conçus ces dernières années. Ils sont essentiellement concentrés dans la vallée, départements de Matam et de Kanel, qui se caractérise par de vastes aménagements agricoles et un début de mécanisation de la production agricole (Photo 1).



Photo 1 : Engins en activité dans une rizière du Bosséa et culture d'oignon dans la commune de Matam

Source : Clichés D. D. Ba, *in situ*

Les pratiques de riziculture, avec une modernisation des équipements techniques, peuvent contribuer à asseoir une sécurité alimentaire (suivant une bonne adaptation) malgré la variabilité climatique qui frappe le nord du Sénégal. Parallèlement, les cultures maraîchères se développent de plus en plus. Pour contribuer à la sécurité alimentaire du Sénégal, la vallée du fleuve Sénégal doit jouer un rôle de premier plan. Ainsi, les principaux projets visent la production du riz. Il s'agit de :

- la réhabilitation des casiers de Orkadiéré et de Hamady Ounaré portant sur 700 ha avec la réalisation de l'ouvrage de prise du Dioulol (seuil et station de pompage de Balel) et l'équipement de 20 ha de goutte à goutte pour les groupements féminins, dans le cadre du programme intégré de gestion des ressources en eau (PGIRE) ;
- les études pour la réhabilitation de 2000 ha de PIV dans le cadre du programme national d'autosuffisance en riz (PNAR) ;
- la réhabilitation des périmètres villageois du secteur de Waoundé (sites de Waoundé, Goumal, Barkéwy, Barkatou, Goumal) et leur extension (400 ha) ;
- l'aménagement de 970 ha de PIV dans la zone des casiers du Bosséa et de Matam et Dolol, dans le cadre du Projet de développement rural de Matam (PDRM) ;
- la réhabilitation du casier de Ndouloumadji (400 ha, avec relèvement du niveau de pompage) ; la création de périmètres irrigués entre Ouro Alpha, Doumga Bosséa, Doumga Ouro Thierno, Sinthiou Mogo ; l'amélioration

de la décrue dans les environs de Boyinadji Nabadji ; la réalisation de pistes de désenclavement (70 km) pour le projet, et la construction d'unités de stockage, de transformation et de mise en marché, dans le cadre du projet d'appui à la sécurité alimentaire dans la région de Matam (ASAMM) ;

- la réhabilitation et l'extension des périmètres villageois de Matam (1 000 ha concernant les sites de : Matam, Navel, Tiguéré Yéné, Diamel, Diandioly, Belli Thiowi, Belli Dialo, Garly). S'agissant des acquis du PRODAM sur le plan des aménagements hydroagricoles, les actions entreprises ont permis l'aménagement et la mise à disposition de 2 957 ha aux producteurs, intégrant l'aménagement de 17 ha par goutte-à-goutte en zone Diéri.

Stratégies de résilience des activités pastorales face au changement climatique

La stratégie d'adaptation des activités pastorales à la base s'inscrit dans le contexte de la politique étatique en la matière. À cet effet, le souci de décentralisation et de désengagement de l'État constitue l'axe prioritaire des actions recommandées par les Conseils interministériels. Le volet élevage de la Nouvelle politique agricole (NPA) se centre sur l'intensification des productions par une stratification des producteurs selon la zone agro-écologique, la responsabilisation des producteurs à travers la création de Groupements d'intérêt économique (GIE), notamment dans le Ferlo. La résilience de l'élevage se manifeste par des stratégies de conservation et de restauration des écosystèmes.

Ainsi, le service des eaux et forêts avait initié la plantation de végétation fourragère. Cependant, ce projet s'est limité à l'étape d'expérimentation à cause du manque de moyens financiers et techniques, surtout du problème de disponibilité dans cette zone sans cours ni points d'eau naturels permanents. Toutefois, ces dernières années, une augmentation significative du nombre de forages est notée dans le cadre du projet de gestion intégrée des écosystèmes du Sénégal (PGIES). Dès lors que se pose avec moins d'acuité le problème de l'eau, l'idée de planter de l'herbe refait surface dans une démarche participative incluant les populations, les services compétents et les partenaires dans le cadre du programme des Champs-écoles des producteurs (CEP) initié par la FAO face au changement climatique. L'essentiel de ces stratégies d'adaptation voit le jour dans la réserve de biosphère du Ferlo et des unités pastorales (UP). Dans le Ferlo, l'élevage est de loin la première activité socioéconomique. C'est pourquoi, lors du FOREMA (Foire économique de Matam), la région a été reconnue comme une zone d'élevage de type extensif traditionnel par excellence (Tableau 4).

Tableau 4 : Les unités pastorales (UP) dans la région de Matam

Unité pastorale (UP)	Superficie/ ha	Délibé- ration	Département (et commune)
UP Loumbol S. Abdoul	38 170	Oui	Ranéroú Ferlo (Oudalaye)
UP Malandou	72 820	Oui	Kanel (Ouro Sidy)
UP Winde Diohi	86 059	Oui	Kanel (Ndendory et Ouro Sidy)
RNC Mbouguel	128 000	Oui	Kanel (Ouro Sidy)

Source : BA 2018

L'approche UP constitue un référentiel technique et social de développement pastoral parce qu'elle a évolué suite aux leçons tirées des expériences antérieures. Cela permet une démarche participative qui conscientise et implique les populations dans l'exploitation et la préservation des ressources naturelles. Aujourd'hui, l'UP recouvre des réalités complexes avec des stratégies différentes de maîtrise d'œuvre et de gestion des services associées à l'UP. Les communes rurales de Vélingara et de Louguéré Thioly sont des unités pastorales de grande importance.

Propositions des populations pour la résilience de l'agriculture et de l'élevage

La vulnérabilité est aggravée par des facteurs anthropiques. En fait, la croissance démographique étend l'espace d'habitation au détriment des terres de pâture, de la réalisation d'infrastructures – routes et pistes – et de la multiplication des aménagements hydroagricoles, de plus en plus étendus. Cette vulnérabilité nécessite différentes stratégies d'adaptation des activités agropastorales.

De ce fait, différentes options d'adaptation à la sécheresse climatique et de développement des activités agricoles ont été proposées par les cultivateurs de la région de Matam :

- faciliter l'accès aux intrants agricoles, notamment en subventionnant davantage le carburant et l'engrais, voire les herbicides et les pesticides ;
- l'État devrait également mieux favoriser la modernisation du secteur en fournissant des machines aux acteurs et des motopompes pour l'irrigation ;
- l'accès aux financements publics ou privés des acteurs de l'agriculture est également considéré à la fois comme un problème à résoudre et une des solutions pour une agriculture moderne et productive dans la région de Matam ;

- l'accès à la terre et la formation des éleveurs font partie des soucis majeurs au sujet desquels une plus grande implication de l'État est souhaitée;
- la délimitation des aires de parcours et la prise en compte du secteur de l'élevage permettent de maîtriser la divagation des animaux et de protéger les cultures. D'ailleurs, cultivateurs et éleveurs sont majoritairement d'accord sur le principe que les premiers surveillent les champs le jour et les seconds leur bétail la nuit.

La redéfinition des calendriers agricoles et l'introduction des variétés à cycle court sont également proposées. Cela a pour finalité de gérer la sécheresse climatique et le caractère irrégulier de la pluviométrie dans la région de Matam dans une perspective de résilience. Ces propositions des paysans sont reconnues comme pertinentes par les techniciens et les chercheurs du secteur de l'agriculture (Sarr & Traoré 2010 ; ADR/Conseil régional de Matam 2013). Ces derniers insistent également sur la mise au point de méthodes de gestion de l'eau à des fins agricoles (conservation des eaux, protection des cultures face aux extrêmes climatiques, irrigation de complément et irrigation pure à partir des eaux de surface : fleuve, mares, bassins de rétention, eaux souterraines).

Ces mesures d'adaptation ont été identifiées sur la base des enquêtes menées auprès des populations de la région de Matam. Ainsi, près des 2/3 des paysans de la vallée, notamment dans les départements de Matam et de Kanel, ont dit préférer concentrer leurs efforts pendant l'hivernage sur la riziculture irriguée. Et certains ont commencé à introduire des variétés de céréales à cycle court.

Ces pratiques sont des réponses à une incertitude du calendrier agricole liée à l'irrégularité des précipitations; quand les pluies sont insuffisantes ou deviennent trop espacées, il suffit de recourir à l'irrigation par la motopompe pour sauver les cultures. Cependant, on constate que de nombreux périmètres irrigués villageois ne font qu'une seule campagne rizicole par an. En plus, le calendrier agricole est de moins en moins tributaire de la saison des pluies du fait de la multiplication des périmètres irrigués familiaux ou personnels surnommés «Goana¹». Néanmoins, parmi ceux qui continuent de pratiquer la culture du mil sous pluies, seuls 40 pour cent ont opté pour les semences à cycle court – trois mois au maximum, contrairement au mil classique.

Discussion des résultats

La date de rupture obtenue pour les séries pluviométriques est 1966 à Matam. Donc les observations de la segmentation de Hubert confirment les résultats de chercheurs qui situent la plupart des ruptures dans le bassin du Sénégal entre la fin de la décennie 1960 et le début de la décennie 1970

(Heinrigs 2010 ; Gaye & Sow 2016 ; Ba *et al.* 2018). D'ailleurs, la situation est similaire dans l'ensemble de l'Afrique occidentale (OCDE/CSAO 2008 ; Yaro 2019). Pour certains, le Sahel connaît un long cycle d'aridité (Ibrahim 2012 ; Sy 2013). Si les tendances actuelles du réchauffement se poursuivent, les performances des activités du secteur primaire de la région en seront davantage affectées. Là encore, les résultats sont en parfaite adéquation avec les constats du groupe d'experts intergouvernemental sur l'évolution du climat (GIEC), qui soutient que l'Afrique est l'un des continents les plus vulnérables au changement climatique et à la variabilité du climat, situation aggravée, entre autres, par la faible capacité d'adaptation des populations (CSAO/OCDE 2011 ; Yaro 2019). C'est pourquoi, à Matam, des stratégies d'adaptation au changement climatique sont développées aussi bien pour les activités agricoles que pour l'élevage (Ba 2018). Cet article confirme également de nombreux travaux qui portent témoignage de la forte variabilité pluviométrique avec une tendance à l'assèchement, ainsi que la hausse des températures dans le Sahel, en particulier dans la vallée du Sénégal (Sy 2008 ; Gaye & Sow 2016 ; Ba 2018 ; Ba *et al.* 2018 ; Yaro 2019).

L'agriculture est par conséquent caractérisée dans la région par un faible niveau de valorisation du potentiel hydro-agricole (ARD/région de Matam 2013). En effet, sur un potentiel aménageable de 85 000 ha, seuls 9 000 ha sont aménagés. En sus, les pertes de productivité résultant du changement climatique aggraveront les crises alimentaires déjà récurrentes dans la zone (Sarr & Traore 2010). De ce fait, les paysans ont développé des stratégies d'adaptation aux risques liés à la variabilité climatique. Parmi ces stratégies figurent celles relatives aux pratiques agricoles comme la lutte contre la dégradation des terres agricoles, la gestion de la fertilité des sols, les techniques de gestion de l'eau, la diversification des cultures, etc. (CSAO/OCDE 2008) À cela s'ajoutent d'autres formes d'adaptation : production et vente d'animaux, entraide et coopération, diversification des activités, migration saisonnière, etc. Ces dernières portent sur l'amélioration de la résilience des systèmes agricoles au travers de méthodes et de technologies (Sarr & Traore 2010). L'agriculture extensive est considérée comme une stratégie visant à compenser la baisse des rendements en l'absence d'une amélioration des itinéraires techniques de cultures. Plus de 80 pour cent des éleveurs interrogés ont dit avoir, en sus de l'élevage d'autres activités, notamment l'agriculture. Mais la combinaison de l'agriculture avec l'élevage est beaucoup plus fréquente dans la vallée que dans le Ferlo.

Les demandes des éleveurs et le rôle des structures sont un débat que les structures – organisations professionnelles, services techniques, collectivités – doivent entamer si elles veulent apporter un appui aux éleveurs face aux

changements, et éviter la démultiplication non coordonnée des actions (Kamil & Larbodièrè 2010). Mais cette extension se fait au détriment des espaces pastoraux (CSAO/OCDE 2008). Un constat similaire est fait dans d'autres régions administratives et d'autres zones écogéographiques du Sénégal septentrional, particulièrement dans la région de Saint-Louis et dans le delta du fleuve Sénégal (Ba *et al.* 2019 ; Ba *et al.* 2020 ; Cissokho *et al.* 2019). La croissance des superficies consacrées à l'agriculture a entraîné la contradiction des parcours pastoraux (Cissoko *et al.* 2019). Dans l'avenir, la LOASP (Loi d'orientation agro-sylvo-pastorale) pourrait soit donner de l'air à l'élevage pastoral, soit précipiter sa mutation vers des formes moins mobiles et plus intensives (Magrin 2008). C'est toute la question de développement durable qui se trouve posée avec acuité dans ce nouveau contexte, où les facteurs d'imprévisibilité vont croître et les ressources décroître. Les ligneux de la région, en particulier dans le Ferlo, ont considérablement souffert de la variabilité climatique. Or la régénération naturelle n'est malheureusement pas assurée. Cependant, l'espoir est toujours permis, surtout avec la volonté des décideurs politiques, matérialisée par la création de l'Agence de la Grande muraille verte. La finalité est de préserver les ressources encore existantes, puis de contribuer à la régénération qui est complétée par des plantations judicieusement mises en place, entretenues et protégées. Cela confère un certain optimisme quant à l'avenir du secteur agropastoral, en particulier, dans sa composante de l'élevage (Ba 2018). Les forages y ont modifié la structuration spatiale, les mouvements de bétail, les affectations des activités et les rapports sociaux aux ressources. Les unités pastorales ont constitué un cadre d'aménagement de l'espace autour des forages, mais aussi de gestion des services et de l'organisation des usagers des ressources (Ba 2018). Aussi certaines stratégies comme les Champs-écoles des producteurs cadrent-elles avec les Objectifs de développement durable de l'ONU, qui visent à renforcer les moyens d'existence des ruraux en assurant, entre autres, la sécurité alimentaire, tout en réduisant la pression sur les ressources naturelles (FAO 2017).

Cette situation confirme la remarque de Chaleard et Charvet (2004), qui trouvent que dans les régions semi-arides les risques d'érosion et de destruction des sols sont plus élevés. Il peut s'agir d'érosion par ruissellement, mais aussi d'érosion éolienne, les deux pouvant se combiner. L'érosion est encore plus agressive quand les sols sont nus, comme c'est de plus en plus le cas dans la région de Matam. La question fondamentale est de savoir si ces stratégies sont suffisantes pour faire face aux événements climatiques extrêmes. D'où la nécessité de bien évaluer les impacts des changements climatiques en vue de proposer des stratégies culturellement, socialement et économiquement fondées (N'djafa Ouaga 2010).

Conclusion

Cette étude visait à évaluer l'impact de la variabilité climatique dans la région de Matam et les différentes stratégies de résilience développées par la population pour y faire face. L'aridification constitue le principal blocage du secteur agricole avec comme corollaire la baisse des rendements et la diminution du couvert végétal. Les résultats obtenus ont montré que les paysans de la région de Matam ont, dans le Ferlo comme dans la vallée, une bonne lecture des manifestations de la variabilité et du changement climatique. Les indicateurs utilisés confirment la variabilité climatique avec une tendance à la péjoration. Différentes stratégies ont été développées pour contrer ces aléas climatiques.

Les résultats ont également montré que les perspectives des activités agropastorales sont incertaines. Elles ne sont pas encore précises, surtout dans le contexte macroéconomique du Plan Sénégal émergent, avec l'objectif déclaré d'autosuffisance alimentaire, en riz notamment. Certes, l'élevage tend à être mieux pris en charge à travers l'approche territoriale favorisée par la décentralisation. Mais dans la même foulée, les aménagements hydroagricoles en cours risquent d'impacter négativement sur la mobilité indispensable aux systèmes pastoraux. Ainsi, l'étude des paysages agricoles à l'aide d'une cartographie diachronique et des modèles de projection climatique à l'échelle du Sénégal, voire de l'Afrique de l'Ouest, peut à l'avenir constituer une contribution importante pour la gestion des impacts du changement climatique.

Note

1. Ces projets agricoles se sont répandus dans le contexte de la GOANA (Grande offensive agricole pour la nourriture et l'abondance). Mais actuellement, la plupart d'entre eux relèvent de la propriété privée.

Bibliographie

- ADR/région de Matam, 2013, Profil environnemental de la région de Matam, 118 p.
- Ba, D. D., 2018, Sécheresse climatique, dynamique actuelle et perspectives des activités agropastorales dans le Ferlo et la moyenne vallée du fleuve Sénégal (région de Matam), thèse de doctorat unique, Université Gaston-Berger de Saint-Louis, Section de géographie, 216 p. <https://hal.archives-ouvertes.fr/tel-03150616>
- Ba, D. D., Diop, T., et Sow, S. A., 2020, "Plant cover trends in a context of draught and pastoral activities' resilience in the Matam Region in northern Senegal: the case of the Ferlo Biosphère Reserve (RBF)", *Nature & Faune*, Vol. 33, n° 1, ISSN-L : 2026-5824 <http://www.fao.org/3/ca8253en/ca8253en.pdf>

- Ba, D. D., Diop, T., et Ndiaye, P. M., 2019, « Impact de la variabilité pluviométrique sur la dynamique spatiotemporelle des surfaces agricoles dans le delta du fleuve Sénégal », *Revue Ahôhò du LARDYMES* n° 22, ISSN 1993-3134, juin, p. 126-136.
- Ba, D. D., Ndiaye, P. M. et Faye, C., 2018, « Variabilité pluviométrique et évolution de la sécheresse climatique dans la vallée du fleuve Sénégal », *Revue togolaise des Sciences*, vol. 12, n° 1, p. 57-71.
- Chaleard, J.-L. et Charvet, J.-P., 2004, *Géographie agricole et rurale*, Paris, Belin, 240 p.
- Cissoko, D., Ba, D. D., Faye, C., Bommbaty, I., Thiare, M. et Mane, H., 2019, « Variabilité pluviométrique et reconfiguration de l'occupation du sol dans le delta du fleuve Sénégal », *Journal algérien des régions arides*, ISSN 2676-2226, 13(2), p. 30-36. <https://www.crstra.dz/telechargement/journals/jara-13-2019/pdf/variabilite-pluviometrique-et-reconfiguration-de-l-occupation-du-sol-dans-le-delta-du-fleuve-senegal.pdf>
- CSAO/OCDE, 2008, Élevage et marché régional en Afrique de l'Ouest : potentialités et défis. Étude réalisée dans le cadre du partenariat entre la Commission de la CEDEAO et le Secrétaire du CSAO/OCDE sur l'avenir de l'élevage au Sahel et en Afrique de l'Ouest, 182 p.
- CSAO/OCDE, 2011, Enjeux ouest-africains : stocks d'urgence au Sahel et en Afrique de l'Ouest, 34 p.
- Dieye, P. O., 2010, « Le Sahel face aux changements climatiques. Enjeux pour un développement durable », *Bulletin mensuel*, Numéro spécial, Centre Régional Agrhymet, CILSS, Niamey.
- Diouf, B., Lo, H. M., Dieye, B., Sané, O., et Sarr, O. F., (Eds) [au compte de la Plateforme nationale de Dialogue science-politique du Sénégal (CCASA)], 2015, « Vers un dialogue science-politique pour l'adaptation de l'agriculture au changement climatique au Sénégal : État des lieux et des acteurs institutionnels et politiques », *Document de travail* n° 101, Programme de recherche du CGIAR sur le changement climatique, l'agriculture et la sécurité alimentaire (CCAFS), 60 p.
- Duplantier, A., Gracia, C., et Worldmichael, M., 2012, « Sécurité alimentaire et changement climatique : la relation est-elle vérifiable? », *Journal des étudiants en développement* I, (1), p. 7-14.
- FAO, 2017, *Champs-écoles des producteurs. Document d'orientation*, 123 p.
- Gaye, D., et Sow, S., 2016, « Impacts des variations pluviométriques sur les écoulements de surface dans la vallée du Sénégal », *Revue de géographie de l'Université de Ouagadougou-Pr Joseph Ki-Zerbo*, n° 05, Vol. 2, p. 167-183.
- GNT0, 2017, La résilience et l'adaptation au changement climatique, https://www.enr.gov.nt.ca/sites/enr/files/cscs_resilience_ladapation.pdf
- Heinrigs, P., s. d., Gouvernement des Territoires du Nord-Ouest, *La résilience et l'adaptation au changement climatique*, 1 p. https://www.enr.gov.nt.ca/sites/enr/files/cscs_resilience_ladapation.pdf
- Heinrigs, P., 2010, « Incidences sécuritaires du changement climatique au Sahel : perspectives politiques », CSAO, 32 p.

- Ibrahim, B., 2012, Caractérisation des saisons de pluies au Burkina Faso dans un contexte de changement climatique et évaluation des impacts hydrologiques sur le bassin du Nakanbé, thèse de doctorat de l'Université Pierre et Marie Curie, 246 p.
- Kamil, H., et Larbodièrre, L., 2010, *Pastoralisme, développement durable et changement climatique dans le Ferlo*, Actes de l'atelier, AVSF, 90 p.
- Lallau, B., et Thibaut, E., 2009, «La résilience en débat : quel devenir pour les agriculteurs en difficulté?», *Revue d'études en agriculture et environnement*, 90 (1), p. 79-102.
- Magrin, G., 2008, «Synthèse des travaux menés au Sénégal», dans G. Duteurtre (Dir.), *Rapport scientifique annuel du projet de recherche Icare*, ATP Icare, p. 21-24.
- Magrin, G., 2008, «Dynamiques territoriales et place de l'élevage au Sénégal», *Documents de travail Icare*, Série Notes de synthèse, n° 2, Cirad, Montpellier, 22 p.
- N'djafa Ouaga, H., 2010, «Pratiques locales d'adaptation», *Centre régional AGRHYMET, Bulletin mensuel*, numéro spécial, p. 33-34.
- OCDE/CSAO, 2008, Climat, changements climatiques et pratiques agropastorales en zone sahélienne, 8 p.
- Quarto, A., et Thiam, I., 2018, «Restauration communautaire et écologique de la mangrove (CBEMR) : rétablir un écosystème côtier plus riche en biodiversité et plus résilient avec la participation de la communauté», *Nature et Faune*, vol. 32, n° 1, p. 44-52.
- Quenum, L. D. M. G., Alamou, A. E., Lawin, E. A., Badou, D. F., et Afouda, A. A., 2016, «Variabilité spatio-temporelle de la pluviométrie dans le bassin de l'Ouémé, Bénin», *Afrique Science* 12(3), p. 315-328.
- Sarr, B., et Traore, S., 2010, «Impacts des changements climatiques sur quelques secteurs clés : impacts sur l'agriculture», *Centre régional AGRHYMET, Bulletin mensuel*, numéro spécial p. 22-24.
- Sy, A. A., 2013, Dynamique sédimentaire et risques actuels dans l'axe Saint-Louis – Gandiol, littoral nord du Sénégal, thèse de doctorat unique, Université Gaston Berger de Saint-Louis. Section de géographie, 328 p.
- Sy, B. A., 2008, Milieux, sécheresse climatique et érosion éolienne, étude géomorphologique du sahel sénégalais, thèse de doctorat d'État, Université Gaston-Berger de Saint-Louis. Section de géographie, 429 p.
- Yapi-Gnaoré, Chia, Vall, E., Havard, M., Kanwe, A., Sangaré, M. M., 2014, «Production et gestion des connaissances pour renforcer la résilience des systèmes agropastoraux», dans *Des systèmes agro-sylvo-pastoraux innovants pour nourrir l'Afrique de l'Ouest et du Centre*, actes de colloque, Niamey, 16 au 19 juin, 14 p.
- Yaro, R., 2019, La résilience des agriculteurs face aux changements climatiques : un exemple d'application au Burkina Faso, mémoire de maîtrise en agroéconomie de l'Université Laval, Canada, 116 p.



Les dynamiques transfrontalières et la sécurité alimentaire au Sénégal : la filière anacarde dans le Fogny-Kombo (Commune de Kataba 1)

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Résumé

La mobilité transfrontalière a toujours été une ressource qu'utilise la population en vue d'améliorer ses conditions de vie. L'exploitation de la culture d'anacarde dans le Fogny-Kombo, est, au-delà d'une stratégie d'adaptation aux aléas climatiques et de reconstruction d'un territoire balkanisé, un phénomène d'illustration de la relation mobilité/sécurité alimentaire. Le cumul des facteurs naturels (rareté des pluies, la salinisation des terres) et socio anthropique (le fort taux de scolarisation et d'exode rural) ont rendu impossible le développement des cultures céréalières et arachidières. Dans ce contexte, grâce à la filière anacarde, la population du Fogny-Kombo arrive à une sécurité alimentaire. En réalité, les mobilités transfrontalières constituent un facteur essentiel du grand essor de cette arboriculture, garant d'un équilibre alimentaire. Pour analyser la relation sécurité alimentaire/mobilité transfrontalière dans le Fogny-Kombo, une méthodologie mixte à la fois qualitative et le quantitative est convoquée. Ainsi, au-delà de la littérature,

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50 producteurs ont été mobilisés pour répondre au guide d'entretien semi-directif. Le résultat tiré de cet exercice montre une relation réelle entre les mobilités transfrontalières et le développement de la filière anacarde, source de sécurité alimentaire en Fogny-Kombo.

Mots-clés : territoire, frontière, dynamique transfrontalière, sécurité alimentaire, Fogny-Kombo, Sénégal

Abstract

Cross-border mobility has always been a resource used by people to improve their living conditions. The exploitation of the cashew nut culture in Fogny-Kombo is, beyond a strategy of adaptation to climate hazards and reconstruction of a balkanised territory, an illustration of the mobility/food security relationship. The combination of natural factors (scarcity of rains, salinisation of lands) and socio-anthropoc factors (high schooling rate and rural exodus) have made it impossible to develop cereal and groundnut crops. In this context, thanks to the cashew nut industry, the population of Fogny-Kombo has achieved food security. In fact, cross-border mobility is an essential factor in the growth of this tree crop, which guarantees a balanced diet. To analyse the relationship between food security and cross-border mobility in Fogny-Kombo, a mixed qualitative and quantitative methodology has been adopted. Thus, in addition to the literature, 50 producers were mobilised to respond to the semi-directive interview guide. The result of this exercise shows a real relationship between cross-border mobility and the development of the cashew nut sector, a source of food security in Fogny-Kombo.

Keywords: Territory; border; cross-border dynamics; food security, Fogny-Kombo, Senegal

Introduction

En Afrique de l'Ouest, la fraternité territoriale et l'existence du potentiel qu'offre la frontière constituent un facteur fondamental dans le processus de sécurité alimentaire. Rupture ou discontinuité spatiale essentielle, la frontière est généralement considérée comme une ligne de démarcation entre deux ou plusieurs territoires politiques (Foucher 1991; Sall 1992). De ce fait, elle est l'incarnation spatiale du pouvoir étatique et crée des effets-frontières dont la population tire profit. En Afrique, les espaces frontaliers sont des zones de fortes et solides solidarités sociales, culturelles et économiques (Diallo 2014 ; Kane 2010).

Le Fogny-Kombo, espace frontalier avec la République de Gambie, se caractérise par d'intenses et multiples mobilités transfrontalières (Mané 2015). De nos jours, celles-ci accompagnent le processus de développement

de la filière anacarde, garant d'une sécurité alimentaire. Quelle est la relation entre la mobilité transfrontalière et le développement de la filière anacarde ? Dans quelle mesure cette filière est-elle source de sécurité alimentaire dans cette partie du Sénégal ?

À l'image de tout le continent, et du Sénégal en particulier, la zone du Fogny-Kombo présente un bon cadre d'analyse de cette problématique de relation entre mobilité et sécurité alimentaire. L'originalité de cet espace se manifeste par son caractère transfrontalier très dynamique (Enda Diapol 2007). Malgré la différence étatique, la zone est surtout marquée par la forte présence de traits caractéristiques identiques, favorisant de robustes solidarités et des dynamiques sociales, culturelles, économiques qui peuvent être source de sécurité alimentaire.

Le présent article se fixe pour objectif principal d'analyser le rôle des dynamiques transfrontalières dans le processus de sécurité alimentaire au Sénégal. Il cherche à mettre un accent particulier sur la relation entre mobilité, développement de la filière anacarde et sécurité alimentaire dans la commune de Kataba 1. En d'autres termes, ce travail vise à analyser l'apport des mobilités transfrontalières dans le processus de dynamisation de la filière anacarde comme stratégie de sécurité alimentaire dans la zone.

Pour une bonne prise en charge de la question de recherche, l'article s'occupe premièrement du principe lié à la démarche. Elle consiste en une approche méthodologique dont la finalité est de présenter les différents outils mobilisés. À cet effet, la démarche mixte basée sur la méthode quantitative et qualitative a été convoquée. Ensuite, l'intérêt est porté sur les stratégies et les politiques mises en place dans une perspective de sécurité alimentaire au Sénégal et dans le Fogny-Kombo. Pour donner une dimension historique à la recherche, un accent particulier est mis sur le passé des mobilités agricoles. Enfin, la sécurité alimentaire est analysée dans le triptyque mobilité, développement de la filière de l'anacardier et garantie alimentaire.

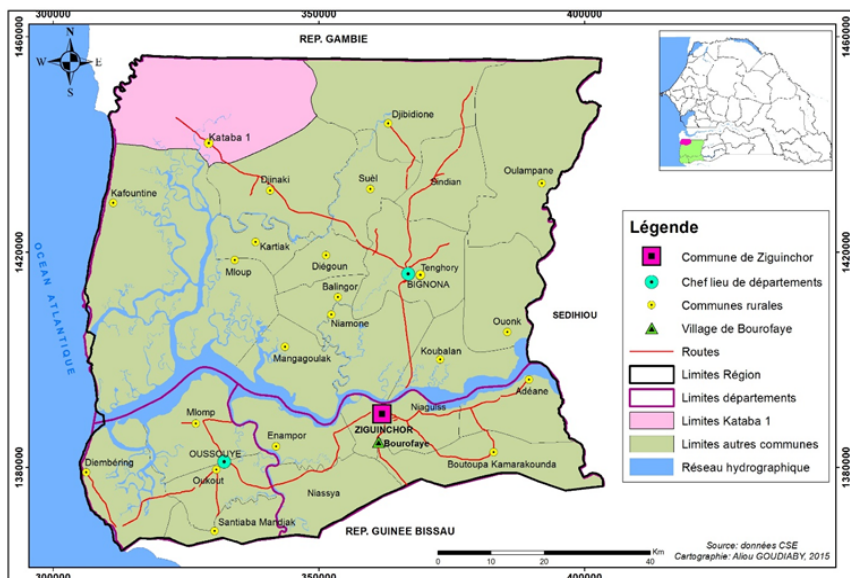
Méthodologie et conceptualisation

Présentation de la commune de Kataba 1

De façon spécifique, notre espace de recherche se situe dans la commune de Kataba 1. C'est une zone du Sénégal localisée en Basse Casamance, au nord du département de Bignona, dans la région de Ziguinchor (cf. Carte 1).

Cette commune a été instituée à l'occasion de l'érection en commune en 2008 de Diouloulou, qui était l'ancien chef-lieu de la communauté rurale. Mais avec l'avènement de l'acte III de la décentralisation, marqué par la communalisation intégrale au Sénégal, la commune de Kataba 1 est créée

en 2014. Elle couvre une superficie de 714 km². Elle est limitée au nord par la République de Gambie, au sud par les communes de Kafountine et Djinaky, à l'ouest par l'océan Atlantique et la République de Gambie et à l'est par les communes de Djinaky et Djibidione.



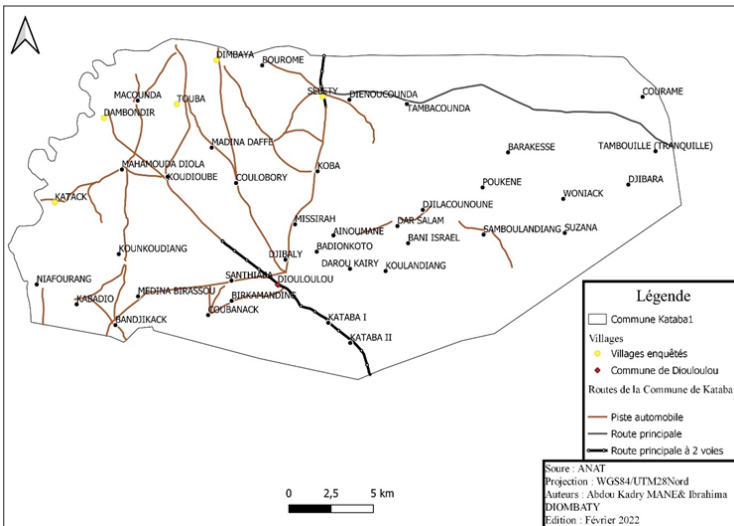
Carte 1 : Situation géographique de Kataba 1

Méthodologie

La démarche suivie dans le cadre de cette recherche repose essentiellement sur la documentation et le travail de terrain. Si la documentation, très riche et variée, a permis de mieux comprendre l'intérêt qu'a suscité cette problématique de recherche, elle laisse voir que la littérature, dans le contexte de la relation entre mobilités transfrontalières et sécurité alimentaire, reste assez muette. Le travail de terrain s'appuie sur des enquêtes réalisées dans le cadre du mémoire de master (Mané 2015) et de la thèse de doctorat en cours. Des séjours fréquents dans cette zone ont permis des observations directes. Ce sont aussi des occasions d'être en contact avec des personnes-ressources et de bâtir un réseau facilitant le travail à distance. Si l'enquête téléphonique a permis de gagner du temps, l'achat du crédit téléphonique, l'instabilité du réseau, le manque de téléphones pour certains acteurs ont constitué les principaux blocages du travail de terrain. Elle a par conséquent supposé une approche participative par laquelle des connaissances ont facilité les entretiens avec des acteurs impliqués dans la filière.

L'enquête est réalisée sur cinq villages de la commune de Kataba 1. Il s'agit notamment de Dombondir, Dimbaya, Katak, Touba Tranquille et Sélét. Le choix de ces localités est fait selon la proximité de la frontière et le niveau de développement de la filière. Quant aux exploitations, la méthode du choix raisonné, une méthode non probabiliste, ou empirique, a été privilégiée. Cette démarche n'obéit à aucune justification théorique ni rigueur statistique, mais se fait de façon raisonnée (Tano 2012:95). Ainsi, elle a permis de gagner du temps et de choisir les exploitants répondant le mieux à notre problématique. Un des critères majeurs du choix des exploitants se fonde sur la présence d'acteurs ou ouvriers n'appartenant pas au ménage. Sur cette base, au total, 50 producteurs de noix de cajou ont été interrogés à raison de 10 producteurs par village (cf. Carte 2).

Il convient de noter que notre appartenance à cette région et notre plurilinguisme ont été un atout capital dans le travail d'enquête. En effet, la Casamance, vaste région située au sud du Sénégal, se caractérise par une pluralité ethnolinguistique (Pélessier 1966 ; Sané 2017) unie par la culture (cousinage à plaisanterie) et l'esprit de fraternité. En plus, ce plurilinguisme a permis de surmonter la barrière liée à la langue, car les interlocuteurs, majoritairement non scolarisés, s'expriment en plusieurs langues locales. De fait, le biais que pouvait représenter cette appartenance est compensé par la facilité des discussions directes avec les acteurs et la compréhension de certains codes culturels. Il faut noter de surcroît que les travaux de recherche réalisés ou encore en cours (mémoires de master et de thèse) dans cette zone de frontière ont été fondamentaux dans la compréhension de la problématique.



Carte 2 : Localisation des villages enquêtés | Source : Mané et Diombaty (2019)

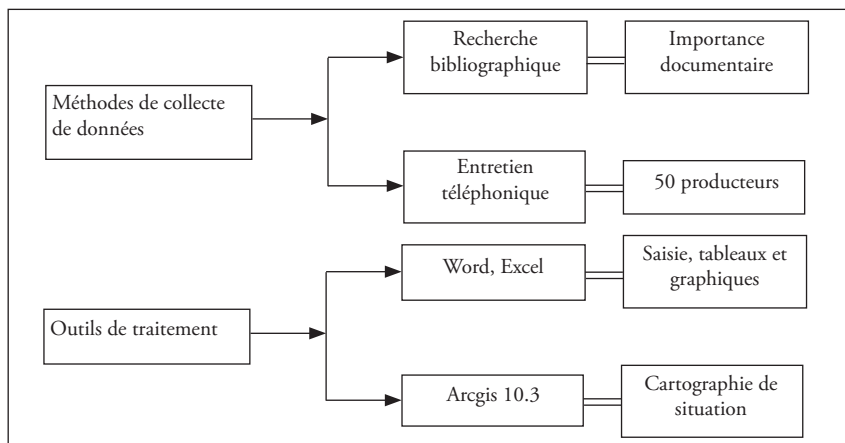


Figure 1 : Étapes de la démarche

Le Fogny-Kombo, territoire étatique, espace de vie et sécurité alimentaire

Il ne s'agit pas ici de faire une définition substantielle des concepts, mais de voir les interrelations entre les différents concepts permettant une meilleure compréhension de la problématique, dont les mots-clés sont : territoire, frontière, mobilité, sécurité alimentaire, Fogny-Kombo.

Selon la littérature, le territoire est conçu comme un espace approprié par un groupe social qui l'aménage et le gère (Brunet, Ferras & Théry 2006). C'est donc un espace habité, transformé et gouverné par une société humaine qui y manifeste son existence. Dans cette définition, ce concept a un sens juridique, politique, social, culturel et affectif (Ferrier 2002). Ici, il est bien limité et mesurable. Il est constitué par des limites, des bornes. Il est aussi acquis par un groupe avec ses besoins de subsistance, qui y manifeste son identité. Le territoire est alors un espace approprié (Di Méo 2001). Dès lors apparaît la notion de frontière. Celle-ci peut être considérée comme un trait d'union, un espace commun, une zone de couture qui peut devenir par ailleurs une zone de rupture, de rapport de force ou d'opposition (Igué 1995 ; Bennafla 2002 ; Kane 2010 ; Diallo 2014).

Dans ce contexte, l'espace sur lequel porte notre réflexion s'ouvre largement à cette conception politique et sociale du territoire (Badie 1995), qui caractérise la structuration territoriale et administrative du Sénégal, bien délimité dans sa partie nord par une frontière politique, que composent les communes de Djinaky, Diouloulou, Kafountine, et Kataba 1. Cet espace géographique couvre à la fois un territoire politique circonscrit par une frontière coloniale et entretenu par l'État, et un autre territoire transcendant cette limite et animé par la population. Il constitue l'espace transfrontalier, l'à cheval de la frontière sénégal-gambienne.

Cet espace appartenait aussi au sous-territoire du Narang et du Kombo (Enda Diapol 2007). Ces deux entités qui, avant la mise en place de la frontière, étaient à cheval sur les États actuels du Sénégal et de la Gambie, constituaient un espace commun. Ce territoire est très vaste, couvre des localités gambiennes ainsi que la quasi-totalité des villages de l'arrondissement de Kataba 1. Il constitue donc l'espace de vie de la population, divisé en deux territoires par une frontière étatique politiquement et administrativement différents.

Mais dans le contexte de ce travail, il convient de signaler qu'en raison des disponibilités et du manque de moyens, notre objectif de couvrir tout le vaste espace du Fogny-Kombo a été réduit au territoire de la commune de Kataba 1, qui partage une large frontière avec la Gambie.

La spécificité de ce territoire peut être perçue à travers une certaine caractéristique spatiale : sa continuité socioculturelle, sa territorialité, sur le plan géographique et géophysique, son dynamisme, animé par la forte mobilité transfrontalière des personnes et des biens. Ce qui donne une homogénéité sur tous les plans et un sens à ce territoire transfrontalier ou espace de vie. Malgré cet atout, la zone est le théâtre des contraintes mutuelles. En effet, si les autochtones sont contraints de pratiquer leur mode de vie en dépit des gardes frontières, ces derniers éprouvent beaucoup de mal à endiguer les multiples stratégies peaufinées par la population locale.

De ce fait, les mouvements réguliers, autorisés, ou bien irréguliers, les stratégies de contournement des habitants qui s'effectuent de part et d'autre de la frontière pour des besoins vitaux ou relationnels, inscrivent la zone dans les dynamiques transfrontalières (Sène 2019).

Ainsi, une double explication sur le plan à la fois économique et socioculturel pourrait être donnée aux mobilités transfrontalières en tant que source de sécurité alimentaire. Elles gagneraient à être mieux organisées, mais elles échappent aux dispositifs législatifs et réglementaires de surveillance des frontières mis en place par les États et qui influent négativement sur les stratégies de sécurité alimentaire. En outre, elles sont ignorées par les pouvoirs publics, qui les qualifient d'illicites ou d'informelles, alors qu'elles jouent un rôle non négligeable dans le processus de sécurité alimentaire du Fogny-Kombo.

Aujourd'hui, une analyse de son passé permet de comprendre les dynamiques observées dans le Fogny-Kombo. Il faut rappeler que cet espace jadis uni a connu une histoire très mouvementée. En réalité, pendant la période pré-coloniale, ce territoire est occupé par plusieurs entités politiques issues de la désintégration des grands ensembles ayant dominé la Sénégalie (empires du Ghana, Mali, Gabou...) (Enda Diapol 2007). Elles constituent les principales formations politiques antérieures à la colonisation de la région (Barry 1988 ; Sall 1992).

On peut cependant s'accorder pour dire que cet espace était et reste relativement homogène sur tous les plans. En effet, les habitants de cette zone, à la veille de la colonisation, appartenaient à des familles culturelles diverses. Néanmoins, il existe une homogénéité globale de ce sous-espace autant sur le plan physique que sur le plan social. Ce qui explique les dynamiques socio-spatiales que vit la zone.

Tout d'abord, le cadre géophysique a contribué au maintien d'une homogénéité des pratiques culturelles, sociales, économiques sur l'axe Banjul-Bissau (Pélissier 1966 ; Person 1974). Les espaces ethnolinguistiques étaient eux-mêmes globaux, car ils sont constitués essentiellement des groupes de populations tels que les Mandingues, les Diolas, les Mandjacks, les Bainoucks, les Balantes, les Mancagnes... partagés de part et d'autre de la frontière... En d'autres termes, ces phénomènes maintiennent une cohésion pacifique des acteurs.

Une bonne qualité de l'alimentation comprend une variété ou diversité adéquate, donnant un équilibre nutritionnel à l'être humain. La sécurité alimentaire est, selon l'Organisation mondiale de la santé, considérée comme un ensemble d'alimentations saines, protégeant contre la malnutrition sous toutes ses formes, mais également contre les maladies non transmissibles (cancer, diabète, maladies cardiaques et accidents vasculaires cérébraux) (FAO 2020). Dans ce sens, l'alimentation est considérée comme le premier médicament et la lutte contre l'insécurité alimentaire permet de garantir une bonne santé à la population.

En outre, la sécurité alimentaire est la possibilité qu'ont les hommes à tout moment d'accéder physiquement, socialement et économiquement à une nourriture suffisante, saine et nutritive, leur permettant de satisfaire leurs besoins énergétiques et leur préférence alimentaire pour mener une vie saine et active (Caillavet *et al.* 2014). L'insécurité alimentaire, quant à elle, décrit la situation où la possibilité de s'approvisionner en nourriture suffisante et adéquate sur le plan nutritionnel et de façon socialement acceptable est limitée ou incertaine (Anderson 1990, cité dans Abdelkader 2017).

Les notions de qualité et de diversité qui sont utilisées dans la définition de la sécurité alimentaire, importante à investir dans notre zone, ne sont malheureusement pas prises en charge dans le cadre de cette recherche. En revanche, ici, la sécurité alimentaire est considérée comme la capacité d'un peuple à garantir une stabilité alimentaire (World Bank 1986 ; Abdelkader 2017). Ainsi, dans notre zone de recherche, grâce au développement, appuyé par des mobilités transfrontalières, de plantations d'anacardiens, les paysans parviennent généralement à assurer la garantie alimentaire du riz. Ainsi, la sécurité alimentaire est prise comme la disponibilité en permanence de vivres dans le ménage.

Discussion des résultats

Politiques et stratégies de sécurité alimentaire

La sécurité alimentaire est une problématique qui a toujours occupé le devant de la scène internationale. Elle traduit une façon d'améliorer ou de garantir les conditions de vie permettant de passer d'un état d'insuffisance à celui de suffisance (Minvielle & Lailler 2005 ; FAO 2014).

Cependant, la question de la sécurité alimentaire semble progressivement être phagocytée par celle de la pauvreté, du fait de la complexité du problème, et cela l'inscrit désormais au premier plan des préoccupations du monde (Minvielle & Lailler 2005). Pour répondre à ce combat imposé par des facteurs naturels (changement climatique) et anthropiques (conflits, migration, exode rural, expansion urbaine...), plusieurs initiatives ont été mises en œuvre par des populations. Parmi les stratégies utilisées pour la sécurité alimentaire, la mobilité est une des plus anciennes. Il y a également une adaptation de nouvelles cultures agricoles, telles que la plantation d'anacardier dans le Fogny-Kombo.

Le Sénégal est une terre d'immigration agricole : le mouvement *navétane* est occasionné par les paysans qui viennent, pendant l'hivernage, dans la région du Bassin arachidier, pour travailler comme ouvriers agricoles (Diallo 2014). En effet, le développement de la filière arachidière, dont le pays fut leader mondial dans les années quatre-vingt, s'est accompagné de mouvements migratoires en provenance de tout le continent africain, notamment des pays comme le Mali, la Guinée-Bissau, le Burkina Faso, le Niger, etc. La migration intra-muros ou à l'intérieur du pays pour le développement de l'activité agricole a également été examinée dans le cadre des stratégies de sécurité alimentaire. Les mouvements des cultivateurs du bassin arachidier vers Pata, Médina Yoro Foula (MYF) et en Haute-Casamance en général, sont déployés – entre autres stratégies – pour faire face au déplacement de l'isohyète 1 500 mm de la zone centre vers le sud (Sidibé 2002). En outre, l'un des mouvements les plus spectaculaires a été celui de la conquête des Terres neuves. Cette politique fut engagée dans les années quatre-vingt par l'État du Sénégal dans le but de préserver les terres du bassin arachidier, dont la surexploitation rendait les sols pauvres et créait une menace pour la sécurité alimentaire.

Sur le plan régional, des politiques de prise en charge de la problématique de sécurité alimentaire ont été l'œuvre de certaines institutions. La Communauté économique des États de l'Afrique de l'Ouest (CEDEAO), l'Union économique et monétaire ouest-africaine (UEMOA), le Comité inter-États de lutte contre la sécheresse dans le Sahel (CILSS), l'Organisation ouest-africaine de la santé sont les principales institutions de la sous-région en charge des politiques

et stratégies de sécurité alimentaire (FAO 2014). C'est pourquoi, malgré la vulnérabilité alimentaire dont la plupart des États dits du Sud font montre, les initiatives de politique et de stratégie de sécurité alimentaire expérimentées et en voie d'expérimentation ont par endroits eu des effets positifs.

Au Sénégal, à l'image des autres pays ouest-africains, bien qu'il n'y ait pas de recette en la matière, les résultats tangibles sont souvent le fruit d'engagements politiques ayant pris plusieurs formes (PNIA/Sénégal 2009 ; NEPAD 2013 ; Dubresson *et al.* 2014). Ils créent une impulsion à haut niveau et une gouvernance améliorée du secteur agricole. Les approches globales et complémentaires créent un environnement porteur de développement ou de sécurité alimentaire (FAO 2015). C'est la raison pour laquelle les acteurs politiques des années post-indépendance du Sénégal se sont pleinement investis dans la sécurité alimentaire à travers des projets, des programmes et des plans multiples et variés, dont les derniers en date restent le Retour vers l'agriculture (REVA), la Grande Offensive agricole pour la nourriture et l'abondance (GOANA), le Plan Sénégal émergent (PSE), le Programme national d'investissement agricole (PNIA). Ces politiques visent la mise en œuvre d'une approche intégrée qui favorise le développement des chaînes de valeurs et la structuration des filières. Elles permettent de valoriser le potentiel agricole du Sénégal (PSE 2014) et de le situer dans une dynamique de développement des ressources et potentialités agro-écologiques.

Anacarde, une filière naissante dans le Fogny-Kombo

Les récentes crises liées à la rareté des ressources de subsistance, accompagnée par la flambée des prix des denrées de première nécessité, ont suscité un regain d'intérêt envers la question de la sécurité alimentaire (CILSS, FAO, FEWSNET, WFP 2010). En Afrique de l'Ouest, et particulièrement en Sénégal, cette question a été évincée pendant une période donnée par d'autres priorités. L'importation de vivres ou de produits céréaliers a été privilégiée, et cela s'est fait au détriment d'une politique endogène de développement agricole (Ba 2008).

En effet, la panoplie de politiques visant à protéger les citoyens et déployée par les autorités publiques, privées, voire par l'ensemble des acteurs, a créé par endroits un déséquilibre. Le dénuement des campagnes et ses conséquences, parmi lesquelles l'exode rural, sont à l'origine de la promiscuité urbaine. Le grenier est remplacé par la boutique de Modou ou de Diallo, car le cultivateur est devenu laveur, ambulancier, chauffeur ou *modou-modou*¹. L'incapacité des villes à accueillir des nouveaux venus en raison d'équipements insuffisants fait glisser les problèmes du milieu rural au milieu urbain (Mbow 2017). Comment

maintenir ou entretenir la population rurale et faire face à la restructuration urbaine? Telle est l'épine dorsale du questionnement des politiques publiques des pays dits du Sud.

Au Sénégal, comme nous l'avons dit dans les lignes précédentes, la politique du grand retour vers la terre pour une sécurité alimentaire a été primordiale en vue d'éradiquer la faim et de retenir les ruraux pour redynamiser la relation entre ville et campagne. Cependant, le constat qui se dégage est que les problèmes posés se déclinent toujours en termes d'insuffisance des précipitations et de productivité agricole. Ils sont aussi analysés en termes de prix internationaux et de capacité des populations les plus défavorisées à acquérir le pouvoir d'achat nécessaire pour faire face à leurs besoins nutritionnels. La sécurité alimentaire relève à présent des problématiques plus générales de la sécurité humaine (Minvielle & Lailler 2005). Il faut dès lors trouver une culture résiliente face aux changements climatiques et qui réponde aux prix du marché.

Dans cette perspective, la mise en place de l'agropole Sud en Casamance pourrait booster le niveau de production de l'anacarde, dont les effets sont en gestation dans cette région du Sénégal. En effet, les autorités du pays, en collaboration avec la Banque africaine de développement (BAD) et la Banque islamique de développement (BID), mettent en place le projet de transformation agro-industrielle du Sud. L'agropole Sud vise généralement à améliorer les conditions de vie des populations à travers un développement agricole rentable et durable grâce au rayonnement de l'arboriculture et à la culture de céréales, source de sécurité alimentaire.

En ce qui concerne l'anacarde au Sénégal, il faut rappeler que la filière était en effet considérée comme inappropriée à l'exportation. L'arbre était vu en tant qu'espèce forestière à statut de propriété collective (ministère de l'Environnement 2007). La pomme était un fruit important et fortement consommé par la population, et la noix était quasi inexploitée (Sarr 2002; Dieng *et al.* 2019). Sa production était également très faible.

Il faut souligner que c'est surtout à la fin des années 1970 que l'apparition d'une filière encadrée et assez bien structurée a été constatée (Sarr 2002). Les programmes de développement de l'anacarde ont vu le jour. D'ores et déjà, ont été créés, à partir 1973, la Société de décorticage des noix d'anacarde du Sénégal (SODENAS) et le programme bilatéral dénommé Projet anacardier sénégalais-allemand (PASA). Ces politiques avaient pour objectif le développement de la filière au Sénégal.

La SODENAS était ainsi actrice principale dans le ramassage et la commercialisation des produits de cajou, contrôlant tout le circuit commercial. Mais en 1986, le marché a été libéré et la production nationale bien structurée

et encadrée (Ndiaye 2013). Le système de production, de collecte et de commercialisation des produits d'anacarde devint par conséquent de plus en plus organisé (Coly, Diallo & Weibigué 2021). Cependant, seul l'État homologue le prix.

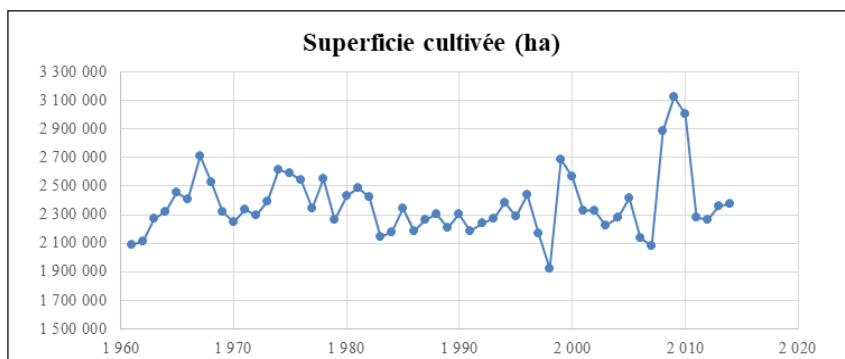


Figure 2 : Évolution des superficies emblavées de 1960 à 2020

Source : WDI, FAOSTAT, calcul auteur/communication doctorale ED2DS/UT Touré (2018)

À l'image des autorités étatiques, les paysans ont expérimenté des solutions à la fois positives et négatives dans la sécurité alimentaire du pays. La solution concernant les phénomènes naturels qui s'inscrivent au premier rang des problèmes a été le développement de mécanismes, de stratégies d'adaptation. Les acteurs ont pour la plupart opté pour l'anacarde (cf. Photo 1). Cette observation est confirmée par les plus récentes recherches sur l'agriculture en Casamance. Dans ce sens, Coly stipule que « Pour accroître leurs revenus et améliorer leur niveau de vie, la plupart des agriculteurs diversifient leurs activités agricoles en investissant davantage dans les cultures de rente telles que l'anacarde » (Coly *et al.* 2021:4). De fait, contre vents et marées et devant la contrainte des paysans, une culture agricole résiliente s'est en réalité développée.

C'est ainsi qu'en Casamance, à cause de la combinaison de facteurs socio-anthropiques (exode rural, migration, conflits, expansion urbaine...) et naturels (changement climatique), des groupes ethniques tels les Diolas et les Mandjacks ont été contraints d'intégrer l'anacarde aux cultures de prédilection comme la riziculture, la culture des bas-fonds, l'arachide et autres céréales.



Photo 1 : Champ d'anacardiens dans la commune de Kataba 1

Source : Cliché A. K. Mané, 2015

En effet, c'est grâce à cette culture que les agriculteurs arrivent à garantir leur sécurité alimentaire. Cette zone est essentiellement agricole et la minorité de population non agricole reste répartie dans le commerce et le service (ANSD 2014 ; SRSD 2019). En outre, la prédominance de l'activité agricole s'accompagne de fortes mutations dominées par la dynamique de la filière anacarde, comme l'atteste l'évolution des surfaces arables selon les types de cultures (cf Tableau 1). Ces dernières décennies, en raison des facteurs anthropiques et naturels, comme il est mentionné plus haut, les emblavures de l'anacarde ont évolué de façon exponentielle (IRD 2011 ; Plan de développement communal [PDC] de Kataba 1 2018). Cela a créé une transformation du paysage agraire du Fogny-Kombo ou Kataba 1, les champs d'arachide et autres céréales comme le mil, le maïs, le sorgho, etc., ayant quasiment laissé la place aux plantations d'anacarde, dont la surface est passée du double au triple au cours de la dernière décennie (cf. Tableau 1).

La baisse considérable des cultures vivrières (céréales), mais également commerciales (arachide) s'explique par l'instabilité climatique (cf. Tableau 1). Parmi ces facteurs, on peut citer la forte dépendance de l'agriculture sous pluie, les facteurs naturels (baisse considérable de la pluviométrie, fort taux de salinisation des terres arables...), la faiblesse de la technologie, le fort taux d'émigration... Les champs d'anacardiens, à l'image des exploitations

arboricoles, sont assez représentés dans cet espace géographique (cf. Tableau 1). Leur développement est lié à la forte demande du produit en milieu urbain et dans le marché international.

Tableau 1 : Évolution des superficies de quelques cultures de 2009 à 2018 dans la commune de Kataba 1

Surfaces arables	2009-2012	2012-2015	2015-2018
Année			
Riz	15 ha	9 ha	5 ha
Autres céréales et arachide	20 ha	10 ha	6 ha
Anacarde	6 ha	12 ha	18 ha

Source : Plan de développement communal (PDC) de Kataba 1 (2018)

Il faut signaler que si le mouvement migratoire lié à l'agriculture est ancien dans le bassin arachidier (les navétanes), dans le Fogy-Kombo, il est récent et accompagne le processus de développement de l'arboriculture dans cet espace. Le rayonnement des activités de pêche et du tourisme a aussi favorisé l'immigration dans cette zone, notamment à Kaffountine, Diouloulou, Niaffrang... (Sané 2017) On a constaté pendant longtemps la mobilité d'acteurs de la pêche (venus du nord et du centre du pays et de la sous-région) et du tourisme.

Les récentes crises que subissent ces secteurs ont conduit à une reconversion de la population à un nouveau mode de vie. De fait, l'arboriculture est, surtout avec la culture d'anacarde, de plus en plus pratiquée. Il faut rappeler que le système de gestion foncière dans la zone reste généralement coutumier. Dans la plupart des villages de la commune, ce sont des précurseurs qui détiennent le pouvoir sur le foncier. Selon certaines règles traditionnelles, la terre est offerte et le demandeur a l'obligation d'y résider et de valoriser la parcelle attribuée au bout de trois ans. Si tel n'est pas le cas, on lui retire la parcelle. Cette stratégie peut expliquer l'immigration et l'expansion agricole que connaît la zone.

L'anacarde, une filière d'exportation dynamique

La production de l'anacarde, au-delà de sa moindre exigence en termes d'entretien et de conditions écologiques, permet aussi aux acteurs de satisfaire les besoins alimentaires en raison de sa valeur ajoutée. Aujourd'hui, la filière anacarde connaît une expansion très rapide au Sénégal (IRD 2011). Cela peut s'expliquer en général par deux facteurs essentiels. D'une part, ce type d'agriculture semble être une solution face à l'amenuisement des terres

rizicultivables dans le Fogny-Kombo (PDC de Kataba 1 2018). Les productions de la zone sont bien assez importantes, mais elles sont, comme dans toute la sous-région ouest-africaine, confrontées au manque d'organisation des acteurs de la filière et surtout à l'instabilité du marché international (prix, COVID-19...). D'autre part, ce rayonnement se réalise grâce au revenu procuré aux agriculteurs et à la forte demande de noix de cajou sur le marché mondial (Ricaud 2013; Dieng 2019). Cette demande exponentielle de noix d'anacardiers agit de manière positive sur la culture de l'anacarde (cf. Tableau 1). De surcroît, cette dynamique est confirmée au niveau national, les superficies de plantation d'anacardiers sont estimées à environ 61 615 hectares, essentiellement dans les régions de Fatick, Ziguinchor, Sédhiou et Kolda (IRD 2011 ; Coly *et al.* 2021 ; Ndiaye *et al.* 2021).

Les produits d'anacarde, noix aussi bien que pommes, sont vendus sur le plan national, le régional et l'international. Le prix a considérablement augmenté ces dernières années grâce aux bénéfices des effets frontières, dont tirent profit aussi bien les producteurs que les acheteurs. Les Asiatiques (particulièrement les Chinois, Indiens...), qui sont les principaux acheteurs des noix, viennent au Sénégal et dans la Zone de Kataba 1 pour se ravitailler et font transiter leurs marchandises par les territoires voisins via les ports de Banjul et de Bissau, où l'impôt semble moins élevé qu'au Sénégal. Ainsi, le kilogramme de l'anacarde est passé de 250 F CFA-300 F CFA à 1 000 F CFA en l'espace de six ou sept ans. Cependant, l'interdiction du mécanisme d'effet frontière ou l'arrivée de politiques qui prohibent la sortie du produit sans paiement de taxes s'est répercutée sur le prix du kilogramme d'anacarde qui, d'une flambée exponentielle en 2015, a périclité jusqu'à sa valeur initiale de 300 F CFA pour cette campagne de 2019. Cette chute brutale de prix peut être de lourdes conséquences pour la récolte en cours. L'attestent ces propos de M., exploitant de 43 ans à Dombondir :

L'interdiction de l'État, du produit d'anacarde de circuler en la Gambie et la Guinée nous porte préjudice, car les Indiens et les Chinois préfèrent transiter le produit dans ces ports. Mieux, comme la campagne commence au Sénégal en premier, nous avons l'avantage d'avoir le meilleur prix, en temps normal.
[Homme de 43 ans, propriétaire d'exploitation]

Ainsi, la gestion *top down* de la filière anacarde risque de créer une insécurité alimentaire pouvant susciter la colère des paysans ayant du mal à comprendre cette façon de faire de l'État, censé les protéger et les accompagner vers un meilleur résultat.

Anacarde, recomposition spatiale d'un territoire transfrontalier et sécurité alimentaire

Ces dernières années, la culture de l'anacardier occupe une place très importante dans les secteurs d'activité des ruraux, surtout dans la partie méridionale du pays (Ricaud 2013 ; Ndiaye *et al.* 2017). C'est une filière qui présente un fort potentiel de développement et suscite, auprès des paysans, un grand espoir de sécurité alimentaire.

En Casamance, il est généralement considéré comme un « or noir », car il est aujourd'hui une source de revenus pour la plupart des habitants et des producteurs au-delà des frontières (Diamanka 2016). Selon les résultats de recherche du terrain, la filière dépasse largement les frontières sénégalaises. Elle crée d'importantes mobilités transfrontalières, sources de sécurité alimentaire. Dès lors, on note une recomposition spatiale des zones de production (IRD 2011). De ce fait, les dynamiques transfrontalières, marquées par des flux commerciaux, par des acteurs et leurs capacités d'adaptation, sont une condition de sécurité alimentaire (Bennafla 2002 ; Enda Diapol 2007).

En effet, en Afrique, les mobilités et les stratégies informelles présentent de vastes opportunités de marché et offrent aux habitants une large possibilité d'échange commercial (Ayimpam 2020). La mobilité des commerçants est très importante. Ces acheteurs mobiles, sillonnant le territoire transfrontalier de production, sont les principaux acteurs de transaction commerciale (Bennafla 2002).

Ils assurent généralement la collecte des noix auprès des producteurs agricoles (propriétaires et ouvriers) et louent le service de jeunes gens, contribuant ainsi à la création d'emploi. L'ensemble des activités qui se développent autour de la filière anacarde illustre la recomposition territoriale du Fogny-Kombo. En effet, les campagnes de noix sont des moments très dynamiques dans ces zones de développement de la filière. On y observe une apparition d'activités annexes très rentables pour la population. On assiste alors à une réelle dynamique du transport, du service ménager (restauration, linge). Le commerce se manifeste par conséquent dans un rayonnement animé par de petits marchands ambulants. De fait, si tous les secteurs d'activité trouvent leur compte dans le développement de l'anacarde, cette bonne santé financière vise tout d'abord à garantir la sécurité alimentaire. Cela est encore confirmé par les résultats de recherche, car, selon le témoignage de plusieurs acteurs, l'argent tiré de la transaction des produits de l'anacardier sert essentiellement à l'achat du riz, comme l'attestent les propos de cette productrice d'anacarde :

Nous (mon mari, nos enfants et moi) sommes à Birkama, en Gambie. Là-bas, je travaille comme bonne. Mais, chaque année, je viens ici pour la campagne

d'anacarde qui est très rentable. Le propriétaire, c'est le frère de mon mari et il me demande toujours de venir l'aider. L'argent tiré de cette activité m'a permis de soutenir mon mari, car en rentrant, je cherche des produits comme l'huile de palme, du balai, des bidons citron et du poisson séché à Kafountine. Certains produits ont servi de renfort dans la boutique de mon mari et les autres, je les amène chez ma grande sœur à Bakaw. [Femme, 30 ans, ouvrière agricole, Dombondir]

Outre leur impact économique et social, les plantations d'anacardiens jouent un rôle important dans la mobilité des personnes (cf. Tableau 2) et surtout dans le processus de sécurité alimentaire de ces agriculteurs, comme l'attestent les propos suivants :

Depuis l'arrivée de l'anacarde, les périodes de soudure restent un souvenir. Nous arrivons à bénéficier de prêts chez les commerçants grâce à l'anacarde. La faim disparaît pendant la campagne, les enfants mangent dans les gargotes, tout le monde est riche. [Homme, 47 ans, ouvrier, Touba]

Tableau 2 : Répartition des ouvriers agricoles selon le pays d'origine.

Pays de provenance	Nombre d'employés	Pourcentage (%)
Sénégal	21	43
Gambie	17	35
Guinée-Bissau	05	10
Autres	06	12
Total	49	100

Source : Mané & Diombaty (2019)

Ce tableau ne tient pas compte des exploitations exclusivement familiales. Il évoque essentiellement des exploitations qui ont au moins un ouvrier agricole venu hors du ménage. Ainsi, il est très révélateur, car il montre comment cet espace géographique est partagé, malgré la présence d'une frontière étatique (Diallo 2015 ; Sène 2019). En effet, il décrit les origines des ouvriers agricoles trouvés dans cette zone de frontière. On y rencontre des populations venues d'origines diverses (cf. Tableau 2). Les plantations d'anacardes jouent un rôle important dans la mobilité des personnes dans cet espace géographique.

Il montre l'importance des mobilités liées à la culture de l'anacarde : 53 pour cent d'ouvriers internationaux, contre 47 pour cent de nationaux. Ce produit constitue une culture de rente pour la plupart des populations de cette zone (Sarr 2002 ; Dieng 2019). Ce qui provoque de fortes et diverses mobilités vers cette zone où l'arboriculture, plus particulièrement les plantations d'anacardiens, se développe de plus en plus.

Nous observons notamment une forte présence d'étrangers dans cette activité agricole composée essentiellement de populations issues de pays voisins (la Gambie et les deux Guinées). Ils viennent souvent selon des sources locales deux fois dans l'année, entre octobre et décembre et entre avril et juin. Les producteurs, du fait du taux élevé de scolarisation (84 %) de la région (ANSD 2019), tirent profit de la présence d'une main-d'œuvre agricole pour développer les plantations d'anacardières. Les ouvriers agricoles sont généralement affectés positivement par le travail lié à la culture de l'anacarde. À la fin de l'hivernage, ils viennent assurer d'abord le défrichage pour la protection des plantations contre des feux de brousse. Durant cette période, les ouvriers se composent essentiellement d'hommes, dont l'âge varie en général entre 20 et 45 ans.

Cependant, la seconde phase est majoritairement composée de femmes, dont l'âge médian est de 30 ans. Les ouvrières sont majoritairement des femmes mariées. Elles constituent, selon les mêmes sources d'information, les acteurs principaux du système de collecte du fruit. Elles assurent le ramassage et le décorticage des produits d'anacardier.

Selon des informations recueillies auprès des producteurs, deux modes de rémunération sont employés par des producteurs : financière et matérielle. Mais dans le cadre de notre zone d'étude, le mode de paiement s'effectue généralement par un accord entre producteur et ouvrier agricole. En réalité, ce dernier ramasse deux jours successifs pour le propriétaire et le troisième se fait à son compte.

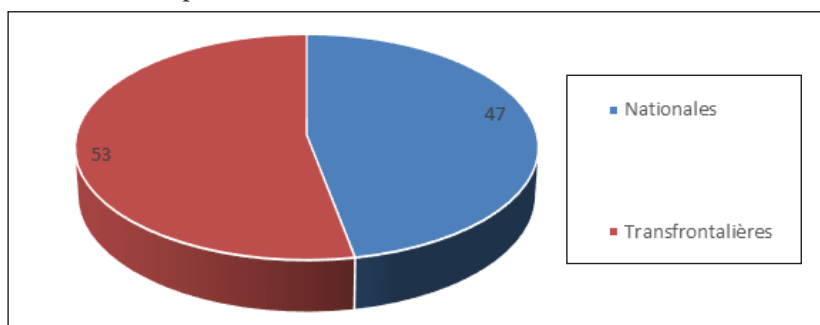


Figure 3 : Typologie des mobilités des employés des cultures anacardes selon la frontière

Source : Mané & Diombaty (2019)

Selon les producteurs, la présence des ouvriers agricoles étrangers dans ces travaux s'explique par plusieurs facteurs. Elle est liée à l'importance de l'exode rural, de l'émigration, et surtout du taux très élevé de scolarisation des enfants, mais également à l'instabilité pluviométrique (Sané 2017) de

la zone. De fait, les paysans, constitués majoritairement d'hommes de plus de 45 ans, manquent réellement de main-d'œuvre. Face à ces difficultés, la culture d'anacardiers est adoptée par bon nombre de paysans. Ils font recours, à travers leurs réseaux sociaux et la proximité géographique, aux ouvriers étrangers gambiens et bissau-guinéens, etc. Comme l'atteste la figure 3, avec une part importante d'étrangers, de 53 pour cent contre seulement 47 pour cent de nationaux dans l'exploitation de l'anacarde dans l'arrondissement de Kataba 1. La présence d'immigrants s'explique également par les difficultés que ressentent certains secteurs socioéconomiques, tels que la pêche, le tourisme de cette zone, surtout à Kafountine, Abéné...

Il faut signaler que les ouvriers sénégalais sont généralement des jeunes (cf. Photo 2 & 3). Ils sont pour la plupart des élèves constitués en associations ou en individuels parfois, qui jouent un jeu entre l'école et cette activité très rentable. Certains décident même d'abandonner durant la campagne les enseignements scolaires. Le travail dans ces plantations est également une source financière des coopératives scolaires. Les élèves s'organisent pendant les jours de repos, les week-ends notamment, pour s'activer dans le ramassage. Ils financent de fait leur fête de fin d'année et parfois achètent des matériaux didactiques ou payent des sorties pédagogiques.

La mobilité des acteurs sénégalais se manifeste de plus en plus par un phénomène nouveau, car on y note aussi un flux de retour saisonnier de citadins vers ces zones de plantations d'anacardiers. Ceci touche particulièrement les femmes et les hommes cherchant une amélioration des conditions de leur vie (cf. Photos 2 et 3).



Photo 2 : Le travail de ramassage

Photo 3 : Étape de séparation entre la pomme et la noix

Photo 4 : Séchage et conservation de la noix

Source : Mané & Diombaty (2018)

Les photos 2, 3 et 4 montrent les étapes des travaux avant la mise en vente de la noix de cajou. Les principales sont le ramassage et la séparation de la noix de la pomme. C'est ce processus qui demande la présence d'ouvriers. En réalité, les initiatives sans succès de mécanisation des techniques des processus de production de la filière anacarde conduisent toujours au décortiquage manuel (Sarr 2002). Les pratiques de transformation des produits tirés de l'anacarde sont un travail archaïque qui nécessite la présence d'ouvriers agricoles (cf. Photos 5 et 6).



Photos 5 et 6 : Système de transformation de la pomme d'anacarde en boisson alcoolisée ou thiapalo

Source : Mané & Diombaty (2018)

Par ailleurs, cette forte mobilité liée à l'exploitation de l'anacarde révèle de surcroît l'importance de la question du genre dans la sécurité alimentaire. En effet, un simple regard sur la figure 4 permet de noter un net déséquilibre entre hommes et femmes évoluant dans l'exploitation de la filière anacarde.

Il convient de signaler que la plupart des paysans propriétaires de champs de plantations d'anacardiers sont des hommes du fait de la gestion traditionnelle des terres. Celle-ci ne donne pas aux femmes un accès facile à la terre. De plus, il y existe une division du travail. De fait, les femmes s'activent surtout dans le maraîchage tandis que les hommes s'occupent des travaux champêtres.

Cette figure montre la répartition par sexe des ouvriers migrants. Elle révèle que 61 pour cent des ouvriers immigrants travaillant dans la filière anacarde sont des femmes. Cet important taux de femmes dans le travail de

ramassage et de décorticage s'explique surtout par des facteurs psychologiques et la quantité moindre d'effort physique requise par ces activités. De fait, les travaux lourds sont de coutume réservés exclusivement aux hommes et les tâches considérées comme légères aux femmes, ce que traduit aujourd'hui cette présence de plus en plus importante de femmes dans les travaux de ramassage et de transformation de produits de l'anacardier.

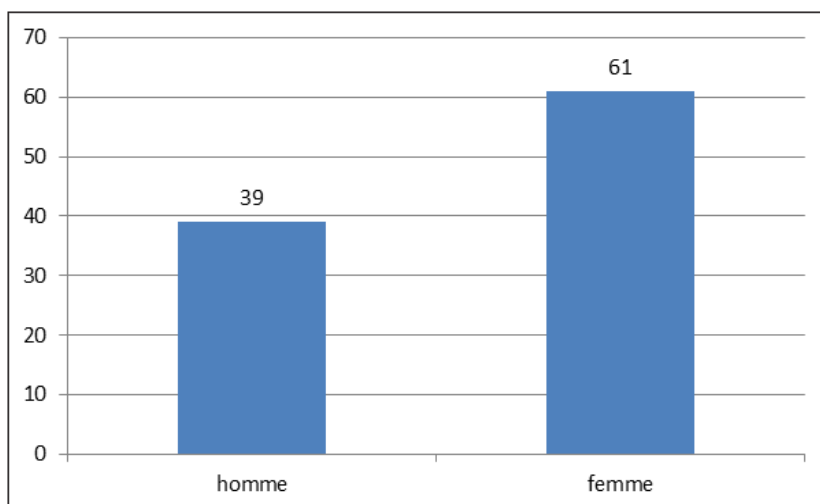


Figure 4 : Mobilité et genre dans la sécurité alimentaire à Kataba 1

Source : Mané & Diombaty (2019)

En réalité, dans la logique locale de la division du travail, les travaux champêtres restent l'œuvre des hommes, et les femmes se contentent généralement des rizières et du maraîchage (Pélessier 1966 ; Sané 2017 ; Coly *et al.* 2021). Cependant, selon l'enquête réalisée auprès des producteurs, la prédominance des effectifs est fonction des saisons. Ainsi, les hommes sont plus présents après l'hivernage pour le défrichage. Ils viennent généralement en association, d'après les mêmes sources.

Quant aux femmes, elles sont très actives dans le ramassage des produits, mais aussi dans la transformation (cf. Photo 5) et la commercialisation. L'anacarde est généralement transformé sous différents produits. La pomme de cajou peut servir de jus, de vinaigre, d'alcool, de confiture, de sirop... Quant à la noix d'anacarde, elle permet d'obtenir des amandes qui servent à confectionner de la pâte, de l'huile, des produits utilisés en apéritif, du savon... La pellicule entourant l'amande est utilisée pour servir de complément d'alimentation pour le bétail. La coque peut être utilisée pour élaborer des briquettes de charbon servant de combustible dans les foyers. Elle peut permettre la production de l'électricité.

Malgré la diversité de produits dérivés qu'offre l'anacarde, la zone de recherche est marquée par une faible transformation du produit, qui est essentiellement artisanale. La pomme d'anacarde est généralement transformée de manière mécanique en boisson fraîche ou alcoolique communément appelée en langage local *thiapalo*. La noix ou *Ndamarasse* est un produit qui, aujourd'hui, intègre de plus en plus le mode de consommation des populations en milieu urbain. De fait, ce sont généralement des femmes gambiennes ou bissau-guinéennes d'origine sénégalaise ou ayant des liens parentaux avec des producteurs qui fréquentent la filière. Ainsi, l'essentiel des femmes migrantes ouvrières (cf. Figure 5) sont mariées (58,1 %). Pour celles de la Gambie, elles sont pour la plupart originaires du Sénégal et entretiennent d'étroites relations avec les producteurs. Selon elles, cette activité est très rentable et leur permet une autonomie financière sur une période plus ou moins longue. En effet, ce sont les producteurs qui font souvent appel à leurs parents situés de l'autre côté de la frontière pour les appuyer dans cette campagne agricole. L'homme laisse généralement la femme effectuer ce séjour agricole. En venant, elle est accompagnée par ses voisines.

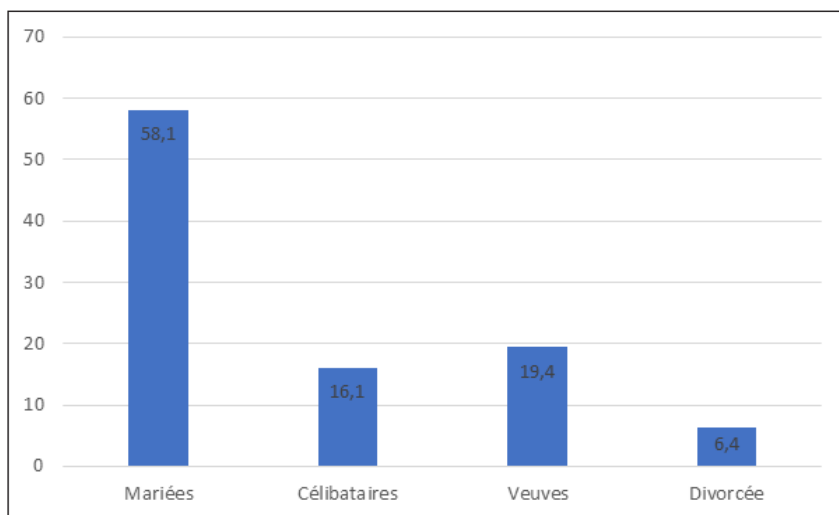


Figure 5 : Statut matrimonial des femmes ouvrières

Source : Mané & Diombaty (2019)

Dans tous les cas, les producteurs reconnaissent la place importante qu'occupent ces ouvriers dans le développement de la filière. Celle-ci est une source de sécurité alimentaire, car les recettes tirées de ce type d'activité agricole servent essentiellement à l'achat de la nourriture (riz, huile...). Ce qui installe le producteur comme l'ouvrier dans une situation de stabilité alimentaire pendant une période plus ou moins longue.

En outre, les recettes tirées de cette exploitation permettent, dans une certaine mesure l'achat de motocyclettes, communément appelées *Jarkarta*. Elles sont utilisées dans le système de transport des espaces frontaliers.

L'anacarde nous a permis une garantie alimentaire. Après chaque récolte, on achète tout le ravitaillement en denrées alimentaires. Ainsi, la dépense quotidienne est plus facile à gérer. [Homme, 51 ans, propriétaire de plantation, Dombondir]

Il faut retenir la relation entre producteurs et acheteurs. Selon plusieurs sources, ces derniers sont constitués majoritairement d'intermédiaires nationaux, gambiens et, dans une moindre mesure, de Bissau-Guinéens. Ils sillonnent tout l'espace du Fogny-Kombo et créent un territoire commercial fluide, échappant parfois aux dispositifs de contrôle frontalier.

Dans cette production, la pomme, occupant un poids non négligeable, constitue une grande perte. En effet, les productions se limitent généralement à une consommation insignifiante. Elle reste faiblement transformée. La noix, quant à elle, est destinée exclusivement à la vente. Le prix de transaction est généralement proposé par l'acheteur aux producteurs. Il varie selon des périodes et des saisons. La commercialisation de cette noix reste, selon certaines sources, une activité aussi importante, car la majorité de la production est destinée à l'exportation (Sarr 2002 ; Minvielle & Lailier 2005 ; PNIA 2009). Le produit de l'anacarde est généralement exporté en Asie et en Amérique latine. Toutefois, selon Sarr (2002), les produits ne sont pas conformes aux normes internationales.

De nos jours, il existe de réelles potentialités qu'offre le marché mondial. Mais la transformation souffre du manque de moyens technologiques et financiers. De fait, le travail reste laborieux et la transformation finale est peu conséquente.

Conclusion

En guise de conclusion, le Fogny-Kombo, à l'image d'autres espaces frontaliers ouest-africains, est fortement caractérisé par une intense mobilité. Celle-ci se manifeste sous des territoires transcendant les frontières des États. La particularité de ce phénomène, dans cet espace de cohabitation, contribue au développement de la filière anacarde. En d'autres termes, cet article évalue l'impact des mobilités transfrontalières dans le développement de la culture de l'anacarde, qui constitue une stratégie de sécurité alimentaire dans cet espace transfrontalier.

Il ressort de notre analyse que les changements climatiques et sociaux ont installé dans le Fogny-Kombo une crise agricole sans précédent. Ainsi, les effets des aléas climatiques consécutifs à l'échec des politiques

de planification du développement agricole, voire la déréglementation du marché de l'arachide et céréaliier local, ont été une source d'insécurité alimentaire dans cette zone. Pour répondre aux défis physiques et humains, il est nécessaire d'adopter de nouvelles stratégies et politiques pour de meilleures conditions de vie de la population.

La filière de l'anacarde, introduite au Sénégal à la fin des années 1970, fut, après un début marginal (Sarr 2002), adoptée comme une stratégie d'adaptation des paysans dans cette partie méridionale du Sénégal. Elle mobilise, grâce au prix sur le marché, une multitude d'acteurs, leur permettant d'assurer une sécurité alimentaire. Les revenus tirés de l'exploitation des produits de l'anacarde servent essentiellement aux producteurs à acheter des tonnes de riz assurant le ravitaillement annuel de la famille. N'est-ce pas là une occasion de relativiser la notion d'autoconsommation en matière de sécurité alimentaire? Mieux, la filière a permis une recomposition de cet espace et changé le bien-être des populations, comme en témoignent les enquêtes.

Cependant, la gestion *top down* des ressources de l'anacarde mérite une concertation pour mieux entretenir cette sécurité alimentaire encore à l'état embryonnaire. L'interdiction de l'État sénégalais de transiter la matière au port de Banjul et Bissau a eu des répercussions sur le prix, qui a baissé drastiquement.

Note

1. *Modou-modou* est le vocable utilisé par la population locale, les Wolofs notamment, pour désigner l'émigré.

Bibliographie

- Adelkader, A., 2017, *Évolution du concept de la sécurité alimentaire et l'importance de l'intégration du bien-être du citoyen dans les systèmes alimentaires*, Université Ahmed Dray-Adrar.
- ANSD, 2014, *Recensement général de la population, de l'habitat, de l'agriculture et de l'élevage*. Rapport définitif.
- Ayimpam, S., 2020, « Mobilités, circulations et frontières. Migrations, mobilités et développement en Afrique », *Anthropologie & développement* [en ligne], n° 51, mis en ligne le 1er décembre 2020, consulté le 17 décembre 2020. URL : <http://journals.openedition.org/anthropolodev/1068>
- Badie, B., 1995, *La fin des territoires. Essai sur le désordre international et sur l'utilité sociale du respect*, Paris, Fayard.
- Barry, B., 1988, *La Sénégambie du XV^e au XIX^e siècle, traite négrière, islam et conquête coloniale*, Paris, L'Harmattan.

- Bennafla, K., 2002, *Le commerce frontalier en Afrique centrale : acteurs, espaces et pratiques*, Paris, Karthala.
- Bennafla, K., 2002, « Les frontières africaines : nouvelles significations, nouveaux enjeux », *Bulletin de l'Association des géographes français*, n° 2, Géopolitique Africaine, p. 134-146.
- Brunet, R., Ferras, R. et Théry, H., 2006, *Les mots de géographie*, éd. Reclus-La Documentation française.
- Caillavet F., Casterbon K. et Darmon N., 2014, « Insécurité alimentaire », dans *Inégalités sociales de santé en lien avec l'alimentation et l'activité physique*, p. 237-266 Inserm Expertise collective.
- CILSS, FAO, FEWSNET, WFP, mars 2010, *Commerce transfrontalier et sécurité alimentaire en Afrique de l'Ouest : cas du bassin Ouest : Gambie, Guinée-Bissau, Guinée, Mali, Mauritanie, Sénégal*, étude réalisée grâce au soutien financier de l'USAID.
- Coly, S. M., Diallo, M. A., Weibigue, A. G., 2021, « Impact d'une taxation à l'exportation de noix de cajou sur les revenus des ménages et de l'État au Sénégal : une application à l'aide d'un modèle d'équilibre général calculable », *Repères et Perspectives économiques* [en ligne], vol. 5, n° 2/septembre 2021, mis en ligne le 16 septembre 2021.
- Di Meo, G., 1998, *Géographie sociale et territoires*, Paris, Nathan.
- Diallo, M.-M., 2014, Frontières, stratégies d'acteurs et territorialités en Ségambie : cas des frontières Sénégal-Gambie et Sénégal-Guinée Conakry, thèse de doctorat géographie-aménagement, Université Paul-Valéry Montpellier
- Diallo, Y., 1996, « Place du secteur informel dans la coopération transfrontalière en Afrique de l'Ouest », *Revue des institutions politiques et administratives du Sénégal (RIPAS)*, n° 35-38, p. 41-46.
- Diamanka, A., 2016, *L'Anacarde facteur de développement en Casamance*, mémoire de master ISEG.
- Dieng, F., Ngom, D., Dia, D. et Sy, R., 2019, « Efficience technique de la production d'anacarde (*Anacardium Occidentale L.*) dans les grandes régions de production du Sénégal », *Int. J. Biol. Chem. Sci.*, 13(6), p. 2627-2645.
- Dieye, C. T., 2010, *Le futur du commerce intra-régional en Afrique de l'Ouest*, Dakar, Enda Syspro.
- Diop, M. C., 1994, *Le Sénégal et ses voisins*, Dakar, Sociétés-espaces-temps.
- Dubresson, A. et J.-P. Raison, 2014, *L'Afrique subsaharienne. Une géographie du changement*, 3e édition, Paris, Armand Colin.
- Enda Diapol (Environnement et développement, prospectives dialogues politiques), 2007, *Les dynamiques transfrontalières en Afrique de l'Ouest*, CRDI/Enda Diapol/Karthala.
- FAO, 2014, *Évaluation sur le droit à l'alimentation dans la région de la CEDEAO*, E. de Loma-Ossorio, C. Lahoz et L. F. Portillo, Institut d'études de la faim.
- FAO, FIDA, OMS, PAM et Unicef, 2020, *L'État de la sécurité alimentaire et de la nutrition dans le monde 2020, Transformer les systèmes alimentaires pour une alimentation saine et abordable*, Rome.

- Ferrier, J.-P., 2002, « Géographie, ou l'illustration productive de l'inséparabilité enfin comprise du matériel et de l'idéal », *Géopoint 2002*, Groupe Dupont, Université d'Avignon.
- Foucher, Michel, 1991, *Fronts et frontières. Un tour du monde géopolitique*, Paris, Fayard, 2^e édition.
- Igue, J. O., 1995, *Le territoire et l'État en Afrique. Les dimensions spatiales du développement*, Paris, Khartala.
- Institut de recherche pour le développement (IRD), 2011, *Les bases de la filière cajou. Projet d'amélioration de la chaîne de valeurs du cajou dans le Bassin du fleuve Gambie (CEP)*, International Relief & Development.
- Kane, A. F., 2010, Les frontières et leurs conséquences en Afrique de l'Ouest de la Mauritanie à la Guinée Conakry : espace mauritano-guinéen, thèse de doctorat d'État, Université Cheikh Anta Diop de Dakar.
- Mané, A. K., 2015, Enjeux transfrontaliers et développement local dans la commune de Kataba 1, mémoire de master géographie, FLSH, Université Cheikh Anta Diop de Dakar.
- Mbow L. S., 2017, *Quand le Sénégal fabrique sa géographie*, Presses universitaires de Dakar.
- Minvielle J.-P., Lailler A., 2005, *Les politiques de sécurité alimentaire des années 1960 à nos jours*, Paris, L'Harmattan.
- Ndiaye, A., 2013, *L'agriculture sénégalaise de 1958 à 2012. Analyse systémique et prospective*, Paris, L'Harmattan, 224 p.
- Ndiaye, S., Charahabil, M. M. et Diatta M., 2021, « Caractéristiques des plantations d'anacardières (*Anacardium Occidentale L.*) et déterminants économiques des exploitations en Casamance », Vertigo-la revue électronique en sciences de l'environnement [En ligne], Regards/Terrain, mis en ligne le 1er février 2021, consulté le 22 avril 2022. URL : <http://journals.openedition.org/vertigo/28723> ; DOI : <https://doi.org/10.4000/vertigo.28723>.
- Ndiaye, S., Charahabil, M. M., Diatta, M., 2017, « Caractérisation des Plantations à base d'anacardier (*Anacardium Occidentale L.*) dans le Balantacounda : cas des communes de Kaour, Goudomp et Djibanar (Casamance/Sénégal) », *European Scientific Journal*, 13 (12), pp. 242–257.
- Nepad, 2013, *Les Agricultures africaines : transformations et perspectives*, novembre, Rapport
- Pélessier, P., 1966, *Les Paysans du Sénégal : les civilisations agraires du Cayor à la Casamance*, Saint-Yriex, Fabrègue.
- Person Y., 1974, « La Sénégambie dans l'histoire », in *Senegambia: proceedings of a Colloquium at the University of Aberdeen*, ed. By R. C. Bridges.
- Plan de développement communal (PDC) de Kataba 1, 2018.
- Plan Sénégal émergent (PSE), 2014.
- Programme national d'investissement agricole (PNIA), 2009, Burkina Faso.
- République du Sénégal/PNIA, 2009, *Bilan diagnostic du secteur agricole, revue des politiques stratégiques et programmes, performances du secteur*.
- Ricau, P., 2013, *Connaître et comprendre le marché international de l'anacarde*, RONGEAD, 49 p.

- Sakho, E. A., 2011, *Intégration économique en Afrique de l'Ouest : analyse et perspectives*, Paris, Economica.
- Sall, E., 1992, « Sénégal, territoires, frontières, espaces et réseaux sociaux », *CEAN-Travaux et documents*, n° 36, p. 1-28.
- Samb, C. O., Faye, E., Dieng, M., Sanogo, D., Samba, S. A. N. et Koita, B., 2018, *Dynamique spatiotemporelle des plantations d'anacardier (Anacardium Occidentale L.) dans deux zones agro-écologiques du Sénégal, Afrique SCIENCE* 14(3), p. 365-377.
- Sané, T., 2017, *Vulnérabilité et adaptabilité des systèmes agraires à la variabilité climatique et aux changements sociaux en Basse-Casamance (sud-ouest du Sénégal)*, Géographie, Université Sorbonne-Paris-Cité-Université Cheikh Anta Diop de Dakar.
- Sarr, M. B., 2002, *Analyse du secteur de l'anacarde, situation actuelle et perspective de développement, rapport*, CNUCED/OMC (CCI).
- SEN, ministère de l'Environnement, de la Protection de la nature, des Bassins de rétention, de l'Aquaculture et des Lacs artificiels, 2007, *Production et évaluation économique de la noix d'anacarde et de pomme de cajou au Sénégal. Rapport technique*.
- Service régional de la statistique et de la démographie de Ziguinchor, 2019, Situation économique et sociale régionale 2016.
- SIDIBE M., 2002, « Entre le Saloum et la forêt de Pata : mobilité des migrants, intégration des espaces », *Revue européenne des migrations internationales* [en ligne], vol. n° 2, mis en ligne le 9 juin 2006, consulté le 3 mai 2019. URL : <http://journals.openedition.org/remi/2640>; DOI : 10.4000/remi.2640.
- Sy, O., 2009, *Reconstruire l'Afrique : vers une nouvelle gouvernance fondée sur les dynamiques locales*, Bamako-Paris, Jamana-Ch.-L. Mayer.
- Tano, A. M., 2012, *Crise cacaoyère et stratégies des producteurs de la sous-préfecture de Meadji au Sud-ouest ivoirien. Économies et finances*, Université de Toulouse-Le Mirail — Toulouse-II.
- World Bank, 1986, *Development Report, the hesitant recovery and prospects for sustained growth trade and pricing policies in world agriculture world development indicators*.



Mutation des espaces agricoles et quête de sécurité alimentaire dans les interfaces urbaines-rurales du Sénégal : étude de cas de Ziguinchor

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Résumé

La ville de Ziguinchor, qui s'est construite sur un mariage de raison avec la petite paysannerie, connaît depuis quelques années des transformations urbaines importantes affectant l'ensemble de l'espace rural. Celles-ci se manifestent par une augmentation rapide de la population, créant ainsi des besoins inédits, notamment en termes d'emploi, de mobilité, de logement et d'alimentation. Ces transformations conduisent à une prédation foncière, facilitée par l'interférence de normes et de gouvernances mal identifiées, et se traduisent également par l'occupation des derniers espaces agricoles locaux. Ces espaces agricoles de vallées, de bas-fonds et de plateaux s'imposent comme lieux de production alimentaire de proximité, mais aussi comme lieux de construction de logements, d'équipements et d'infrastructures de la ville. De fait, on assiste à une mutation progressive de ces espaces qui deviennent des lotissements résidentiels, en dépit de l'urgence de se nourrir. Cet article met l'accent sur une thématique transversale, celle de l'alimentation dans une ville avant tout dominée par des projets urbains. Il s'intéresse particulièrement aux mutations des espaces agricoles et à la précarité foncière des familles d'agriculteurs, qui amènent à s'interroger sur la place de l'agriculture dans le développement territorial, mais aussi sur la capacité à cultiver localement, notamment des productions alimentaires pour les populations.

Mots-clés : mutation, espaces agricoles, sécurité alimentaire, agriculture urbaine, développement territorial, Ziguinchor, Sénégal

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Abstract

The city of Ziguinchor was built on a marriage of convenience with the small peasantry and has for several years been undergoing major urban transformations that affect the entire rural space. This is manifested in a rapid population increase that creates unprecedented needs, particularly in terms of employment, mobility, housing, and food. These transformations lead to land predation facilitated by poorly identified norms and governance, that result in the occupation of the last local agricultural spaces. These agricultural spaces (valleys, lowlands, and plateaus) are essential in local food production, but also for housing, city equipment and infrastructure. We are witnessing a gradual transformation of these spaces into residential housing estates, despite the urgency of food issues. This article focuses on a cross-cutting theme, that of food in a city primarily dominated by urban projects. It is particularly interested in changes in agricultural landscapes, and farming families faced with land precariousness, raising questions about the place of agriculture in territorial development, and the ability to farm locally, in particular, food production for the population.

Keywords: mutation, agricultural spaces, food security, urban agriculture, territorial development, Ziguinchor, Senegal

Introduction

La ville de Ziguinchor, à l'instar de la plupart des villes d'Afrique subsaharienne, connaît depuis plusieurs décennies une croissance démographique importante (Diédhiou *et al.* 2018). Peuplée de 124 283 habitants en 1988, établis sur une superficie de 9 km², sa population est estimée en 2017 à plus de 289 904 habitants (ANSD 2018). Cette croissance démographique se traduit, d'une part, par un développement soutenu de lotissements résidentiels, soit un taux d'urbanisation de 51,1 pour cent dépassant celui de la moyenne nationale (ANSD 2014), et, d'autre, part par des problèmes d'aménagement du territoire (Séne 2018) liés notamment à une politique statique en matière de planification (Diédhiou *et al.*, *ibid.*). Ce phénomène touche massivement les quartiers périphériques sud de la ville, principaux pourvoyeurs de logements et d'équipements de la ville. Ces quartiers, dont le paysage reste dominé par des espaces agricoles, constituent les principales destinations des populations, malgré leur éloignement par rapport au centre-ville et en dépit de la psychose de l'insécurité¹.

Cette «transhumance résidentielle» est accentuée, d'un côté, par la construction en 2006 de l'université de Ziguinchor sur d'anciennes parcelles agricoles, de l'autre, par un coût abordable du foncier face à la cherté des

reliquats d'espaces disponibles situés dans les anciens quartiers de la ville. Une recomposition de l'espace qui donne lieu à une littérature nombreuse et à des analyses contradictoires ou parfois complémentaires (Séne 2018 ; Faye *et al.* 2017 ; Sakho *et al.* 2016 ; Sakho & Sy 2013). Lieux des cohabitations problématiques sur le plan des usages, des acteurs, des modalités de sa gestion et de son organisation socio-spatiale (Diongue 2010), les périphéries de la ville de Ziguinchor offrent des terrains d'investigation pour appréhender les concurrences entre usage agricole et usage non agricole (Sakho *et al.* 2016). Toutefois, cette situation n'est pas spécifique à Ziguinchor, elle se lit également dans d'autres capitales régionales du Sénégal : Dakar, Thiès, Saint-Louis, Mbour, Kolda, entre autres (Sakho *et al.* 2013). Elle impacte considérablement la capacité à cultiver localement des légumes et du riz pour les populations, notamment les agriculteurs.

Ainsi, le risque d'insécurité alimentaire dans ces quartiers reste présent, même si l'agriculture est, selon les politiques, l'un des premiers leviers stratégiques sur lesquels le pouvoir en place compte s'appuyer pour l'émergence du Sénégal. La protection des espaces agricoles susceptibles de garantir la production agricole peine à se mettre en place, entre discours rodés et actions très relatives. Les projets de la ville englobent de vastes périmètres et les lotissements résidentiels se multiplient, parfois de façon anarchique. Les transactions foncières s'intensifient en dépit du régime juridique qui consacre l'inaliénabilité des terres du domaine national en n'accordant aux affectataires qu'un droit d'usage et non de propriété. Cette forte consommation des terres agricoles est souvent décriée par les exploitants agricoles (Diédhiou *et al.* 2019). Pour ces exploitants, ce sont les questions de la pérennité des terres agricoles, mais aussi de la capacité à cultiver localement, notamment des produits alimentaires de proximité, qui sont posées. La question clef est donc : comment nourrir localement plus de 289 904 Ziguinchorois dans une ville en pleine extension ? L'objet de cet article est de montrer que la croissance urbaine repousse d'évidence les étendues cultivées toujours plus loin, la ville étant dévoreuse d'espace et, de préférence, d'espace agricole. Plus spécifiquement, il s'agit de comprendre les mutations en cours puis d'identifier les interactions entre société et individu dans la gestion des espaces agricoles. En identifiant les dynamiques agricoles au regard des dynamiques foncières et démographiques, nous identifions les difficiles équilibres en place entre la planification, le maintien de la fonction d'autoconsommation (favorable à la sécurité alimentaire des producteurs) ainsi que de l'approvisionnement urbain, et la pression sur les espaces cultivables à Ziguinchor.

Cadre théorique de l'étude

Dans les lignes suivantes seront présentés des éléments du cadre théorique avec une analyse évolutive des concepts de compétition et de prédation foncière, ainsi que de sécurisation foncière et de sécurité alimentaire. Il s'agit de recentrer ces concepts à partir de l'étude locale que permet Ziguinchor.

Compétition et prédation foncière, un phénomène qui entraîne une diminution des terres agricoles

L'usage du foncier est un critère important, souvent évoqué pour analyser l'agriculture urbaine. D'ailleurs, Dauvergne (2011) souligne que cette agriculture se place dans un contexte de compétition et de prédation pour les ressources, notamment le foncier et l'eau avec ses usages urbains (Diédhiou 2020:55). L'accès à la terre est étroitement lié au droit à une nourriture suffisante, comme il est stipulé à l'article 25 de la Déclaration universelle des droits de l'homme et à l'article 11 du Pacte international relatif aux droits économiques, sociaux et culturels. La terre reste sous le régime de la domanialité (Brondeau 2014). Dans les faits, les droits coutumiers sont la plupart du temps en vigueur sans être officiellement reconnus. Au-delà des analyses, souvent basées sur les modes d'acquisition du foncier, d'autres auteurs abordent la question foncière au Sénégal, à Ziguinchor en particulier, sous l'angle de la recomposition spatiale (Sakho *et al.* 2016). À Ziguinchor, l'une des régions du Sénégal qui enregistre les taux de croissance de la population les plus élevés du pays, la dynamique urbaine se manifeste, entre autres, par la compétition entre usages agricole, non agricole, et étalement urbain. Dans le même sens, Guéye-Girardet (2010) pense que l'urbanisation grignote les dernières terres fertiles des lieux de consommation. Donc l'agriculture est soumise à de nombreuses contraintes, au premier rang desquelles la rapide urbanisation et la compétition foncière. Ce qui fait dire à Tounkara (2017) qu'au Sénégal, l'agriculture doit lutter pour sa survie (Diédhiou 2020:56).

En définitive, dans les villes, la précarité de l'accès au foncier se solde souvent par des déguerpissements au profit d'investisseurs urbains fortunés, d'investisseurs étrangers et des grands projets de l'État (Diédhiou 2020:59). Par exemple, à Ziguinchor, la construction de la route des 54 m menant vers la Guinée-Bissau entraîne le déguerpissement de familles et exploitants agricoles des quartiers du noyau urbain (Santhiaba, Belfort) vers la périphérie sud (Sy & Sané 2012). On assiste ainsi à une concentration croissante du foncier bâti au détriment des terres agricoles (Darrax 2009).

Sécurisation foncière et sécurité alimentaire, un processus continu qui aboutit à la « sécurisation alimentaire »

Au Sénégal, depuis que les États coloniaux ont introduit le droit foncier romain, il n'existe plus, en théorie, de régimes fonciers coutumiers purs, c'est-à-dire fondés sur la propriété collective. Cependant, la superposition des différents registres juridiques dans les pratiques conduit à une pluralité des légitimités et engendre des problèmes fonciers (Dahou & Ndiaye 2009). Il en résulte une complexité de la régulation foncière qui soulève de nombreux problèmes de sécurisation foncière. Plus précisément, dans la ville de Ziguinchor, à l'instar de la plupart des villes d'Afrique subsaharienne, les débats sur la sécurisation foncière opposent, en simplifiant, deux positions : celle qui met en avant les rapports fonciers existants comme frein à l'investissement, et prône une privatisation des terres et une libéralisation du marché foncier, et celle qui met en avant la reconnaissance des droits fonciers locaux comme outil d'intégration sociale et économique des populations, dans les quartiers intra-urbains et périphériques comme dans les zones rurales (Lavigne Delville 2017). En effet, les acteurs ont besoin de sécurité foncière pour exploiter leurs terres sans risque de voir leurs efforts réduits à néant : récolter ce qu'ils ont semé sans se faire expulser de la parcelle avant la récolte, cultiver assez longtemps une parcelle pour rentabiliser leurs investissements, ne pas risquer de voir leurs droits contestés par l'État ou par un acteur puissant.

D'ailleurs, l'accès équitable à la terre est une condition indéniable pour le développement des exploitants agricoles. Contrairement aux autres villes sénégalaises, à Ziguinchor, la pratique de l'agriculture repose sur des conditions foncières relativement aisées. Cette agriculture féminine est garante de vie et d'emplois. Ainsi, l'accès relativement facile au foncier permet, entre autres, de contribuer à la disponibilité de légumes. Traditionnellement, plusieurs solutions coexistent pour obtenir de la terre cultivable : le prêt, la propriété (héritage ou achat), la location, le métayage ou l'occupation de fait. Finalement, les exploitants agricoles n'ont pas de réelle difficulté pour l'accès au foncier agricole, le plus souvent de manière gratuite grâce au prêt. Les femmes ne sont écartées que de l'héritage, pour lequel, depuis des générations, le mode de transmission se fait de père en fils. Comme les modalités sont claires et reconnues, les litiges fonciers sont quasi absents, ce qui explique d'ailleurs que les pouvoirs locaux ne participent pas à l'affectation de terres localement, et même qu'ils semblent absents de la gestion du foncier. Un facteur essentiel pour comprendre cette facilité tient au fait que les terres les plus propices à l'activité agricole sont plutôt circonscrites dans l'espace des bas-fonds et des vallées.

Par ailleurs, penser la sécurité alimentaire à l'échelle d'une ville à partir de la catégorie des agriculteurs est intéressant; or, en Afrique de l'Ouest, particulièrement au Sénégal, l'agriculture offre à ces derniers (les plus démunis) le moyen de couvrir leurs dépenses alimentaires, de disposer de vivres pour leur nourriture et d'améliorer leur régime alimentaire (Parrot *et al.* 2008). La sécurité alimentaire a longtemps été considérée à l'aune des quantités d'aliments disponibles pour les différentes couches de la population. L'atteinte de cet objectif se raisonne en fonction des quantités produites et mises en marché, des capacités des marchés à importer et de la constitution par les États de stocks de sécurité (Dugué *et al.* 2016). L'usage du concept de sécurité alimentaire dans les travaux de recherche et les instances internationales a suivi deux directions : la première a cherché à préciser les différentes dimensions qui concourent à la satisfaction de besoins alimentaires, voire d'un droit à l'alimentation ; la seconde a complété cette démarche en s'intéressant aux politiques et formes d'actions concrètes qui visent à améliorer une situation alimentaire ou à réduire certains risques alimentaires. Au fur et à mesure que les différentes dimensions de la sécurité alimentaire étaient précisées et discutées, des programmes d'actions ont été préconisés et mis en œuvre pour essayer de l'atteindre ou pour lutter contre l'insécurité alimentaire (FAO 2006). La majorité des travaux de recherche qui se réfèrent à la sécurité alimentaire concernent d'ailleurs aujourd'hui la définition ou l'évaluation de ces actions (Bricas *et al.* 2016). Pour décrire ces actions et les processus dans lesquels elles s'insèrent, Touzard et Temple (2012) indiquent que l'usage du concept de sécurisation alimentaire est mieux adapté.

Pour une famille, la sécurité alimentaire, c'est avoir la capacité de se procurer assez d'aliments pour assurer la nourriture en suffisance pour tous ses membres. À l'échelle familiale, cela implique un accès physique et économique aux vivres qui, par leur quantité, leur qualité, leur salubrité et leur acceptabilité sur le plan culturel, suffiront aux besoins de chacun. Pour finir, en tant qu'objectif à atteindre dans un pays ou pour une famille, la sécurité alimentaire convoque quatre notions à fortes connotations spatiales et politiques : la disponibilité des aliments, la stabilité de cette disponibilité, l'accès à ces aliments et l'utilisation des aliments. Pour la FAO (2010), la disponibilité d'aliments signifie qu'en moyenne, l'offre doit être suffisante pour répondre aux besoins de consommation. La stabilité suppose de réduire au minimum le risque que, pendant les années ou les saisons difficiles, la consommation alimentaire puisse tomber en dessous du seuil de consommation requis. Quant à la notion d'accès, elle attire l'attention sur le fait que, même en cas de disponibilités abondantes, de nombreuses

personnes connaissent encore la faim parce qu'elles sont trop pauvres pour produire ou acheter la nourriture. L'utilisation porte sur de bonnes pratiques de préparation des aliments, de diversité du régime alimentaire, et de distribution des aliments à l'intérieur du ménage, qui ont pour résultat un apport adéquat d'énergie et de nutriments.

Matériels et méthode

Le territoire d'étude est constitué par les quartiers périphériques du sud de la ville de Ziguinchor, située sur la rive gauche du fleuve Casamance, à 65 km de son embouchure sur l'océan Atlantique, et à 15 km de la frontière avec la Guinée-Bissau (République du Sénégal, PIC 2012) (Figure 1). La ville appartient à la région qui porte son nom et est marquée aussi par son dynamisme démographique et son expansion spatiale récente. Ce territoire présente des caractéristiques physiques adaptées au développement de l'activité agricole : sols ferrallitiques sur les plateaux, sols halomorphes dans les bas-fonds que le paysan diola a réussi à amender par des techniques ancestrales de dessalement (Pélessier 1966). Les travaux de Lavigne Delville *et al.* (1996) montrent également que « la valorisation que les paysans font de leurs bas-fonds n'est pas la conséquence directe de potentialités du milieu, mais le fruit de leurs stratégies de production, dans des contextes agro-écologiques et économiques donnés. Les pratiques paysannes de mise en valeur des bas-fonds s'inscrivent dans des systèmes de production diversifiés qui, sauf exception, sont centrés sur les cultures pluviales, et répondent à des objectifs économiques qui ne passent pas forcément par l'intensification » (Lavigne Delville *et al.* 1996:148-149).

C'est ainsi qu'ils concentrent une part considérable des exploitations agricoles de la ville de Ziguinchor : 68 pour cent de notre échantillon se répartit entre la vallée de Boutoute (42 %) et la vallée de Djibélor (26 %). Des zones classées *non aedificandi*, mais qui font l'objet d'occupations intenses et continues, notamment dans la vallée de Boutoute à l'est de la ville (Diédhiou *et al.* 2018). Des parcelles de petite taille (100 à 500 m²) qui assurent une gestion efficace des eaux pluviales participant ainsi à des facteurs d'équilibre environnemental de la ville. Ces espaces agricoles, parfois très morcelés, sont les lieux des principales cultures céréalières, mais aussi légumières, destinées soit à l'autoconsommation, soit à la commercialisation en circuit court, notamment pendant les saisons sèches.

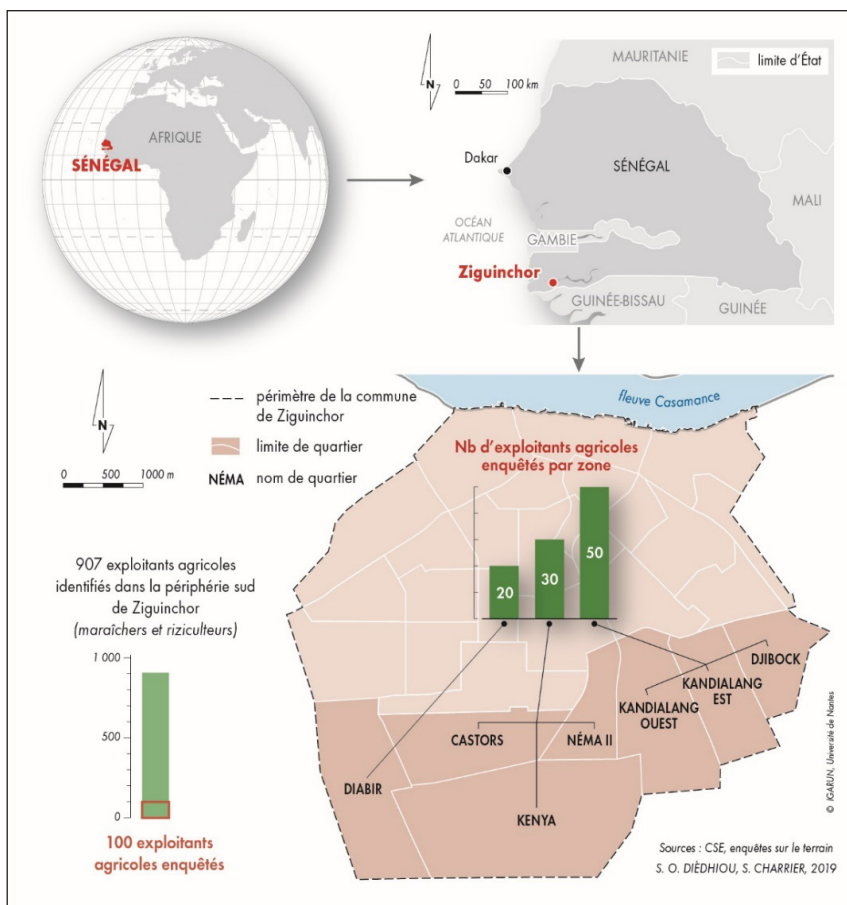


Figure 1 : Localisation de la ville et répartition des exploitants agricoles enquêtés dans la périphérie sud de la ville de Ziguinchor par zone d'étude

L'absence de bases de données fiables et exhaustives sur les exploitants agricoles a induit une méthodologie qui a reposé sur la construction de nos propres sources. En 2015-2016, une immersion sur le terrain a permis d'identifier 3 277 exploitants (maraîchers et riziculteurs), dont 100 exploitants agricoles dans les quartiers périphériques au sud de la ville (50 exploitants questionnés à Kandialang-Djibock, 30 exploitants interrogés à Kenya-Castor-Néma II et 20 exploitants questionnés à Diabir), sur un échantillon de 907 exploitants (Figure 2). Son exploitation repose sur une méthode probabiliste basée sur un sondage aléatoire simple. Le questionnaire a porté, entre autres, sur les systèmes de production, la place de l'agriculture dans la ville, les modes et stratégies d'acquisition des parcelles, la mutation et les dynamiques urbaines observées dans la ville. Des entretiens ont été également réalisés

auprès des chefs de service régionaux de la planification, de l'urbanisme, de la municipalité, des coopératives d'habitat pour saisir la gouvernance des espaces agricoles dans l'interface « urbain-rural » de la ville de Ziguinchor. Cependant, n'ayant pu disposer des documents d'urbanisme auprès des services concernés, nous n'avons pas trop axé notre analyse sur ces différents plans d'aménagement de la ville. En complément, le récit de vie a été retracé pour 20 agriculteurs dans 5 quartiers de la périphérie sud (Djibock, Kandialang Est, Kandialang Ouest, Kenya et Diabir) afin de cerner leurs trajectoires et itinéraires.

Une demande sociétale « urgente » en logements, source de consommation de terres agricoles

La terre constitue le principal facteur de production pour les exploitants agricoles et contribue à l'essentiel de la production économique et alimentaire. L'entrée par la sécurité alimentaire oblige à prendre en considération l'objet parfois invisible pour certains acteurs que constitue le foncier agricole dans sa dimension nourricière.

Une pression foncière particulièrement forte dans les quartiers périphériques au sud

Dans et autour de la ville de Ziguinchor, le foncier est convoité pour une diversité de fonctions : résidentiel, alimentaire, loisir, etc. Les besoins d'espaces pour l'habitat et le développement économique s'expriment essentiellement par une consommation d'espaces agricoles considérés parfois comme de simples réserves foncières pour l'urbanisation. Le processus d'étalement urbain ne semble pas connaître de limites, d'autant plus que certains acteurs, comme la commune de Ziguinchor, considèrent ces espaces agricoles comme des espaces « vides » ou « à prendre ». Comme l'indique un élu de la municipalité,

« On ne participe pas à l'attribution de parcelles maraîchères et rizicoles, car dans le plan d'aménagement de la ville, ces espaces sont considérés comme des espaces verts ».

Il ajoute :

« L'agriculture n'étant pas une compétence transférée, nous ne sommes pas obligés d'intervenir dans la gestion des terres agricoles » (Entretien n° 21, 2016).

Ce processus s'accompagne de déplacement des exploitations agricoles lorsqu'elles ne disparaissent pas sous la pression foncière. La nouvelle dynamique spatiale entraîne une compétition foncière avec les autres activités, l'agriculture notamment.

Dans les quartiers qui abritent le plus de terres agricoles (Djibock, Castor, Kandialang Est, Kandialang Ouest, Kenya, Diabir), les exploitations agricoles familiales sont exposées à l'expropriation foncière (Figure 2). L'action des pouvoirs publics se traduit par des discours et des projets intégrant très peu l'agriculture locale dans des programmes ou dispositifs clairement définis. L'État, détenteur d'une présomption de domanialité sur l'ensemble des terres en absence de titre de propriété privée, saisit des terres au service de grands projets d'équipement et de construction immobilière à travers notamment ses services, notamment la Société nationale des habitations à loyer modéré (SNHLM).

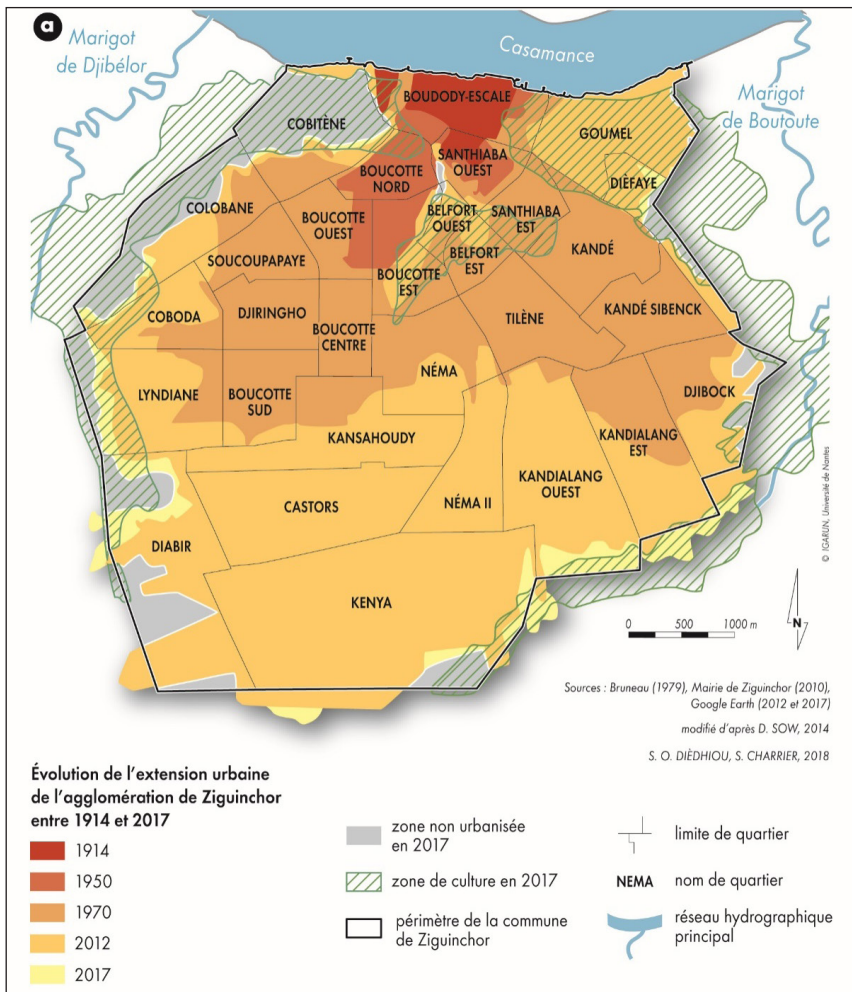


Figure 2 : Évolution de l'extension urbaine de la ville de Ziguinchor de 1914 à 2017

La construction de l'université de Ziguinchor en porte témoignage. En effet, depuis l'installation de cette infrastructure, émergent des lotissements résidentiels. Par exemple, la viabilisation et la construction par la SN HLM de 1 152 unités d'habitation (dont 152 logements et 1 000 parcelles assainies) dans le quartier Kenya, derrière l'université, en sont une parfaite illustration (Photo 1).



Photo 1 : Construction d'unités d'habitation dans le quartier Kenya

Cliché : APS (2017)

Comme le souligne un habitant du quartier Kenya,

« Depuis l'implantation de l'université en 2006, j'ai constaté l'établissement remarquable de logements modernes à étage R + 1. Ce type de logement favorise l'amélioration du décor de notre quartier. Cependant, j'ai aussi remarqué que ce changement est effectué au détriment des terres agricoles » (Entretien n° 19, 2018).

Ces transformations conduisent à une prédation foncière facilitée par l'interférence de normes et de gouvernances mal identifiées, et se traduisent également par l'occupation des derniers espaces agricoles locaux. Ces espaces agricoles de vallées et de plateaux s'imposent comme lieux de production alimentaire de proximité, mais aussi comme lieux de constructions de logements, d'équipements et d'infrastructures de la ville. De fait, on assiste à une mutation progressive de ces espaces, qui deviennent des lotissements résidentiels en dépit de l'urgence qu'il y a à se nourrir. D'autant plus que ces mutations des terres agricoles ou cette urbanisation « sauvage et galopante », pour reprendre les termes du ministre de l'Agriculture lors de sa tournée économique dans les Niayes en 2014, ne font toujours pas l'objet de mesures ou de politiques de protection des espaces ouverts. Le projet de réactualisation en cours du Plan directeur d'urbanisme (PDU) tente de répondre avant tout aux besoins de logements dans un cadre spatial élargi (8 822 ha environ contre les 4 372 ha du PDU actuel), en plus de l'absence de Schéma directeur d'aménagement et d'urbanisme (SDAU) pour cette ville (Figure 3).

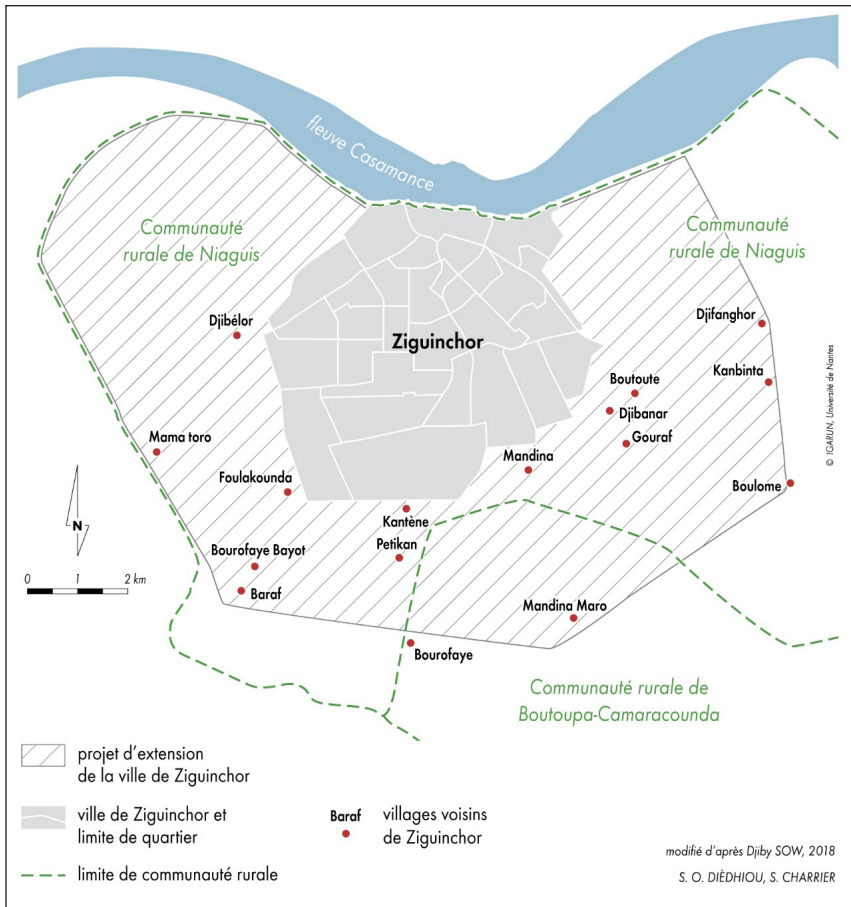


Figure 3 : Projet d'extension de la ville de Ziguinchor

La ville de Ziguinchor projette d'étendre son aire d'influence sur un rayon de 10 km. Les villages concernés par ce projet d'extension sont situés dans les communes de Niaguis (Djibélor, Baraf, Boutoute, Mamatoro, Kanténe, etc.) et Boutoupa-Camaracounda (Médina Mara, Madina, etc.). Le décret n° 2003-505 du 26 juin 2003 instituant la zone d'aménagement concerté de Kanténe se présente comme solution pertinente. En effet, l'État a décidé de passer à une intensification de la mise en œuvre de ZAC dans les villes de l'intérieur à croissance rapide pour relever le défi des occupations anarchiques et pour faire face à la quantité insuffisante de trames pour les activités économiques.

Cependant, le retard dans la mise en œuvre de ce projet entraîne le lotissement et la vente illégale de parcelles à des fins d'habitation. En

revanche, la réticence des populations des zones d'extension prévues contribue à freiner l'élan de l'État et de la municipalité. Le refus des habitants du village de Mamatoro de l'implantation de l'usine de traitement des ordures ménagères (Diédhiou 2015) de la ville de Ziguinchor sur leur terroir en est une parfaite illustration.

Conjointement, de nombreux acteurs concourent à l'achat de sites d'habitat. Il s'agit, entre autres, de coopératives d'habitat, de promoteurs privés, de personnes physiques, etc. Par exemple, depuis que l'État a prévu la création de deux zones aménagées dans la commune de Ziguinchor, ces acteurs ont recours à diverses stratégies pour acquérir des sites d'habitation. L'aspect de réseau y est important, car une bonne partie des individus installés dans la périphérie sud ne sont pas propriétaires de la parcelle, mais l'occupent sous forme de prêt (gratuit). En réalité, il s'agit d'une stratégie de marquage et de sécurisation de la terre, étant donné le dynamisme urbain. Par conséquent, il existe deux formes de sécurisation foncière : le prêt et l'arboriculture (anacarde notamment). Nos entretiens prouvent notamment que les coopératives d'habitat (le Comité régional de solidarité des femmes pour la paix en Casamance USOFORAL, la Sénégalaise des Eaux, la Société nationale d'électricité du Sénégal, etc.) et les sociétés immobilières privées ont utilisé dans la périphérie de la ville une superficie de plus de 100 hectares pour construire 3 000 logements : 25 hectares à Diabir et Médina Mancagne, 75 hectares à Brofaye, 2 hectares à Kenya, etc.

D'ailleurs, ces acteurs préfèrent se liguer avec les autorités coutumières et les populations résidentes dans les zones cibles pour contrer les projets d'extension étatiques. Parallèlement, la collectivité de Niaguis s'oppose aussi à la réactualisation du PDU de la commune de Ziguinchor, cette fois-ci, en sensibilisant les populations des zones d'extension sur les intentions supposées ou réelles de la commune.

Un autre acteur de taille est le lotisseur. Les propriétaires traditionnels et les communes urbaines constituent souvent des alliés. Cependant, devant cette poussée démographique, l'urbanisation rapide² et l'épuisement des réserves foncières de la ville, les populations, la municipalité, les partenaires et promoteurs immobiliers s'autorisent l'aménagement des zones *non aedificandi* comme Goumel, Diéfaye, une partie de Colobane et Cobiténe (Sy & Sané 2012).

Finalement, en l'absence de document de planification valable pour le moment et devant la prolifération de coopératives d'habitat et d'acteurs physiques, la gestion des exploitations agricoles peut devenir une véritable problématique urbaine.

Une dé-appropriation de la terre disparate, l'exemple de la périphérie sud

La périphérie sud (Diabir, Kandialang Est et Ouest, Kenya), seule partie de la ville où une extension est encore possible, est en train d'être grignotée par la pression du bâti (Figure 4). Selon l'Agence nationale de la statistique et de la démographie, sa population est estimée à 30 154 habitants en 2013. Le quartier se caractérise par une population essentiellement agricole, avec une prédominance des activités maraîchères. Les résultats des enquêtes de terrain montrent que, 70 pour cent de la population et 80 pour cent des ménages pratiquent l'agriculture. Parmi cette population, 55 pour cent s'activent dans le maraîchage contre 40 pour cent dans la riziculture et 5 pour cent pour l'arboriculture. Comme l'indique un habitant rencontré dans le quartier de Kenya en 2018 :

« Les espaces cultivables sont en train d'être colonisés par le bâti. Cette situation induit une réduction des surfaces cultivables. Dans le quartier Castor, depuis l'implantation de l'université, je constate une multiplication des lotissements résidentiels. Si ces morcellements se poursuivent, dans les 5, voire 10 années à venir, on risque de perdre nos jardins maraîchers. Et je trouve que ça serait dommageable pour l'autoconsommation de nos familles, mais aussi de la population. Car nous fournissons une partie des légumes commercialisés dans les marchés de la ville. À mon avis, il urge que les autorités municipales préservent l'agriculture dans la ville, car les revenus issus de la vente de légumes permettent à certaines mères de famille de gérer les frais de scolarité de leur enfant et d'assurer les autres dépenses quotidiennes ».

Et un autre, rencontré à Djibock en 2018, de souligner :

« Les propriétaires de terres sont conscients de la rente foncière dans le quartier. Cette raison explique qu'ils reprennent les parcelles qu'ils nous avaient prêtées pour construire des maisons à étage R +2 et les mettre en location. Actuellement, c'est le principal problème auquel tous les maraîchers sont confrontés. Si cette situation perdure, l'agriculture va disparaître dans le quartier. »

L'analyse cartographique de l'occupation des sols de 1968, 2006 à 2016 (Figure 4) permet de comprendre la mutation des terres agricoles en lien avec l'urbanisation. Par conséquent, la rapidité des constructions entraîne aussi une pression sur le foncier et une rétraction progressive des terres agricoles dans le plateau.

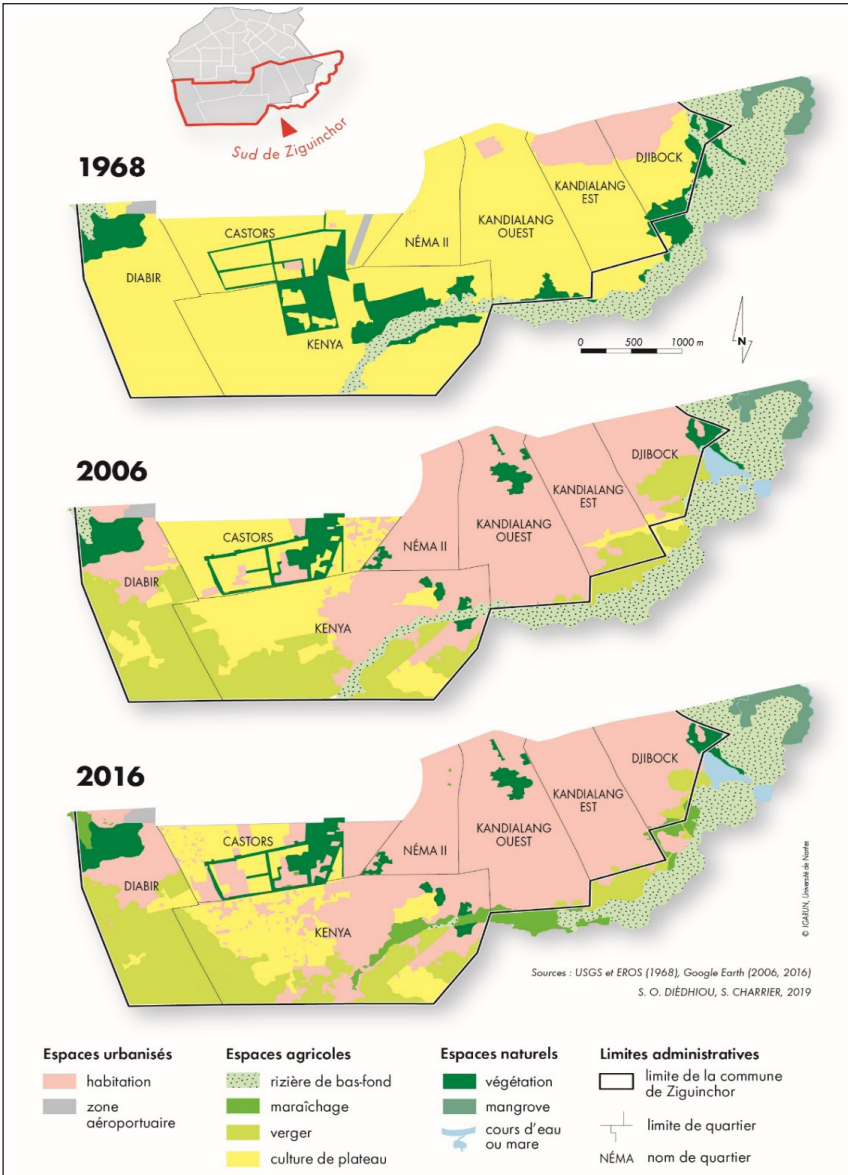


Figure 4 : Changement d’occupation du sol dans les quartiers périphériques au sud

De manière plus spécifique, le graphique d’évolution des classes d’occupation du sol (Figure 5) révèle que le bâti a connu une rapide augmentation. De 6 pour cent en 1968, ce taux a presque doublé entre 2006 et 2016, atteignant 58 pour cent, entraînant ainsi une diminution des cultures de plateau passant de 79 pour cent à 15 pour cent sur cette période. Cette

situation entraîne aussi une diminution des vergers : de 5 pour cent en 1968, elle est passée à 1 pour cent en 2016. Durant cette même période, nous soulignons en 2016 une augmentation des zones de culture maraîchère atteignant 3 pour cent. L'essor du maraîchage s'explique, d'une part, par le manque de travail et la pauvreté non décroissante. D'autre part, cette activité est économiquement rentable et permet aux retraités et à certains jeunes d'avoir un revenu complémentaire. Par exemple, principal apport financier pour 90 pour cent des exploitants enquêtés, la vente de légumes procure un revenu moyen mensuel de 75 000 à 250 000 F CFA.

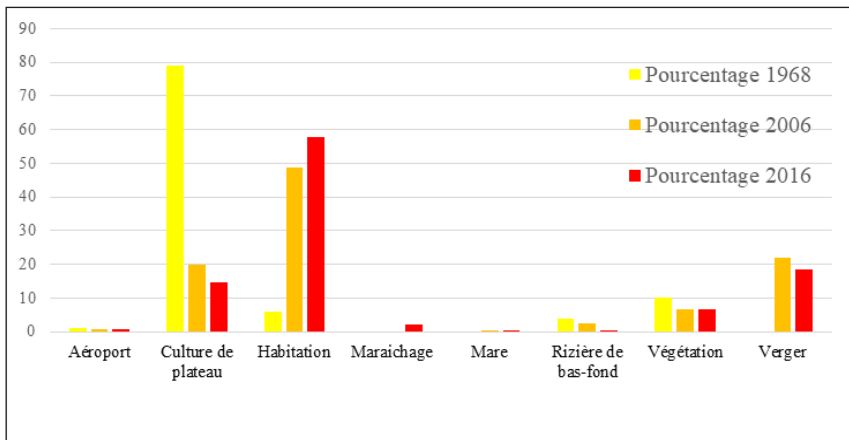


Figure 5 : Évolution des classes d'occupation du sol dans les quartiers périphériques au sud

Source : Diédhiou 2019

De manière générale, la question de la sécurité alimentaire des exploitants est à appréhender au regard de la disponibilité des terres, de leur nature et de leur potentiel. Le volet foncier est un critère discriminant de premier ordre qui induit des stratégies spécifiques de la part des exploitants. Les résultats des enquêtes de terrain révèlent une disponibilité permanente plutôt élevée : dans 80 pour cent des cas, le riz et les légumes produits en propre suffisent pour la satisfaction de leurs besoins alimentaires, notamment parce que ceux-ci combinent plusieurs sites de production : un premier attenant au domicile, un autre dans les bas-fonds et un dernier sur le plateau :

« Je dispose de trois parcelles et ces dernières se situent dans des sites différents. La première est située dans le bas-fond de Djibélor. Donc, durant la saison des pluies, j'y cultive du riz pour le compte du propriétaire. La seconde est localisée dans mon domicile, pendant la saison sèche, je pratique le maraîchage

pour assurer le complément alimentaire familial en légumes frais (gombo, oseille “bissap”, chou, etc.). La dernière se trouve aux abords immédiats de la maison. Durant la saison des pluies, je cultive des légumes de types racines, notamment de la patate douce et du manioc.» (Enquête n° 44, 2016)

D’ailleurs, une large prédominance des cultures maraîchères : la salade, le chou, la patate douce, le manioc, le gombo et la menthe ont été constatés (Photo 2).



Photo 2 : Association culturale (patate douce, chou, manioc, salade) dans un espace vacant du quartier de Kandialang

- au premier plan nous observons la patate douce ;
- au second plan le chou ;
- en arrière-plan le manioc.

Source : Diédhiou 2017

Finalement, l’analyse cartographique montre que 10 97 ha de surface agricole (répartis comme suit : 182 ha de cultures de plateau, 512 ha de rizières de bas-fonds, 150 ha de cultures maraîchères et 250 ha de vergers) sont utilisés pour assurer la nourriture des populations de Ziguinchor.

Complexité des relations entre acteurs et difficile prise en compte de l’agriculture dans les différents plans d’aménagement de la ville

Dans la ville de Ziguinchor, l’étalement urbain pose des questions sur la place et les fonctions de l’agriculture dans les territoires en recomposition. Dans ce contexte, une politique publique agricole permettrait de conserver des espaces agricoles *via* des outils fonciers et une planification spatiale

(Jarrige *et al.* 2006). Cette section cherche à comprendre la façon dont les acteurs se représentent le rôle et la place de l'agriculture dans la fabrique de la ville de Ziguinchor. Étudier le jeu d'acteurs³ suppose donc une approche globale prenant en compte cette nécessaire proximité. On montre que la stratégie des acteurs implique, en parallèle, des relations d'influence et de dépendance qui induisent des rapports de force dans les convergences et les divergences entre les acteurs.

Une absence de coordination entre acteurs aux visions, compétences et objectifs distincts

Devant l'inefficacité des projets nationaux d'aménagement du territoire initiés par les gouvernements successifs, une nouvelle approche de gestion des territoires se dessine au Sénégal, proposant de reconsidérer les échelons locaux comme les niveaux les plus appropriés pour gérer les ressources (Diop 2006, 2012). Cette prise en considération croissante du local dans les politiques d'aménagement, qui prend la forme d'une gestion participative des territoires, repose sur l'affirmation de la nécessité de l'autonomie des collectivités locales pour développer les voies de développement les plus adaptées aux contextes locaux, donnant lieu aujourd'hui à une territorialisation des politiques publiques. À l'initiative des collectivités et sous forme de grands projets de territoire définis par l'État, celle-ci vise à asseoir une véritable politique de développement et de mise en valeur des potentialités des villes.

Ce processus se traduit par l'émergence d'acteurs directs (exploitants agricoles et organisations paysannes), de collectivités territoriales, de services déconcentrés (municipalité, ISRA, CSA, SRAZ) et d'organisations non gouvernementales (Grdr, PAM, Unicef) aux actions parfois non concertées, à la collaboration timide avec les exploitants agricoles, le secteur privé et le milieu associatif. Ces derniers n'ont pas forcément les mêmes visions, les mêmes compétences, les mêmes objectifs et les mêmes outils d'interventions. Comme l'indique le responsable de la chaîne de valeur du Projet Pôle de développement de la Casamance (PPDC),

« Les exploitants agricoles de la ville de Ziguinchor sont les grands oubliés de notre programme. Nous sommes basés dans la ville, mais il est difficile d'approcher tous les exploitants. Donc, il faudrait que la municipalité, pour assurer la sécurité alimentaire, voire l'autoconsommation des populations, dégage un budget pour les exploitants. Ceci pour faciliter l'accessibilité des exploitants, notamment les maraîchers aux marchés. En 2017, nous avons un projet pour mettre en place une ceinture verte à partir des vallées. Cependant, le projet n'a pas abouti à cause d'un manque de coordination entre les différents acteurs. » (Entretien n° 5, 2016)

En revanche, le directeur d'ISRA/CRA-Djibélor (Ziguinchor) indique, pour assurer la sécurité alimentaire des exploitants :

«Le centre de recherche agricole appuie les riziculteurs et les maraîchers qui interviennent dans la vallée de Djibélor. Nous prêtons des terres aux exploitants, notamment les déplacés de la guerre qui sont installés au quartier Lyndiane. Aussi, nous menons des actions pour protéger les cultures maraîchères contre les insectes ravageurs. Nous mettons à disposition des variétés et les technologies pour accompagner les exploitants. Ces raisons expliquent que nous travaillons avec l'ANCAR pour vulgariser les nouvelles technologies.» (Entretien n° 8, 2016)

En définitive, propriétaires, exploitants agricoles, promoteurs immobiliers, collectivités locales et pouvoirs publics expriment des besoins différents et, dans certains cas, contradictoires sur les espaces agricoles qui constituent aujourd'hui un enjeu stratégique pour le développement multifonctionnel de la ville de Ziguinchor.

Le croisement de la figure 6 avec les résultats des entretiens montre que la gestion des espaces agricoles dans la ville de Ziguinchor se situe clairement sous l'influence d'au moins cinq types d'acteurs : les agriculteurs qui exploitent les terres agricoles et qui y concentrent une partie de leurs capitaux ; parmi les acteurs institutionnels, l'État, intervenant directement sur l'espace et l'activité agricole ; la municipalité chargée d'élaborer les différents plans d'urbanisme ; les commerçants formels ou informels qui agissent sur l'offre et la demande ; et les ONG et les citoyens s'exprimant individuellement ou par l'intermédiaire d'associations plus ou moins structurées. Les relations entre ces acteurs sont marquées par des jeux de pouvoir et d'influence. L'État, en particulier, mobilise des instruments pour exercer sa suprématie sur les autres acteurs. En effet, il reste l'acteur clef de l'aménagement du territoire, de la programmation des investissements consentis avec la municipalité à la recherche de financements et de l'approbation des Plans directeurs d'urbanisme (PDU).

Par conséquent, la création de nouveaux quartiers sur des terres agricoles, sans réelle concertation avec les populations locales, entraîne un bouleversement dans les rapports entre aménageurs publics-promoteurs immobiliers et population locale. De fait, l'espace agricole dans la ville se rétrécit de plus en plus au profit de projets d'infrastructures et d'habitat. Ces projets d'infrastructures sont parfois envisagés dans la ville depuis des années. Or, chaque fois qu'un projet est prévu, les exploitants agricoles se positionnent pour vendre «leurs terres». Ceci contribue à la destruction du parcellaire et de l'agriculture locale. Ces projets mettent les exploitants en

situation délicate, posant souvent la question de leur devenir. L'expropriation peut intervenir à tout moment, créant un climat d'insécurité, un sentiment de précarité chez les exploitants.

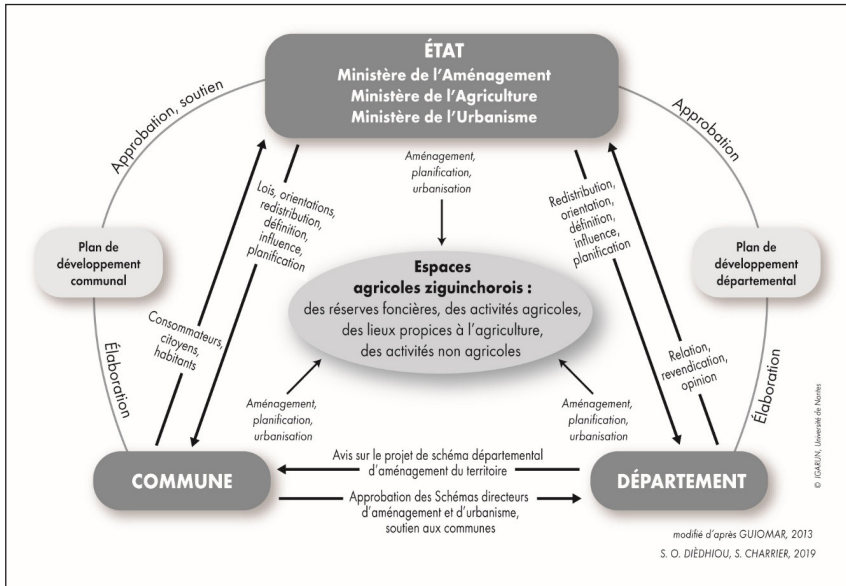


Figure 6 : Acteurs institutionnels intervenant dans la gestion des espaces agricoles dans la ville de Ziguinchor

Agriculture urbaine et projet de territoire : une nécessaire politique locale de gestion des terres agricoles

Il ressort de l'analyse des entretiens que trois rôles sont reconnus aux espaces agricoles de la ville de Ziguinchor par les différentes catégories d'acteurs.

Prédomine la fonction « alimentaire », rattachée aux sous-fonctions « site de production » et « approvisionnement des marchés ». Elle est citée par les exploitants agricoles et les consommateurs, qui ont mis en avant la fonction « alimentation », rattachée aux sous-fonctions « site de production » et « approvisionnement ». Ces deux catégories d'acteurs insistent sur l'autoconsommation familiale et l'approvisionnement des marchés de la ville, ce qui est révélateur de la vivacité du lien nourricier entre Ziguinchor et son agriculture.

La fonction « revenus/emplois » est citée par toutes les catégories d'acteurs. Les exploitants agricoles qualifient les espaces agricoles comme étant leur principale « source de revenus », alors que les élus et planificateurs insistent sur l'agriculture pour la « création d'emplois » temporaires. Enfin, la

fonction « espace vert » n'est évoquée que par quelques exploitants agricoles et planificateurs, qui révèlent que les espaces agricoles gardant « la verdure légendaire de la ville », et peuvent « servir d'espace vert pour la ville ». Par ailleurs, la fonction « espace vert » n'est pas citée par les consommateurs, les marchands de légumes et les éleveurs. En revanche, 90 pour cent des exploitants agricoles soulignent l'importance de garder des espaces agricoles dans la ville de Ziguinchor. Comme l'indique un exploitant rencontré en 2016 au quartier Boucotte,

« La terre est d'abord une richesse et Ziguinchor est traditionnellement une ville agricole. De mon avis, garder des espaces dédiés à l'agriculture contribue à assurer la disponibilité en légumes et en riz. Aussi, les espaces agricoles assurent l'approvisionnement régulier en légumes frais en quantité et en qualité des différents marchés locaux. Les espaces agricoles permettent aux familles démunies d'assurer leur autoconsommation. »

Après avoir analysé la représentation que se font les différentes catégories d'acteurs sur le rôle de l'agriculture urbaine, il est nécessaire d'examiner si cette activité est intégrée dans les différents plans d'aménagement de la ville.

Selon le ministre de l'Urbanisme, du Logement et de l'Hygiène publique en 2019, 15 pour cent seulement des municipalités sénégalaises disposent d'un document de planification urbaine à jour, alors que la municipalité est l'institution chargée d'élaborer le Plan d'urbanisme de détails (PUD). Celui-ci contribue à la transformation progressive des terres agricoles en zones urbaines puisque la participation de l'institution municipale au développement de l'activité agricole reste timide. En ce qui concerne le cas de Ziguinchor, la caducité du (PDU) n° 83-183 du 15 février 1983 depuis 2004 explique que la ville est frappée d'inconstructibilité. Ainsi, toutes les opérations d'aménagement urbain se font et se défont dans l'informalité. Ces raisons expliquent que nous n'allons pas insister sur l'analyse des documents d'urbanisme. Par ailleurs, le PUD détermine notamment, en fonction des spécificités des secteurs ou quartiers concernés : les modes particuliers d'utilisations du sol ; le tracé des voies de circulation ; les emplacements réservés aux équipements publics, aux installations classées et autres installations d'intérêt général et aux espaces libres ; les zones de protection spéciale visées par le code de l'environnement ; les règles et servitudes particulières de construction justifiées par le caractère des lieux ; les conditions d'occupation du sol de façon aussi précise que nécessaire.

Néanmoins, les résultats des entretiens avec des acteurs institutionnels permettent de cerner leurs représentations concernant la pérennité de l'agriculture dans la ville. Grâce à la réponse à la question : « La planification

spatiale pourrait-elle maintenir la pérennité de l'agriculture dans la ville 5 ou 10 ans?», le chef de service régional de l'urbanisme indique ainsi que,

« Cette activité peut se pérenniser dans la ville à condition que des politiques fortes soient mises en œuvre par la municipalité. En effet, la municipalité devrait intégrer cette agriculture qui lui apporte des ressources (à travers la collecte des taxes sur les marchés) dans les plans d'aménagement et projets de la ville » (Entretien, n° 5, 2017).

De son côté, le chef de service du commissariat à la sécurité alimentaire souligne que,

« Si l'agriculture est bien gérée par la municipalité, les services déconcentrés et les exploitants agricoles, elle peut se maintenir dans la ville de Ziguinchor pendant les cinq ou dix prochaines années. Pour y parvenir, il faudrait une bonne coordination entre les différents services qui interviennent dans le domaine de l'agriculture » (Entretien, n° 7, 2017),

Finalement, les acteurs se représentent de manière différente l'agriculture dans la ville. On assiste à la multiplication des acteurs qui se traduit, parfois, par une pluralité d'interventions, de documents de planification, d'orientations politiques et de modes de concertation avec les populations locales.

Conclusion

L'objet de cet article était de montrer que la croissance urbaine repousse d'évidence les étendues cultivées toujours plus loin, la ville étant dévoreuse d'espace et, de préférence, d'espace agricole. Plus spécifiquement, il s'agit de comprendre les mutations en cours puis d'identifier les interactions entre société et individu dans la gestion des espaces agricoles. Ce travail de recherche révèle que malgré l'avancée de l'urbanisation, il subsiste des zones agricoles dans le plateau, notamment dans les quartiers périphériques sud. En effet, les potentialités agricoles s'avèrent plutôt bien exploitées par une diversité d'acteurs, parmi lesquels les exploitants agricoles, notamment les femmes, occupent une place centrale. Stratégie de survie pour les populations autochtones et déplacées de l'intérieur et des néo-citadins au faible pouvoir d'achat, cette agriculture familiale peut porter un vrai projet de dynamisation locale.

Malgré la présence d'un potentiel productif reconnu pour le développement agricole (disponibilité en eau et en espace agricole), la difficile prise en compte de l'agriculture dans les différents plans d'aménagement peut devenir une contrainte majeure. Néanmoins, les acteurs rencontrés s'accordent sur la multifonctionnalité de cette activité, notamment sur le rôle que joue l'agriculture dans la sécurité alimentaire localement.

Pour assurer leur propre sécurité alimentaire, mais aussi celle de la population urbaine, ils sont tributaires de choix – politiques – qui pourraient être retenus dans des plans d'aménagement. La pérennité des espaces agricoles passe alors par leur reconnaissance juridique, ce qui suppose par exemple l'accompagnement et le suivi des activités, ou un recensement des exploitants et de leurs pratiques.

D'ailleurs, ce travail participe à la génération de nouvelles connaissances, notamment à la mise en place d'une base de données sur le nexus des exploitations agricoles urbaines, foncières et de l'évolution de l'occupation du sol. Au fond, la combinaison des outils SIG et enquête permet de saisir la transformation complète des espaces urbains/ruraux. C'est un excellent mécanisme d'aide à la décision pour l'aménagement et la gestion des espaces agricoles. L'étude apporte des innovations dans la précision de l'information géographique, un accès facile et libre à une bonne base de données cartographiques actualisée sur le lien entre agriculture, conflits fonciers et sécurité alimentaire.

Par ailleurs, l'analyse diachronique à partir des images satellites Corona et de la cartographie multodate de 1968, 2006 et 2016, combinée à nos entretiens et enquêtes, nous a permis d'appréhender les changements spatiaux, notamment le processus d'individualisation de l'étendue en lieux urbains au détriment des espaces maraîchers, rizicoles et des vergers d'anacardes. Cette fragilisation des espaces agricoles est différente en fonction de la localisation de l'exploitation agricole. Ainsi, ces changements sont plus marqués dans les quartiers périphériques sud. Pour autant, sur les 4533 ha de superficie de terre que couvre la ville, un quart est réservé à la pratique de l'agriculture. Ce résultat souligne que l'agriculture urbaine contribue à l'atteinte de la sécurité alimentaire.

Notes

1. Les quartiers de Diabir, Lyndiane et Kandialang étaient considérés comme des bases arrière pour les combattants du Mouvement des forces démocratiques de Casamance (MFDC). Ils étaient le théâtre d'opérations militaires jusqu'à la fin des années 2000. Ils ont été sécurisés par la suite par l'armée (Sakho *et al.* 2016).
2. Atteignant 124 283 habitants en 1988, la population de la ville est estimée en 2018 à plus de 289 904. En effet, entre 1976 et 2018, le taux d'urbanisation connaît une évolution rapide, atteignant 46 pour cent. Ainsi, le taux de croissance de la population (4,4 %) est soutenu (ANSD 2018).
3. Un acteur est un groupe homogène ayant des objectifs et des moyens d'action communs et mettant en œuvre une même stratégie et affichant un rapport de force face aux autres acteurs. » (Godet *et al.* 2011:50)

Bibliographie

- ANSD (Agence nationale de la statistique et de la démographie), 2018, *La population du Sénégal en 2017*, Dakar, Ministère de l'Économie, des Finances et du Plan, Direction des statistiques démographiques et sociales, Division du recensement et des statistiques démographiques, Bureau état civil et projections démographiques.
- ANSD (Agence nationale de la statistique et de la démographie), 2014, Rapport définitif : Recensement général de la population, de l'habitat, de l'agriculture et de l'élevage (RGPHAE), Dakar, Ministère de l'Économie et des Finances.
- Ba, A., 2007, Les fonctions reconnues à l'agriculture intra et périurbaine (AIPU) dans le contexte dakarois : caractérisation, analyse et diagnostic de durabilité de cette agriculture en vue de son intégration dans le projet urbain de Dakar (Sénégal), thèse de doctorat, Sciences agronomiques et de l'environnement, Université Cheikh Anta Diop de Dakar et AgroParisTech, 356 p.
- Bricas, N., Tchamda, C., et Martin, P., 2016, « Les villes d'Afrique de l'Ouest et du Centre sont-elles si dépendantes des importations alimentaires ? », *Cahiers Agricultures*, 25(5), 55 001. <https://doi.org/10.1051/cagri/2016036>
- Brondeau, F., 2014, « Comment sécuriser l'accès au foncier pour assurer la sécurité alimentaire des populations africaines ? Éléments de réflexion », *Vertigo*, vol. XIV, n° 1, <https://doi.org/10.4000/vertigo.14914>
- Dahou, T., et Ndiaye, A., 2009, « Les enjeux d'une réforme foncière », dans Tarik Dahou (Éd.), *Libéralisation et politique agricole au Sénégal*, Paris, Karthala, p. 49-69 ; samedi 27 juillet 2013 - 2 h 45 min 9 s <https://halshs.archives-ouvertes.fr/halshs-00817009>
- Dauvergne, S., 2011, *Les espaces urbains et périurbains à usage agricole dans les villes d'Afrique subsaharienne (Yaoundé et Accra) : une approche de l'intermédiation géographique* [Géographie], École normale supérieure de Lyon.
- Darrax, S. M. d'Aranda de, 2009, « Le lait local en périphérie de Bamako : une filière en sursis ? », *EchoGéo*, 8. <https://doi.org/10.4000/echogeo.11012>
- Diédhiou, S. O., Sy, O., et Margetic, C., 2019, « Agriculture urbaine à Ziguinchor (Sénégal) : des pratiques d'autoconsommation favorables à l'essor de filières d'approvisionnement urbaines durables », *Espace populations sociétés* [En ligne], 2018-3|2019, mis en ligne le 30 janvier 2019, consulté le 5 mars 2019. URL : <http://journals.openedition.org/eps/8250> ; DOI : 10.4000/eps.8250
- Diédhiou, S. O., Sy, O., et Margetic, C., 2018, « Impacts de la dynamique urbaine et de la variation hydrologique sur la sécurité alimentaire : le cas du bassin-versant de Djibélor (Ziguinchor) », dans *Regards croisés sur les enjeux et perspectives environnementaux de la recomposition des espaces urbains et périurbains face aux changements climatiques*, Paris, L'Harmattan, p. 267-281.
- Diédhiou, S. O., 2013, *Agriculture périurbaine et sécurité alimentaire : le cas du quartier de Lyndiane (Ziguinchor)*, Dakar, Université Cheikh Anta Diop de Dakar, mémoire de master, 115 p.
- Diédhiou, P., 2015, *La gestion des ordures ménagères dans la commune de Ziguinchor : étude de cas des quartiers de Boudody-Escale, Boucotte-Sud et Kenya*, mémoire de master en géographie, Université Assane Seck, 99 p.

- Diop, D., 2006, *Décentralisation et gouvernance locale au Sénégal : quelle pertinence pour le développement local*, Études africaines, Paris, L'Harmattan, 268 p.
- Diop, D., 2012, *Urbanisation et gestion du foncier urbain à Dakar : défis et perspectives*, Études africaines, Paris, L'Harmattan, 316 p.
- Dugué, P., Soulard, C.-T., Marraccini, E., Houdart, M., Michel, I., & Rhaidour, M., 2016, « Systèmes maraîchers urbains et périurbains en Méditerranée : une comparaison entre Meknès (Maroc), Montpellier (France) et Pise (Italie) », dans Hichem Rejeb et Christophe Soulard (Éds.), *Organisation des agriculteurs et des systèmes agricoles dans les territoires urbains et périurbains*, Ouvrage universitaire transdisciplinaire à comité de lecture international , p. 57-78. Université de Sousse, IRESA, CIRAD-ES-UMR Innovation, CIRAD-PERSYST-UPR HortSys, Institut français de Tunisie.
- FAO, 2006, *Notes d'orientation sur la sécurité alimentaire*, Division de l'économie agricole et du développement (ESA) de la FAO, avec le concours du programme de partenariat FAO-Pays-Bas et du Programme de sécurité alimentaire CE-FAO.
- FAO, 2010, *Sécurité alimentaire : l'information pour l'action, guide pratique* <http://www.fao.org/docrep/013/al936f/al936f00.pdf>
- Faye, C., Sy, O., et Diédhiou, S. O., 2018, « Analyse de phénomènes hydrologiques dans un bassin-versant urbanisé et leur incidence sur l'agriculture : cas de la ville de Ziguinchor (sud du Sénégal) », dans *Regards croisés sur les enjeux et perspectives environnementaux de la recomposition des espaces urbains et périurbains face aux changements climatiques*, Paris, L'Harmattan, p. 177-194.
- Gaye, M., et Niang, S., 2010, *Manuel des bonnes pratiques de l'utilisation des eaux usées dans l'agriculture urbaine*, Enda-Tiers-Monde. FAO, 131 p.
- Gueye-Girardet, A., 2010, « L'accès à la terre au Sénégal est un enjeu de compétition acharnée », *Uniterre : le Mensuel agricole indépendant*, 7.
- Jarrige, F., Thinon, P., et Nougaredes, B., 2006, « La prise en compte de l'agriculture dans les nouveaux projets de territoires urbains. Exemple d'une recherche en partenariat avec la communauté d'agglomération de Montpellier », *Revue d'économie régionale et urbaine*, p 393-414.
- Lavigne Delville, Ph., Boucher, L., et Vidal, L., 1996, « Les bas-fonds en Afrique tropicale humide : stratégies paysannes, contraintes agronomiques et aménagements », dans *Fertilité du milieu et stratégies paysannes sous les tropiques humides : actes du séminaire international*, CIRAD, p. 148-161.
- Lavigne Delville, Ph., 2010, « Sécurisation foncière, formalisation des droits, institutions de régulation foncière et investissements. Pour un cadre conceptuel élargi », *Revue des questions foncières*, FAO, n° 1, p. 5-34.
- Parrot, L., (Éd.), 2008, *Agricultures et développement urbain en Afrique subsaharienne : gouvernance et approvisionnement des villes*, Paris, L'Harmattan.
- Pélissier, P., 1966, *Les paysans du Sénégal. Les civilisations agraires du Cayor à la Casamance*, Saint- Yrieix, Fabrègue, 944 p.
- République du Sénégal, commune de Ziguinchor, 2012, Plan d'investissement communal – PIC (2012-2017). Version finale. 120 p.

- Sakho, P., Sy, O., Dièye, E. B., et Sané, T., 2016, «La production de la ville sur les marges : le cas de la ville de Ziguinchor (Sénégal)», *Revue de sociologie, d'anthropologie et de psychologie*, n° 7, Faculté des Lettres et Sciences Humaines, UCAD, p. 131-152.
- Sène, A. M., 2018, «Dynamiques de l'agriculture périurbaine dans la commune de Ziguinchor : l'exemple des quartiers de Kadialang Est et Ouest», *Revue de géographie du laboratoire Leïdi*, n° 18, p. 1-18– ISSN 0851 – 2515.
- Sy, O., et Sakho, P., 2013, «Dynamiques des paysages périurbains de la ville de Ziguinchor au Sénégal», *Perspective et Société*, vol. 5 (n° 1-2), p. 164-186.
- Sy, O., et Sané, T., 2011, «Périurbanisation et vulnérabilité dans la ville de Ziguinchor (Sénégal) : le cas du quartier Goumel», dans *Actes du colloque international «Aménagement périurbain : processus, enjeux, risques et perspectives*, p. 139-152, Fès, Université Sidi Mohamed Ben Abdellah.
- Touzard, J.-M., et Temple, L., 2012, «Sécurisation alimentaire et innovations dans l'agriculture et l'agroalimentaire : Vers un nouvel agenda de recherche? Une revue de la littérature », *Cahiers Agricultures*, 21(5), p. 293-301.



Dynamiques migratoires et sécurité alimentaire à Tuabou¹

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Résumé

Tuabou est une localité soninké du département de Bakel fortement marquée par la migration liée au durcissement des conditions écologiques à partir des années 1930. Cet article aborde la sécurité alimentaire sous le prisme des répercussions des dynamiques migratoires sur le système de production agricole à Tuabou. Il s'appuie sur une recherche documentaire, une enquête conduite auprès des concessions, des entretiens et des observations. Selon les informations recueillies, la satisfaction des besoins alimentaires dans la décennie précédant l'indépendance reposait sur le mil et le fonio sauvage qui palliaient le manque de céréales. La période allant des années 1960 à la fin des années 1990 correspond à la dépendance à l'égard des transferts d'argent. Avec l'essoufflement des réseaux migratoires, l'agriculture de décrue et irriguée apparaissent comme une alternative mais avec une certaine innovation. Si l'agriculture de décrue avait comme unité d'intervention la famille, on assiste de plus en plus à la coexistence de parcelles individuelles et familiales. Plus de 85 pour cent des concessions combinent les revenus issus de l'émigration et la vente des produits de cette agriculture pour la couverture des besoins alimentaires. Les revenus générés par les lots individuels satisfont les besoins individuels de leur propriétaire.

Mots-clés : agriculture, émigration, sécurité alimentaire, dynamique migratoire, Tuabou

Abstract

Tuabou is a Soninké locality in the department of Bakel strongly affected by migration linked to the harsh ecological conditions from the 1930s. This article addresses food security through the lens of the impact of migration dynamics on the agricultural production system in Tuabou. It is based on documentary research, a survey of the concessions, interviews and observations. According to

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the information gathered, in the decade before independence, food needs were based on millet and wild fonio, which compensated for the lack of cereals. The period from the 1960s to the end of the 1990s corresponds to the dependence on remittances. As the migratory networks ran out of steam, flood recession and irrigated agriculture emerged as alternatives, but with some innovation. While flood recession agriculture had the family as the unit of intervention, individual and family plots increasingly coexist. More than 85 percent of the concessions combine income from out-migration with the sale of the products of this agriculture to cover food needs. The income generated by individual plots satisfies the individual needs of their owners.

Keywords: food security, emigration, Tuabou, agriculture, migration dynamics, Senegal

Introduction

L'insécurité alimentaire est toujours d'actualité dans le monde. Selon le rapport FAO, FIDA et PAM 2017, 777 millions d'individus en souffrent. Compte tenu du nombre des personnes concernées, elle demeure une préoccupation majeure pour la communauté internationale, à tel point qu'une attention particulière lui a été accordée lors de la première session préparatoire à la Conférence mondiale sur le climat qui s'était tenue en décembre 2015 à Paris (COP 21).

Notons que les régions en développement sont les plus concernées par le problème de l'insécurité alimentaire. Le continent africain est le plus touché par l'insécurité alimentaire avec une concentration en Afrique subsaharienne, notamment au Sénégal. À titre d'illustration, en 2015, 48,7 pour cent des ménages sénégalais, notamment en milieu rural, ont connu une pénurie de nourriture (ANDS 2015). S'il est vrai que toutes les régions administratives du Sénégal sont touchées à des degrés divers par les difficultés de subsistance, il reste que les pays soninké¹ et halpoulaar qui composent la moyenne vallée du fleuve Sénégal sont considérés comme des zones ne connaissant pas une insécurité alimentaire. L'on a présenté la moyenne vallée du fleuve Sénégal comme une contrée qui s'affranchit des moyens de subsistance précaires grâce à l'émigration internationale. Par quel mécanisme l'émigration internationale contribue-t-elle à la sécurité alimentaire dans cette partie du Sénégal, des années 1950 à nos jours? Quelles sont les implications des dynamiques migratoires observées dans le système de production agricole?

Telles sont les interrogations auxquelles tente de répondre cette contribution, qui se propose d'aborder la sécurité alimentaire sous le prisme des répercussions des dynamiques migratoires sur le système de production agricole dans la moyenne vallée du fleuve Sénégal, à travers l'exemple de

Tuabou. Ce village est une localité soninké du département de Bakel, lui-même rattaché administrativement à la région de Tambacounda (Figure 1). Le choix de ce village ne relève pas du hasard. Il se prête bien à l'étude de la question de la sécurité alimentaire en lien avec le phénomène migratoire. Tandis que les envois de fonds couvrent les besoins alimentaires de certains villages soninkés, au point que Timera (1996) considère leurs habitants comme des « consommateurs vivants de la rente migratoire », la question de la satisfaction des besoins alimentaires se pose à Tuabou dans un contexte de dynamiques migratoires.

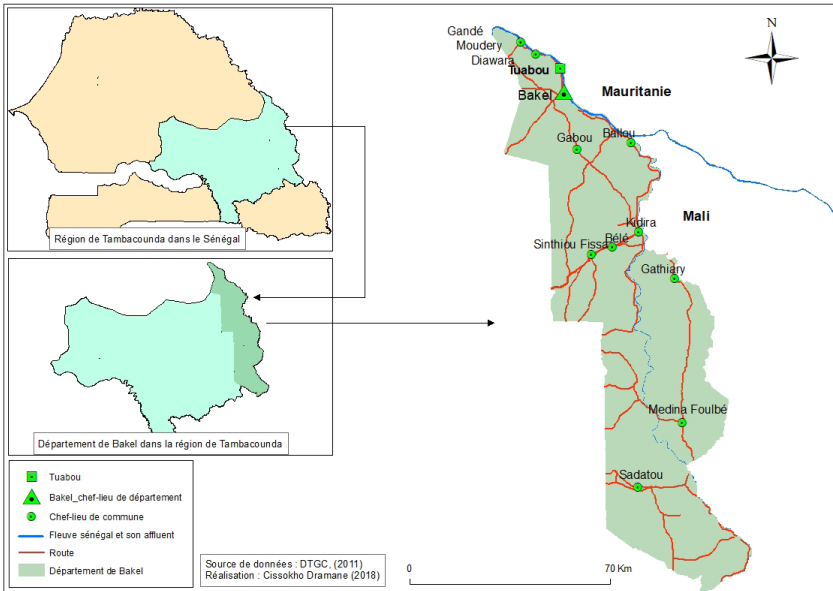


Figure 1 : Localisation du village de Tuabou

Les études portant sur l'approche économique de la migration distinguent généralement trois courants théoriques qui sont la théorie néoclassique, la théorie de la dépendance économique et la théorie de la nouvelle économie de la migration. La théorie néoclassique est fondée sur la vision optimiste de la migration (Lewis 1954 ; Harris & Todaro 1970) : autrement dit, le différentiel de rémunération (salaire) entre les régions ou les pays explique la migration interne (des espaces ruraux vers les centres urbains ou des zones industrielles) et la migration internationale (des pays pauvres vers ceux développés). L'individu rationnel, soucieux de maximiser son revenu, migre volontairement vers des endroits les plus attractifs en termes d'emplois et de revenus (zones à hauts salaires et à faible taux de chômage). Cette théorie considère les migrants comme

des acteurs individuels rationnels, qui décident de se déplacer sur la base d'un calcul des coûts et des rendements. Cependant, les théoriciens de la dépendance économique soutiennent que la migration ne relève pas d'un libre choix, mais plutôt d'une obligation. Les personnes sont forcées de se déplacer, car les structures économiques traditionnelles ont été minées en raison de leur incorporation dans un système politico-économique global. La théorie néoclassique et celle de la dépendance économique, basées sur la rationalité individuelle, ne prévoient aucun transfert monétaire de la part des migrants vers la communauté d'origine (Taylor 1999). De ce fait, elles ont été mises en cause par les défenseurs de la nouvelle théorie de l'économie de la migration. Ces derniers considèrent que la migration ne relève pas d'une décision individuelle, mais plutôt collective, et s'inscrit dans une stratégie familiale de diversification de ressources, afin de réduire au minimum les aléas de revenus (Harbison 1981).

Toutefois, Manchuelle (1997) considère que la migration soninké relève de l'approche néoclassique, mais que son organisation communautaire et les revenus qu'elle génère au profit des familles d'origine l'inscrivent dans la nouvelle économie de la migration. D'ailleurs Petit (2002) soulignait que la mort d'un émigré soninké signifie pour sa famille une diminution, voire une privation de revenus, bouleverse l'équilibre établi et impose une réorganisation sociale et économique. Cela, révèle une certaine dépendance à l'égard de la migration – notamment par rapport aux transferts de fonds – et son organisation collective pour répondre aux attentes et aux problèmes de la communauté. La moyenne vallée du fleuve Sénégal a fait l'objet de plusieurs études sur les dynamiques migratoires, mais elles se sont focalisées sur celles qui sont spatiales, c'est-à-dire le passage de la migration urbaine halpoulaar à la migration vers l'Afrique centrale sous l'effet de l'attraction du diamant, puis de celle-ci vers l'Europe sous l'effet de diverses crises politiques, et, dans une moindre mesure, sur la féminisation des villages. Pourtant, d'autres dynamiques migratoires ayant trait à la retraite des pionniers de l'émigration française, remplacés ou non par une nouvelle génération, s'observent, mais sont très peu étudiées. L'entrée par l'économie migratoire (envois de fonds) articulée aux dynamiques migratoires générationnelles est intéressante en ce sens qu'elle permet d'aborder la question de la sécurité alimentaire dans des territoires migratoires, notamment à Tuabou. La notion de sécurité alimentaire, qui se résumait dans les années 1970 à l'accès à la nourriture pour une partie de la population mondiale menacée par la famine, implique actuellement la disponibilité et l'accès à une nourriture saine et adéquate (Abdelkader 2017). Dans cette étude, la sécurité alimentaire renvoie tout simplement à l'accès à la nourriture.

L'article est structuré autour de quatre points. Le premier concerne la période allant de la crise céréalière des années 1930 à l'émigration française des années 1950. Le deuxième porte sur la dépendance vis-à-vis des transferts monétaires. Le troisième met l'accent sur la fragilisation du système alimentaire avec l'essoufflement des réseaux migratoires. Le quatrième et dernier point aborde l'association des revenus tirés de l'agriculture de décrue innovante et de l'agriculture irriguée aux remises migratoires pour la sécurisation des moyens de subsistance à Tuabou.

Méthodologie

Analyser la problématique de la sécurité alimentaire dans les terroirs soninkés de la moyenne vallée du fleuve Sénégal, à l'image de Tuabou, implique la prise en compte de la migration qui les structure. On n'y parvient pas en se limitant aux vagues migratoires des dernières années. Il faut un regard rétrospectif dans la longue durée, autrement dit, jusqu'aux années 1950, début de l'émigration internationale, moteur de la dynamique du pays soninké. Bien que les stratégies mises en place pour la sécurité alimentaire ne puissent se détacher du contexte actuel, elles portent en grande partie les marques du passé migratoire. Parler des années 1950 revient à s'intéresser à la période d'avant l'indépendance. L'on comprend rapidement pourquoi une partie de la recherche documentaire pour ce travail a porté sur les travaux académiques qui traitent de la situation socioéconomique, de la production agricole, des crises de subsistance et des migrations dans le pays soninké pendant la période coloniale. Une autre partie de la recherche documentaire met l'accent sur les études migratoires de l'après indépendance. Il arrive, lors des lectures, de constater une différence de dates ; c'est ce qui fait qu'ici l'accent est plus mis sur les périodes, qui constituent d'ailleurs les sous-titres de l'article.

Par ailleurs, le travail s'appuie sur les données d'une enquête de terrain, réalisée auprès de 40 concessions sur les 77 qui composent le village en avril 2018. L'enquête a été administrée par l'auteur, assisté par deux chercheurs, pendant une durée de 30 jours. Bien que nous soyons de la zone, le déroulement de l'enquête a été facilité par un agent de développement local. Afin d'éviter qu'il nous oriente systématiquement vers des concessions de son choix, ce qui pourrait occasionner un biais, nous avons sélectionné des concessions sur la base de leur répartition géographique. Le fait de parler la langue locale constituait un atout.

La concession, l'unité fondamentale de production et de consommation, est une structure patrilinéaire et gérontocratique. Elle peut s'apparenter à la notion de famille, c'est la raison pour laquelle, dans ce travail, nous utilisons le terme de parcelles familiales pour faire allusion aux parcelles mises en valeur

à l'échelle de la concession : autrement dit, par les membres de la concession pour leurs besoins communs. La population ciblée au sein des concessions lors de l'enquête est constituée essentiellement des chefs de concessions, c'est-à-dire les hommes, encore appelés les aînés. En effet, ces derniers gèrent toutes les affaires ayant trait au fonctionnement des concessions. En outre, c'est la frange en mesure de fournir des informations sur la question alimentaire dans la durée en rapport avec la dynamique migratoire. Il est à noter que la date de référence pour l'enquête était l'année 1960. L'absence des femmes dans l'échantillon pouvait être considérée comme un biais de sélection. Mais il n'en est pas ainsi. Contrairement à d'autres sociétés, en milieu soninké, les femmes ne s'occupent pas de la gestion des vivres des concessions. Le questionnaire de l'enquête a été conçu pour collecter des données sur l'émigration internationale et ses destinations, les céréales qui constituent la base de l'alimentation et l'apport des remises migratoires dans la situation alimentaire au fil du temps. Les questions en rapport avec la taille des concessions et le nombre d'émigrés, les revenus issus du commerce des produits de l'agriculture, entre autres, ne sont pas en reste.

À la recherche documentaire et à l'enquête auprès des concessions s'ajoutent les entretiens libres avec certains responsables locaux au gré des circonstances et des observations directes sur le terrain, en contexte d'immersion. Les informations quantitatives recueillies ont fait l'objet d'un traitement par Excel, et combinées aux qualitatives, ont permis la rédaction de ces lignes.

De la crise céréalière des années 1930 à l'émigration française des années 1950

Le pays soninké du Sénégal, allant de Ballou à Goumel, s'étend sur une soixantaine de kilomètres le long du fleuve Sénégal et sur une dizaine de kilomètres vers l'intérieur. Contrairement à son voisin halpoulaar (plus en amont) chez qui les migrations internationales sont relativement récentes et orientées vers diverses destinations africaines (Dia 2007), le pays soninké avait et continue d'avoir la réputation de foyer d'émigration française. Traoré (1994), Lavigne Delville (1994) puis Grdr (2014), en comparant les modèles migratoires des ethnies ou contrées de la vallée du fleuve Sénégal, en ont fait état. L'émigration massive soninké vers ce pays de l'Europe de l'Ouest est intimement liée à la crise de subsistance qu'a connue le pays soninké dans les années 1930 (Cissokho, Sy et Ndiaye 2019). La dégradation des conditions écologiques, les mauvaises crues répétitives et l'enclavement consécutif au délaissement de la région du fleuve comme voie de communication privilégiée ont contribué à introduire, puis à aggraver le déséquilibre entre la production vivrière et les besoins de la population, d'où

l'installation d'une crise de subsistance (Chastanet 1983 ; Laly 1998). Les Soninkés évoquent souvent la crise alimentaire de cette période en parlant d'« ère de la grande faim », *dullu xooro sinu* (Chastanet 1991).

Le village de Tuabou, comme toutes les autres localités du pays soninké, avait subi de plein fouet le problème de subsistance. L'acuité du problème vivrier obligeait les populations à adopter comme première stratégie de survie le recours au fonio sauvage. La population palliait le manque de céréales, en cette période, par le fonio sauvage (*Panicum sp.*) (Chastanet 1991). Après l'épuisement des maigres productions, qui couvraient difficilement les besoins alimentaires des trois premiers mois qui suivaient la récolte, cette graminée sauvage s'imposait comme aliment de base. Le recours à cette graminée sauvage ne relevait pas du hasard. Tout d'abord, elle résiste très bien à un environnement austère et parvient à maturité avec très peu de pluviométrie. Ensuite, les habitudes alimentaires locales faisaient du couscous (*fouto*) le plat consommé le soir et la pâte de mil (*sourè*) à la mi-journée. Et le fonio sauvage est une solution de substitution qui permettait la préservation de ces habitudes alimentaires. En effet, il est facilement transformable en couscous ou en pâte. S'y ajoute sa disponibilité locale en quantité. L'importance du *jaajé*, nom soninké du fonio sauvage, dans les stratégies d'adaptation à la crise alimentaire, lui vaut actuellement une place privilégiée dans la culture locale. Le soir de chaque mariage, avant la toilette de la jeune fille, les tantes psalmodient la chanson *Battre le jaajé*, dont les refrains associent les noms des membres de la lignée de la jeune fille à l'activité de la cueillette du fonio sauvage. En ce moment solennel et à travers la chanson qui revêt un rôle éducatif en milieu soninké (Djiméra 2006), les femmes rappellent à la mariée l'obligation de garder sa dignité et de faire face aux difficultés de la vie dans sa maison maritale comme ses parents ont résisté, par le passé, à la crise alimentaire, par la cueillette du fonio sauvage.

L'enrôlement des Africains dans l'armée française lors du conflit planétaire qui a débuté en 1939 offre aux Soninkés une opportunité d'émigration de travail vers la France. Les tirailleurs restés sur le territoire français après la guerre ont déployé les réseaux migratoires qui ont permis à leurs frères de les rejoindre. Dans un contexte de besoin en main-d'œuvre pour la reconstruction d'après-guerre et à travers l'organisation communautaire de l'émigration, les Soninkés étaient partis en rangs serrés en France (Gonin 2001). Selon Kane et Lericollais (1975), cette émigration concerne à ses débuts 40 pour cent de la population active masculine. Il convient de noter qu'au fil des années, elle avait quasiment dépouillé le pays soninké de sa population active masculine. Gonzalez (1994) avait d'ailleurs souligné la féminisation des localités soninké. Le village de Tuabou n'est pas en marge de ce phénomène d'émigration internationale.

Des années 1960 à la fin des années 1990 : l'émigration qui juggle la crise de subsistance et met Tuabou dans une dépendance vis-à-vis des transferts monétaires

À Tuabou, l'émigration, par l'entremise de l'afflux monétaire, a dissipé le spectre de la crise alimentaire, amorcée dans les années 1930. Tous les chefs de concession déclarent que, de 1960 à la fin des années 1990, leur concession s'approvisionnait en produits de consommation courante grâce essentiellement aux fonds rapatriés depuis la France. Les vivres achetés se substituaient à la production traditionnelle. La mobilité internationale, tout en juggling la crise de subsistance, a plongé le village dans une dépendance par rapport aux remises migratoires. Cette dépendance tenait à l'austérité environnementale et à l'émigration massive des éléments les plus dynamiques, qui s'étaient traduites par l'abandon progressif de l'agriculture.

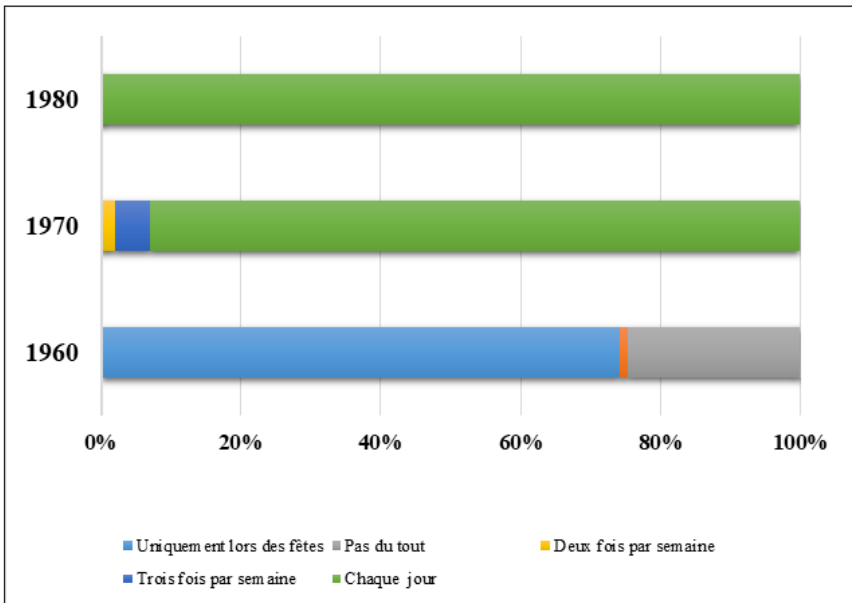


Figure 2 : Dynamique de pénétration du riz dans les pratiques alimentaires

Source : auteur (2018)

Il est à noter que les pratiques alimentaires des habitants de Tuabou ont enregistré une évolution qui se manifeste tout d'abord par la consommation du riz, jadis méconnu dans le village. Si le mil était acheté pour la préparation du couscous réservé au dîner et la bouillie matinale, le riz a pénétré progressivement dans le régime alimentaire et s'est imposé comme

repas de midi. La figure 2, réalisée à partir des données de l'enquête, révèle que cette céréale qui était consommée comme repas de midi à l'occasion de fêtes seulement par 75 pour cent des concessions en 1960 s'est positionnée comme le plat exclusif de la mi-journée en 1980 grâce aux revenus migratoires soutenus par le fort déploiement des réseaux de distribution de ladite denrée. En effet, et sans exception, les chefs de concessions déclarent que le riz était acquis grâce aux revenus issus de l'émigration. Dans certaines concessions, les *Franciko* (émigrés basés en France) envoyaient de l'argent à Bakel (ville locale) pour l'achat d'une quantité importante du riz et de l'huile qui étaient acheminés à Tuabou pour la consommation de plusieurs mois. D'autres s'approvisionnaient auprès des magasins locaux par un système de bons, réglés par les émigrés depuis la France (Repussard 2011).

Les années 2000 : de la retraite des pionniers de l'émigration et de leurs cadets à la fragilisation du système alimentaire

Depuis quelques années, des recherches (BAD 2007 ; FIDA 2015) soutiennent que les flux d'émigration en partance de la vallée du fleuve Sénégal s'orientent de plus en plus vers l'Italie et l'Espagne. Cette tendance ne s'applique pas à l'émigration internationale à Tuabou, qui reste fidèle à la France, à l'image de l'ensemble du pays soninké. En effet, les données collectées montrent nettement que la destination privilégiée reste la France à 98 pour cent. Les causes semblent être liées au fait qu'elle apparaît aux yeux de la population de cette zone comme le pays où, malgré les difficultés, l'accès à l'emploi est relativement plus facile qu'ailleurs, ainsi que la reproduction dans les foyers de travailleurs d'un mode de vie calqué sur celui de la localité d'origine (Timéra 2001 ; Leuenerberger 2004 ; Atsé 2011). L'autre facteur plausible qu'on peut évoquer a trait à l'incapacité des *tuabouco* (habitants de Tuabou) à structurer des réseaux migratoires vers d'autres destinations, même africaines, voire asiatiques ou américaines.

La retraite des pionniers de l'émigration, dont la relève n'est pas correctement assurée, et les restrictions accrues qui marquent les conditions d'émigration en France se traduisent par la réduction du nombre moyen d'émigrés par concession, dans un contexte d'augmentation de la taille des unités de consommation. Le tableau 1 montre cette évolution contradictoire de l'effectif moyen d'émigrés par concession et de la taille des concessions. Tandis que le nombre de bouches à prendre en charge augmente, ceux qui produisent les revenus diminuent. Une telle situation rend difficile la prise en charge des besoins de ceux restés au village, surtout si on sait que bon nombre d'émigrés peinent à s'insérer actuellement compte tenu de la crise socio-économique et de la relative « saturation du marché de l'emploi » en France.

Tableau 1 : Évolution de la taille des concessions et du nombre moyen d'émigrés

Taille des concessions	1980		2005	
	Pourcentage (%)	Nombre moyen d'émigrés	Pourcentage (%)	Nombre moyen d'émigrés
Inférieure à 25 personnes	67,5	3,1	10	1,7
[25-45[	27,5	5,1	8	2,9
[45-65[	5	6,3	50	4
[65-85[	0	-	12,5	3
85 et plus	0	-	7,5	5,2
Total	100	-	100	-

Source : auteur (2018)

À Tuabou, faut-il le rappeler, la migration interne (vers les villes), qui aurait constitué une source de revenus alternative, est improductive. Le bas niveau d'éducation et le manque de formation professionnelle des migrants et la difficile situation économique sénégalaise ne leur permettent pas d'accéder à un emploi bien rémunéré. Leur situation n'est guère enviable.

Cissokho et Benga (2017) mentionnaient que les gros villages soninkés, à l'image de Golmy et Tuabou, reçoivent mensuellement des sommes en provenance de l'étranger pouvant atteindre 12 millions de FCFA. Toutefois, elles ne concernent que l'argent qui transite par les canaux officiels, ce qui fait qu'une partie de la réalité est occultée. Certes, nous ne disposons pas de données précises sur les sommes d'argent qui entrent à Tuabou au fil du temps en provenance de la France qui nous auraient permis d'en cerner l'évolution, mais les personnes interrogées s'accordent sur la diminution globale des envois de fonds. Cette diminution est bien ressentie dans le village. Selon des témoignages concordants, elle a même laissé planer une situation d'insuffisance alimentaire dans certaines concessions, d'où l'intérêt pour l'agriculture de décrue, voire irriguée.

Association des revenus tirés d'une agriculture de décrue innovante et d'une agriculture irriguée aux remises migratoires pour la sécurisation des moyens de subsistance à Tuabou

Depuis la fin des années 1990, l'agriculture jouit d'un regain d'intérêt au sein du village, dans un contexte de réduction notable des revenus migratoires. L'agriculture irriguée et de décrue profite plus de ce regain que la pluviale, très faiblement pratiquée. Globalement, une tendance au retour de la

pluviométrie s'est affirmée dans la zone lors de ces deux dernières décennies, comme l'atteste la figure 3. Toutefois, cette amélioration des quantités des pluies reçues s'accompagne d'une très grande irrégularité temporelle, porteuse de risques énormes de mauvaises récoltes qui n'incitent pas les populations à beaucoup investir dans la production sous pluies. Seules quelques parcelles de sorgho, voire d'arachide, se distinguent dans le paysage.

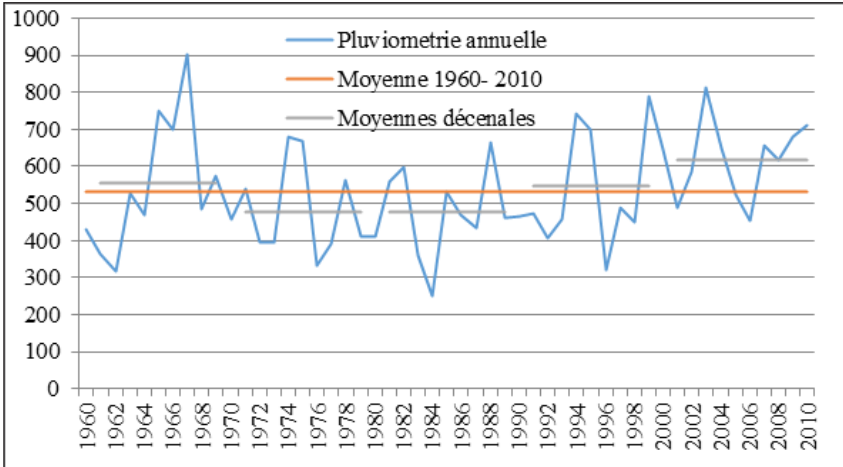


Figure 3 : Évolution de la pluviométrie à la station de Bakel

Source : station pluviométrique de Bakel

L'amélioration des quantités des pluies reçues à l'échelle locale, comme dans l'ensemble du bassin-versant du fleuve Sénégal, a comme corollaire une bonification des crues et une certaine extension des surfaces submersibles. Les populations ont profité de cette situation propice pour relancer la culture de décrue. D'octobre à la fin du mois de juin, la production et la récolte qui s'attachent à la culture de décrue constituent l'activité dominante dans le village. Dans un contexte d'essoufflement des réseaux d'émigration internationale, on a observé un retour au village et vers l'agriculture de décrue des jeunes qui étaient partis depuis des années à Dakar, majoritairement pour la recherche du visa. Le désir de ces jeunes d'accéder à des biens et revenus propres pour prendre en charge leurs problèmes individuels et améliorer leur sort économique a introduit une évolution dans la production de décrue. Si elle se pratiquait de manière familiale, aujourd'hui, des lots individuels s'observent dans le paysage agricole. Une fois que leur prestation sur le champ familial est terminée, ces jeunes se dirigent vers leur propre parcelle pour y travailler.

La relance de l'agriculture de décrue s'est opérée aussi avec une dynamique culturelle. Dans les champs familiaux, le haricot et la patate douce sont associés au maïs jadis cultivé seul (Photo 1). Le maïs produit sert à la préparation du couscous pour le dîner familial et la bouillie matinale. Les feuilles et une partie des graines de haricot sont utilisées pour la préparation de la sauce qui accompagne le couscous du dîner. Une partie de la patate douce est aussi autoconsommée avec le repas de midi. Le reste de la production de la patate douce et des graines de haricot est commercialisé. Les revenus générés par an sont compris entre 100 000 et 800 000 FCFA. Il ressort de l'enquête que plus de 85 pour cent des concessions utilisent ces revenus tirés de la vente de produits des parcelles familiales pour compléter les remises migratoires dans la prise en charge des dépenses familiales, notamment dans l'achat du riz qui constitue actuellement l'aliment de base du repas de midi et qui, globalement, est importé des marchés asiatiques.



Photo 1 : Champ familial avec association de maïs et de patates douces

* Entre les lignes des épis de maïs arrivés à maturité, on aperçoit les feuilles de patates

Source : auteur (2018)

En ce qui concerne les parcelles individuelles, les propriétaires y cultivent très souvent uniquement la patate douce, très prisée. Les récoltes de ces champs sont destinées à la vente (Photo 2). Elles sont acheminées, de même que la partie commercialisée des produits issus des champs familiaux, vers Dakar, capitale du Sénégal, où l'écoulement dans les marchés urbains serait plus rapide. Les revenus générés, très variables d'un agriculteur à un autre pour plusieurs raisons, dont la principale est liée à la taille des parcelles, satisfont les besoins individuels de leur propriétaire. Ces revenus peuvent atteindre 250 000 FCFA/an.



Photo 2 : Récolte de patates d'un jeune en attente du camion pour l'acheminement
Source : auteur (2018)

Outre les jeunes et les vieux, quelques femmes disposent elles aussi de lots personnels, mais elles sont plus actives dans l'agriculture irriguée, qui se limite au maraîchage et demeure en période de saison sèche leur activité préférée. Elles représentent plus de 91 pour cent des acteurs du maraîchage qui se pratique sur les abords du fleuve. L'alimentation en eau des périmètres maraîchers, de taille souvent modeste, peut se faire par un système d'irrigation à partir d'une motopompe ou de seaux. Compte tenu de la proximité immédiate du fleuve, certaines femmes préfèrent arroser leurs parcelles en transportant directement l'eau par des seaux depuis le fleuve. La production maraîchère porte sur une gamme variée de spéculations dominée par l'oignon (37 %), la laitue (24 %), l'aubergine (20 %) et le chou (13 %). La production s'effectue entre décembre et juin. La quantité récoltée n'est pas uniforme durant toute la campagne. Il y a des périodes de forte et de faible récolte. Mars et avril constituent les mois de forte récolte.

Bien que les produits maraîchers soient commercialisés essentiellement dans les localités environnantes, il faut tout de même reconnaître qu'une fraction non négligeable de la production est autoconsommée et couvre les besoins familiaux en légumes frais. L'utilisation des légumes à des fins d'autoconsommation doit être comprise comme la contribution des femmes à la satisfaction des besoins familiaux, puisqu'elles sont exemptées des travaux de la mise en valeur des parcelles familiales de l'agriculture de décrue et pluviale (si la concession en pratique) en raison des tâches domestiques qui leur sont dévolues. Les revenus tirés de la production maraîchère sont destinés à la satisfaction des besoins personnels des femmes qui prédominent dans l'activité. Ils sont dépensés dans l'achat des vêtements féminins et des objets de luxe et servent à financer des cérémonies.

Conclusion

La réponse apportée à la crise céréalière amorcée dans les années 1930 à Tuabou a reposé sur l'émigration vers la France. Celle-ci, en jugulant la crise et avec le recul de la production agricole locale, à la suite du départ de la main-d'œuvre masculine, a fini par mettre ce village dans une dépendance vis-à-vis des transferts d'argent des émigrés à partir des années 1960 et jusqu'à la fin des années 1990. Cependant, les restrictions accrues qui marquent les conditions d'émigration et la retraite des pionniers de l'émigration, dont la relève n'est pas correctement assurée, ont concouru à la fragilisation du système alimentaire dans les années 2000 du fait de l'incapacité des envois de fonds à couvrir totalement les besoins familiaux. Dans ce contexte, la population recourt à d'autres solutions, dont le développement de l'agriculture de décrue et irriguée, pour en tirer des revenus complémentaires. L'émergence de l'agriculture de contre-saison s'est réalisée de manière innovante et s'est accompagnée d'une certaine dynamique du point de vue structurel ainsi que culturel. Cette innovation n'est pas sans lien avec l'individualisation progressive de la société soninké, impulsée par le désir d'émancipation des jeunes.

Le retour des jeunes vers l'agriculture est-il définitif? Tenteront-ils de s'inventer un nouvel itinéraire pour aller répondre aux sirènes des pôles d'émigration outre-Atlantique afin d'ériger à nouveau leur village en une localité de forte émigration comme les villages voisins? Seuls le temps et des recherches ultérieures peuvent apporter des éléments de réponse à ces questions.

Note

1. Le pays soninké ou le terroir des Soninkés est une zone à cheval sur la Mauritanie, le Mali et le Sénégal. Il est situé en grande partie de part et d'autre du fleuve Sénégal. La société soninké est gérontocratique et communautaire. La participation des Soninkés au commerce des esclaves a favorisé le déploiement des réseaux, depuis des décennies, dans l'Afrique, voire dans le monde.

Références

- Abdelkader, A., 2017, *Évolution du concept de la sécurité alimentaire et l'importance de l'intégration du bien-être du citoyen dans les systèmes alimentaires*. Recherche dans le cadre du concours de recherche sur la sécurité alimentaire et le confort du citoyen, Université Ahmed Dray-Adrar, 29 p.
- ANSD (Agence nationale de la statistique et de la démographie), 2015, *Pauvreté et condition de vie des ménages*, 14 p.

- Atsé, N. J. B., 2011, Langues africaines, identités et pratiques linguistiques en situation migratoire. Le foyer de travailleurs migrants en région parisienne comme interface entre ici et là-bas, thèse de doctorat de troisième cycle, Université de la Sorbonne nouvelle – Paris III, 330 p.
- BAD (Banque africaine de développement), 2007, *Les transferts des fonds des migrants, un enjeu de développement*, 84 p.
- Chastanet, M., 1991, « Crises et régulation en pays soninké (Sénégal) depuis le milieu du XIXe siècle », *Cahiers des sciences humaines*, 27(1-2), p. 131-145.
- Chastanet, M., 1983, « Les crises de subsistances dans les villages soninké du cercle de Bakel, de 1858 à 1945. Problèmes méthodologiques et perspectives de recherches », *Cahiers d'études africaines*, 89-90, XXIII-1-2, p. 5-36.
- Cissokho, D., Sy, O. et Ndiaye, L. G., 2019, « L'émigration internationale et les migrations associées en pays soninké (Sénégal). Migration internationale en question », *Revue africaine des migrations internationales*, vol. 2, n° 2-janvier, 2019, p. 1-17.
- Cissokho, D. et Benga, A., 2017, « Bois de feu, migration internationale et transferts de fonds : une relation en place à Golmy », *Revue de Géographie du Laboratoire Leïdi, dynamiques des territoires et développement*, Université Gaston Berger de Saint-Louis, n° 17, décembre 2017, p. 71-81, ISSN 0851-2515.
- Dia, H., 2007, « Les investissements des migrants dans la vallée du fleuve Sénégal : confiance et conflits d'intérêts », *Revue européenne des migrations internationales [En ligne]*, vol. 23, n° 3 | 2007, mis en ligne le 1er décembre 2010, consulté le 19 juin 2014. URL : <http://remi.revues.org/4201> ; DOI : 10.4000/remi.4201.
- Djiméra, M., 2006, *Dans la société soninké, la place du chant-poème dans l'éducation et la formation*, Paris, Les Nouvelles Éditions de la francophonie, 24 p.
- FAO, FIDA, OMS, PAM et UNICEF., 2017, *L'état de la sécurité alimentaire et de la nutrition dans le monde 2017. Renforcer la résilience pour favoriser la paix et la sécurité alimentaire*, Rome, FAO, 129 p.
- FAO, FIDA et PAM., 2015, *L'état de l'insécurité alimentaire dans le monde 2015. Objectifs internationaux 2015 de réduction de la faim : des progrès inégaux*, Rome, FAO, 66 p.
- FIDA (Fonds international de développement agricole), 2015, *Cartographie des zones de migration et des entreprises rurales soutenues par les migrants sénégalais*, Rapport final, 54 p.
- Gonin, P., 2001, *Les migrations venant du bassin du fleuve Sénégal vers l'Union européenne. Facteurs d'émigration, politiques d'immigration*, Colloque Facteurs d'émigration, politiques d'immigration, 23 mars 2001 Bruxelles, Centre pour l'égalité des chances et la lutte contre le racisme, p. 57-86.
- Gonzales, G., 1994, « Migrations, nuptialité et famille dans la vallée du fleuve Sénégal », *Revue européenne des migrations internationales*, vol. 10, n° 3, 1994, CERPA CERPOD ORSTOM – Migrations africaines, p. 83-109.
- Grdr, 2014, *Étude de la dimension locale de la dialectique migration et développement : le cas France Sénégal, Monographie vallée du fleuve Sénégal*. Version finale, 75 p.

- Harbison, S., 1981, "Family Structures and family Strategy in Migration Decision Making", in G. F. De Jong and R. W. Gardner (Eds.), *Migration Decision Making: multidisciplinary approaches to microlevel studies in developed and developing countries*, New York: Pergamon Press, pp. 225–251.
- Harris, J. and Todaro M., 1970, "Migration, Unemployment, and Development: A Two-Sector Analysis", *American Economic Review*, (60): pp. 126–142.
- Kane, F., et Lericollais A., 1975, «L'émigration en pays soninké», *Cahiers ORSTOM, série sciences humaines*, vol. XII, n° 2, p. 177-187.
- Lanly, G., 1998, « Les immigrés de la vallée du fleuve Sénégal en France : de nouveaux acteurs dans le développement de leur région d'origine », *Réforme agraire*, n° 1998/1, p. 106-120.
- Lavigne Delville, P., 1994, Migrations internationales, restructurations agraires et dynamiques associatives en pays soninké et haalpulaar (1975-1990), essai d'anthropologie du changement social et du développement, thèse de doctorat, École des hautes études en sciences sociales, 394 p.
- Leuenberger, C., 2004, Les Soninké du foyer Pinel, lieux de vie et organisation. Sociologie urbaine, mémoire de maîtrise, Université Paris X, Nanterre, 101 p.
- Lewis, W. A., 1954, "Economics Development with Unlimited Supplies of Labor", *Manchester School of Economic and Social Studies* (22), pp. 139-191.
- Manchuelle, F., 1997, *Willing migrants: Soninke labor diasporas, 1948–1960*, Athens (Ohio), Ohio University Press (Western African Studies).
- Petit, A., 2002, « L'ultime retour des gens du fleuve Sénégal », *Hommes et Migrations*, p. 44-52.
- Repussard, C., 2011, Le service public de l'eau potable en milieu rural au Sénégal : l'exemple de la communauté rurale de Moudéry, thèse de doctorat, Aix-Marseille Université, 398 p.
- Taylor, J. E., 1999, "The New Economics of Labor Migration and the Role of Remittances in the Migration Process", *International Migration*, 37(1): pp. 63-88.
- Timéra, M., 2001, « Les migrations des jeunes Sahéliens : affirmation de soi et émancipation », *Autrepart* (18), p. 37-49.
- Timéra, M., 1996, *Les Soninké en France d'une histoire à l'autre*, Paris, Karthala, 224 p.
- Traoré, S., 1994, « Les modèles migratoires soninké et poular de la vallée du fleuve Sénégal », *Revue européenne des migrations internationales*, vol. 10, n° 3, CERPAA CERPOD, Orstom Migrations africaines, p. 61-81.



‘Adversely Incorporated yet Moving up the Social Ladder?’: Labour Migrants Shifting the Gaze from Agricultural Investment Chains to ‘Care Chains’ in Capitalist Social Reproduction in Senegal

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Abstract

In Senegal, the growth of horticulture has been particularly rapid in the last decade or so, partly coinciding with the 2007–2008 ‘land rush’ and a boom in agricultural investment. This article analyses the implications of the rise in foreign direct investment (FDI) in the horticultural sector in northern Senegal. Specifically, it examines FDI’s effects on labour migration and the social reproduction of rural classes of labour through an intersectional feminist and gendered lens. It argues that invisibilised ‘care chains’ that overly burden women, and communities of solidarities, play a crucial role in the social reproduction of horticultural workers, most specifically migrant workers, and provide a subsidy to agrarian capital. Yet, capitalist development does not always translate to better wages and more inclusive laws and policies for horticultural wage workers and providers of caring labour who are adversely incorporated in these political economies. As a result, this requires further attention from policy-makers and political leaders. Using a combination of working-life histories and survey data gathered through two rounds of fieldwork over two years, and secondary data from relevant databases, this article focuses on the River Valley Region and Louga to analyse the emerging challenges of labour migration, social reproduction and caring labour in rural Senegal.

Keywords: labour, migration, care, social reproduction, agricultural investment, Senegal, feminist political economy

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Résumé

Au Sénégal, la croissance de l'horticulture a été particulièrement rapide au cours de la dernière décennie, coïncidant en partie avec la « ruée vers les terres » de 2007-2008 et un boom des investissements agricoles. Cet article analyse les implications de la hausse des investissements directs étrangers (IDE) dans le secteur horticole au nord du Sénégal. Plus précisément, il examine les effets des IDE sur la migration de main-d'œuvre et la reproduction sociale des classes de main-d'œuvre rurale dans une optique intersectionnelle féministe et genrée. Il soutient que les « filières de soins » invisibles qui pèsent trop sur les femmes, et les communautés de solidarités jouent un rôle crucial dans la reproduction sociale des travailleurs horticoles, plus particulièrement des travailleurs migrants, et subventionnent le capital agricole. Pourtant, le développement capitaliste ne se traduit pas toujours par de meilleurs salaires et de lois plus inclusives pour les salariés de l'horticulture et les fournisseurs de soins qui sont négativement intégrés dans ces économies politiques. Par conséquent, une plus grande attention est nécessaire de la part des décideurs et des dirigeants politiques. À l'aide d'une combinaison d'historiques de vie professionnelle et de données d'enquête recueillies au cours de deux séries de travaux de terrain sur deux ans, et de données secondaires provenant de bases de données pertinentes, cet article porte sur la région de la vallée du fleuve Sénégal et Louga pour analyser les défis émergents de la migration de main-d'œuvre, de la reproduction sociale et du travail de soins dans le Sénégal rural.

Mots-clés : travail, migration, soins, reproduction sociale, investissement agricole, Sénégal, économie politique féministe

Introduction

In 2016–2017, I was conducting fieldwork on the socioeconomic outcomes of selected agricultural investments in the regions of Saint-Louis and Louga in Senegal. Indeed, the rise in farmland acquisitions following the 2007/2008 commodity prices boom had led to food riots¹ in Senegal and other West African countries, such as Burkina Faso, Ivory Coast and Cameroon, due to the increasing cost of living. These acquisitions had been called, interchangeably, the 'land rush', 'land deals', 'large-scale land acquisitions', 'agricultural investments' or 'land grabs' in the relevant literature (Patnaik, Moyo and Shivji 2011; Borras et al. 2011; Cotula 2011; Oya 2013; Tsikata and Yaro 2014; Osabuohien 2014; Kaag and Zoomers 2014; Hall, Scoones and Tsikata 2015; Dieng 2017). According to the World Bank's 2011 *Rising Global Interest in Farmland* report, 4 million hectares of land were involved by 2008, and around 56 million hectares of farmland investments were announced before the end of 2009, of which two-thirds were in Africa (Deininger and Byerlee 2011).

Against this background, export horticulture, particularly in the fresh fruit and vegetables sector, has been praised for its potential to structurally transform the economy away from manufacturing (the traditional smokestacks industry), hence services and export horticulture being labelled 'industries without smokestacks' (Newfarmer, Page and Tarp 2018). Senegalese horticulture² export to Europe experienced a spectacular rise in the last decade. It represented 7,767,319 kilograms in 2000, 29,910,997 kilograms in 2009 and 105,982,906 kilograms in 2019, according to data collected from the Senegalese Government's Investment Agency (APIX 2020). Meanwhile, other parts of the country, such as the peri-urban Niayes in north-western Senegal (renowned for producing 50 per cent of Senegal's fresh fruit and vegetables, mainly thanks to market gardening), have not received comparable levels of resources and attention, despite their major share of export horticulture in GDP (Mackintosh 1989; Fall and Fall 2001; Touré and Seck 2005; Baglioni 2015). As a result, the northern part of the country has experienced a migration of people and capital at regional, national and international levels (Adams 1977; Cooper 1996; Manchuelle 1997; Ba 1998; Bredeloup 2007; Top 2014; Tandian 2015, 2016; Ndione 2018; Niyonsaba 2019).

As I went to do fieldwork on this topic, I organised my days around my months-old child's nursing and sleeping times; my mobility was dictated and constrained by being her sole caregiver during that time, and by not having a means of transportation, which often led me to have her with me while I worked. Going back to the UK as a precarious migrant PhD researcher and a mother, I carefully reflected, with family members, on how to make the second part of my fieldwork smoother and more effective for reaching the desired outcomes. This would lead me to return for the second part of my fieldwork with different family members, who joined me at different times. My sister, first, provided not only research assistance but also moral and emotional support while her children were being taken care of by their father and paternal grandmother, and often by my own parents. We were accompanied by my maternal uncle, who drove my father's car and did some translation for us while accessorially posing as the 'male figure of authority'; his wife took care of their children in his absence. Finally, my husband joined us for the final part of the fieldwork, driving and taking on his fair share of caring labour. During that second part of research, I relied on extensive kin and solidarity networks in Saint-Louis and Louga, including staying at faraway cousins' houses, relying on the University of Saint-Louis's nursery, or being recommended from afar by my parents or cousins to stay at village chiefs' houses.

This first-hand experience as a researcher-migrant-mother opened my eyes to the centrality of communities of care for the mobility of migrant workers and their capacity to pursue economic or academic ventures. Therefore, I could not help but ask myself why care work and care communities were so invisibilised in my own topic of research – the debate about agricultural investments that rely heavily on migrant workers' labour power. If migrant workers' and their families' involvement in the migration project – as shown by previous studies and others in this special issue – is well documented, analysing the challenges of labour migration and food security through the double lens of caring labour and social reproduction theory (SRT henceforth) can be fruitful to challenge the idea that the stakes and interests at play in agricultural investments are primarily economic in nature.

This article provides an intersectional feminist political economy analysis of gendered labour migration and the daily, as well as intergenerational, social reproduction of the labour force. It critically examines current shifts in labour migration and implications for care work and social reproduction in the context of the boom in large-scale agricultural investments in 2007 and 2008. It sets out to analyse two questions: 1) What are the implications of agricultural investments for labour mobility and migration, social mobility and social reproduction? 2) How and to what extent do 'care chains' bear the brunt of the social reproduction of mobile and migrant labour forces, thereby allowing capitalist social reproduction to take place? Crucially, I argue that the social reproduction of migrant labour, facilitated by the adverse incorporation of those who provide waged and unwaged caring labour in those political economies through 'care chains', is central to *capitalist* social reproduction.

To support this argument, this article first brings some conceptual clarifications, then discusses the research methods and material, before reviewing historical labour migration in northern and central Senegal in the quest for food security and development. Next, I set out to demonstrate shifts in labour migration and how mobilities and migration are central to the daily, inter- and intragenerational social reproduction of not only the labour force but also capitalism across time and space. Indeed, profit-maximising horticultural employers seek to minimise the costs of *mobilising and maintaining* workers within and outside their workplaces, including in social, cultural and religious relations and practices, while extracting surplus value from them. Finally, I illustrate and give foundation to my above proposition through four workers' life stories, interviews and survey data. The empirical data presented in this article comes from long engagements, first with critical feminist theories and subsequently the topic of land rushes

since 2013, and with research participants from 2016. I use mixed methods combining participant observation, semi-directional interviews, focus groups, life stories and a survey (using Survey Solutions), all involving more than 200 participants of various genders, age groups, socio-professional categories, migrant statuses, marital statuses and levels of education, among others, across thirty villages of Saint-Louis and Louga.

I recommend a feminist and intersectional political economy approach to analysing the results of these agricultural investments. This could benefit political and policy actors in their decision-making regarding the issue of labour migrants in the national horticultural sector as well as in all levels of global value chains and production networks.

Conceptual Framework

Centring the labour theory of value, the article analyses how wage labour is used by 'classes of capital' to extract surplus value from 'classes' of (migrant) labour (Bernstein 2006, 2007), often below the cost of reproduction of labour power. It also assesses how, combined with other forms of motives – affective, emotional, moral, caring – wage labour creates or maintains the conditions for capitalist accumulation and social reproduction, while relying on care chains and communities of solidarity, faith and belonging to increase the dependency of workers on participation in rural labour markets. Not only does it ask, Who owns what? Who does what? Who gets what?, it also asks, How do gender, class, migrant status, caste, generation and marital status impact upon who is able to do, own or get what? Using intersectionality and political economy both as a method of inquiry and for their rich theoretical insights can shed light on the motives at play in migration and mobility decisions. Lastly, they may be helpful to (re)map care chains between family members, or between workers and employers, and thus reposition caring labour in time and space.

Key elements of this research are interdisciplinarity, using comparative case studies that draw on a blend of qualitative and quantitative research methods, and a commitment to feminist and decolonial methodologies. Another important aspect is the rejection of essentialising rural African women in gender and development discourses (Mohanty 1984; Win 2004; Cornwall et al. 2007). Therefore, centring intersectionality in analysing gender, class, and race together can provide a more accurate picture of postcolonial economies (Crenshaw 1989; Pollard et al. 2011; Salem 2018) and acknowledging 'situatedness' in analysing different political economies and socialities is crucial (Haraway 1988; Oyewumi 1997; Dieng 2020).

As a result, I analyse both the emancipatory and oppressive dynamics that can result from one's participation in rural labour markets (Johnston 2007; Cramer, Oya and Sender 2008; Stevano 2014; Hathie et al. 2015; Oya and Pontara 2015; Van den Broeck, Swinnin and Maertens 2016; Jha, Chambati and Ossome 2021). Further conceptual clarifications are necessary for understanding the analytical tools that I am using to investigate the issues at stake.

One first crucial question is 'Who owns what'? It asks who owns the means of production, and reproduction 'of the means of production, of current and future production, and of the social relations between producers and between producers and others' (Bernstein 2010: 18). According to Bernstein, four types of funds are central for reproduction and constitute claims on the products of labour:

1. The consumption fund (to cover basic needs such as shelter, food, rest, etc.).
2. The replacement fund, which allows for the replacement of the tools and 'instruments of labour' as well as the production of future producers (generational reproduction).
3. The ceremonial fund for activities and practices such as festivities and rituals that (re)create 'social relations and cultures of farming communities'.
4. The fund of rent for payments to landlords, states, etc. (Bernstein 2010: 18–20).

This question about who owns what is as central as the question of power, because it reveals the gender and class dynamics of agrarian change. Then, 'Who does what?' investigates not only who migrates for work in horticulture, but also who cares for migrant labourers. Caring labour is here taken to mean any type of labour involving a 'caring motive', in accordance with feminist economist Nancy Folbre's use of the term as 'labour undertaken out of affection or a sense of responsibility for other people, with no expectation of immediate pecuniary reward' (Folbre 1995: 75). But this inquiry will also encompass waged forms of care work, as not all caring labour or work is unpaid, although these forms are often paid below the cost of the social reproduction of labour power, despite their essential role in reproduction at large. As for social reproduction, it can be defined as 'the integrated process which makes possible the production of goods and services at the same time as the production of life' (Luxton, in Bezanson and Luxton 2006: 36). The first three types of funds identified by Bernstein are central to this process. Social reproduction theory seeks to render human labour and work visible in its analysis and refers to 'the activities and attitudes, behaviors and emotions, responsibilities and relationships directly involved in the maintenance of life on a daily basis and intergenerationally' (Bhattacharya 2017; Laslett and Brenner 1989: 382). These factors include food, clothing, housing, care of the sick,

the elderly and children, as well as 'the social organisation of sexuality' (Laslett and Brenner 1989: 383). Another important point is that the concept of 'care chains' was first used by Arlie Hochschild, building on the work of Rhacel Parreñas, to refer to 'a series of personal links between people across the globe based on the paid or unpaid work of caring' (Hochschild 2000: 131). Parreñas uses the concept of the 'International Division of Reproductive Labour' to refer to diverse forms of labour needed 'to sustain the productive labour force' – such as those listed in the previous paragraph – and which are also a marker of class privilege as they mostly benefit more privileged individuals to the detriment of gendered and racialised migrant workers (Parreñas 2015: 29). In this article, I seek to go beyond the dichotomy of 'productive/reproductive' to analyse care work and labour in all relevant spaces of socialisation and life-making. I also use this concept to analyse how care chains work horizontally, inside the same country, rather than vertically, in the transnational family (Parreñas 2015; Neveu Kringelbach 2015).

Furthermore, to grasp a more comprehensive picture of issues of migration and mobility in the River Valley Region, around the Lac de Guiers and the Louga Region, it is useful to go back in time, through history, to understand the successive events that engendered current migration trends. With Patricia Daley (2021), I believe that adopting a perspective that contextualises migration and mobility historically carries the promise of rehumanising and, therefore, dignifying migrants, including those whose mobility is under constraint or voluntary (CODESRIA 2021: 17). In addition, it is key to stress that mobility includes the movement of values and ideas as well as people, and that being mobile represents for many a way of life as well as a path to a livelihood (Marcus 1995; Van Dijk, Foeken and De Bruijn 2001). This dimension is central for intra- and intergenerational social reproduction. Therefore, this article seeks to analyse intra- and international labour migration at the intersections of food and agricultural policy, and its implications for (rural) development and agrarian change, by telling the working-life stories of Senegalese/African migrant workers who maintain strong ties with their communities.

In addition, this article seeks to contribute to the already growing body of research on farmland acquisitions, social reproduction and rural labour markets (Li 2011; Borrás et al. 2011; Oya 2013; Baglioni 2015; Hall et al. 2015; Mbilinyi 2016; Naidu and Ossome 2016; Chung 2017; Cousins et al. 2018; Ali and Stevano 2019; Dieng 2019; Ossome and Naidu 2021). Indeed, previous studies, such as Claude Meillassoux's *Femmes, Greniers et Capitaux* (Meillassoux 1992), have taken an interest in analysing the conditions under which 'the domestic sector' contributes to capitalist

social reproduction despite the limitations of an approach that takes power dynamics in this sector as given and therefore neither challenges them or their underlying patriarchy (Mackintosh 1977; O’Laughlin 1977; Katz 1983). Recent research on gendered labour migration and modes of social reproduction in Africa and Asia have shown that the processes of social differentiation ‘from above’ and ‘from below’ are always being (un)made for better or for worse (Sow 1986; Fall 1998; Cross 2013; Mutopo 2014; Gore and LeBaron 2019; Parreñas 2015; Shah and Lerche 2020; Mezzadri 2020). Therefore, it is important to analyse the varied repertoire that ‘classes of capital’ use to mobilise and exploit migrant ‘classes of labour’, without paying (or paying little) for the cost of social reproduction of their labour power.

Finally, this article takes a political economy approach to labour migration by not investigating the motivations for migration separately from the structures and dynamics of capitalist development. This is because, though agency matters to understand migration decisions, it is critical to analyse the bigger picture, because ‘individual decisions are underpinned, if not determined by structural conditions’, including patriarchy, poverty and other forms of violence and oppressions of capitalist development (Veltmeyer and Wise 2016). This can be done by asking the questions: Who migrates? Who stays back? Why? How are rents generated by migration used? In addition, identifying how migration is made possible by communities of care through the porous rural-urban ‘divide’ is of utmost importance for understanding issues faced by ‘the global rural populace’ (Ossome and Naidu 2021).

Materials and Methods

The empirical data presented here is based on a multisite comparative ethnographic study, which involves analysis at global, national and local levels with key actors, including national international managers working in three different companies in the Senegalese fresh fruit and vegetable sector, policy and political officials, and local horticultural workers. It is this last category of actors – specifically migrant workers – that this study centres on. I use life stories, semi-directional interviews, focus groups, historical accounts and cultural materials (including archives and popular knowledge), secondary data from sources such as the Land Matrix, the World Food Organization and the Senegalese government agencies, and a survey, to combine feminist methodologies and the methodologies of political economy, as explained previously (Dieng 2017, 2018, 2019). Through these methodologies, I explore the unique complementarity of mixed-research methods. Repeated conversations with the participants allow me and them, together, to recreate their stories and escape normative narratives.

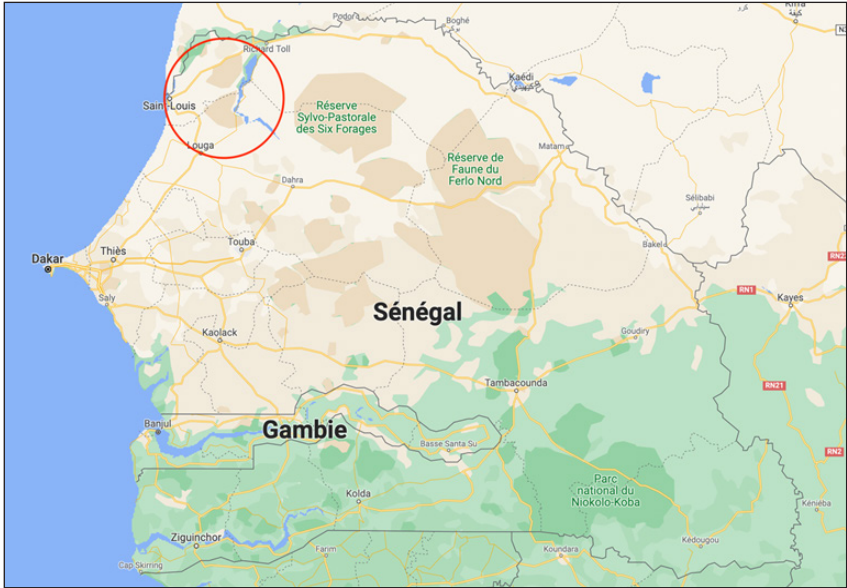
I agree that there are challenges as well as advantages associated with doing research in one's own country (Amadiume 1993; Mama 2011). However, I have tried to be open about my positionality (Dieng 2018). The advantages include the fact that I am Senegalese, and proficient in French and Wolof and conversant in Pulaar, which are the languages spoken in the selected research sites. The cons included the fact that in rural Senegal land is mostly discussed by men with other men. Thus, for the interviews and survey, which involved mostly women, it helped that my sister and I were of the same gender. Additionally, we were able to access male milieus and official gatherings by being assigned an 'honorary male' function due to being outsiders accompanied by our uncle. I was mindful of the 'double consciousness' and 'the outsiders within me' that were due to my location and multiple positionalities as a Senegalese woman and mother studying the Senegalese society, yet being a migrant and a feminist academic living in the UK, therefore inhabiting many different and overlapping spaces (Collins 1986; Davis and Craven 2016).

In addition, I have engaged constantly with the participants of this research since 2016, and with the field as well. I conducted participant observation during two stays of four and three months respectively, living with families in villages in rural Senegal where the selected horticultural farms were located (April to July 2017, then October to December 2017).

It is useful to specify that the case studies focused on investments in fresh fruit and vegetable export that took place in Senegal between 2006 and 2012. Based on these criteria, I zoomed in on three horticultural landholdings, located respectively in Saint Louis (near the Senegal River Region), near Lake Guiers and in the Louga Region. In all three cases, the state facilitated investors' access to land.

The Case Studies Comprised:

- A small-size firm funded by European and African capital, which is an example of North-South investment involving global value and investment chains, and which had one operation site that worked with six villages;
- A large-scale agricultural company assisted by French capital, which had three different sites and involved twelve villages;
- An Indian firm with horticultural (and estates) activities, and is an example of South-South investment. This case involved one working project in which five villages participated, and another that was aborted during the negotiations.



Map 1: The regions of Saint Louis and Louga, Senegal

Source: Google Maps



Map 2: The research sites in Saint Louis and Louga, Senegal

Source: Google Maps

Table 1: Main research sites

Region	Department	Administrative District	Comune /Villages
Saint-Louis	Saint-Louis	Rao	Fass Ngom (4 villages)
			Gandon (5 villages)
	Dagana	Ndiaye	Gnit ³ (6 villages)
			Diama (8 villages)
			Mbane (7 villages)
Louga	Kebemer	Ndande	Diokoul (4 villages)

Source: Assembled by researcher from POAS, field notes and desk research

Three caveats might be crucial for understanding the methodology used in this article. First, I cite the work of other scholars and research participants extensively (including in French and Wolof), because: 1) citation is political and my decolonial praxis requires acknowledging the generations of social scientists on whose scholarship this piece of work builds and engages with; and 2) it is critical to move away from English language dominance (Okech 2020) because of the multilingual and multivocal contexts of research in/on Africa. Second, for this research I use an intersectional feminist political economy lens and seek to go beyond traditional methodological binaries (for instance, gender vs class) to embrace methodological pluralism. My intersectional view enriches the theory of totality central to political and economic approaches by paying attention to social relations based on gender, class, race and ethnicity, migrant status, caste, generation, marital status and ability. Last, my use of multidisciplinary research draws from critical feminist studies, the sociology of work and migration, critical agrarian studies, political economy and geography, especially on the topic of gendered ‘caring labour’ and the political economy of work and reproduction on (rural) labour markets (Elson and Pearson 1981; Sow 1986, 1992; Mackintosh 1989; Bryceson 1995; Folbre 1995; O’Laughlin 1995; Katz 2001; Whitehead and Kabere 2001; Koopman 2009; Nation 2010; Federici 2014; Razavi 2017; Doss, Summerfield and Tsikata 2014; Mutopo 2014; Tsikata 2016; Naidu and Ossome 2016; Mezzadri 2016; Mbilinyi 2016; Werner et al. 2017; Baglioni 2018; Barrientos 2019; Dieng 2019; Stevano, Ali and Jamieson 2021).

‘Investment Chains’ and ‘Care Chains’: Gendered and Classed Mobilities and Social Reproduction after the Contemporary Land Rush

The notion of ‘investment chains’ has been central to the quest of policymakers and researchers for sustainable ways to hold actors involved in agricultural investments accountable, alongside finding ‘pressure points’. The analytical and heuristic importance of the concept of ‘investment chains’ lies in the fact that it provides a tool to identify ‘the multiplicity of actors and relations linked to a project, and the flow and distribution of value among those actors’ (Cotula and Blackmore 2014: 1), especially in the context of the ‘land rush’ (Matondi, Havnevik and Beyene 2011; Schoneveld 2011; Koopman 2012; Cotula 2013; Verma 2014; Hall et al. 2015; Dieng 2017; Ndiaye 2018; Gagné 2019; Chung 2020).

Here, I propose that, just as the term ‘investment chains’ is used by a myriad of actors interested in social justice, it is crucial to analyse the central role of ‘care chains’ to capture the variety of actors involved in providing unwaged caring labour to labour migrants so that investors may mobilise and exploit their labour in rural markets and beyond. This mapping exercise would be useful for designing inclusive social policies that would address the needs of the most vulnerable in society (Mkandawire 2004).

Migration and Mobility in Senegal

Four facts are worth noting in relation to migration and mobility in the selected regions. First, labour migration in these places is nothing new, especially for women, as their lack of representation in early historiographical accounts would suggest. Local, sub-regional and international migrations of labour (even forced), which some qualify as ‘globalisation from below’, through people (Portes 1999; Tarrius 2002), are not new phenomena in West Africa, or even the Senegal River Region (Diop 1965; Fall 2011; Manchuelle 1997). Indeed, from the mobilisation of forced and indentured slave labour in the colonies for the culture of cotton and then groundnut production, labour migration has been mobilised for over a century in the quest for food security in the Senegambia Region (Cooper 1996; Daviron 2010; Fall 2011; Tiquet 2014; Oya and Pontara 2015). These cultures in turn contributed to further labour migration which has had a lasting impact on the political economy of the valley, with rural inhabitants joining the *Navetaan* labour reserves (the migrant workers of the rainy season) to work in the Groundnut Basin (Oya 2001, 2002; Fall 2011; Faye 2016). In addition, some of the migrants settled permanently in response to the

growing surplus of labour that the Groundnut Basin could not provide. Gradually, thereafter, new urban destinations emerged for these migrants: Mauritania, Dagana, Podor, the new cotton basin in southern Senegal, as well as Côte d'Ivoire (and other West African countries) and France.

The natural disasters and financial shocks of the early twentieth century would further encourage labour migration. In fact, the emergence of rural horticultural labour markets, the challenges of climate change, droughts and land degradation (for instance, the droughts of the 1930s, 1950s and 1970s, which led to severe food crises), and the economic and financial crises of the 1970s, would contribute to increasing the number of migrants and diversifying their profile. These challenges, combined with the imperative of food self-sufficiency, led the Senegalese government to invest massively in large-scale irrigation infrastructure projects in northern Senegal (Lavigne-Delville 1991). In addition, a variety of public and private international development actors (including the World Bank) invested in large-scale development infrastructure as well as horticultural projects for the domestic markets or for exports in this region, starting from the end of the Structural Adjustment Programmes (SAPs).

In this context, migration became a form of social innovation in the search for poverty reduction and food security (Sall et al. 2011), and a strategy that has been used by families, the private sector, the state and colonial powers to mobilise labour. Entire regions and towns depend on this type of economic and social activity to reproduce themselves. It is also practised by many families for their daily, intra- and intergenerational reproduction.

Secondly, migration is almost always linked to large-scale infrastructure and agricultural projects and urbanisation. After independence, from the 1970s, the Senegalese government's decision to invest heavily in the Senegal River Valley Region to encourage the development of productive activities there launched the era of dams. The construction of such large-scale infrastructure has generated a rich parallel literature on expectations and realisations, hopes and discontent, because it shapes places and territories over time (Adams 2000; Boone 2003). More recently, several large-scale agricultural investments have been made in the valley, involving a myriad of actors. The most recent waves of land rush occurred in 2007–2008 following multiple crises – of food, commodities and finance. In 2020, the Land Matrix reported on its website a total of thirty-four intended, concluded and failed land deals in Senegal between 2003 and 2018. The total intended size of the deals was 539,460 hectares, the contract size 327,229 hectares and, surprisingly, by 2018, only 21,686 hectares were in

production. According to the Land Matrix Repository, 63.6 per cent of the total deals took place between 2006 and 2012, hence our focus on deals that materialised in that period.

Thirdly, migration motives and the profile of migrants vary. In our survey, migrant workers constituted more than half of the respondents (seventy-five out of 166 respondents). Responding to the question of their migration motives, twenty-five respondents (twenty of whom were men) said they migrated for work, thirty-seven women travelled to join their husband's house (*sëyi*), and seven women interviewed did so for 'family reasons'. Indeed, previous studies have shown that women rarely migrate independently in search of paid work, but rather to marry or join relatives (Mackintosh 1989) because patrilocality is still dominant in the rural areas of northern Senegal (Diop 1985).

Table 2: Gender and Reasons for Migrating (n=75)

Reason for Current Migration	Male	Female	Total
Job	20	5	25
	80 %	20 %	100 %
	83 %	10 %	33 %
Family	2	7	9
	22 %	78 %	100 %
	8 %	14 %	12 %
Marital home	0	37	37
	0	100 %	100 %
	0	72 %	49 %
Other	2	2	4
	50 %	50 %	100 %
	8.33%	3.9% ²	5.33%
Total	24	51	75
	32 %	68 %	100 %

Source: Workers survey, 2017

Fourthly, major historical, political, religious or personal events have constituted a tipping point in the life of migrant workers, often leading to major work transitions and influencing generations of workers. The *événements Naar* (the Mauritania events),⁴ and large-scale projects such as the construction of dams or the arrival of horticultural firms that quickly

became company towns, are some illustrations of this. Such events may shift (migrant) workers' and their families' careers and work-life histories for generations. They may lead migrant workers or their families to change their sector of activity, mode of migration (for instance, from temporary to permanent or vice versa) or destination, or simply force them to stop travelling for work, to cease work or to change their working hours.

This is the case of Maajigeen, a daily worker (*journalière*) in her fifties from the Lac de Guiers Region of northern Senegal. More than thirty years ago, Maajigeen and her mother used to go to Mauritania for work. The type of wage labour they both chose was in care chains, forms of work that are essential for the reproduction of the labour force and therefore for the reproduction of society. Such work is not always paid, or if it is, it is considered 'cheap labour'⁵ (Mbilinyi 1986). Indeed, while her mother worked as domestic help (*mbindaan* in Wolof), to cook, iron and do the laundry, Maajigeen looked after the children of her mother's employers, thereby reproducing class- and gender-subservient labour relations.

Shortly before the *Naar* events, Maajigeen's mother died. Thereafter, Maajigeen stopped going to Mauritania, and sought safety in Saint-Louis:

I went there twice, staying there each time for a year to work as a domestic: 'ligeeyu kër'. Those were the good times. I didn't have any children or a husband. You only took care of yourself. What I earned allowed me to help my family while keeping some money for myself. (Interview)

Maajigeen is now the first of three wives of a local village chief. She has had eight children in total, two of whom have died. Like her two co-spouses, Maajigeen works at the farm as a day worker when it is not her turn to cook (*njël*). Two of her older kids live in another city for their studies, returning to the family home during the weekend or after a fortnight. They then cook, do their laundry and support their mother with domestic work. During my last visit, the father had asked the oldest daughter to stop going to school and start working at the farm as a day worker while 'getting ready' for marriage. The second-oldest daughter (brilliant at school and very beautiful) feared she would be next, as her father did not like her staying in another town with her mother's sister. But Maajigeen, who had not been to school, promised to shield her daughter from her father's expectations and cover for her in her domestic duties so that she could further her studies until the ultimate paternal decision regarding the future of her studies. Maajigeen explained, 'My husband is the decision-maker in this house. I am under his authority. He leads me/us⁶ (*kilifë fook mu am baat ci kërëm, te surga dong laa, dañ ma yilif*)'.

Like Maajigeen, Idriss's work life was shaped by his mother's migration choices (she moved to Fatick for work when he was younger), his later professional choices and familial responsibility between Dakar and Fatick. He is a polygynous, fifty-five-year-old, former daily farm worker (*journalier*) turned shopkeeper and fisherman. Being among those who advocated for the establishment of the farm, Idriss's work life story has been influenced by his family's many migrations:

My family and I are Beydaan Moor. I went to Fatick in 1949 with my mother, then I left with my family to live at the Benn Taly Factory in 1965. I returned to settle there as a shop trader (*boutiquier*) in 1974. I have left Dakar since, and now live in Fatick in December to August as a shop trader with my second wife and children. Then, I returned to my village (near Mauritania) for my annual leave with my first wife and our children to fish from August to December. During this period, I left my sons at the boutique (shop).

Male Senegalese (*Beydaan*) Moors migrate a lot, to Dakar, Saint-Louis, other major cities, and also within Mauritania, although this has decreased due to the need to 'have papers' (to be documented) as stated in many of our interviews. In the case of Idriss, who is the eldest son of his family, the notion of *kilifé*, the authority based on seniority which confers rights and duties, is central (Group Interview). Indeed, even powerful, middle-aged men still respect older men or women, regardless of their class. Such social imperatives can cause the eldest son (and unmarried daughter) to return to the village immediately after the demise of the father or other older male figures, to fulfill their duties to their family, lineage and social group. As was the case for Idriss, migrant workers who are the eldest or have caring and decision-making responsibilities for their families often make the choice to settle and limit their mobility because of their prerogatives and family duties. Idriss was still in the position to travel for work only because his older sons could replace him at the boutique. His children of school-going age were educated in schools at another village and resided with extended kin. Those who were too young stayed with their mothers and went to Koranic school.

Rural wage Work, Gender and Generation: The Promise of Upward Social Mobility

There are changing links between migration and the definitions of upward ('rich', 'well-off' or 'successful') or downward social mobility ('poor', 'precarious' or having socially 'failed'). In Senegal, (migrant) workers, and other social categories such as expatriate university students who are temporarily economically and socially precarious, may be called *doxandeem*. They may be called *neew ji doole* in Wolof if they fall more permanently into

poverty (including the working poor), and *miskiin* if they rely on family or kin solidarity networks for basic survival (Fall 2005). As for success, it is generally defined by wealth, kinship linkages and social and marital status. Success is also traditionally shaped by migration and mobility, as illustrated in popular culture by narratives of the return of the 'prodigal son' after a long stay abroad to ease the collective efforts and sacrifices of the migrant's family. The central role that migration plays is also illustrated by the 'Four Ts' (*Tukki, Tekki, Tedd, Teral*), as in a popular saying among young Senegalese migrants or aspirants to migration: 'Travelling, making it, succeeding socially, and helping family and friends' (Sall et al. 2011: 24). *Tekki* does not merely translate into 'making it', but success also means meeting social expectations associated with this new social position (for example, by helping one's family and extended kin).

The findings of my research in thirty villages in Saint-Louis and Louga showed that rural horticultural wage work in the selected farms offered new avenues for upward social mobility, especially for migrant workers. In addition, meanings and values associated with being 'successful' or being a 'good person' were influenced by horticultural wage labour. A central observation based on the interviews and life stories of the selected research participants is that, for migrant workers from other villages or from the city – an increasingly important trend – 'becoming someone' was now possible without having to travel, as illustrated by the many stories of workers returning home and their recurring claims to 'get there and be successful at home' (*tekki fii*). Yet, migrant workers often found themselves experiencing simultaneously upward and downward social mobility, an outcome that was differentiated along gender, class, status, caste and marital status. This was the case of Marie, whose story can be summarised as follows:

A young single woman of almost thirty years, Marie lives in another city for her work, separated from her siblings and her parents. She visits her family in town every two to three months because of her job. Holder of a Bachelor's degree from the University of Dakar, after an internship she worked for a producer of fresh fruit and vegetables in the Niayes (peri-urban area of Senegal). She joined one of the companies in this study in 2014 as an agricultural supervisor of a team comprising between fifteen and thirty-five people, fifty in high season. She earns CFA 200,000 net per month.

Marie works from 7 a.m. to 2 p.m., Monday to Saturday. She eats the bread distributed by the company to all workers for breakfast but has lunch at home between 2 p.m. and 3 p.m. after work. She divides her salary between her own expenses and the needs of her family back in town. She also saves a small amount in the bank. Her salary, she told me, was 'virtually finished' before it even reached her account at the beginning of each month. Therefore, she hoped for a salary increase.



Figure 1: Marie manages one of these teams in the fields, May 2017, near the River Senegal

Despite her professional success, Marie kept being questioned about when she intended to marry and have children. This is because in (rural) Senegal, women's 'social success' is still assessed through their marital status and ability to procreate.

The account of Marie indicates that she had moved far from the familial household and was not regarded by her family as 'someone' because she was not married. It also shows that becoming 'someone' on the farms allows everyone to witness it and so workers can 'have a name' without migrating or moving (Interview). In addition, the establishment of horticultural farms has broadened the aspirations of poorly educated or uneducated workers and has in a way opened up avenues of success far from the exclusive 'empire of the literati' through school (Coulon 1999). Politics and business nonetheless remain attractive to many. The horticultural farms have also opened new routes for accumulation, including that of social networks (Fall 2005; Coulibaly-Tandian 2008; Bredeloup 2015). Such upward mobility is described well in the life trajectory of S. Fekhe, a young worker who is officially twenty-six years old but unofficially thirty-one years old. His story can be summed up as follows:

After interrupting my studies in 2012, I worked as a *surga* (seasonal wage worker) in what has become known as the '*pataas* project' (sweet potato projects) of a farmer in the Lac de Guiers Region. At that time, I was not returning home during the rainy season but was working on different jobs at the same time. It is only when I started as a day labourer in one of the farms of this region that I started going back home during the rainy season.

He had been working on the farm since 2013 and became a supervisor in 2014, resulting in a seasonal contract in 2015. S. Fekhe left his family in Kaolack where his wife and parents lived. He had first met his wife on the farm before she moved to her parents' place in Kaolack, where, under patrilocal rule, she helped Fekhe's ageing mother with domestic work.

S. Fekhe used to be a continuous migrant, and started returning to his village only when he knew his day job would still be there after the rainy season. Then, as he was not under contract when the farm closed during the summer, he would return to his parents' village in order to cultivate the family field. At his workplace, S. Fekhe stayed in a small one-bedroom apartment he shared with another farm worker, also from Kaolack. Fekhe was paid around 200,000 francs per month. Every month, he saved CFA 20,000, sent 120,000 to his family and paid CFA 15,000 for lunch prepared by a local family in a nearby village, with whom he registered, a practice known as *bindu bool*. S. Fekhe also left CFA 10,000 at the boutique (the local shop) for his groceries and kept the rest for his other expenses. He had no loans and hardly managed to save – he did so thanks to being part of the *natt-u-teggi* (*tontine*, in French), a joint financial arrangement whereby the participants (some men from his company) contribute equally to a prize that is awarded entirely to a selected participant at the end of each month. Some months, he ate with the other workers in the local canteen of the compound (*popotte*, in French), paying a small contribution because everything was subsidised by the employer. He had his medical needs met at the farm's small clinic (which also took care of his wife when she suffered a miscarriage). S. Fekhe was part of the solidarity and mutual aid group that brought together workers from his native region, as well as the local *Dahira* (his local religious brotherhood). At the time of our interviews, his wife had come to visit him and was cooking for him.

Discussion: Adverse Incorporation of Communities of Caring Labour and Social Reproduction

The life stories presented above show that, after rural migrants start horticultural labour, there is a greater densification of economic and non-economic links between those who work in horticulture and their families and kin than before. Also, ties based on solidarity, ethnicity and faith communities in both rural and urban areas are stronger. Indeed, as illustrated by the life stories of Idriss and Maajigeen, Marie and Fekhe, and our interviews, these links of mutual aid, economic support or solidarity between migrant and non-migrant workers and their families are based on gender, caste, class, marital and migrant status, faith, ethnicity and

generation. In fact, kin and solidarity communities (including those that are faith-based, ethnic and ceremonial, i.e. *tontines*) constitute social safety nets for the most deprived (Dimé 2007; Fall and Cissé 2007). Marital status, gender and age, for instance, play a key role in the allocation of daily, intra- and intergenerational social reproduction obligations and expectations. This is shown by the fact that Maajigeen (when she was single) and Marie (currently single) were expected to provide economically for their families and for themselves until they married, and Idriss and S. Fekhe provided financially for their families including the costs of educating their children. Married women, on the other hand, are expected first to provide labour and emotional support to their families (mostly the man in their life and their children) and share domestic chores, and only then can they seek employment in rural horticulture. This shows that patriarchal conjugal contracts do not prevent married women and unmarried or divorced women from participating in rural wage work as long as this does not conflict with domestic duties. As for Marie, she occupied the role of an honorary male providing for herself and her family because of her single status. These life stories highlight the financial emancipation that migrant workers have gained with their work, but also the obligations that fall on them because of 'having a job and a salary'.

The social links, caring labour activities and practices of migrants (and their families, kin or solidarity and faith communities) along the care chains in horticulture that I came across during our research took different forms. The first was the circulation of labour, between members of the same family (generally young men and women, and wives) or between neighbours, or for local employers in the form of collective (*santaane*) or individual work paid in kind or in cash (*gasanu*), in the form of temporary contracts, or in collective and associative work (*bokk bay*). This included the mobilisation of migrant labour by horticultural firms or local employers (via contract farming, the use of *nawetaan* or *surga* labour, and the use of different contracts – permanent, seasonal or day contracts). This labour circulation involved the development of certain service/care economies to cater to migrant workers' wellbeing and needs, including:

- Food provision/restaurant food/catering via the company's canteen, or via the payment of a small sum to a landlord to eat with the family (*bindu bool*), or through the food sellers in the vicinity of horticultural farms;
- Housing/rental accommodation free of charge via employers, for permanent and, more rarely, seasonal workers who were deemed essential for the firms; renting a room privately; or staying at a relative's house;
- Money transfer services and grocery shops.

It is also worth mentioning that, based on some interviews, I suspect that some form of clandestine prostitution was taking place in the vicinity of the horticultural farms, and that some male migrants used these services. However, I had no overt confirmation from male and female migrant workers because reputation is the most important asset (mostly for women) in those rural settings. Such prostitution services are also part of the care chains that allow the social reproduction of the labour force.



Figure 2: Breakfast time, October 2017, Saint-Louis Region

The second type of care exchange included the care, socialisation and often mobility of young children between different families, for their school or Koranic education, or for the school holidays (*vacansu*). Some migrant workers and couples also placed their children in their trusted kin's homes to be taken care of while they worked (*denkaane*). This involved, although not always, the transfer of cash for the main expenses of the kids, who also often helped with domestic chores and errands. Better-off migrant workers hired domestic help to look after their households (cooking for them or their family, doing the laundry, looking after the children, etc. in their absence). This affective care labour was very gendered depending on the conjugal contract, household composition, gender, marital status, ethnicity and age of family members, perhaps more so in Wolof and Pulaar villages and less in Moor villages, where men, and in particular husbands, tend to participate in housework. However, with most women who are working on farms in the selected rural areas, the lines are shifting, with more and more older men and their children (especially young girls) attending to the needs of the younger ones in the absence of their wage-earning mothers/wives. In a context where polygamy is common, horticultural export work is more suited to this type of conjugal contract because the wives (and their eldest daughters) can divide up the domestic work, as has been corroborated by other research articles (Diop

1985; Sow 1986; Mackintosh 1989; Gadio and Rakowski 1999; Nation 2010). Likewise, the older male children also divide up the work in the family field, in small-scale cattle-breeding or in small family businesses.

The third type of caring labour involved migrant workers' visits 'back home' to take care of sick or old relatives. This was carried out mainly by young women and older women. This type of care work involved not only financial support, but also daily and intergenerational support, as well as medical assistance (the lack of which was strongly felt in rural areas). This challenge leads to many conflicts and negotiations within families, which have been highlighted in the emerging literature on this question (Gning 2014; Hane 2015).

The fourth type of care practice was migrant workers' visits to attend family or religious ceremonies, including naming ceremonies and funerals, or to ensure that certain rights, including inheritance or land rights, were safeguarded.

In addition to these forms of care practice, there were exchanges of goods – between rural and urban or rural and rural households – as gifts or counter-gifts. These were made possible by the increased purchasing power of migrant workers, especially as a result of paid horticultural work. There were also exchanges of cash through remittances, sending money to family and kin in the village or in town, or as contributions towards ceremonies, be they religious, traditional or cultural. Women remained central in the organisation of these ceremonies and used a significant portion of their salaries as ceremonial funds, which helped to strengthen community ties.

Women and girls also engaged in forms of collective saving. For instance, their monthly *natt* (*tontines*) allowed them to combine ceremonial activities and forms of social reproduction and organisation such as GIEs (economic solidarity collectives). Through these GIEs, young men and women sought to obtain land, not by inheritance or donations from the family, but through other channels such as the local community (*commune*), or through international development agency programmes such as those of the World Bank.

The relationships illustrated above, between migrants and non-migrants and extended kin and solidarity networks, allow for the reproduction of the workforce as well as capitalist social reproduction through the extraction of surplus value. In addition to playing a central role in the political economy of work, migrant workers and their networks most often had to rely solely on their own wages to cover all their needs, unless they were considered essential workers by employers who then provided them with more or less secure working contracts, housing and social security. This free-rider attitude allowed employers to exploit the labour force at a lower cost, using them as *de facto* cheap labour, while relying on care chains to provide most unwaged or wage caring labour (Mbilyini 1986; Dieng 2019).

Here, a critical and powerful concept is that of 'adverse incorporation' (Du Toit 2005; McCarthy 2010; Hall 2011; Vicol 2017). Migrant workers and providers of cheap care work are in this sense adversely incorporated in these political economies. Going beyond the rhetoric of 'inclusion/exclusion' of migrant workers and communities of care allows us to shift our gaze and, thereby, to critically examine the debates around employment creation and other opportunities brought about by agricultural investments, and the *terms of incorporation* of migrant workers and communities of care in these local and global political economies.

Indeed, migration and mobility play a central role in 'everyday' caring labour and inter- and intragenerational reproduction using mostly unwaged care chains. This allows agricultural employers – generally the only company or one of few in town – to externalise the cost of social reproduction of migrant workers to the workers' extended communities. For migrant seasonal workers or workers on fixed-term or indefinite contracts, companies set up structures such as workers' accommodation and a dispensary, and covered some costs of social reproduction, such as part of the national insurance and other benefits (i.e. housing, food provision, health and transportation), included in the salary or in nature.

Outside of the companies, workers, especially migrants, rely on care chains that allow them to organise their lives between their village (or town) of origin, their village of residence and their place of work. Care chains are organised around practices such as the fostering of children, taking turns (*njël*) between co-wives and their daughters in polygynous conjugal contracts, the unpaid work of community leaders such as village matrons (*bajjanu gox*), etc. for capitalist social reproduction. This denotes the strategic alliances between patriarchal conjugal norms and capitalist labour exploitation within and beyond workplaces, 'the fleshy, messy, and indeterminate stuff of everyday life' (Katz 2001: 711) as is well known, moves from place to place without a fixed home. However, vagabondage insinuates a little dissolution – an unsettled, irresponsible, and disreputable life, which indeed can be said of the globalization of capitalist production. This paper reframes the discussion on globalization through a materialist focus on social reproduction. By looking at the material social practices through which people reproduce themselves on a daily and generational basis and through which the social relations and material bases of capitalism are renewed – and the havoc wreaked on them by a putatively placeless capitalism – we can better expose both the costs of globalization and the connections between vastly different sites of production. Focusing on social reproduction allows us to address questions of the making, maintenance, and exploitation of a fluidly differentiated labor force, the productions and destructions.

In most of the villages in this study, social reproduction also relied on land, forest and cattle, which were viewed as a resource but most importantly were one of multiple livelihood strategies. Therefore, migrant workers often sought to acquire land assets or cattle alone or jointly with their spouse. This was more difficult for migrant women because negotiations over granting land were mostly the business of men. Migrant workers also sought to buy domestic animals like sheep, goats or chickens that they could either breed for sale or consume during hard times. They also invested in parallel activities such as the *natt-u-teggi*, and self-exploitation through small businesses (selling food to other migrant workers, for instance).

Finally, across all villages workers testified that horticultural work had created new social relations and fostered cross-cultural understanding. There is evidence to suggest that marriages took place following work opportunities, as exemplified by the case of S. Fekhe. In addition, new communities of care, based on faith (such as the *Dahira*) or economic and cultural interests (such as the *natt-u-teggi* and the *tours* – women’s monthly celebration of winning the *natt*) allowed migrants and non-migrants to gather to practise their faith. There was also a decrease in discrimination based on caste and other traditional legacies of class because at the farm ‘we are all wage labourers’ (FGD7).⁷ This was recounted by a worker who was *nyeeño* (supposedly lower caste), who testified that, at the beginning, especially in Saint-Louis, ‘those originating from families of previous slave-owners and their former slaves or supposedly lower caste, would not mix or talk’ (FGD6).⁸ This was confirmed by a supervisor who said: ‘Each group would stay in their corner. But things are much better now: they even invite each other to social events outside the farm’ (Interview SMP6).⁹

Conclusion: Who Cares and Why Does it Matter?

The research questions of this article were twofold:

- 1) What are the implications of agricultural investments for labour mobility and migration, social mobility and social reproduction?
- 2) How and to what extent do care chains bear the brunt of the social reproduction of mobile and migrant labour forces, thereby allowing capitalist social reproduction to take place?

This article critically examined the centrality of caring labour by mapping some of the essential activities and practices that exist within care chains to accommodate horticultural wage work in the Senegalese export industry. The development of these care chains might be part of a long-term process of change involving different classes of (migrant) labour and equally variegated

classes of capital. I suggest that they are non-exceptional elements of any dynamic and evolving society, although this represents a major opportunity for positive social transformation. Since what counts cannot always be counted, I suggest that mapping these care chains to identify pressure points could be a central action-research project for feminist activists as well as policy and political leaders interested in addressing the needs of those who are adversely incorporated in these political economies.

In light of the empirical evidence presented, it appears that centring care and social reproduction alongside the more pre-eminent questions of work and horticultural production by migrant labourers is fruitful for at least two reasons: it brings together questions of production and social reproduction that more often than not are seen/treated as separate; it repoliticises the questions of who does what and who gets what in order to understand theories of value in the processes of capitalist social reproduction.

'Who cares' matters because without those essential actors providing invisibilised caring labour, often below the cost of social reproduction, migrant workers – who are crucial for global production networks – would not be able to participate in rural labour markets. Therefore, there are two urgent and critical priorities to which such a policy-research agenda could contribute. First is the recognition of (unpaid) caring labour, decent work and fairer wages for those who provide care work; second, more inclusive sectoral policies and laws in favour of migrant workers, and improved urban–rural mobility infrastructure to aid the reproduction of workers (Doherty 2021). Intersectionality as a methodology and a theory can provide useful insights into this agenda.

Notes

1. Émeutes de la faim in Senegal.
2. Excluding cashew.
3. Often also written 'Ngnith'.
4. These events started on 20 April 1989 with the death of two Senegalese nationals, at Diawara in Matam, on the bank of the river. They ended with over 50 Maures dead in Senegal, and between 200 and 1,000 Senegalese dead in Nouakchott, Mauritania (Reyna and Downs 1999: 177–212).
5. Marjorie Mbilinyi (1986) defines 'cheap labour' as 'labour which is remunerated below the level of reproduction of labour power'.
6. 'kilifë fook mu am baat ci kërëm, te surga dong laa, dañ ma yilif' in Wolof.
7. 22/11/17
8. 14/11/17
9. 19/06/17

References

- Adams, A., 1977, *Le long voyage des gens du fleuve*, Paris: Maspero.
- Adams, A., 2000, *The Senegal River: Flood management and the future of the valley*, London, UK: IEED.
- Ali, R. and Stevano, S., 2019, Work in the Agro-industry, Livelihoods and Social Reproduction in Mozambique: Beyond Job Creation, *IDeIAS* 13 December, Bulletin 121, https://www.iese.ac.mz/wp-content/uploads/2019/12/Ideias-121e_RA.pdf
- Amadiume, I., 1993, The mouth that spoke a falsehood will later speak the truth: Going home to the field in Eastern Nigeria, in Bell, D., Caplan, P. and Karim, W. J., eds, *Gendered Fields: Women, Men and Ethnography*, London, UK: Routledge.
- Ba, C. O., 1998, Migrations régionales et relations de genre dans la vallée du fleuve Sénégal, *Africa Development / Afrique et Développement*, Vol. 23, Nos. 3/4, pp. 95–119.
- Baglioni, E., 2015, Straddling Contract and Estate Farming: Accumulation Strategies of Senegalese Horticultural Exporters, *Journal of Agrarian Change*, Vol. 15, No. 1, pp. 17–42, <https://doi.org/10.1111/joac.12032>
- Baglioni, E., 2018, Labour control and the labour question in global production networks: Exploitation and disciplining in Senegalese export horticulture, *Journal of Economic Geography*, Vol. 18, No. 1, pp. 111–137, <https://doi.org/10.1093/jeg/lbx013>
- Barrientos, S., 2019, *Gender and Work in Global Value Chains: Capturing the Gains?* Cambridge, UK: Cambridge University Press, <https://doi.org/10.1017/9781108679459>
- Bernstein, H., 2006, Is There an Agrarian Question in the 21st Century? *Canadian Journal of Development Studies / Revue Canadienne d'études du Développement*, Vol. 27, No. 4, pp. 449–460, <https://doi.org/10.1080/02255189.2006.9669166>
- Bernstein, H., 2007, *Capital and labour from centre to margins*,
- Bernstein, H., 2010, *Class Dynamics of Agrarian change*, Boulder, CO: Kumarian Press.
- Bezanson, K. and Luxton, M., 2006, *Social Reproduction: Feminist Political Economy Challenges Neo-Liberalism*, Montreal: McGill-Queen's University Press, <https://www.jstor.org/stable/j.ctt80rzb>
- Bhattacharya, T., 2017, *Social Reproduction Theory, Remapping Class, Recentering Oppression*, London, UK: Pluto Press.
- Boone, C., 2003, *Political Topographies of the African State: Territorial Authority and Institutional Choice*, Cambridge UK: Cambridge University Press.
- Borras, S. M., Hall, R., Scoones, I., White, B. and Wolford, W., 2011, Towards a better understanding of global land grabbing: An editorial introduction, *Journal of Peasant Studies*, Vol. 38, No. 2, pp. 209–216, <https://doi.org/10.1080/03066150.2011.559005>
- Bredeloup, S., 2007, *La Diams'pora du fleuve Sénégal: Sociologie des migrations africaines*, Paris: Editions de l'Institut de Recherches et Développement (IRD), <http://books.openedition.org/pumi/6948>
- Bredeloup, S., 2015, Introduction: Terrains revisités en migrations africaines, *Africa Development / Afrique et Développement*, Vol. 40, No. 1, pp. 1–17.

- Bryceson, D., 1995, *Women Wielding the Hoe: Lessons from Rural Africa for Feminist Theory and Development Practice (Cross-Cultural Perspectives on Women)*, London, UK: Bloomsbury.
- Chung, Y. B., 2017, Engendering the New Enclosures: Development, Involuntary Resettlement and the Struggles for Social Reproduction in Coastal Tanzania, *Development and Change*, Vol. 48, No. 1, pp. 98–120, <https://doi.org/10.1111/dech.12288>
- Chung, Y. B., 2020, Governing a Liminal Land Deal: The Biopolitics and Necropolitics of Gender, *Antipode*, Vol. 52, No. 3, pp. 722–741, <https://doi.org/10.1111/anti.12612>
- Collins, P. H., 1986, Learning from the Outsider Within: The Sociological Significance of Black Feminist Thought, *Social Problems*, Vol. 3, No. 6, S114–S132, <https://doi.org/10.2307/800672>
- Cooper, F., 1996, *Decolonisation and African Society: The Labor Question in French and British Africa*, Cambridge, UK: Cambridge University Press, <https://doi.org/10.1017/CBO9780511584091>
- Cornwall, A., Harrison, E., & Whitehead, A., 2007, "Gender Myths and Feminist Fables: The Struggle for Interpretive Power in Gender and Development", *Development and Change*, 38(1), 1–20, <https://doi.org/10.1111/j.1467-7660.2007.00400.x>
- Cotula, L., 2011, *Land deals in Africa: What is in the contracts?* London, UK: International Institute for Environment and Development (IIED).
- Cotula, L., 2013, *The Great African Land Grab? Agricultural Investments And The Global Food System*, London, UK: Zed Books,.
- Cotula, L. and Blackmore, E., 2014, *Understanding agricultural investment chains: Lessons to improve governance*, London, UK: International Institute for Environment and Development (IIED).
- Coulibaly-Tandian, O. K., 2008, *Socio-anthropologie des mobilités sénégalaises à Toulouse et Barcelone et leurs influences au Sénégal: Diversité des pratiques, organisation en réseaux, place des NTIC et analyse de genre*, doctoral thesis, Toulouse 2, <http://www.theses.fr/2008TOU20001>
- Coulon, C., 1999, La tradition démocratique au Sénégal: Histoires d'un mythe, *Studia Africana*, Vol. 10, pp. 69–83.
- Cousins, B., Dubb, A., Hornby, D. and Mtero, F., 2018, Social reproduction of 'classes of labour' in the rural areas of South Africa: Contradictions and contestations, *The Journal of Peasant Studies*, Vol. 45, Nos 5–6, pp. 1060–1085, <https://doi.org/10.1080/03066150.2018.1482876>
- Cramer, C., Oya, C. and Sender, J., 2008, Lifting the blinkers: A new view of power, diversity and poverty in Mozambican rural labour markets, *Journal of Modern African Studies*, Vol. 46, No. 3, pp. 361–392.
- Crenshaw, K., 1989, "Demarginalizing the Intersection of Race and Sex: A Black Feminist Critique of Antidiscrimination Doctrine, Feminist Theory and Antiracist Politics", *University of Chicago Legal Forum*, Vol. 1989 (Iss. 1, Article 8), 31.

- Cross, H., 2013, *Migrants, borders and global capitalism: West African labour mobility and EU borders*, London, UK, Routledge.
- Daviron, B., 2010, Mobilising labour in African agriculture: The role of the International Colonial Institute in the elaboration of a standard of colonial administration, 1895–1930, *Journal of Global History*, Vol. 5, No. 3, pp. 479–501, <https://doi.org/10.1017/S1740022810000239>
- Davis, D.-A. and Craven, C., 2016, *Feminist Ethnography: Thinking Through Methodologies, Challenges, and Possibilities*, New York: Rowman and Littlefield.
- Deining, K. and Byerlee, D., 2011, *Rising Global Interest in Farmland*, Washington DC: The World Bank, <http://site.ebrary.com/lib/alltitles/docDetail.action?docID=10448635>
- Dieng, R. S., 2017, 'Land Grabbing' and the Politics of Evidence: The case of Senegal, *Africa Insight*, Vol. 46, No. 4, pp. 25–40, <https://doi.org/10.4314/ai.v46i4>
- Dieng, R. S., 2018, 'Gone Native?': Reflections of a Feminist Tightrope Walker's Research on 'Land Grabbing' and the Dilemmas of 'Fieldworking' While Parenting, in Jackson, R. and Kelly, M., eds., *Women Researching in Africa: The Impact of Gender*, London, UK: Palgrave Macmillan.
- Dieng, R. S., 2019, Contemporary land rush, and dynamics of agrarian change in Senegal (2006–2017), PhD dissertation, SOAS, University of London, <https://doi.org/10.25501/SOAS.00035369>
- Dieng, R. S., 2020, "Introduction: Feminist Parenting: Perspectives from Africa and Beyond", In R. S. Dieng & A. O'Reilly (Eds.), *Feminist Parenting* (pp. 11–44). Demeter Press. <https://doi.org/10.2307/j.ctv11vcfbp.4>
- Dimé, M., 2007, Remise en cause, reconfiguration ou recomposition ? Des solidarités familiales à l'épreuve de la précarité à Dakar, *Sociologie et sociétés*, Vol. 39, No. 2, pp. 151–171, <https://doi.org/10.7202/019088ar>
- Diop, A. B., 1965, *Société toucouleur et migration: L'immigration toucouleur à Dakar*, Dakar: Institut Français d'Afrique Noire.
- Diop, A. B., 1985, *La famille Wolof: Tradition et changement*, Paris: Editions Karthala.
- Doherty, J., 2021, Mobilising social reproduction: Gendered mobility and everyday infrastructure in Abidjan, *Mobilities*, Vol. 0, No. 0, pp. 1–17, <https://doi.org/10.1080/17450101.2021.1944288>
- Doss, C., Summerfield, G. and Tsikata, D., 2014, Land, Gender, and Food Security, *Feminist Economics*, Vol. 20, No. 1, pp. 1–23, <https://doi.org/10.1080/13545701.2014.895021>
- Du Toit, A., 2005, Forgotten by the highway: Globalisation, adverse incorporation and chronic poverty in a commercial farming district, Centre for Social Science Research Working Paper, University of Cape Town, <https://open.uct.ac.za/handle/11427/19386>
- Elson, D. and Pearson, R., 1981, 'Nimble Fingers Make Cheap Workers': An Analysis of Women's Employment in Third World Export Manufacturing, *Feminist Review*, Vol. 7, pp. 87–107, <https://doi.org/10.2307/1394761>
- Fall, A., 2005, *Bricoler pour survivre: Perceptions de la pauvreté dans l'agglomération urbaine de Dakar*, Paris: Editions Karthala.

- Fall, A. S., 1998, Migrants' long-distance relationships and social networks in Dakar, *Environment and Urbanization*, Vol. 10, No. 1, pp. 135–146. <https://doi.org/10.1177/095624789801000104>
- Fall, A. S. and Cissé, R., 2007, Migrations Internationales Et Pauvreté En Afrique De L'Ouest, *SSRN Electronic Journal*, <https://doi.org/10.2139/ssrn.1757825>
- Fall, B., 2011, *Le travail au Sénégal au XXe siècle*, Paris: Editions Karthala.
- Fall, S. T. and Fall, A. S., 2001, *Cités horticoles en sursis? L'agriculture urbaine dans les grandes Niayes au Sénégal*, Ottawa: IDRC, <https://idl-bnc-idrc.dspacedirect.org/handle/10625/31426>
- Faye, V., 2016, *Economie arachidière et dynamiques du peuplement au Sénégal. Kaffrine et le Saloum oriental de 1891 à 1960*, Paris: Editions Karthala,
- Federici, S. B., 2014, *Caliban and the Witch: Women, the Body and Accumulation*, 2nd ed. Brooklyn: Autonomedia.
- Folbre, N., 1995, 'Holding hands at midnight': The paradox of caring labor, *Feminist Economics*, Vol. 1, No. 1, pp. 73–92, <https://doi.org/10.1080/714042215>
- Gadio, C. M. and Rakowski, C. A., 1999, Farmers' Changing Roles in Thiédeme, Senegal: The Impact of Local and Global Factors on Three Generations of Women, *Gender and Society*, Vol. 13, No. 6, pp. 733–757, <https://doi.org/10.1177/089124399013006004>
- Gagné, M., 2019, Resistance Against Land Grabs in Senegal: Factors of Success and Partial Failure of an Emergent Social Movement, *The Politics of Land*, Vol. 26, pp. 173–203, <https://doi.org/10.1108/S0895-993520190000026012>
- Gning, S.-B., 2014, Les temps de la vieillesse au Sénégal: Le malentendu intergénérationnel. *SociologieS*, <https://doi.org/10.4000/sociologies.4618>
- Gore, E. and LeBaron, G., 2019, Using social reproduction theory to understand unfree labour, *Capital and Class*, Vol. 43, No. 4, pp. 561–580, <https://doi.org/10.1177/0309816819880787>
- Hall, R., 2011, Land grabbing in Southern Africa: The many faces of the investor rush, *Review of African Political Economy*, Vol. 38, No. 128, pp. 193–214. <https://doi.org/10.1080/03056244.2011.582753>
- Hall, R., Scoones, I. and Tsikata, D., eds, 2015, *Africa's Land Rush: Rural Livelihoods and Agrarian Change*, Woodbridge, UK: James Currey Publishers.
- Hane, F., 2015, La prise en charge des personnes âgées dépendantes au Sénégal: Entre aidants familiaux et institutions, https://horizon.documentation.ird.fr/exl-doc/pleins_textes/divers13-12/010054695.pdf
- Haraway, D., 1988, "Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective", *Feminist Studies*, 14(3), 575–599, <https://doi.org/10.2307/3178066>
- Hathie, I., Wade, I., Ba, S. and Niang, A., 2015, Emploi des jeunes et migration en Afrique de l'Ouest (EJMAO), Research project for Institut Prospective Agricole et Rurale (IPAR), <https://idl-bnc-idrc.dspacedirect.org/bitstream/handle/10625/54153/IDL-54153.pdf>
- Hochschild, A. R., 2000, Global care chains and emotional surplus values, in Giddens, A. and Hutton, W., eds, *On the edge: Living with global capitalism*, London, UK: Jonathan Cape, pp. 130–146.

- Jha, P., Chambati, W. and Ossome, L., 2021, *Labour Questions in the Global South*, Cham: Springer Books.
- Johnston, D., 2007, Who Needs Immigrant Farm Workers? A South African Case Study, *Journal of Agrarian Change*, Vol. 7, No. 4, pp. 494–525, <https://doi.org/10.1111/j.1471-0366.2007.00154.x>
- Kaag, M. and Zoomers, A., 2014, *The Global Land Grab: Beyond the Hype*, London, UK: Zed Books Ltd.
- Katz, C., 2001, Vagabond Capitalism and the Necessity of Social Reproduction, *Antipode*, Vol. 33, No. 4, pp. 709–728, <https://doi.org/10.1111/1467-8330.00207>
- Koopman, J., 2012, Land grabs, government, peasant and civil society activism in the Senegal River Valley, *Review of African Political Economy*, Vol. 39, No. 134, pp. 655–664, <https://doi.org/10.1080/03056244.2012.738797>
- Koopman, J. E., 2009, Globalisation, Gender, and Poverty in the Senegal River Valley, *Feminist Economics*, Vol. 15, No. 3, pp. 253–285, <https://doi.org/10.1080/13545700902920370>
- Laslett, B. and Brenner, J., 1989, Gender and Social Reproduction: Historical Perspectives, *Annual Review of Sociology*, Vol. 15, pp. 381–404.
- Lavigne-Delville, P., 1991, *La risière et la valise: Irrigation, migrations et stratégies paysannes dans la vallée du fleuve Sénégal*, Paris: Syros Alternatives.
- Li, T. M., 2011, Centering labor in the land grab debate, *The Journal of Peasant Studies*, Vol. 38, No. 2, pp. 281–298, <https://doi.org/10.1080/03066150.2011.559009>
- Mackintosh, M., 1977, Reproduction and Patriarchy: A Critique of Claude Meillassoux, 'Femmes, Greniers Et Capitaux', *Capital and Class*, Vol. 1, No. 2, pp. 119–127, <https://doi.org/10.1177/030981687700200106>
- Mackintosh, M., 1989, *Gender, class, and rural transition: Agribusiness and the food crisis in Senegal*, London, UK: Zed Books Ltd.
- Mama, A., 2011, What Does it Mean to Do Feminist Research in African Contexts? *Feminist Review*, Vol. 98, (1_suppl), e4–e20, <https://doi.org/10.1057/fr.2011.22>
- Manchuelle, F., 1997, *Willing Migrants: Soninke labor diasporas 1848–1960*, Athens, OH and London, UK: Ohio University Press and James Currey Publishers.
- Marcus, G. E., 1995, Ethnography in/of the World System: The Emergence of Multi-Sited Ethnography, *Annual Review of Anthropology*, Vol. 24, No. 9, pp. 5–117.
- Matondi, P. B., Havnevik, K. J. and Beyene, A., 2011, *Biofuels, Land Grabbing and Food Security in Africa*, London, UK: Zed Books.
- Mbilinyi, M., 1986, Agribusiness and Casual Labor in Tanzania, *African Economic History*, Vol. 15, pp. 107–141, <https://doi.org/10.2307/3601542>
- Mbilinyi, M., 2016, Debating Land and Agrarian Issues from a Gender Perspective, *Agrarian South: Journal of Political Economy*, Vol. 5, Nos 2–3, pp. 164–186. <https://ideas.repec.org/a/sae/agspub/v5y2016i2-3p164-186.html>
- McCarthy, J. F., 2010, Processes of inclusion and adverse incorporation: Oil palm and agrarian change in Sumatra, Indonesia, *The Journal of Peasant Studies*, Vol. 37, No. 4, pp. 821–850, <https://doi.org/10.1080/03066150.2010.512460>
- Meillassoux, C., 1992, *Femmes, greniers et capitaux*, Paris: Editions L'Harmattan.

- Mezzadri, A., 2016, *The Sweatshop Regime: Labouring Bodies, Exploitation, and Garments Made in India*, Cambridge, UK: Cambridge University Press, <https://doi.org/10.1017/9781316337912>
- Mezzadri, A., 2020, A Value Theory of Inclusion: Informal Labour, the Homeworker, and the Social Reproduction of Value, *Antipode*, Vol. 53, No. 4, pp. 1186–1205, <https://doi.org/10.1111/anti.12701>
- Mkandawire, T., 2004, Social Policy in a Development Context: Introduction, in Mkandawire, T., ed., *Social Policy in a Development Context*, Basingstoke, UK: Palgrave Macmillan, pp. 1–33, https://doi.org/10.1057/9780230523975_1
- Mohanty, C. T., 1984, Under Western Eyes: Feminist Scholarship and Colonial Discourses, *Boundary*, Vol. 2, Nos 12/13, pp. 333–358, <https://doi.org/10.2307/302821>
- Mutopo, P., 2014, *Women, Mobility and Rural Livelihoods in Zimbabwe: Experiences of Fast Track Land Reform*, Leiden: Brill.
- Naidu, S. C. and Ossome, L., 2016, Social Reproduction and the Agrarian Question of Women's Labour in India, *Agrarian South: Journal of Political Economy*, Vol. 5, No. 1, pp. 50–76, <https://doi.org/10.1177/2277976016658737>
- Nation, M., 2010, Understanding women's participation in irrigated agriculture: A case study from Senegal, *Agriculture and Human Values*, Vol. 27, No. 2, pp. 163–176, <https://ideas.repec.org/a/spr/agrhuv/v27y2010i2p163-176.html>
- Ndiaye, A., 2018, *The Scramble for Agricultural Land in Senegal: Land Privatisation and Inclusion?* Singapore: Springer, pp. 143–162, https://doi.org/10.1007/978-981-10-5840-0_7
- Ndione, D. B., 2018, Migration au Sénégal, *Profil Migratoire*, Vol. 20.
- Neveu Kringelbach, H., 2015, Parallel lives and scattered families: European immigration rules and transnational family practices between Africa and Europe, in Sigona, N. Gamlen, A., Liberatore, G. and Neveu Kringelbach, H., eds, *Diasporas Reimagined: Spaces, Practices and Belonging*, Oxford Diasporas Programme, pp. 131–135, <https://www.compas.ox.ac.uk/2015/diasporas-reimagined-spaces-practices-and-belonging/>
- Newfarmer, R., Page, J. and Tarp, F., 2018, *Industries without Smokestacks: Industrialisation in Africa Reconsidered*, Oxford: Oxford University Press.
- Niyonsaba, E., 2019, La mobilité résidentielle des veuves âgées au Sénégal, *Gérontologie et société*, Vol. 41158, No. 1, pp. 113–124, <https://www-cairn-info.ezproxy.is.ed.ac.uk/revue-gerontologie-et-societe-2019-1-page-113.htm>
- Okech, A., 2020, African feminist epistemic communities and decoloniality, *Critical African Studies*, Vol. 12, No. 3, pp. 313–329, <https://doi.org/10.1080/21681392.2020.1810086>
- O'Laughlin, B., 1977, Production and Reproduction: Meillassoux's Femmes, Greniers et Capitaux, *Critique of Anthropology*, Vol. 2, No. 8, pp. 3–32, <https://doi.org/10.1177/0308275X7700200802>
- O'Laughlin, B., 1995, *Myth of the African Family in the World of Development*, London, UK: Routledge, pp. 63–91.

- Osabuohien, E. S., 2014, Large-scale agricultural land investments and local institutions in Africa: The Nigerian case, *Land Use Policy*, Vol. 39, pp. 155–165, <https://doi.org/10.1016/j.landusepol.2014.02.019>
- Ossome, L. and Naidu, S., 2021, *The Agrarian Question of Gendered Labour*, Cham: Springer Books, pp. 63–86.
- Oya, C., 2001, Large- and Middle-scale Farmers in the Groundnut Sector in Senegal in the Context of Liberalisation and Structural Adjustment, *Journal of Agrarian Change*, Vol. 1, No. 1, pp. 124–163, <https://doi.org/10.1111/1471-0366.00005>
- Oya, C., 2002, Groundnut production crisis and liberalisation in Senegal: A case study of large-middle farmers.
- Oya, C., 2013, The Land Rush and Classic Agrarian Questions of Capital and Labour: A systematic scoping review of the socioeconomic impact of land grabs in Africa, *Third World Quarterly*, Vol. 34, No. 9, pp. 1532–1557, <https://doi.org/10.1080/01436597.2013.843855>
- Oya, C. and Pontara, N., 2015, *Rural Wage Employment in Developing Countries: Theory, Evidence, and Policy*, London, UK: Routledge.
- Oyewumi, O., 1997, *The Invention of Women: Making An African Sense of Western Gender Discourses*, University of Minnesota Press.
- Parreñas, R., 2015, *Servants of Globalisation: Migration and Domestic Work*, 2nd ed., Redwood City, CA: Stanford University Press, <https://doi.org/10.1515/9780804796187>
- Patnaik, U., Moyo, S. and Shivji, I., 2011, *The Agrarian Question in the Neoliberal Era: Primitive Accumulation and the Peasantry*, London, UK: Pambazuka Press.
- Pollard, J., McEwan, D. C., & Hughes, D. A., 2011, *Postcolonial Economies*, Zed Books Ltd.
- Portes, A., 1999, La mondialisation par le bas, *Actes de la Recherche en Sciences Sociales*, Vol. 129, No. 1, pp. 15–25, <https://doi.org/10.3406/arss.1999.3300>
- Razavi, S., 2017, Agrarian debates and gender relations: ‘Now you see them, now you don’t’, in Verschuur, C., ed., *Du grain à moudre: Genre, développement rural et alimentation*, Geneva: Graduate Institute Publications, pp. 47–58, <http://books.openedition.org/iheid/6748>
- Reyna, S. P. and Downs, R. E., 1999, *Deadly Developments: Capitalism, States and War*, Hove, UK: Psychology Press.
- Salem, S., 2018, "Intersectionality and its discontents: Intersectionality as traveling theory", *European Journal of Women's Studies*, 25(4), 403–418, <https://doi.org/10.1177/1350506816643999>
- Sall, M., International Institute for Environment and Development (IIED), Human Settlements Programme, 2011, *Climate change, adaptation strategies and mobility: Evidence from four settlements in Senegal*, London, UK: IIED.
- Schoneveld, G., 2011, *The anatomy of large-scale farmland acquisitions in sub-Saharan Africa*, Bogor: Center for International Forestry Research (CIFOR), Indonesia, <http://www.cifor.org/library/3732/the-anatomy-of-large-scale-farmland-acquisitions-in-sub-saharan-africa/>

- Shah, A. and Lerche, J., 2020, Migration and the invisible economies of care: Production, social reproduction and seasonal migrant labour in India, *Transactions of the Institute of British Geographers*, Vol. 45, No. 4, pp. 719–734, <https://doi.org/10.1111/tran.12401>
- Sow, F., 1986, Femmes africaines, emploi et division internationale du travail: Le cas du Sénégal, *Labour, Capital and Society / Travail, Capital et Société*, Vol. 19, No. 2, pp. 200–217.
- Sow, F., 1992, *Femmes et Tenure Foncière Au Sénégal*, paper prepared at Université Cheikh Anta Diop, <https://idl-bnc-idrc.dspacedirect.org/bitstream/handle/10625/13238/99474.pdf?sequence=1>
- Stevano, S., 2014, *Women's work, food and household dynamics: A case study of Northern Mozambique*, PhD dissertation, SOAS, University of London, <https://doi.org/10.25501/SOAS.00020317>
- Stevano, S., Ali, R. and Jamieson, M., 2021, Essential for what? A global social reproduction view on the re-organisation of work during the COVID-19 pandemic, *Canadian Journal of Development Studies*, Vol. 42, Nos. 1/2, pp. 178–199.
- Tandian, A., 2015, Variations environnementales, mobilité et stratégies d'adaptation au Sénégal, *Alternatives Sud*, Vol. 22, No.1, pp. 177–189, <https://dialnet.unirioja.es/servlet/articulo?codigo=5367346>
- Tandian, A., 2016, De la Mondialisation des Terres à la Individualisation des Profits: Quand l'accaparement des Terres Redéfinit les Structures Sociales dans la Vallée du Fleuve Sénégal, Proceedings of the African Futures Conference, Vol. 1, No. 1, pp. 226–240, <https://doi.org/10.1002/j.2573-508X.2016.tb00061.x>
- Tarrius, A., 2002, *La mondialisation par le bas. Les nouveaux nomades des économies souterraines*, Paris: Editions Balland, <https://halshs.archives-ouvertes.fr/halshs-00491269>
- Tiquet, R., 2014, Migrations protestataires et résistance au travail forcé en AOF, 1900–1946, *Hommes and migrations. Revue française de référence sur les dynamiques migratoires*, Vol. 1307, pp. 166–169, <https://journals.openedition.org/hommesmigrations/2913>
- Top, A., 2014, Évolution des systèmes de production agricole dans un contexte de changement climatique et de migration et effet de genre dans les trois zones éco-géographiques de la région de Matam au Sénégal, PhD thesis, Université Toulouse le Mirail - Toulouse II, <https://tel.archives-ouvertes.fr/tel-01141123>
- Touré, O. and Seck, S. M., 2005, Family and commercial farming in the Niayes area of Senegal, *Globalizations*, Vol. 18, No. 3, pp. 339–354, DOI: 10.1080/14747731.2020.171692257.
- Tsikata, D., 2016, Gender, Land Tenure and Agrarian Production Systems in Sub-Saharan Africa, *Agrarian South: Journal of Political Economy*, Vol. 5, No. 1, pp. 1–19, <https://doi.org/10.1177/2277976016658738>
- Tsikata, D. and Yaro, J. A., 2014, When a Good Business Model is Not Enough: Land Transactions and Gendered Livelihood Prospects in Rural Ghana, *Feminist Economics*, Vol. 20, No. 1, pp. 202–226, <https://doi.org/10.1080/13545701.2013.866261>

- Van den Broeck, G., Swinnen, J. F. M. and Maertens, M., 2016, Global Value Chains, Large-Scale Farming, and Poverty: Long-Term Effects in Senegal (SSRN Scholarly Paper ID 2828093), Social Science Research Network. <https://doi.org/10.2139/ssrn.2828093>
- Van Dijk, R., Foeken, D. and De Bruijn, M., eds, 2001, *Mobile Africa: Changing Patterns of Movement in Africa and Beyond*, Leiden: Brill.
- Veltmeyer, H. and Wise, R. D., 2016, *Agrarian Change, Migration and Development*, Rugby: Practical Action Publishing, pp. 1–160, <https://doi.org/10.3362/9781780449166>
- Verma, R., 2014, Land Grabs, Power, and Gender in East and Southern Africa: So, What's New? *Feminist Economics*, Vol. 20, No. 1, pp. 52–75, <https://doi.org/10.1080/13545701.2014.897739>
- Vicol, M., 2017, Is contract farming an inclusive alternative to land grabbing? The case of potato contract farming in Maharashtra, India, *Geoforum*, Vol. 85, pp. 157–166. <https://doi.org/10.1016/j.geoforum.2017.07.012>
- Werner, M., Strauss, K., Parker, B., Orzeck, R., Derickson, K., & Bonds, A., 2017, Feminist political economy in geography: Why now, what is different, and what for? *Geoforum*, Vol. 79, pp. 1–4. <https://doi.org/10.1016/j.geoforum.2016.11.013>
- Whitehead, A. and Kabeer, N., 2001, Living with uncertainty: Gender, livelihoods and pro-poor growth in rural sub-Saharan Africa, Working Paper Series 134, Brighton: IDS, <https://opendocs.ids.ac.uk/opendocs/handle/20.500.12413/3896>
- Win, E. J., 2004, Not Very Poor, Powerless or Pregnant: The African Woman Forgotten by Development, *IDS Bulletin*, Vol. 35, No. 4, pp. 61–64, <https://doi.org/10.1111/j.1759-5436.2004.tb00156.x>



Evolution of Zimbabwe's Maize Innovation Ecosystems: Building an Institutional Innovation Infrastructure that Supported Food Security

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Abstract

This article focuses on some of the historical innovation institutional infrastructures in Zimbabwe that supported the genesis of a vibrant maize sector, and analyses institutions for technology, policy, skills, knowledge development and attendant financing mechanisms. We discuss the country's maize innovation ecosystems, focusing on the technological capabilities in breeding and extension services, the architecture of financial institutions to support agriculture, and bridging institutions that supported technology adoption and innovation diffusion. In the process, we highlight elements of co-evolution, co-specialisation, collaboration and linkages amongst innovation communities for maize over a period spanning the pre- and post-independence eras. Our discussion covers the uneven colonial institutional, technological and financial support availed to white commercial farmers and how the shift in focus of government policy and support post-independence, resulted in the centre of gravity shifting to communal farmers, who now contribute the bulk of maize production. We discuss the critical roles played by Agritex (a technology broker and accelerator) and a state procurement agent (the Grain Marketing Board) as a market creator and signalling tool, as well as how specialised agriculture financing by state and commercial banks supported the rise of maize as a food security crop. Our key argument is that there were focused knowledge and technology flows between government research institutions, the private sector and others, such as the Seed Maize Association, which was involved in seed multiplication and marketing to the white commercial farmers pre-independence. This relationship shifted after independence in order to support small-scale commercial farmers, who were mainly black farmers.

Keywords: Innovation ecosystems, collaboration, co-complementation, technological capabilities, bridging institutions, innovation

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Résumé

Cet article porte sur certaines infrastructures institutionnelles et historiques, d'innovation au Zimbabwe qui ont soutenu la création d'un secteur du maïs dynamique. Il analyse la technologie, la politique, les compétences, le développement de connaissances et les mécanismes de financement à l'aune des institutions qui leur sont associés. Nous discutons des écosystèmes d'innovation dans la culture du maïs dans le pays, en nous focalisant sur les capacités technologiques dans les services de production et de vulgarisation, l'architecture des institutions financières qui soutiennent l'agriculture, et les institutions-relais favorables à l'adoption de la technologie et la diffusion de l'innovation. Cet article met en lumière les éléments de co-évolution, de spécialisation, de collaboration et de liens entre les communautés d'innovation pour la culture du maïs, sur les périodes pré- et post-indépendance. Notre argumentation couvre le soutien institutionnel, technologique et financier colonial inégal dont bénéficiaient les exploitations agricoles commerciales appartenant aux blancs et la manière dont, après l'indépendance, le changement d'orientation de la politique gouvernementale et du soutien a entraîné le déplacement du focus vers les agriculteurs communautaires, qui contribuent désormais à l'essentiel de la production de maïs. Nous discutons des rôles importants joués par Agritex (courtier et accélérateur de technologies) et un agent d'approvisionnement de l'État (Grain Marketing Board) en tant qu'indicateurs et créateurs de marchés, ainsi que de la manière dont le financement agricole spécialisé par l'État et les banques commerciales a soutenu la montée en puissance du maïs en tant que culture de sécurité alimentaire. Notre argument principal est qu'il existait des flux ciblés de connaissances et de technologies entre les institutions gouvernementales de recherche, le secteur privé et d'autres, comme la Seed Maize Association, qui, avant l'indépendance, était impliquée dans la multiplication et la commercialisation de semences auprès des agriculteurs commerciaux blancs. Cette relation a évolué après l'indépendance pour soutenir les petits exploitants, qui sont principalement des agriculteurs noirs.

Mots-clés : écosystèmes d'innovation, collaboration, co-complémentation, capacités technologiques, institutions-passerelles, innovation

Introduction

This article discusses the peculiar case of the Zimbabwean maize innovation ecosystem, whose evolution is intricately interwoven with strands of the political economy of colonialism, enclave colonial economies' centre-periphery industrial dynamics, and sustained local industrial capabilities building accelerated by WWII trade and commerce disruptions (Pangeti et al. 2000; Phimister 2000; Riddell 1990). The peculiarity of this case

emerges from six perspectives: the strategic linkages of the state-industry-industry associations nexus, a form of unofficial public-private partnership (PPP); directed resource allocations to institutions building that supported organisational co-evolution and collaborations within and external to the agricultural sector; evolution of a technology and innovation institutional infrastructures that drove local technological capabilities building; agriculture-specific public and private financing mechanisms; bridging or broker institutions, such as agricultural extension services, and the role they played in technology and innovation adoption and diffusion; and the Grain Marketing Board (GMB), an aggregator that drove market formation and signalling, thereby promoting maize production. We argue that what drove the rise and dominance of maize as a cereal crop, and its impact on food security was the state, private sector and other institutions' co-evolution, collaboration, co-specialisation and co-complementation within the context of a technological innovation system. Value creation was embedded in building maize research, innovation and translation capabilities in breeding, seed maize trials, seed maize production and marketing to farmers. We acknowledge that, pre-1980, the non-inclusive system was built on racial grounds with specific agricultural mechanisation and production policies that allocated resources and technologies to only white commercial farmers. Pre-1980, there was no concerted programmed policy and resource allocation to support indigenous smallholder farmers (see Table 1).

Although not native to Zimbabwe or Africa, maize has become an important staple grain for the country and the southern African region, and a key crop for commercial, small-scale and communal farmers in Zimbabwe. It is believed that maize, with its origins as the teosinte plant in Mexico, was introduced by Portuguese traders to the African continent around the sixteenth century. It later moved inland from the coastal areas, taking off in the early twentieth century with the advent of white settlers (Byerlee and Heisey 1997). Compared to local traditional grains, maize was more attractive because of its ease of storage and processing (see Table 1). Variety improvement to suit semi-arid agri-ecological regions sparked intensive breeding as early as 1909 (Zerbe 2001). Maize became a significant contributor to food security, rising over the years to contribute 36 per cent of all cereal calorific intake in the SADC region by 2011 (Grant et al. 2012). During the same period, cereals constituted 62 per cent of total diet; maize contributed 76 per cent of the cereals diet and 47 per cent of total diet (ibid). Maize is the staple crop for up to 98 per cent of the population, and excess harvest contributes financial resources for about 60 per cent of communal farmers. Consequently, it is not surprising that annually more than 30 per

cent of Zimbabwe's Ministry of Agriculture's input budget is allocated to seed maize procurement for under-resourced communal farmers, and the remainder allocated to fertiliser procurement (Kassie et al. 2017).

The evolution of Zimbabwe's maize innovation ecosystem is linked to the promise of the 'second Rand' (the discovery of gold in Zimbabwe), based on initial gold findings in South Africa. The mining ventures failed, triggering a shift to agriculture, which led to the genesis of land dispossession (Wild 1992; Helmsing 1990) and, in turn, the liberation war and land redistribution after independence. The shift to agriculture was propelled and supported by the pervasive use of laws such as the Land Apportionment Act of 1894, which forcibly pushed indigenous communities off fertile soils to infertile sandy soils in the 'tribal trusts', or communal areas. For a more detailed discussion on land policy and land redistribution, and how the law was used to dispossess and disenfranchise indigenous populations, see Rukuni (1994). During the early days of mining, the foreign miners interacted harmoniously with local farming communities, who traded agricultural produce for food with them (Wild 1992). However, the shift to agriculture required labour and there were shortages of farm and mine labour. Again, the law was perversely used to coerce people to become farm labourers, through the introduction of the hut tax (Wild 1992).

We focus on Zimbabwe for three reasons: Zimbabwe was the first country in the world to locally produce a single-cross hybrid – the famous SR52 (Southern Rhodesia 52); the country developed a local vibrant and sustainable seed maize development and production sector, which successfully launched numerous maize varieties tailor-made to local conditions, which improved food security in the country and region; and after the 2000s, local seed companies such as SeedCo expanded into eastern and southern African markets, demonstrating their market leadership.

What is of interest are the key state, private and other sectors' institutional infrastructures that supported innovation and technological development in the seed maize sector, human capital and skills development in (initially, racially segregated) agricultural tertiary educational institutions, the role played by the financial services sector, and agriculture supporting industries. We also focus on the Agricultural Technical and Extension Services (Agritex) role as a key technology and innovation broker as well as legitimisation tool for new maize varieties (new technologies) promotion, adoption and diffusion. From a technological innovation systems perspective we examine the intervention of the GMB (Grain Marketing Board), as another legitimisation tool which was critical for market formation and signalling.

Our interests lie in exploring knowledge, technology and financial flows, how they supported rapid local technological capabilities development, and how particular institutional infrastructures emergence supported the historically nascent maize innovation ecosystem. The central argument rests on how Zimbabwe (then Rhodesia) developed linkages and collaborations between different knowledge production systems (elsewhere called the research economy and the commercial economy) to forge strategic technological capabilities development. These efforts were supported by innovation/technology brokers who bridged nascent value-chain gaps to create markets for maize and processed maize products. The argument also focuses on the importance of institutional and infrastructural architectures' co-evolution, collaboration, co-specialisation and co-complementation to support the evolution of the Zimbabwean maize innovation ecosystem.

The rest of the article is set up as follows: we discuss the conceptual framework, followed by the methods; an analysis of the four key elements of the article: (i) technology and innovation institutional infrastructures, (ii) technological capabilities building, (iii) financing and bridging institutions critical for innovation/technology adoption, and (iv) diffusion as well as market formation and signalling. The text then proceeds to the discussion and conclusion sections.

Conceptual Framework

Our conceptual framework draws from innovation ecosystems – the Rogers Innovation Diffusion Model, technological innovation systems and Agricultural Innovation Systems (AIS) – to contextualise the sociotechnical systems, institutions, actors, collaborations, linkages and policy strategies that drove the rise and dominance of maize as a food security crop in Zimbabwe.

Innovation ecosystems

Innovation is an iterative and non-linear process that spans technological artefacts, processes and procedures, and novel social arrangements such as marketing and organisation. Ayele et al. (2012: 334) define innovation as 'Successful introduction and exploitation of knowledge and technologies for social and economic benefit.' Klerkx et al. (2012:458) highlight the importance of social relations and the sociotechnical imaginaries of innovation as follows:

Innovation is not just technology, but is rather a comprehensive vision of what the future should look like and which requires changes in many ambits. Innovation is driven by people's needs, ambitions and dreams, and requires that people at different positions in society change the way they work and live.

Achieving these sociotechnical imaginaries depends on resource allocation and government policies and strategies that shape innovation trajectories designed to achieve particular social, economic and technological goals. Klerkx et al.'s (2012) view above also addresses criticisms of the static nature of contemporary innovation systems frameworks, their ex post analysis and inability to project forwards.

Turning to innovation ecosystems, they are defined as collaborative networks (Rabelo and Bernus 2015) that involve communities for innovation that are linked by demand and supply. They are also composed of networks of knowledge generators, innovators, regulators and funders, amongst others (Wang 2009). Innovation ecosystems pay greater attention to intricate connections amongst diverse innovation actors, open innovation and emphasise 'niches' for different agents (Oh et al. 2016). We adopt the synthesised definition of Granstrand and Holgersson (2020:3), which states that innovation ecosystems are '... the evolving set of actors, activities and artefacts, and the institutions and relations, including complementary and substitute relations, that are important for the innovative performance of an actor or a population of actors'. Other definitions include mechanisms for goal-oriented strategies to create new goods and services, focusing on elements such as actors, capital, infrastructure, regulations, knowledge and ideas, and non-tangible elements such as interface, culture and architectural principles. Gobble (2014:55) describes innovation ecosystems as 'dynamic, purposive communities with complex, interlocking relationships built on collaboration, trust and co-creation of value and specialisation in the exploitation of a shared set of complementary technologies or competencies'. The major difference between predecessor innovation systems and innovation ecosystems is the former's non-recognition of the dissimilarity between 'innovation events and innovation structure' (Mercan and Goktas 2011) as well as the impetus to innovate. As a concept, innovation ecosystems borrow from biological systems to conceptualise the relational linkages, collaborations and feedback mechanisms amongst economic agents, economic relations and non-economic constituents (which are comprised of institutions, technology, sociological interactions and culture) (Rabelo and Bernus 2015; Mercan and Goktas 2011). Amongst these diverse definitions of innovation ecosystems, the common elements and emphasis are on institutions and the facets of co-evolution, co-specialisation, competition, artefacts embodied in products and technologies, collaboration and complementation, and actors/agents.

Ritala and Almpanopoulou (2017) argue that innovation ecosystems, similar to innovation systems, are plagued with varied definitions and a lack

of theoretical depth. Another criticism of innovation ecosystems is the danger of using metaphors. Papaioannou, Wield and Chataway (2009) caution that innovation ecosystems are not evolved but are a product of design and subject to governance systems. Cognisant of the aforementioned, we still adopt the innovation ecosystems concept because of its useful emphasis on value creation, institutional co-evolution, collaboration, complementation and interaction of a population of innovation actors. We particularly highlight its further utility in identifying strategic linkages and collaboration of state, private and other organisations, whose goals are knowledge and innovation generation, adoption and diffusion. A major challenge of application of innovation ecosystems or innovation systems frameworks to agriculture in an African country are their origins in developed countries and application to primarily the manufacturing sectors. Application to agriculture is difficult because of the complex hybrid interactions between the state, firm and non-firm actors. We use agricultural innovation systems to bridge these shortcomings and link the state, firm and non-firm actors through policies that support knowledge and innovation, and connecting innovation and knowledge generators and users through broker institutions with(in) broader agriculture value-chain actors.

Agricultural innovation systems, technology diffusion and adoption

Spielman and Birner (2008) proposed an agricultural innovation system framework composed of three central pillars: (i) agricultural research (public, private and civil society) and education systems (primary, secondary, tertiary education and vocational training); (ii) bridging/broker institutions embodied in stakeholder platforms, agricultural extension systems and contractual agreements; and (iii) agricultural value-chain actors and organisations.

The role of the first pillar is knowledge and innovation generation, and human skills and technological capabilities development. Bridging institutions are broker institutions that serve as conduits for innovation translation. They aid the process of technologies' conversion into economically useful outputs in the third pillar through agricultural value-chain actors and organisations. The three pillars are built on the foundations of innovation policy and investment as well as agricultural policies. These in turn promote linkages to other economic sectors, and science, technology and innovation strategies. Informal institutions, practices and attitudes drive issues such as trust, learning and routines (Spielman and Birner 2008). The bridging institutions (in this paper the extension services) are instrumental in technology adoption and diffusion. We use the Rogers Innovation Diffusion Model to cover this aspect of technology adoption and diffusion.

Rogers (1962) argued that innovation diffuses through social systems. Focusing on the adoption of hybrid corn (maize) in the USA from the 1930s to 1950s, Rogers (1983: 34–35) defined innovation diffusion as ‘the process by which an innovation is communicated through certain channels over time among the members of a social system. Diffusion is a special type of communication concerned with the spread of messages that are new ideas.’ Rogers highlighted seven key factors that influence innovation diffusion: compatibility of the new technology or innovation with current ways of doing things and social norms; complexity of the innovation and ease of trialling; ease of evaluating impact of the innovation after the trial; whether the decision is made collectively, individually or by a central authority; communication channels used to acquire information; social systems in which adopters are embedded, norms and degrees of interconnectedness; and the extent of change agents (e.g. extension agents) promotion effects.

In the case of Zimbabwe, Agritex was a critical broker institution in new technology introduction, adoption and innovation diffusion. Rogers’ Innovation Diffusion Model has five key elements: *knowledge* – exposure to a technology and understanding its use; *persuasion* – positive or negative perception creation; *decision* – adoption decision; *implementation* – actual use of the technology; and *confirmation* – corroboration or rejection based on outcome, which leads back to *knowledge*, iteratively. We argue that these five stages were the remit of Agritex and, as we elaborate later, they were enabled by accrued social and cultural capital. The extension officers (technocrats) lived in the same communities as the farmers and this proximity promoted trust between the community and the technocrats who had attended agricultural colleges and acquired knowledge of local soils, plant varieties, agronomy and other technical know-how through linkages with other tertiary institutions, seed and fertiliser companies, and the Ministry of Agriculture.

Methods

The article uses a case-study method, which is appropriate when investigating a phenomenon in its real-life context (Yin 2003). It is based on a desk study supported by key informant interviews with respondents who had in-depth knowledge of agriculture, agricultural institutions and agricultural financing in Zimbabwe. Data collection for this article involved extensive review of peer-reviewed and grey literature on Zimbabwe’s agricultural production, financing, technology and supporting institutions. This secondary literature was supported as described earlier with key informant interviews with respondents who worked at Agritex, the Ministry of Agriculture and financial

institutions, as well as farmers – especially the communal and small-scale farming sectors. The interviews with key informants were telephonic as the study was finalised during the Covid19 pandemic. Some of the data was from the author's critical reflection of over a seven-year period of working in the financial services sector as a banker, managing a portfolio composed of seed maize companies, agro-processing industries, an Agro-research institution, the fertiliser manufacturing industry, food manufacturing companies and the broader manufacturing sector in Zimbabwe. Notes were taken during telephonic interviews, and key themes were identified manually. These key themes are presented later.

Zimbabwe's Maize Revolution

Zimbabwe's Green Revolution was launched in 1960, five years before India's, and was predicated on high-yielding maize varieties such as SR52 (Southern Rhodesia #52), a world-first, single-cross hybrid which came from twenty-eight years of indigenous research (Byerlee and Eicher 1997). It was based on rain-fed maize cultivation, compared to India's irrigated wheat and rice crops. As described earlier, historically, maize evolution was spearheaded by white commercial farmers and not indigenous smallholder farmers, who were ignored in pre-independent nations in the 1960s generally (ibid). At independence (1980), the nationalist Zimbabwean government launched programmes targeting smallholder farmers to increase food and cash crop production. These programmes were supported by the distribution of hybrid maize varieties, and policies that opened up access to credit, guaranteed good maize prices from GMB, and marketing subsidies. This policy thrust resulted in communal and resettled farmers increasing local maize production to surpass that of the historically advantaged white commercial farmers.

Zimbabwe displays four innovation infrastructure preconditions: technology and innovation institutional infrastructures that supported new technology and innovation generation in public and private research organisations based on collaboration and co-complementation; development of technological capabilities in breeding and extension services; evolution of financial systems architecture to specifically support agriculture; and availability of bridging/broker institutions critical for technology and innovation adoption and diffusion.

We discuss each of these facets in turn and show how their form, structure and function, albeit shaped on colonial legacies and reimagined for equity post-independence, drove the rise and dominance of maize as a key food security crop. We also show the shift in dominant maize grower farmer communities shaped by research and production expansion priorities

changes after independence, which were directed to solving smallholder challenges (Poulton et al. 2002). However, there was huge disinvestment from public agricultural research institutions activities in the 1990s precipitated by ESAP (Economic Structural Adjustment Programmes). This led to significant and still persisting deceleration of state-led agricultural research and innovation activities.

Co-evolution of supporting technology and innovation infrastructures

In the pre-1980 epoch, there was a perverse use of the law and allocation of scarce resources to support the development of inequitable technology and innovation institutional infrastructures that responded to challenges faced by white farmers. Table 1 shows how, from 1890, land settlement laws and the hut tax were used to confiscate land and assure a pool of cheap labour to farmers. New government departments were formed to address specific issues. They constitute part of the innovation ecosystem and which is broadly classified into three categories: knowledge, technology and innovation generators; policy and practice organisations; and brokers or bridging institutions. We detail these developments below.

There was co-evolution of knowledge, technology and innovation generators to address specific challenges through establishment of organisations. Some of these organisations include the Department of Agriculture (established 1903), Salisbury Experimental Station (1909), Rhodesia Seed Maize Association (1940), Department of Research and Specialist Services (DRSS) (1948), Agricultural Research Council of Central Africa (ARCCA) (1961) and Agritex (Agricultural Technical and Extension Services) (1980). The roots of Agritex go back to 1972 through the establishment of the Department of Conservation and Extension (Conex) and the Department of Agricultural Development (DEVAG). Agritex was an important institution whose remit spanned knowledge, technology and innovation adoption and diffusion through its brokers or bridging institution roles. The Department of Agriculture, established in 1903, was instrumental in embedding scientific research in agriculture. Its establishment marked the genesis of a culture of research and innovation focusing predominantly on tobacco, cotton and maize – key cash crops for export. The Salisbury Experimental Station, a complementary research institution, was set up in 1909. Over the next four decades trial sites and demonstration stations expanded (Roseboom et al. 1995). Technology and innovation efforts were underpinned by these early breeding programmes. Zerbe (2001) reports that formal breeding programmes started in 1909, with a primary focus on adapting varieties to local conditions. Thus, over a period

of nineteen years – from the early settlers’ arrival (1890) to formal breeding – two institutions that supported research and innovation in agriculture the Department of Agriculture and the Salisbury Experimental Station were established within six years of each other. Testament to agricultural research investment and technological efforts, UNESCO (2014) reports that 18.11 per cent of scientific articles produced in the period 1960 to 1979 were on agriculture, second to general internal medicine, at 22.19 per cent. Due to this investment in technology, research and innovation, there was an 18 per cent increase in maize exports between 1909 and 1930, driven by the demand for white starch imports by England’s starch industry.

Table 1: A brief scan of policy and practice events that drove the evolution of maize production in Zimbabwe

Year / Period	Key Policy or Practice Event	Driving Factor	Source
16 th century	Maize arrives on the African continent through Portuguese traders. Maize moved inland from the coast.	Easy to store and process compared to traditional grains such as millet.	Byerlee and Heisey (1997)
1890+	In Southern Africa, maize took off when white settlers moved in around 1890.		
1890–1980	Settlers gained control over prime agricultural land (regions 1 and 2 where large-scale commercial farms constituted 52.7% and 63.7% of the areas respectively).	Land settlement acts passed, which guaranteed white dominance and locals’ poverty. Maize was important as food source for mine labourers.	Herbst (1990); Alumira and Rusike (2005)
	Land confiscation and depressed wages for farm and migrant workers, hampering profitability of small-scale farmers.	Assured large pool of labourers for large commercial farms and generating a ‘good’ macroeconomic environment for commercial farmers	Eicher and Kupfuma (1997)
1903	Department of Agriculture was established.	Building institutional infrastructural and organisational capabilities to support agricultural development, improve varieties and adaptation to local climatic conditions	Roseboom et al. (1995).
1909	Salisbury Experimental Station set up. Formal breeding programmes start.		Zerbe (2001); Roseboom et al. (1995).
1909–1930	Maize exports increased annually at 18 per cent	Demand for white maize in England’s booming starch industry. Institutionalisation of research and breeding efforts to meet demand.	Masters (1994); Rusike (1995); Zerbe (2001).

1930+	Maize becomes an important crop for the smallholder farmers. Hybrid breeding programmes commence in earnest.	Maize serves as both a subsistence and cash crop. Expanding railway infrastructure encourages maize production.	
1931	Maize Control Board established.		
1940	Zimbabwe (Rhodesia) Seed Maize Association (SMA) – comprising a small group of farmers who produced seed under supervision of Ministry of Agriculture. Government researchers focused on breeding and production of foundation seed.	Government lacked resources to commercially produce hybrid varieties that performed better than open pollinated varieties in low rainfall regions. They encouraged the private sector to do the work. SMA had exclusive rights to multiply and market government-produced hybrid maize, a version of a Public Private Partnership, and assured a market for their output.	Tattersfield and Havazvidi (1994) Zerbe (2001)
1945	Land and Agricultural Bank established.	Provision of medium- to long-term loans. Institutional infrastructure enhancement to solve the capital needs of the sector.	Pandey and Ramnarayan (1994)
1948	Department of Research and Specialist Services (DRSS)	Bridging institution between the public and private research organisations and extension services	UNESCO (2014)
1949	Commercial release of hybrid varieties. Distributed first hybrid maize to commercial farmers.	SR1 double hybrid produced in 1949 from local inbred lines by SMA.	Zerbe (2001) Rusike (1995)
1950s	Government released 12 new higher yield hybrids with improved grain properties and agronomy traits. However, government policy was still skewed towards white large-scale commercial farmers Grain Marketing Board established.	Demand for hybrids grew. Government started paying attention to neglected small-scale farmers who were now accounting for 46% of maize production.	Zerbe (2001)
1952	Department of Native Agriculture procured 5kg packs of hybrid maize from SMA to distribute to small-scale farmers.		
1954	Government researchers breeding programmes focus on unpredictable rainfall areas.	More than 60% of arable land under maize commercial crops.	Rusike (1995)

1954–1965	Diminishing role of small-scale farmers because of skewed policies that supported white farmers at the expense of black farmers.	Government focused on white farmers and small-scale farmers' contribution fell to 14% by 1965	Zerbe (2001)
1960	Government released the famed SR52, the world's first single-cross hybrid.	Originally developed for high precipitation and good soil areas it was also productive under poorer soils and rain conditions.	Rusike (1995)
1961	Agricultural Research Council of Central Africa (ARCCA).	Researching soil fertility, controlling the tsetse fly problem and cotton pest control	UNESCO (2014)
1967	Agricultural Marketing Authority established.		
1970s	Varieties R200, R201 and 215 released.	These varieties were targeted at large-scale commercial farmers working on marginal land to diversify production.	Friis-Hansen (1995)
1971	Agricultural Finance Corporation established by amalgamating the Land and Agricultural Bank with the Agricultural Assistance Board.	Rationalises financial facilities offered by government to the agricultural sector.	Pandey and Ramnarayan (1994)
1972	Department of Conservation and Extension (Conex) and Department of Agricultural Development established.	Genesis of agricultural extension services by Emory D. Alvord.	Hanyani-Mlambo (2002).

Source: Constructed by author from references identified in the table

Turning to broker and bridging institutions, the Department of Research and Specialist Services (DRSS), established in 1948 (UNESCO, 2014), was a critical bridging institution between public and private research organisations. It was linked with the agricultural extension services, which in turn served as a bridge between the innovators and the farmers (Figure 2). The third category of policy and practice organisations include the Agricultural Research Council of Central Africa (ARCCA), which was established in 1961. Part of its remit included research into soil fertility and the control of tsetse fly and cotton pest (UNESCO 2014). Commercial farmer associations were the key beneficiaries of interventions from organisations. They collaborated with ARCCA in various ways, and the relationship changed over time, and they worked with government research institutions on seed maize production and marketing (Table 2). In 2001 DRSS was merged with Agritex (Agricultural and Technical Extension Services) to form AREX (Agricultural Research and Extension),

which was changed to the Department for Agricultural Research for Development (DAR4D) in 2007 and back to DRSS two years later (UNESCO 2014). In addition to the DRSS, other key public research centres/stations included Henderson Research Station and Rattary Arnold Research Centre, including others spread across various provinces. Rattary Arnold Research Station (private) developed the maize varieties R200 and RR215, which were suitable for low-rainfall areas. Other private sector players in research and generation of hybrid varieties included Pannar Seed (Pvt) Ltd, Pioneer Hi-Bred Seed (Pvt) Ltd., Monsanto Zimbabwe and, of significant importance in research and new seed variety production, SeedCo (Pvt) Ltd. We argue that these public-public, public-private collaborative and co-complementary institutional arrangements set the foundation for technology and innovation infrastructures. They in turn supported knowledge, technology and innovation generation which were important components of the Zimbabwean maize innovation ecosystem. Key informant interviews suggest that the technology and innovation institutional infrastructure setup was important on two fronts: the revolving door phenomenon characterised by skilled researchers and breeders moving between the public and private sectors; and the generation of trust and social capital, which was important for effective cross-sectoral collaborations between the public and private sectors and innovator-user bridging institutions, such as agricultural extension services.

Development of technological capabilities in breeding and in the fertiliser industry

The second attribute is the development of technological capabilities in breeding, and agricultural skills critical for the extension services that drove technology and innovation adoption and diffusion. A key agriculture informant reported that Zimbabwe had an elaborate network of tertiary educational institutions that trained plant breeders, agronomists and specialists in other agricultural disciplines. He reported that some of the researchers and innovators were trained outside the country and in addition, the private sector imported technology and expertise into the country. An agriculturalist and former Agritex technocrat pointed out that the University of Zimbabwe was instrumental in training skilled personnel who later became maize breeders in the public and private sectors. He also explained that some plant breeders were trained on the job – a reflection of learning by doing. However, most breeders attained Master's and PhD degrees outside the country. The respondent further reported that agricultural colleges trained agriculturalists at diploma and certificate levels, many of whom

joined agricultural extension services. Gwebi and Blackfordby agricultural colleges were reserved for the white population during colonial times and trained up to diploma level. For the indigenous farmers, Chibelo Agricultural College trained agriculturalists at diploma level, and Kushinga Phikelela, Mlezu, Makoholi and Essexvale (now Esigodini) trained at certificate level, whereas Domboshawa trained farmers using the short courses approach. An agriculture key informant explained that development of crop-specific skills was shaped by particular institutions. For example, DRSS focused on wheat and soyabean crops. It also majored in developing capabilities in plant pathology and management, and dairy and livestock breeding. DRSS achieved this through collaborations with the private sector and the Faculty of Agriculture at the University of Zimbabwe. The respondent reported that Henderson Research Centre focused on cattle, Makoholi and Matopos research stations focused on small grains, whilst capabilities in maize were the remit of CIMMYT (the International Maize and Wheat Improvement Centre) and ICRISAT (International Crops Research Institute for the Semi-Arid Tropics). In conjunction with the local university and other collaborators, these research stations were instrumental in developing scientific and technological capabilities in plant breeding, soil and crop science, agricultural economics, hydrology and plant pathology, amongst others. A former Agritex technocrat reported that cross-crop transferable skills were developed at other state research stations, such as the Tobacco Research Board and Cotton Research Board. These plant breeding and supporting technological capabilities were instrumental in establishing and sustaining the broader communities of agricultural research and innovation. Key to this was the role of government policy, funding and support for agriculture.

Upstream input industries also played a role in technological capabilities building. In interviews with fertiliser companies dating to the early 2000s, technocrats revealed how their in-house research teams worked with agronomists and chemists in the public and private sectors to formulate new crop variety fertilisers. Up to the early 2000s, Zimbabwe had four key fertiliser companies: Windmill, ZFC (Zimbabwe Fertiliser Company), Zimphos (which is part of Chemplex) and Sable Chemicals. The genesis of fertiliser companies was linked to the need for the country to remain sustainable especially when it unilaterally declared independence from Britain, hence the historical role of fertilisers in supporting agriculture in the country. The government had a shareholding in all the fertiliser companies through their investment wing, IDC (Industrial Development Corporation) (interviews with fertiliser firms in the 2000s). The

interlink between fertiliser firms, the customisation of fertilisers for new plant varieties, and the different ecological zones, meant the country had complementary technological capabilities from the private sector supporting the maize innovation ecosystem starting from seed maize to grain production. Minde et al. (2010) provide a comprehensive analysis of the evolution of the fertiliser industry dating back to 1903 and how it responded to policy depending on the state's agriculture development priorities. Rusike et al. (1997) reiterate the fact that the agricultural system was initially set up for large-scale white farmers, and in the 1970s, fertiliser research supported extension and marketing targeted at these farmers and a few smallholder farmers, especially in high-precipitation areas. Takavarasha (1995) showed that the new Zimbabwe government made huge efforts from 1980 to support smallholder agriculture, through the procurement of seeds and fertilisers. Fertiliser sales rose from 24,000 tonnes in 1974/75 to 90,000 tonnes in 1980/81, peaking at 130,000 tonnes by 1986/87, and these levels were sustained up to 1990/91. This extended the research activities of the private sector to the emerging smallholder sector. It is important to note that technological capabilities were not limited to crop input schemes only, but also covered other support sectors, such as local agrochemical production by firms such as Agricura and specialised aerial crop-spraying using helicopters and planes by a specialist crop-dusting firm, Agric-Air, which operated from Charles Prince Airport in Mount Hampden, Harare. Specialist irrigation systems were installed and maintained by firms such as Dorre and Pitt, which had their headquarters in Harare. The development of these local capabilities in breeding, fertiliser research and other supporting crop health industries contributed to the emergence of a sustainable and resilient maize innovation ecosystem.

Evolution of financial institutions architecture to support agriculture

Public and private finance to the sector was important for supporting the research and commercial economies. The state funded the research economy, providing basic and applied research as well as translational activities. It also complemented the private sector in funding agriculture through the Agricultural Finance Corporation (AFC), which later became Agribank. Before independence, the AFC funded about 3,000 white commercial farmers but not black farmers (Pandey and Ramnarayan 1994). Established through an act of Parliament in 1971 the AFC came from the amalgamation of the Land and Agricultural Bank with the Agricultural Assistance Board. Whilst it had 6,000 clients in 1978, by 1986 and reflecting the new government's inclusivity it was handling 100,000 farmers. The unintended consequence of

this rapid expansion was the managerial and technical skills challenges that arose and high transaction costs from handling too many small loans (ibid). These challenges aside, we argue that purposive and progressive setting up of financial institutions addressed or at least tried to address agricultural financing needs, albeit initially for the minority (see Table 2).

Table 2: Key financial institutions that were instrumental in supporting agriculture in general and, by implication, maize production

Agriculture Specific Financial Institutions/ Organisations	Commercial Banks with Agri-Banking Divisions	Other Financial Institutions
1924 – Land Bank: assists large-scale farmers to acquire more land.	Barclays Bank – The Agribank division focused specifically on Agri-lending	Insurance companies
1930s – Financing of irrigation in small-scale areas, extended in 1956 to include dryland commercial farmers (see Chimedza 2006)	ANZ Grindlays, which later became Stanbic, a subsidiary of Standard Bank of South Africa	Leasing companies for acquisition of machinery and equipment
Land and Agricultural Bank – provided medium- and long-term loans	RhoBank, which at independence became Zimbank and later ZB Bank.	Building societies (see Chimedza 2006)
African Loan Development Trust	Standard Chartered Bank	
Agricultural Finance Corporation	BCCI, later CBZ Bank	
Programme-specific funding mechanisms (see text and <i>Rhodesian Farmer</i> 1970)		

Source: Pandey and Ramnarayan (1994), *Rhodesian Farmer* (1970), interviews and author’s recollection of the financial services sector

Prior to the setting up of the AFC in 1971 (Pandey and Ramnarayan 1994) there had been multiple funding schemes, which included: the Land Bank, Agricultural Diversification Scheme, Farm Irrigation Fund, Matabeleland Development Council, Agricultural Assistance Board (including Farmers’ Assistance Committee), Cold Storage Commission, Sabi-Limpopo Authority, Drought Relief, Insiza Scheme, Mkwazine Scheme, Coffee Scheme, Tenant Farming, Tenant Farm Development, Tenant Farm Contributory Purchase Scheme, Contributory Purchase Scheme, Deferred Purchase Scheme, and Ex-Servicemen’s Settlement Scheme (*Rhodesian Farmer*

1970). The AFC was set up to consolidate these disparate funding schemes for the sector and was complemented by the agribusiness divisions of commercial banks, which also advanced loans to the agricultural sector. As discussed earlier, historically the AFC financed only white commercial farmers; however, after independence it extended its services to small- and medium-scale farmers who had title deeds (interview with the son of a small- to medium-scale farmer in Zvimba District). To avoid fund diversion, the AFC did not advance funds to small- and medium-scale farmers but opted to pay directly for all farm inputs (fertilisers, seeds and agrochemicals) to the providers, and goods were delivered directly to the farmer's premises. These financing schemes for both commercial and small- to medium-scale farmers helped to fund working capital requirements, which at most could be carried for between four to six months, a tall feat for under-resourced farmers. Takavarasha (1995) provides a detailed analysis of the AFC's role in financing large-scale, and later small-scale, resettlement and communal farmers.

Commercial banks financed farmers through their agribanking divisions. A former banker recounted how commercial banks such as Zimbank, Standard Chartered Bank, Barclays Bank, Stanbic and the Commercial Bank of Zimbabwe (CBZ) (Table 2) all had agrifinancing divisions, which also focused initially on large-scale commercial farmers. In addition to banks, there was a well-developed insurance sector that insured farming operations against drought and crop failure. Insurance as a risk management tool made lending to farmers attractive to banks because, in the event of a crop failure, loans could be repaid by claiming against an insurance policy. Commercial banks factored in and depended on title deeds as security for credit appraisals and subsequent security for advanced loans. The lack of title deeds for new farmers after the land repossession exercise was a major friction point that caused banks to refuse advancing loans to new farmers. This challenge saw a drastic reduction in credit lines to the agricultural sector especially after 2003. Banks argued that they felt insecure and overexposed if they provided loans to the new farmers without tangible assets as security. Consequently, the agribanking divisions mentioned above throttled back their support to the sector and some banks closed these units. A former banker described how banks strategically resourced their agribanking divisions with agricultural graduates from agricultural colleges as well as the University of Zimbabwe. Staffing these divisions with bankers endowed with agricultural knowledge and skills allowed the financial institutions to astutely analyse and manage agricultural enterprises risk – what we describe elsewhere as financial capabilities critical for lending into technocratic operations (Banda 2013). These technically specialised agricultural and finance skilled bankers

monitored and controlled their lending operations through farm visits and detailed analysis of cropping dynamics, amongst other assessments. This finding resonates with the argument on knowledge generation and how these skilled personnel were involved in understanding and shaping both upstream and downstream value-chain activities through funding. These risk management and financing capabilities were a critical component of the financial institutions that formed the maize innovation ecosystem.

From the demand side, the GMB played a critical financing role through its grain procurement activities. It also played a critical value-chain and market role through its broader market formation, price support and signalling. GMB played three key roles: first as the government procurement agency; second, as a broker, integrator and aggregator organisation, procuring maize from all maize producers and thereby creating scale; and third, in creating market confidence for local maize production through setting pre-planting, pre- and post-harvest, pan-territorial and pan-seasonal pricing (Poulton et al. 2002) (see Figure 1). That GMB used state grain procurement as an industry policy tool to support the growth of the maize sector cannot be disputed. We have previously described this in the health sector as innovative procurement for industry development (Chataway et al. 2017). We argue that GMB, through the Ministry of Agriculture and in conjunction with the Ministry of Finance, traditionally acted as a signalling mechanism to promote maize cropping amongst the farmers and to input suppliers to the maize sector through pricing announcements (Figure 1).

Poulton et al. (2002) argue that the announcement of producer prices before the planting season served as an incentive to signal the viability or otherwise of maize cropping and the need to timeously acquire inputs, thereby fulfilling the policy goal of enabling early farmer cropping decision-making. Agribanking professionals reported that this early decision-making and planning facilitated early negotiations between farmers and their bankers on possible financing mechanisms. Pre- and post-harvest price announcements in April-May gave the government an opportunity to estimate potential crop size and risk management of stockholding levels (Poulton et al. 2002) and ensure that GMB's strategic grain reserves were not depleted. Pan-territorial and pan-seasonal pricing were tools used to signal cross-country price uniformity as well as annual producer and consumer price targets respectively (ibid). These and other policy instruments helped to level prices across the whole nation and encouraged centralised grain storage at the GMB rather than on the farm, where at times quality could be difficult to assure.

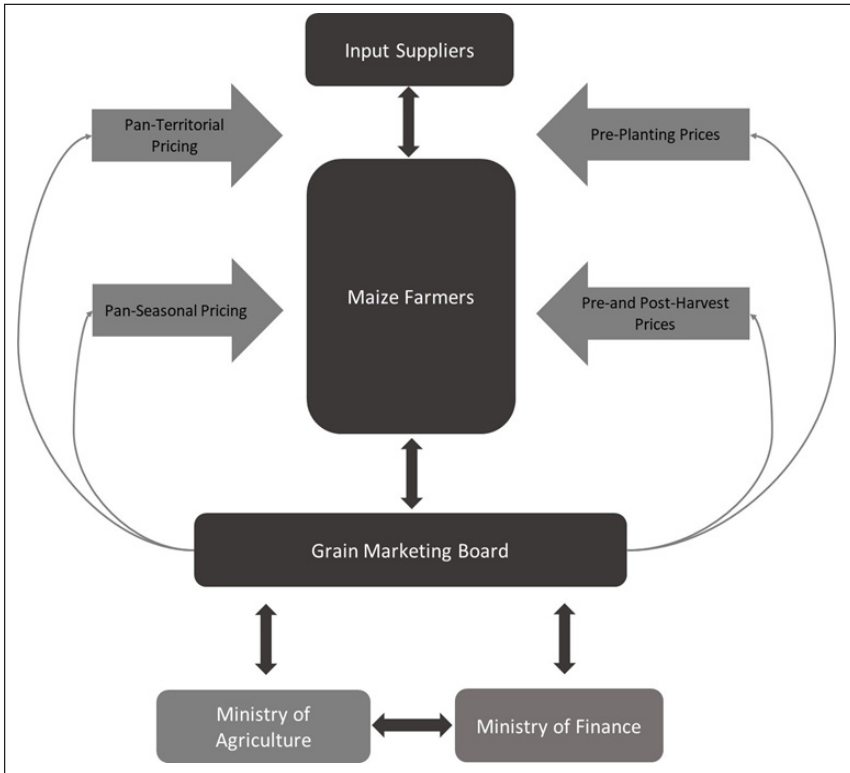


Figure 1: Market formation and signalling function of the GMB

Source: Constructed from Poulton et al. (2002) and author's input

Bridging institutions – technology/innovation adoption and diffusion

The fourth aspect that we discuss is the role that agricultural and technical extension services as well as institutional support played in creating the maize innovation ecosystem. Agricultural and technical extension services were introduced in Zimbabwe in 1972 by Emory D. Alvord; later, the Department of Conservation and Extension (Conex) and Department of Agricultural Development were established. These departments were merged in 1980 to form Agritex (Hanyani-Mlambo 2002). Agricultural extension services form the middle bridging pillar of agricultural innovation systems and in Zimbabwe, they played a pivotal role. Earlier on in this article, under technological capabilities, we discussed how agricultural training institutes trained agricultural extension officers. In this section, we discuss at a micro level how the extension officers interacted with the farmers, innovators and government policy. In an interview with a former Agritex technocrat it

emerged that agriculture extension workers were mostly trained at Chibelo, Gwebi and other colleges, graduating with certificates or diplomas; thus, the majority were generalists. The extension workers lived amongst the communities, and agricultural extension officers who had diplomas or degrees and were deemed generalists were located at district level. At provincial level there were specialists who focused on, for example, livestock (small-scale dairy or poultry) or crops – for example, cotton, for those trained at the cotton research centre in Kadoma, who knew the complete cycle of growing cotton. Located at the Agritex head office were all the specialists in irrigation, crops, farm management (who helped farmers with marketing) and plant protection. Agritex gave free advice to commercial and communal farmers, as their role was to support commercial and communal farmers in their district. Poulton et al. (2002) also report that post-1980 there was a purposive approach to redirect Agritex's extension services to the communal areas and smallholder sector, and Agritex is credited with the rapid uptake of hybrid varieties of maize in the country. This was echoed by an ex-Agritex senior manager, who, however noted that these extension services were drastically reduced during the ESAP era.

What made the extension work successful in technology and innovation adoption and diffusion was the social capital they accrued by both their lived and experiential expertise. This endowed them with the right technical, variety, input and agri-ecological zone know-how. This made it easier to navigate the Rogers Innovation Diffusion Model described earlier (knowledge, persuasion, decision, implementation and confirmation) because of the social and cultural capital the extension officers had. A key informant described how Agritex was the largest organisation in the country with grass-roots representation, which recommended the right crops, crop rotation and fertilisers based on research from DRSS, in addition to knowledge from private sector seed companies such as SeedCo and Pioneer, amongst others. In addition, Agritex collaborated with the Central Statistics Office and Meteorological Station to form an early warning unit, and using modelling and sampling they could predict farming risks. This collaborative effort was a critical link to food security and is one of the functions that are claimed to have been lost when the department was downsized.

This article has shown that this innovation brokerage role played by Agritex was instrumental in smoothing the key challenges that Rogers (1983) highlighted. As a result of the extension officers establishing trust with local farmers, and the support structure they received from district and provincial experts, it was easier to mediate technology transfer and new variety adoption and diffusion as reported by the ex-Agritex technocrat.

Discussion

Our analysis of the key elements shows that the system of innovators, the state and private sector, deployment of public-private partnerships, bridging institutions as well as upstream and downstream value actors, such as input suppliers, farmers and agroprocessors, was built on a maize innovation ecosystem that was connected by funds, knowledge and technology/product flows, as illustrated in Figure 2.

Funding flows

We have argued that the maize innovation ecosystem came about because of strategic investment and the progressive construction of a technology and innovation infrastructure that supported innovators and technology generators. Upstream technology and innovation generation was funded by the state (arrows emanating from the state on the left side of Figure 2). The state funded the government research institutions, tertiary educational institutions, Agritex and the GMB. Where resources were limited, the state entered into public-private partnerships with industry associations such as the Zimbabwe Maize Seed Association, to take technologies developed at, for example, DRSS, and progress their translation and be the sole marketer to the farmers (see Table 1) (Tattersfield and Havazvidi 1994; Zerbe 2001).

The upstream funding by the state was augmented up and downstream by commercial banks in addition to the GMB (which was state-funded). We discussed the co-evolution of the financial institutions architecture with agriculture and Figure 2 illustrates how the commercial financing of upstream actors such as fertiliser and seed companies supported the maize production value chain. The GMB – a state grain procurement agent – functioned in multiple roles: as financier (in the procurement of grain), in market signalling and market formation, and as a value-chain integrator. It connected farmers and downstream agroprocessors in the food (human and animal) and other industries as well as exports. Our analysis points to an integrated funding mechanism as a key ingredient of a sustainable maize innovation ecosystem. Zimbabwe historically managed well in this respect until 1993, with the onset of ESAP, and more recently until 2002/3, at the commencement of the land reform programme. If the country wanted to fund agriculture sustainably, we argue that learning from this historical financial institutional architecture could be useful in sustainably rebuilding agriculture instead of seeking, *de novo*, new approaches.

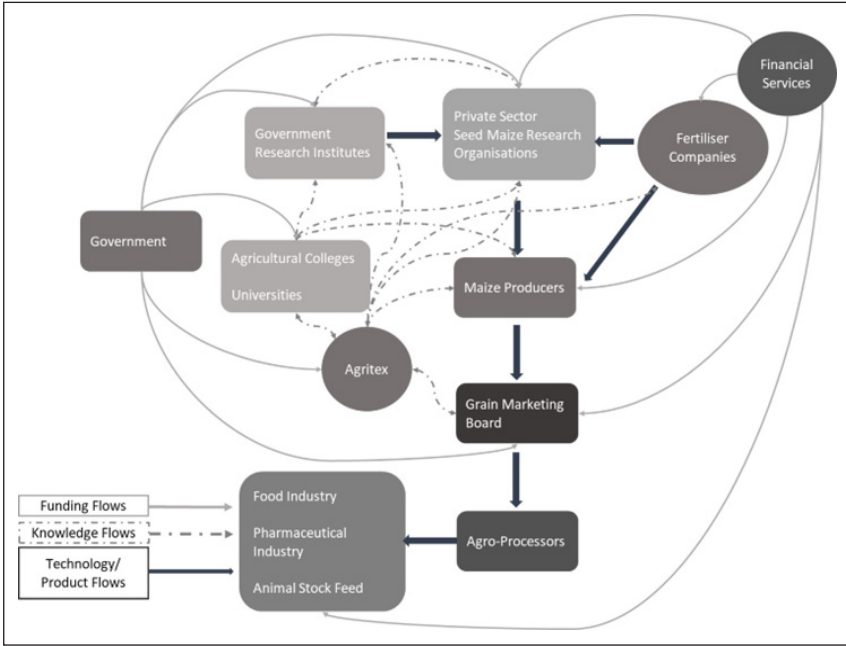


Figure 2: Illustration of funds, knowledge and technology/innovation flows and innovators and knowledge generators, bridging institutions and key value-chain actors' linkages

Source: Constructed by the author using literature in Table 2, interviews and local knowledge

Knowledge flows

Five key players were strategic to knowledge flows: government, tertiary educational institutions, Agritex, farmers and the private sector (input industry and seed maize producers). Government and private sector research institutes collaborated and co-complemented each other in technology and knowledge generation. An informal public-private partnership between the state and industry association played a critical role in innovation translation. This association was triggered by resource limitation. Figure 2 shows an abridged depiction of knowledge flows. What emerges is the complexity of the knowledge flows in multidirectional ways between the various knowledge generators, bridging institutions and other upstream and downstream maize value-chain actors. Given Zimbabwe's current challenges, a revival of the sector would call for the emergence of a coordinator and integrator institution to facilitate networking and collaborations amongst current disparate actors and organisations. However, this requires adequate

resourcing of the financial, technological, innovation and knowledge actors in the innovation communities. Given that the maize innovation ecosystem took over 100 years to emerge into the structure depicted in Figure 2, it may call for patience to resuscitate the wider maize innovation ecosystem and the structure that emerges may take a different form and function. Thus, any efforts to revive the maize sector, and indeed any other crop or industry, would require a strategic re-evaluation of how knowledge and funding flows are intertwined and ultimately how they are woven into the third product of the innovation ecosystem – technology and product flows.

Technology and product flows

As discussed earlier and illustrated in Figure 2, our analysis shows three generators of technologies embodied in products and innovations: government research institutions, private sector institutions, and input industries exemplified by fertiliser companies. Technologies and products flowed between these innovation actors and maize producers, who played a dual role of seed maize multiplication and maize grain production. What is interesting in this case study is the way government research institutions passed on certain varieties to the private sector for translational activities – a public investment in research and innovation as a public good because of the food security accruals from enhanced maize varieties on the market. Interaction with seed companies in the period 2000 to 2006 revealed that private-sector seed companies contracted out seed multiplication to farmers. These farmers worked with in-house private-sector extension officers in planning, planting and seed production. The seed companies explained that the price per tonne for seed maize was appreciably higher than for grain maize because of the requirements for seed maize multiplication, such as sparser planting distances and the need for buffer zones. Technology and product flows show the intricate linkages between the public-private sectors, commencing with seed technologies development, trialling and seed multiplication and grain production. We argue that the integration of the innovators, integrators and commercial value chain actors made possible the technology and product flows through push and pull mechanisms. We argue that integration of the innovation community actors is important for designing an innovation ecosystem and that contemporary Zimbabwe can leverage this local knowledge and experience to resuscitate the agricultural sector.

Conclusion

The maize innovation ecosystem of Zimbabwe and its attendant local innovation and technological capabilities building – and the technology institutional infrastructure building at least until 2000 – is steeped in the legacies and political economy of the colonial state. Government policy, incentives and financial support were instrumental in setting up the technology- and innovation-supporting institutions and infrastructure that enabled the rise of maize as a key food security crop. State and private sector research institutions working with extension services, financial institutions and supporting industries constituted the innovation communities that supported renowned technological and innovation capabilities in seed maize and grain production in Zimbabwe. It can be argued that Zimbabwean maize innovation systems benefited from legacy institutional, technological and infrastructural capabilities that were established more than a century ago, and that the country benefited from the post WWII import substitution policies of the 1950s and 1960s. However, the integration of the public and private sector with, for the most part, functional market linkages through sustainable value chains played a key role in establishing the maize innovation system, directly contributing to food security for the country at least until just before the land redistribution era.

We argue that there are broader institutional, infrastructural, policy and practice lessons that can be drawn from this analysis. Purposive crafting of policies and allocation of resources for technology and innovation institutional setups can support, broadly, the re-emergence and sustenance of critical agricultural innovation communities that constitute the research and commercial economies that positively reinforce each other. Critical to the agricultural innovation ecosystem is careful consideration of an innovation community that collaborates, is complementary, and takes into account the fact that co-evolution of institutions and organisations is part of building a sustainable ecosystem. One of the greatest challenges that the country may face is the loss of institutional memory pertaining to the maize innovation ecosystems. Because of the turbulent economic times post-2003, the country has lost many technocrats in innovation communities, many of whom possessed this institutional memory. Reimagining the systems in the financial sector, in agriculture and agriculture policy, technology and innovation generators, and integrator institutions such as GMB, may be a difficult endeavour. However, the country can tap into the diaspora and use the learning-by-doing approach by recalling some of the skilled technocrats

from retirement. Suffice to say, all this will be predicated on crafting an agricultural innovation ecosystem that learns from how, historically, the country forged technological capabilities in breeding and extension services, in financial institutions' architecture to support agriculture, and in bridging institutions that support technology adoption and innovation diffusion.

References

- Alumira, J., and Rusike, J., 2005, The Green Revolution in Zimbabwe, *The Electronic Journal of Agricultural and Development Economics*, Vol. 2, pp. 50–66.
- Ayele, S., Duncan, A., Larbi, A. and Khanh, T. T., 2012, Enhancing innovation in livestock value chains through networks: Lessons from fodder innovation case studies in developing countries, *Science and Public Policy*, Vol. 39, No. 3, pp. 333–346, <https://doi.org/10.1093/scipol/scs022>, <https://doi.org/10.1093/scipol/scs022>
- Banda, G., 2013, Finance as a 'forgotten technological capability' for promoting African local pharmaceutical manufacture, *International Journal of Technology Management and Sustainable Development*, Vol. 12, No. 2, pp.117–35, <http://oro.open.ac.uk/38594/>
- Burchi, F., Fanzo, J., and Frison, E., 2011, The Role of Food and Nutrition System Approaches in Tackling Hidden Hunger, *International Journal of Environmental Research and Public Health*, Vol. 8, pp. 358–73. DOI: 10.3390/ijerph8020358.
- Byerlee, D., and Eicher, C., eds, 1997, *Africa's Emerging Maize Revolution*, Boulder, CO: Lynne Rienner Publishers.
- Byerlee, D., and Heisey, P. W., 1997, Evolution of the African Maize Economy, in Byerlee, D. and Eicher, C. K., eds, *Africa's Emerging Maize Revolution*, Boulder, CO: Lynne Rienner Publishers.
- Charlton, K., 2016, Food Security, Food Systems and Food Sovereignty in the 21st Century: A New Paradigm Required to Meet Sustainable Development Goals, *Nutrition & Dietetics*, Vol. 73, pp. 3–12, DOI: 10.1111/1747-0080.12264
- Chataway, J., Banda, G., Cochrane, G. and Manville, C., 2016, Innovative Procurement for Health and Industrial Development, in Mackintosh, M., Banda, G., Tibandebage, P. and Wamae, W., eds, 2016, *Making Medicines in Africa: The Political Economy of Industrialising for Local Health*, Basingstoke: Palgrave Macmillan, <http://link.springer.com/book/10.1007%2F978-1-137-54647-0>
- Chimedza, R., 2006, Rural Financial Markets: Historical Overview 1924–1991, in Rukuni, M., Tawonezwi, P., and Eicher, C., eds, *Zimbabwe's Agricultural Revolution Revisited*, Harare: University of Zimbabwe Publications, pp. 321–338.
- Eicher, C. K., and Kupfuma, B., 1997, Zimbabwe's Emerging Maize Revolution, in Byerlee, D. and Eicher, C. K., eds, 1997, *Africa's Emerging Maize Revolution*, Boulder, CO: Lynne Rienner Publishers.
- Friis-Hansen, E., 1995, Seeds for African Peasants: Peasants' needs and agricultural research – the case of Zimbabwe, Uppsala and Copenhagen: The Nordic Institute and Centre for Development Research.

- Gobble, M. M., 2014, Charting the Innovation Ecosystem, *Research Technology Management*, DOI: 10.5437/08956398X5704005.
- Granstrand, O., and Holgersson, M., 2020, Innovation Ecosystems: A Conceptual Review And A New Definition, *Technovation*, Vols. 90–91, <https://doi.org/10.1016/j.technovation.2019.102098>
- Grant, W., Wolfaardt, A. and Louw, A., 2012, Maize Value Chain in the SADC Region, Technical Report for USAID/Southern Africa, <https://saiia.org.za/wp-content/uploads/2016/06/001-Maize-Value-Chain-in-the-SADC-Region.pdf>
- Hanyani-Mlambo, B. T., 2002, Strengthening the Pluralistic Agricultural Extension System: A Zimbabwean Case Study, Harare: Agricultural Research Council (ARC), <http://www.fao.org/3/ac913e/ac913e00.htm#Contents> Accessed 25 June 2020.
- Helmsing, A. H. J., 1990, Industrialization in Zimbabwe: A non-replicable model? *Africa Focus*, Vol. 6, pp. 267–282.
- Herbst, J., 1990, *State Politics in Zimbabwe*, Berkeley: University of California Press, <https://doi.org/10.1525/9780520337947>
- Kassie, G. T., Abdukai, A., Greene, W. H., Shiferaw, B., Abate, T., Tarekegne, A. and Sutcliffe, C., 2017, Modeling Preference and Willingness to Pay for Drought Tolerance (DT) in Maize in Rural Zimbabwe, *World Development*, Vol. 94, pp. 465–477.
- Klerkx, L., Van Mierlo, B., and Leeuwis, C., 2012, Evolution of Systems Approaches to Agricultural Innovation, in Darnhofer, I., Gibbon, D. and Dedieu, B., eds, *Farming Systems Research Into the 21st Century: The New Dynamic*, Dordrecht: Springer, pp. 457–483, https://link.springer.com/chapter/10.1007/978-94-007-4503-2_20
- Masters, W., 1994, *Government and Agriculture in Zimbabwe*, Westport, CT: Praeger Publishers.
- Mercan, B., and Goktas, D., 2011 Components of Innovation Ecosystems: A Cross-Country Study, *International Research Journal of Finance and Economics*, Vol. 76, pp 102–112.
- Minde, I. J., Mazvimavi, K., Murendo. C. and Ndlovu, V., 2010, Supply and demand trends for fertilizer in Zimbabwe, 1930 to date: Key drivers and lessons learnt, Contributed paper presented at the Joint 3rd African Association of Agricultural Economists (AAAE) and 48th Agricultural Economists Association of South Africa (AEASA) Conference, 19–23 September, Cape Town. <https://ageconsearch.umn.edu/record/96179/> Accessed 1 July 2020.
- Oh, D., Phillips, F., Park, S., and Lee, E., 2016, Innovation Ecosystems: A Critical Examination, *Technovation*, Vol. 54. DOI: 10.1016/j.technovation.2016.02.004.
- Pandey, I. M. and Ramnarayan, S., 1994, Agricultural Finance Corporation, Zimbabwe, *Vikalpa*, Vol. 19, No. 2, pp. 47–61, <https://journals.sagepub.com/doi/abs/10.1177/0256090919940206> Accessed 3 July 2020.
- Pangeti, E. S., 2000, The Economy Under Siege: Sanctions and the Manufacturing Sector, 1965–1979, in Mlambo, A. S., Pangeti, E. S. and Phimister, I., eds, *Zimbabwe: A History of Manufacturing 1890–1995*, Harare: University of Zimbabwe Press.

- Papaioannou, T., Wiold, D., and Chataway, J., 2009, Knowledge Ecologies and Ecosystems? An Empirically Grounded Reflection on Recent Developments in Innovation Systems Theory, *Environment and Planning C: Government and Policy*, Vol. 27, No. 2, pp. 319–339, <https://doi.org/10.1068/c0832>
- Phimister, I., 1988, *An Economic and Social History of Zimbabwe, 1890–1948*. London: Longman.
- Phimister, I., 2000, The Origins and Development of Manufacturing in Southern Rhodesia, 1894–1939, in Mlambo, A. S., Pangeti, E. S. and Phimister, I., eds, *Zimbabwe: A History of Manufacturing 1890–1995*, Harare: University of Zimbabwe Press.
- Poulton, C., Rob Davies, R., Matsheb, I., and Ureya, I., 2002, A review of Zimbabwe's agricultural economic policies: 1980–2000, Imperial College Wye ADU Working Paper 02/01, Department of Agricultural Sciences, Imperial College at Wye, and Department of Economics, University of Zimbabwe.
- Rabelo, R. J., and Bernus P., 2015, A Holistic Model of Building Innovation Ecosystems, *IFAC-PapersOnLine*, Vol. 48, No. 3, pp. 2250–2257.
- Riddell, R., 1988, *Industrialisation in Sub-Saharan Africa: Country Case Study – Zimbabwe*, London, UK: Overseas Development Institute.
- Riddell, R., 1990, *Manufacturing Africa: Performance And Prospects Of Seven Countries In Sub-Saharan Africa*, London, UK: James Currey.
- Ritala, P., and Almpantopoulou, A., 2017, In defense of 'eco' in innovation ecosystem, *Technovation*, Vols. 60–61, pp 39–42.
- Rhodesian Farmer*, 1970, A look at the proposed Agricultural Finance Corporation. Commercial Farmers Union of Zimbabwe, <http://www.cfuzim.com/2018/05/04/a-look-at-the-proposed-agricultural-finance-corporation/> Accessed 3 July 2020.
- Rogers, E., 1962, *Diffusion of Innovations*, 1st ed., New York: Free Press.
- Rogers, E. M., 1983, *Diffusion of Innovations*, New York: Free Press.
- Roseboom, J., Pardey, P., Beintema, N. and Mudimu, G., 1995, Statistical brief on the national agricultural research system of Zimbabwe, Statistical Brief No. 20, The Hague: International Service for National Agricultural Research (ISNAR).
- Rukuni, M., 1994, The Evolution of Agricultural Policy: 1890–1990, in Rukuni, M. and Eicher, C., *Zimbabwe's Agricultural Revolution.*, Gweru: University of Zimbabwe Publications Office.
- Rusike, J., 1995, An institutional analysis of the maize seed industry in southern Africa, unpublished PhD dissertation, Michigan State University, Department of Agricultural Economics.
- Rusike, J., Reardon, T. R., Howard, J. and Kelly, V., 1997, Developing Cereal-based Demand for Fertilizer Among Smallholders in Southern Africa: Lessons Learned and Implications for Other African Regions, Policy Synthesis No. 30, Food Security Project, Michigan State University, https://pdfs.semanticscholar.org/c5c0/805408439a55bc0afcd4fb288329607ae491.pdf?_ga=2.86605723.2017288966.1593704550-221851164.1593704550 Accessed 1 July 2020.

- Spielman, D., and Birner, R., 2008, How innovative is your agriculture? Using innovation indicators and benchmarks to strengthen national agricultural innovation system, Agriculture and Rural Development Discussion Paper 41, Washington, DC: World Bank, <https://documents.worldbank.org/en/publication/documents-reports/documentdetail/696461468316131075/how-innovative-is-your-agriculture-using-innovation-indicators-and-benchmarks-to-strengthen-national-agricultural-innovation-systems> Accessed 1 July 2020.
- Takavarasha, T., 1995, Small-holder Agricultural Development in Zimbabwe With Particular Reference To The Fertiliser Industry, *FSSA Journal*, http://www.fertasa.co.za/wp-content/uploads/2017/03/Takavarasha-Smallholder_agric_dev_Zimbabwe-fertiliser_industry.pdf Accessed 1 July 2020.
- Tattersfield, R., and Hovazvidi, E., 1994, The development of the seed industry, in Rukuni, M. and Eicher, C., eds, *Zimbabwe's Agricultural Revolution*, Harare: University of Zimbabwe Press.
- UNESCO, 2014, Mapping Research and Innovation in the Republic of Zimbabwe, in Lemarchand, G. A. and Schneegans, S., eds, *GOSPIN Country Profiles in Science, Technology and Innovation Policy*, Vol. 2, Paris: UNESCO.
- Wang, P., 2009, An integrative framework for understanding the innovation ecosystem, Conference on Advancing the Study of Innovation and Globalization in Organizations, 15 March, Nuremberg.
- Wild, V., 1992, An Outline of African Business History in Colonial Zimbabwe, *Zambezia*, Vol. XIX, No. i, pp. 19–45.
- Yin, K. Y., 2003, *Case Study Research Design and Methods*, London, UK: Sage Publications.
- Zerbe, N., 2001, Seeds of Hope, Seeds of Despair: Towards a Political Economy of the Seed Industry in Southern Africa, *Third World Quarterly*, Vol. 22, No. 4, pp. 657–673, www.jstor.org/stable/3993361, Accessed 8 June 2020.



Staple Crops Processing Zones, Food Security and Restoration of Local Food Systems in Zimbabwe

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Abstract

With the adoption of Staple Crops Processing Zones (SCPZs) and Agro-Processing Zones (APZs) by Western countries and Asia, it is time for Zimbabwe to follow suit in order to address food insecurity challenges that the country has been facing since the year 2000. This article examines the possibility, rationality, utility, practicality and mechanics of designing and implementing SCPZs in Zimbabwe's identified agro-processing nodes in order to boost and integrate food productivity, processing and marketing whilst restoring local food systems. Methodologically, the study utilises secondary data sources, drawing comparisons and valuable lessons from cases of successful SCPZs implementation in Europe, China and Asia. The agricultural development theory provides the theoretical framework that anchors the study, whilst the SCPZs as well as the food security rural-urban migration nexus constitute the conceptual frames of analysis. The research findings suggest that although there are multiple threats to food security in Zimbabwe, the adoption and implementation of SCPZs equally present significant opportunities for boosting food security and restoring local food systems through value chain developments. The study findings are key in informing the format, structure, design and operational modalities of SCPZs as a strategy for boosting food security and restoring local food systems in Zimbabwe.

Keywords: food security, Staple Crops Processing Zones, Agro-Processing Zones, local food systems, Zimbabwe

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Résumé

Alors que les pays occidentaux développés et les marchés émergents d'Asie ont adopté les zones de transformation des cultures de base (SCPZ en anglais) et les zones de transformation agricole (Agro-Processing Zones-APZ), il est temps que le Zimbabwe fasse de même afin de relever les défis de l'insécurité alimentaire auxquels le pays est confronté depuis l'an 2000. Cet article examine la possibilité, la rationalité, l'utilité, l'aspect pratique et la mécanique de conception et de mise en œuvre de SCPZ dans les chaînes agro-industrielles identifiées dans les zones à fort potentiel agricole du Zimbabwe, afin de stimuler et d'intégrer la productivité, la transformation et la commercialisation de produits alimentaires tout en réhabilitant les systèmes alimentaires locaux. Méthodologiquement, l'étude utilise des sources de données secondaires, tirant des comparaisons et de précieux enseignements de cas réussis de SCPZ en Europe, en Chine et en Asie. La théorie du développement agricole fournit le cadre théorique de l'étude, tandis que les SCPZ et le lien entre sécurité alimentaire et migration campagnes-villes constituent les cadres conceptuels de l'étude. Les résultats de la recherche suggèrent que, s'il existe de multiples menaces pour la sécurité alimentaire au Zimbabwe, l'adoption et la mise en œuvre des SCPZ présentent aussi d'importantes opportunités de renforcement de la sécurité alimentaire et de rétablissement des systèmes alimentaires locaux grâce au développement de chaînes de valeur. Les conclusions de l'étude sont essentielles pour éclairer le format, la structure, la conception et les modalités opérationnelles des SCPZ en tant que stratégie de renforcement de la sécurité alimentaire et de rétablissement des systèmes alimentaires locaux au Zimbabwe.

Mots-clés : sécurité alimentaire, zones de transformation des cultures vivrières, zones de transformation agricole, systèmes alimentaires locaux, Zimbabwe

Introduction

Despite suppressed production and productivity, especially from the turn of the millennium to the present, the agricultural sector in Zimbabwe still has vast potential to grow and transform the country's socio-economic development prospects. At its peak the agriculture sector in Zimbabwe contributed around one-third to its Gross Domestic Product (GDP), employed around 70 per cent of its labour force, accounted for over 60 per cent of the country's manufacturing sector raw materials, and accounted for over 45 per cent of national export receipts (FAO 2020). Whilst a combination of political and economic factors have held back productivity, namely production disturbances caused by the Fast Track Land Reform Programme (FTLRP), a series of droughts and other unfavourable climatic

conditions, constrained agricultural budget, political instability, policy deficiencies, massive rural-urban migration and economic challenges (mainly manifested through hyperinflation and suppressed incomes), there has been notable general improvement in food production since 2013 in Zimbabwe (FAOSTAT 2019). However, this has not been complemented by adequate, modern and functional agro-industries to absorb the agricultural food produce, hence the cyclical food insecurity challenges and post-harvest losses. In recent years, there has been massive rural-urban migration as economically active rural population continue to search for better economic opportunities and prospects in urban areas. For instance, World Bank data shows that the rural population as a percentage of the national population in Zimbabwe decreased from 87.4 per cent in 1960 to 67.8 per cent in 2020 (World Bank Group 2022). It may therefore be time for Zimbabwe to adopt and implement Staple Crops Processing Zones (SCPZs) in order to address the rural-urban migration matrix, whilst, more importantly, boosting agricultural production and productivity, enhancing food security, restoring food systems and driving industrialisation.

SCPZs are zones dedicated to facilitate processing capacity for locally produced crops, livestock and fisheries production. This article examines the possibility, rationality, utility, practicality and mechanics of designing and implementing SCPZs in Zimbabwe's identified agro-processing nodes across the country. It first explains the methodology and the conceptual and theoretical framework of analysis before presenting the historical and contemporary perspective of food systems and food security in Zimbabwe. This is followed by a discussion of SCPZs from regional and global perspectives. The fourth section analyses the possible frameworks and structure that SCPZs could adopt in Zimbabwe as well as the accompanying opportunities and challenges they may face. The final section presents key issues and recommendations for consideration by policy-makers and stakeholders when adopting SCPZs based on the research findings.

Methodology of the Research

This article is based on a review of secondary data sources comprising textbooks, policy research reports, national policy documents, continental and sub-regional strategy documents as well as documents from national and international organisations. The key documents consulted include reports and publications from the Government of Zimbabwe (GoZ), Food and Agricultural Organization (FAO) of the United Nations, the United Nations Development Programme (UNDP), Food and Agricultural Organization Corporate Statistical Database (FAOSTAT), as well as other literature.

Conceptual Framework of Analysis

The concepts of SCPZs as well as the Food Security Rural-Urban Migration Nexus are elucidated to provide the conceptual lenses and frames of analysis for the article. SCPZs are now a common concept and practice in Asia and Europe. In China, SCPZs were opened as part of agro-industrial parks in the 1980s, whereas in Europe the SCPZs surfaced in the 2000s (FAO 2017). In Africa, SCPZs have been popularised by the African Development Bank (AfDB) since 2015, when the AfDB outlined its five development priorities ('High Fives'), which included the 'Feed Africa Strategy' (as part of the Strategy for Agricultural Transformation in Africa, 2016–2025). This strategy aimed to end hunger and malnutrition in Africa by 2025, making Africa a net food exporter and moving Africa 'to the top of export-oriented global value chains where it has comparative advantage' (AfDB 2016). SCPZs have been interchangeably used in many policy and academic discussions to refer to different forms of Special Economic Zones (SEZs), namely: Agro-Industrial Parks, Agro-Processing Parks, Mega-Food Parks, Agro-Processing Industrial Parks, Agro-Clusters, Agri-Business Parks or Agro-Poles (Singh 2004; Da Silva and Mhlanga 2011; El-Enbaby et al. 2016; Gálvez and Webber 2017; Rawat et al. 2017; Doronina et al. 2016; Rao 2006). A study by the AfDB (2017a) revealed that SCPZs had been implemented for around twenty years in Africa, with Morocco and Tunisia identified as Africa's pioneers.

The AfDB's (2017b: 1) Flagship Programme of the Feed Africa Strategy presents a comprehensive definition of SCPZs as:

agro-based spatial development initiatives designed to concentrate agro-processing activities within areas of high agricultural potential to boost productivity and integrate production, processing and marketing of selected commodities. These initiatives may or may not be granted Special Economic Zones status.

On the other hand, the World Bank (2016) notes of SCPZs:

The SCPZ [Staple Crops Processing Zones] represents a delimited area, within major clusters of agricultural production otherwise called the catchment area, dedicated to driving the facilitation of modern agricultural processing capacity for locally produced crops, livestock, and fisheries production.[...] The development of SCPZs also includes the establishment of Agro-Industrial Towns (AITs), within the ABIRs [Agribusiness Investment Region] around the SCPZs, to specifically attract the youth into agribusiness, provide youth employment and a better standard of living for millions of youth in the surrounding rural areas of a SCPZ.

From the above definitions, it can be noted that the thrust of SCPZs is on building agro-processing industries within designated geographical areas through integrated infrastructure facilities, in order to facilitate efficient production, processing, marketing and exportation of staple food products within a favourable regulatory, policy, fiscal, investment, infrastructure, logistical and operational environment. Thus SCPZs are presented as types of agro-parks. The FAO, in its Green Trade Initiative (2019), distinguished different types of agro-parks on the basis of industry targeted, premises and services used, development objectives, ownership structure, and nature of project.

Table 1: Classification, Typology and Characterisation of Agro-Parks

Classification	Types of Agro-Park	Characterisation
Industry targeting	<ul style="list-style-type: none"> • Specialised agro-park • Mixed or hybrid industries park 	<ul style="list-style-type: none"> • Focus on agro-industry • Several industries, including agrifood
Premises and services	<ul style="list-style-type: none"> • Intensive agro-industrial parks • Mixed-use parks • Integrated social agro-parks 	<ul style="list-style-type: none"> • Agro-industrial and logistics • Agro-industrial, commercial and residential uses • Community involvement and other social features
Development objectives	<ul style="list-style-type: none"> • Basic agro-industrial park • Agro-techno- or -science park • Agro-eco-industrial park • Agro-park with SEZ status 	<ul style="list-style-type: none"> • Agro-industrial competitiveness • Innovation and technology transfer • Green agro-processing • Special regulatory and fiscal regime
Ownership	<ul style="list-style-type: none"> • Public agro-parks • Private agro-parks • Public-private agro-parks 	<ul style="list-style-type: none"> • Mostly public-sector driven • Mostly private-sector driven • Public-private driven
Starting point	<ul style="list-style-type: none"> • Brownfield initiative • Greenfield initiative 	<ul style="list-style-type: none"> • Based on existing development • Developed from scratch

Source: Green Trade Initiative (2019: 7)

What also emerges from the FAO's classification, typology and characterisation of agro-parks is that SCPZs can either have SEZ status or not. Those SCPZs with SEZ status have special regimes that are more favourable in terms of tax exemptions, customs, trade-related investment, administrative and regulatory preferential/unique treatment to make the zones more conducive to agribusiness and agro-industrial development than elsewhere in the country (Green Trade Initiative 2019).

In terms of form and structure, the AfDB (2017a) notes that SCPZs comprise shared facilities that enable agricultural producers, processors, aggregators and distributors to operate within the same area with a view to reducing the costs of transacting whilst enhancing competitiveness and productivity. The key objectives of SCPZs are presented in Figure 1.

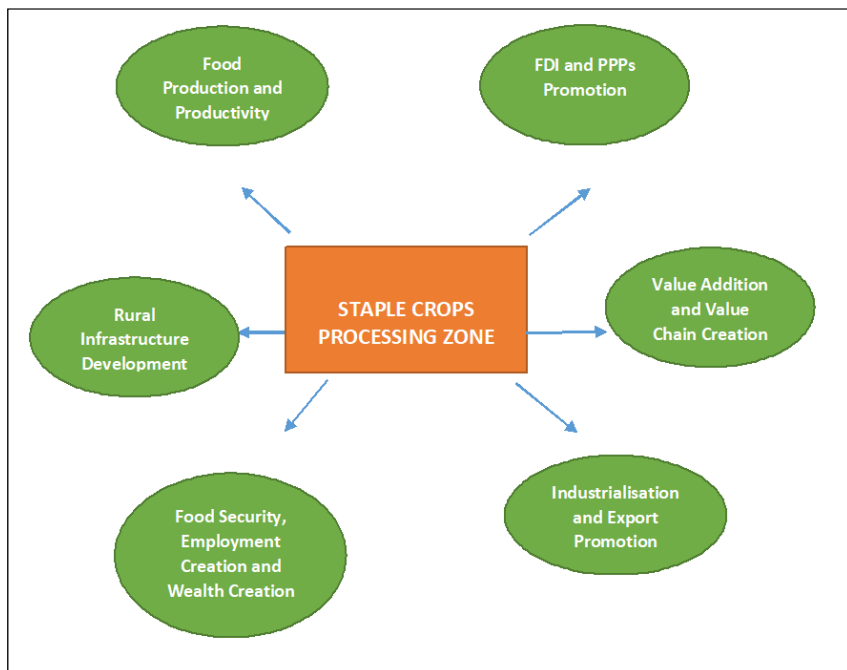


Figure 1: Key objectives of Staple Crops Processing Zones (SCPZs)

Source: Author's construction based on factors from different sources

As depicted in Figure 1, SCPZs aim at increasing efficiency and capacity in food production, facilitating value addition in agriculture, promoting trade and investment in agribusiness, creating wealth and employment, and increasing the contribution of agriculture towards GDP (AfDB 2017a). The ultimate objective of SCPZs is to socioeconomically transform rural

areas through agro-industrialisation, which creates economic opportunities for rural people and alleviates rural poverty thereby curbing rural–urban migration. This therefore directly links SCPZs to the Food Security Rural–Urban Migration Nexus.

The concept of SCPZs is also viewed as critical in reducing post-harvest losses, cutting Africa's food imports as well as integrating agricultural industry with national, regional and global value chains. The United Nations Economic Commission for Africa (UNECA 2018) reported that Africa spent approximately USD 70 billion on food imports in the year 2016, and if the trend continues by 2025, the continent's food import bill will rise to USD 110 billion. SCPZs, through stimulating agro-processing, will reduce post-harvest losses and allow for modernised preservation, which will enhance food security. The FAO (2018) reports that Africa loses between 30 per cent and 50 per cent of its food produced for human consumption along the different stages of the supply chain (production, distribution, storage, processing and marketing), with fruit and vegetable wastage estimated to be in excess of 50 per cent. It is now a norm that seasonal fruits, such as mangoes, guavas, peaches, lemons, avocados, etc., in most developing countries often go to waste.

Whilst there are various causes of post-harvest losses, the prominent factors include poor harvest practices, poor handling/storage or packaging facilities, inefficient modes of transport, poor processing practices, market access challenges and lack of effective co-ordination among the different players along the agricultural supply chains (Ambuko 2017). What is undeniable is that SCPZs can minimise quantitative and qualitative post-harvest losses especially through their ability to introduce modern technological innovations and integrated infrastructure. For this reason, SCPZs can be worthy instruments for restoring food systems, especially building resilience for food security, food safety and nutrition. They can protect communities in cases of natural disasters and crises since they have the potential to transform the production, collection, storage, transportation and distribution of food. Food systems that are more efficient and inclusive can also be achievable through SCPZs given that such zones facilitate the coexistence of modern supply channels and traditional supply channels (FAO 2017: 140). The value of SCPZs in this regard is highly significant considering that Africa's population is growing exponentially, with estimates that by 2035 it will exceed 1,8 billion (UN 2017: 3). At the same time, production resources such as arable land, water and energy are expected to continue to diminish due to human- and nature-induced factors, such as climate change, land/environmental degradation and desertification.

Operationally, SCPZs work through agro-processing hubs, which comprise firms, related integrated infrastructure facilities and the logistics necessary for agro-industrial activities, which are usually owned and operated by an independent authority (AfDB 2017a). Agro-processing hubs are shared facilities, which help to lower the transaction costs within the SCPZs and thereby boost productivity and competitiveness (Green Climate Fund 2018). SCPZs are therefore more or less a specialised form of Special Economic Zones (SEZs) – geographically designated areas within a country set aside for specifically targeted economic activities, supported through special arrangements and rules of business that are often different from those that prevail in the rest of the country (Farole and Akinci 2011). Whilst the objectives of different types of SEZs (such as EPZs, Free Ports, Enterprise Zones, Free Trade Zones, Industrial Development Zones, Sector Development Zones, etc.) are broader in scope and focus (World Bank 2008: 3; RSA 2012: 13), SCPZs are exceptionally specialised in that they focus on agricultural food commodities, such as maize, rice, sorghum, soybeans, wheat, cassava, plantains, poultry, sugar, nuts, vegetables, fruits and potatoes, which assist to sustain food systems, ensure food security, transform rural areas and reduce rural–urban migration through expanding the agro-industry. For SCPZs to function more optimally, it is highly recommended that they are granted SEZ status. Just like successful early cases of SEZs, in Puerto Rico (1951), Shannon Airport in Ireland, Taichung in Taiwan (1965), Shenzhen in China (1979), and others (Bräutigam and Xiaoyang 2011), SCPZs also have the potential to succeed in unlocking socioeconomic growth potential and stimulating Foreign Direct Investments (FDI) in agricultural production and productivity, as well as boosting food security and exports, if they are well-designed, structured, regulated, incentivised and supported.

The conditions necessary for the success of SCPZs may also be borrowed from examples of agro-processing zones elsewhere. Several studies have identified these fundamental conditions (AfDB 2017a; Aggarwal 2015; Rao 2006; Sharma, Pathania and Lal 2010; Wilkinson and Rocha 2008; Crane et al. 2018; UNIDO 2018; JICA 2009; Jenane 2016; Pathak, Chakraborty and Pandey 2015). These conditions include the following:

1. Conducive investment climate and conditions favourable for business operations.
2. Supportive and competitive national economic development policies (that is, national agricultural policies, industrialisation and trade policies, economic development policies, research, science and technology policies, skills development policies; fiscal and monetary policies, etc.).

3. Abundance of political will and strong commitment to the long-term vision.
4. Existence of a competent authority or administrative/institutional framework in charge of the development, operation and management of the SCPZs.
5. Existence of an effective and flexible legal and regulatory framework.
6. Presence of land resources and enabling infrastructure.
7. Strategic location of the SCPZ and its ability to link to local and international markets.
8. Proximity to reliable public utility facilities (water, energy, telecommunications and waste management).
9. Effective connectivity and access to critical transportation facilities (roads, railways, airports and highways).
10. Existence of robust marketing strategies.
11. Proper management of supply-side issues such as incentivisation and empowerment of farmers and producers to guarantee abundant raw material supply.
12. Inclusion of smallholder farmers and small to medium enterprises.
13. Allow for pragmatism and adaptive learning in the implementation of the SCPZs so that they remain competitive.
14. Ability of the SCPZs to continue deepening and widening backward and forward linkages with the local, regional and national economy.

One of the questions interrogated in this article is: Does Zimbabwe exhibit such conditions highlighted above in order to implement SCPZs? If not, how can such conditions be obtained and sustained to facilitate the smooth implementation of SCPZs?

The exiguity of the above factors is not uncommon in Africa given the continent's general project governance and development policy management culture. It is the dearth and deficiency of such success factors that may result in the failure of SCZPs. It has to be stated that SCPZs are capital-intensive: they require huge capital outlays especially for the establishment of the relevant hard infrastructure, such as the agro-processing hubs, agricultural transformation centres or rural transformation centres, manufacturing plants, crop handling and crop storage facilities, packaging platforms, etc., as well as soft infrastructure. Cases in Nigeria and Ethiopia in Africa attest to this. It cost Ethiopia USD 10 billion to construct four pilot Integrated Agro-Processing Industrial Parks (IAIPs), which were inaugurated in June 2019, excluding the cost of supplying electricity, with each of the four IAIPs set to consume 40 to 50 megawatts; the feasibility studies for the parks

took two years (AllAfrica 2019). The pilot IAIPs, construction of which started in 2016, are located in Ethiopia's four states of Amhara, Oromia, Southern Nations, Nationalities and Peoples' Region (SNNPS) and Tigray. It is expected that these will pave the way for the planned implementation of seventeen more IAIPs countrywide. Simultaneously, Nigeria is working on establishing six SCPZs, in the states of Kogi, Kano, Rivers, Niger, Enugu and Anambra. The first phase alone will require an estimated USD 1,063.1 billion, distributed as follows: Kogi State (USD 314.7 million), Kano State (USD 151.1 million), Rivers State (USD 79.6 million), Niger State (USD 181.4 million), Enugu State (USD 149.7 million) and Anambra (USD 186.6 million) (Essiet 2014; Adedapo 2014). As of March 2020, the Government of Nigeria, with support from the AfDB, was in the process of engaging consultancy services to undertake feasibility studies and provide transaction advisory support for the establishment of SCPZs (AfDB 2020).

Zimbabwe has attempted to set up SEZs only, and out of the nine that have been officially adopted, only one is an agricultural hub.¹ The greatest challenge in reaping maximum benefits from these SEZs has been low foreign and domestic direct investment. Even after the establishment of a one-stop investment services centre following the adoption of the Zimbabwe Investment and Development Agency Act (ZDA Act of 2020), FDI inflows into the country have been plummeting. The United Nations Conference on Trade and Investment (UNCTAD) World Investment Report for 2021 notes that FDI inflows into Zimbabwe declined from USD 745 million in 2018 to USD 280 million in 2019, before further declining to USD 194 million in 2020 (UNCTAD 2021: 249). In the end, established SEZs such as ZISCO (in Redcliff) have struggled to attract substantial investments despite the application of fiscal incentives in the form of exemptions from Exchange Control Act regulatory requirements and rebates on import duty imposed on raw materials, machinery and intermediate products, among others. Investments from India (Essar Africa Holdings) and China (R & F Group) into ZISCO have not succeeded, although the adjudication processes on potential investors were awaiting cabinet approval in January 2022 (Magoronga 2022). Other SEZs have been similarly affected by capital deficiencies, such as Nkonyeni Agric-Hub, Selous Afrochine, Victoria Falls, Norton Business Park, Ecosoft, Bernard Diamond and Jewellery Centre, Workington Tradekings and Sunway City Technology Park. Serious attention has to be given to extra-fiscal incentives and to infrastructural, policy and macroeconomic environmental factors that will assist in attracting FDI into the SEZs.

Theoretical Framework

The agricultural development theory that relates to the urban-industrial impact model, or locational model, provides the theoretical frame that anchors this analysis. The traditional agricultural development theory comprises four models, namely: the conservation model, the urban-industrial impact model, the high pay-off input model and the diffusion model. The conservation model emphasises the evolution of a complex land- and labour-intensive cropping system and labour-intensive capital formation, as well as the production and use of organic manure, to facilitate more effective utilisation of land and water resources. The high pay-off input model stresses new inputs in agriculture through investments in research, technical knowledge and development to generate high rates of agricultural growth, so as to match more productive or better developed areas or nations. The diffusion model embraces the spread and adoption of new agricultural practices, innovations and ideas for greater productivity. It is, however, the urban-industrial impact model that is key in framing the reference for analysis.

The urban-industrial impact model is often attributed to Johann Heinrich von Thunen, the German economist. The model argues that economic development takes place in a locational matrix that is specific, and that these locational matrices or growth centres are primarily industrial and urban (Udemezue and Osegbue 2018; Corbridge 2017). Economic organisations perform better at the centre of a particular economic development matrix but perform less satisfactorily when they are located in agricultural areas that are peripheral to such matrices (Udemezue and Osegbue 2018; Corbridge 2017). The rate at which agriculture develops therefore corresponds with the rate of urban-industrial development. When situated within the urban-industrial impact model context, SCPZs are viewed as centres that enable economic development through facilitating agro-processing and attracting other manufacturing-related activities.

Whilst SCPZs are essential for food security and aid the export of value-added agricultural output, they are also critical as enablers of rapid urban industrial development. By linking agricultural and non-agricultural areas, SCPZs additionally present themselves as key components of growth and development nodes in urbanising rural areas. The urban-industrial impact model, therefore, provides theoretical frames of analysis in examining the possibility, rationality, utility, practicality and mechanics of designing and implementing SCPZs in Zimbabwe's identified agro-processing nodes, or growth centres.

Food Systems and Food Security in Zimbabwe: History and Contemporaneity

Discussion of Zimbabwe's history of agriculture, agricultural production and food security often presents two distinct phases in the country's agricultural history: pre- and post-Fast Track Land Reform. Whilst a bifurcated approach may assist in analysing the evolution of agriculture, land reform and food security in Zimbabwe, it may be too simplistic to attribute Fast Track Land Reform as the sole factor that impacted on food systems and food security in the country. Scoones et al. (2011) address some of the misconceptions, misperceptions, myths and stereotypes about this programme. These relate to how it affected national food security and the lives and livelihoods of farm communities.

Whilst the subject has been, and will remain, fiercely debated within academic, political and policy research circles, what cannot be denied is that after Fast Track Land Reform, agricultural productivity in Zimbabwe recorded a very sharp decline. At its peak in the mid-1990s, Zimbabwe's agriculture sector contributed one-third to the GDP, provided jobs to 70 per cent of the country's labour force, and accounted for over 60 per cent of the country's manufacturing sector raw materials and over 45 per cent of national exports (GoZ 2012). Food systems and food security have been disrupted and threatened since the late 1990s (FAO 2020). This has been due to different factors, such as the disruption of farming activities, destruction and lack of irrigation equipment, limited support to newly resettled farmers, constrained capacity of the state and private sector to support farmers, recurring droughts and drought spells, unfavourable economic climate and hyperinflation, international isolation and the disruption of agricultural value chains (Scoones et al. 2011; Mazwi, Chibwana and Muchetu 2017; Waeterloos and Rutherford 2004; Scoones 2016; Tekwa and Adesina 2018).

Other than the lack of a well-articulated agricultural and food security policy, the absence of a sustainable smallholder farmer assistance programme (most contract farming has concentrated on cash crops, mainly tobacco and cotton) has also threatened food security in Zimbabwe. In addition, the existence of unfavourable macroeconomic management policies, unresolved issues arising from Fast Track Land Reform, and the government's inability to maximise benefits derived from its comparative advantage in agriculture through the development of initiatives that concentrate agro-processing activities within areas of high agricultural potential, continue to compromise food security in Zimbabwe.

Table 2: Production of major cereal and food security crops (in '000' tonnes)

Crop/Year	1980	1990	2000	2010	2015	2017
Sugar	2 528	3 093	541	259	3 348	3 584
Maize	1 511	1 971	1 545	1 328	643	901
Wheat	191	325	230	41	45	39
Millet	180	143	31	51	18	34
Soybean	97	113	99	70	41	60
Sorghum	82	93	84	132	35	70
Sunflower	11	64	18	14	6	18
Groundnuts	78	119	114	186	52	40

Source: Ministry of Agriculture Mechanisation and Irrigation Development/ FAOSTAT (2019)

In 2016 the Zimbabwean government embarked on a Ten-Year Special Agriculture Production Programme (Command Agriculture). This initiative is intended to empower farmers to produce cereals, food crops, livestock and fisheries and thus ensure food security and create employment. It is expected to benefit the value chains in transport, manufacturing and engineering as well as facilitate import substitution industrialisation. This will be done through support for inputs procurement, extension services, disease and pest control, the provision of bankable leases and security of tenure, the development of irrigation, farm mechanisation and other infrastructure facilities (Ncube 2018; Ndlovu 2016). However, what is lacking is a comprehensive, strategic and integrated approach to boosting food security and restoring local food systems in Zimbabwe.

Several initiatives have been implemented to boost agricultural production, productivity and food security in Zimbabwe. These include contract farming, a seed supply recovery programme (2002), productive sector finance facility (2004), an irrigation rehabilitation, expansion and development programme (2004), a farm mechanisation programme (2005), the Agricultural Sector Productivity Enhancement Facility (ASPEF, 2005 and 2007), Operation Maguta/Inala (2005), an agricultural mechanisation programme (2007), the grain mobilisation programme (2007), the Presidential Well-Wishers Special Agricultural Inputs Support Scheme (2008), the agricultural winter input scheme, the champion farmer programme (2008), and others. However, these initiatives have not managed to develop an effective rural development strategy that prioritises not only food production, food security and restoration of food systems

but also comprehensive development along the agro-processing value chain. Even the Zimbabwe Agriculture Investment Plan (ZAIP 2013–2017), which intended to increase agricultural production, productivity and competitiveness in the country through building the capacity of farmers and public-private partnerships (PPPs) in the sector, did not deliver much as evidenced by plummeting investments, production and productivity in the agricultural sector (FAOSTAT 2019).

It appears that all the policy and programme initiatives have been preoccupied with just boosting production and raising output, which is a narrow approach to food security and food systems restoration. From a more holistic and sustainable perspective, there have been no focused policy initiatives targeted at developing agro-processing plants in zones of high food production, accompanied by the necessary infrastructure and facilities through a zonal approach. It is against this background that the concept of SCPZs, if adopted and implemented, remain key in unlocking socioeconomic development in geographical areas with high agricultural potential through integrated agricultural production, processing and marketing of selected food products. SCPZs have huge potential to transform Zimbabwe's food security, food systems and agro-processing industry value chains, stimulate rural development and address rural–urban migration trends. The fact that agriculture and manufacturing currently contribute almost 30 per cent to the national GDP, at a time when the country is underperforming compared to its peak in the mid-1990s, itself presents opportunities for the restoration of agro-processing-led growth and development (GoZ 2018: 2). SCPZs, therefore, present a viable policy option to restore food security and boost the agro-processing capacity of the country.

Advancing the Argument for SCPZs in Zimbabwe: Analysing the Possible Frameworks, Structure and Implications

The possibility, rationality, utility, practicality and mechanics of designing and implementing SCPZs in Zimbabwe has to be understood within the country's five agro-ecological geographical regions, the classification of which is mainly based on rainfall quantity and variability, temperatures and soil quality, which all determine crop cultivation suitability and specialisation. In addition, the seven main water catchment areas of Gwayi, Sanyati, Manyame, Mazowe, Save, Runde and Mzingwane feed into the country's 2,200 dams whose total capacity stands at 99,930 million m³ (FAO 2016: 6) and facilitate irrigated agriculture across Zimbabwe. It is from this basis that SCPZs can be designed and structured.

Table 3: Zimbabwe’s Agro-Ecological Zones

Region	Crop Specialisation	Province
1	Fruit farming (bananas, apples), horticultural crops (beans, peas, vegetables, et cetera), maize, coffee and tea	Manicaland
2	Maize, beef, groundnuts, dairy farming, pig, poultry, wheat, potatoes and livestock	Mashonaland East, West and Central, Harare and parts of Manicaland
3	Fruit farming, maize, groundnuts	Midlands, parts of Masvingo and parts of Mashonaland West
4	Cattle-ranching, sugar, drought-resistant crops, such as sorghum, pearl millet, finger millet, etc.	Matabeleland South and parts of Masvingo
5	Cattle-ranching, agro-fisheries, goats, sheep and drought-resistant crops, such as sorghum, pearl millet, finger millet, etc.	Matabeleland North, parts of Matabeleland South and Mashonaland Central

Source: United Nations Office for the Coordination of Humanitarian Affairs (2020); FAO (2006)

Identification and selection of sites for SCPZs

It is indisputable that a thorough feasibility study must precede the establishment of SCPZs in order to assess the practicality, viability, economic justification and technical feasibility of the initiative. Such feasibility studies need to focus on the potentiality of the envisaged agro-processing industries, an analysis of the prospective value chains and a preliminary environmental impact assessment of the projects, especially the infrastructure development projects that form part of the overall agro-processing hub, as well as risk-mapping and risk mitigation. Establishing the existence of such crucial factors is indispensable in siting SCPZs.

Granted, the country’s five agro-ecological zones assist in guiding the distribution of SCPZs across the country’s ten provinces. This article identifies six key factors that are imperative in the identification and selection of the actual sites for SCPZs. These factors include:

1. The existence of potential for agricultural production in the area.
2. Proximity to strategic infrastructure facilities and utilities.
3. Inter-industry linkages.
4. Market potential for agricultural products and commodities.
5. Access to support services.
6. Agglomeration, proximity to labour and key amenities.

The existence of potential for agricultural production in the area is the most important factor for the location of SCPZs as this ensures the availability and supply for the necessary agricultural raw materials for the agro-processing industries at reduced costs. Zimbabwe may ride on its erstwhile policy on growth centres in locating SCPZs, which identified selected rural areas as nodes for rural development and service centres (Wekwete 1990, 1998, 1989; Sibanda 1985; Nyandoro and Muzorewa 2017). As argued by Sibanda (1985), most of the growth points (as well as district service centres and rural service centres) were linked to agricultural production as part of the economic planning theory that directed the policy. The government had envisaged these growth points to be the 'foci for rural development' through providing markets for primary commodity processing, employment creation and curbing rural-urban migration. This, therefore, provides a foundation for the establishment of SCPZs.

Most of the growth points were affected by macroeconomic dynamics after the late 1990s, specifically the general economic decline and failing agriculture that resulted in the neglect of infrastructure and social service delivery, which has turned a number of them into ghost towns (Chirisa and Mukarwi 2019; Chigudu 2019). However, the main transport networks and strategic infrastructure facilities together with supporting social amenities still remain, which can be used as a stepping stone and launch pad for the establishment of SCPZs across the country. This infrastructure takes the form of roads, highways, railway networks, water reservoirs and energy supply. What has to be noted, however, are the special development dynamics that accompanied the Fast Track Land Reform Programme. It led to a notable dispersal of peasants who used to be concentrated on communal lands, as well as the establishment of smallholder farmers in previously commercial farming communities. In addition, the choice of agricultural crops was influenced by the rise of tobacco farming through contract farming (together with cotton this had far more attractive returns on the market), thereby leaving food crop cultivation to a few (Chitongo 2017). An agro-ecological zone approach would ensure that SCPZs are located in cost-effective locations where the costs of doing business are kept to a minimum throughout the supply and value chains.

Inter-industry linkages are another fundamental consideration in the siting of SCPZs, in the context of Zimbabwe. Since SCPZs require the connectivity of SCPZ actors and players along the value chain within agro-processing hubs, it is prudent to ensure that inter-linked and inter-related industries are placed together within the hub in order to create an integrated agro-industrial system that can easily forge backward, forward and horizontal

integration (Asokan and Singh 2003; Alemu et al. 2012). For this reason, agro-processing industries in SCPZs should be established in spatial clusters for agglomeration benefits to accrue in the form of production, service and market linkages. The diversity of Zimbabwe's agro-ecological zones in terms of crop production presents a significant advantage in terms of industrial diversity within the SCPZ hubs along the value chain.

In addition, the proximity of the SCPZs to local markets is of paramount importance, whilst the ability of the SCPZ authority to identify prime and niche markets within the region and beyond will enhance the competitiveness of the SCPZs. In Zimbabwe, the ready market in the Southern African Development Community (SADC), Common Market for Eastern and Southern Africa (COMESA), and the recently launched African Continental Free Trade Area (AfCFTA) all present opportunities for a wider market and integration of SCPZs into regional value chains through increased intra-African trade in agro-processed products and finally into global value chains. What has to be taken into consideration, however, is the intensifying global manufacturing competition that results from the invention of labour-saving manufacturing technologies in developed economies in Europe and America, as well as the dominance of urban agglomerations in global manufacturing value chains in the emerging East Asian economies (Commission on Growth and Development 2008; Page 2012). It is against this background that agro-processing industries within the SCPZs have to adopt efficient and modernised technologies in order to compete at a regional and global level whilst also receiving the necessary support and strategic protection from the government. Such technologies may be in the form of agro-processing plants, quality certification centres and modernised manufacturing plants. In the SCPZs, there will be facilities or units for storage; grading, packing and labelling; processing; ancillary units; vegetable/cereal/meat processing units; cold storage facilities; and compressors. All these will be divided into separate product-specific zones – livestock, cereals, vegetables, dairy and fruit processing – as well as support infrastructure for quality assurance, inspections, quarantine, warehousing, utilities, amenities, etc.

To complement the above and reduce the costs of doing business it would be prudent to locate SCPZs in proximity to commercial support centres, such as research institutes or facilities, rural transformation centres, universities, agricultural research and extension services centres, knowledge hubs, market information centres, agricultural laboratory centres, financial services institutions and technical vocation training institutions.

Possible framework and structure of staple crops processing zones in Zimbabwe

For SCPZs to thrive in Zimbabwe, it is recommended that they be managed by a competent authority, preferably through a PPP framework. The authority should be tasked with managing the affairs of the SCPZ and developing a strategic plan for the zone whilst carrying out the mandate of attracting investment through aggressive marketing and the establishment of a convenient investment facilitation centre, perhaps in the form of a de-bureaucratised and more efficient one-stop-investment shop. Since countries differ in terms of political and governance contexts, the design and structure of SCPZs should be informed by country-specific circumstances. It would be preferable to have Zimbabwe's SCPZs placed under a PPP that operates at arm's length from the relevant Ministry of Agriculture and Ministry of Industry and Commerce, given the history of corporate misgovernance and destructive political interference in parastatal business. The authority should be competent enough to address the common challenges that face SCPZs, such as lack of investment, constrained access to markets, limited entrepreneurial capacity, acute raw material shortages, lack of infrastructural development and maintenance, and the absence of robust research and development support (RSA 2015).

Designing a possible and suitable framework and structure for SCPZs in Zimbabwe may not be a great challenge, especially since the country already has an operational Special Economic Zones management system – the Zimbabwe Special Economic Zones Authority (ZIMSEZA). This is a statutory body set up in terms of the SEZ Act (Chapter 14: 34) of 2016, with a functional board of directors and management, specifically to administer, control and regulate all SEZs in the country (ZIMSEZA 2019). It could serve as a foundation for the establishment of a SCPZ authority at national level that would administer, control and regulate all SCPZs established in the five agro-ecological zones of the country. However, just as for SEZs, the success of SCPZs will depend on the dynamism of the managing authority and its ability to reform, change and adapt to the ever-changing global and macroeconomic landscape, as well as effectively manage long-term beneficial relations with all the relevant stakeholders, especially producers, manufacturers, investors and markets.

In light of this, it has to be understood that adopting SCPZs would require a fundamental shift in approach with regard to investment policy, creating a conducive environment for business, reducing the cost of doing business and implementing governance. The United Nations Development Programme (UNDP 2015: 39–41) emphatically points out that the success

of SEZs, which are more or less similar to SCPZs in terms of design, framework and operation, depends on high-level political commitment and support, a comprehensive policy framework and institutional support, the existence of modern infrastructure and a reliable supply of utility services such as water and electricity, and linkages with the local economy through local suppliers or the local labour market. Farole (2011: 117) also identified traditional factors (fiscal incentives, low wages and trade preferences), zone investment climate (infrastructure and administrative environment), national investment climate (infrastructure, administrative and governance environment at national level), and market access (national, regional and global markets) as four key success factors for SEZs, which are applicable to SCPZs. The lack of these factors in Zimbabwe has so far discouraged investment. If SCPZs are adopted without serious consideration of these key factors, the chances of them delivering the desired results or outcomes are remote.

Table 4: World Economic Forum Global Competitiveness Index for Zimbabwe (2017–2018)

Selected Index	Index Score Out of 7	Country Ranking out of 137 countries
Institutions	3.2	114
Infrastructure	2.7	116
Macro-economic environment	3.2	129
Higher education and training	3.1	115
Goods market efficiency	3.5	131
Financial market development	3.2	119
Technological readiness	2.7	121
Business sophistication	3.2	130
Innovation	2.5	132
(Overall) Global Competitiveness Index	3.3	124

Source: World Economic Forum (2018)

With such low World Economic Forum Global Competitiveness Index scores as shown in Table 4, it is very difficult to attract FDI especially for the greenfield investments that would be anticipated when SCPZs are adopted. Even the macroeconomic state of affairs is not conducive to attracting the investments that may be needed for any SCPZ initiative considering the huge capital investment outlays required. The latest macroeconomic review reports for Zimbabwe from the IMF and World Bank affirm that the country

faces economic imbalances, macroeconomic instability, liquidity challenges, an unstable exchange rate and inflationary pressures (IMF 2020). These challenges have to be sustainably addressed if the concept of SCPZs is to be seriously considered for adoption and successful implementation in Zimbabwe.

Recommendations and Conclusion

It can be noted from the discussions above that SCPZs fundamentally contribute towards food security and restoring food systems through their ability to boost agricultural productivity and integrate the production, processing and marketing of agricultural commodities. This is because they are integrated facilities that allow agricultural producers, processors, aggregators and distributors to operate in the same hub or zone. As a result, SCPZs reduce transaction costs and share business development services for increased productivity and competitiveness, create employment for rural areas and stimulate rural development through agriculture-led industrialisation.

In the case of Zimbabwe, the analysis shows that the country stands to benefit immensely if it adopted an agro-ecological zone approach in identifying and locating its SCPZs and accorded them SEZ status. This would attract massive investment in peripheral areas, which would not only transform the economy through increased value addition but also promote FDI in the agro-processing industry, thereby boosting the country's exports for development. Rural development, which is a consequence of SCPZs, assists in reducing rural–urban migration, which has been unnecessarily causing urbanisation without growth (as most of the migrants remain unemployed) whilst robbing the rural areas of a productive population.

The article has argued that SCPZs in Zimbabwe may utilise identified growth points across the country as the foundation for developing growth nodes or nodal poles for establishing SCPZs. Whilst most of them are now largely ghost towns as a result of several economic development and policy factors, growth points still present advantages for the establishment of SCPZs given their proximity to transport networks, water facilities, energy and other social service amenities. If infrastructure is not upgraded and maintained, the cost of doing business will make the agro-processing products uncompetitive.

In terms of the format, structure, design and operational modalities of SCPZs as a strategy for boosting food security and restoring local food systems, the research recommends the adoption of SCPZ authorities that will oversee, manage and administer these initiatives. These should be staffed with competent and dynamic personnel, and should be allowed to carry out their mandate without any destructive interference from the relevant institutions. Procedurally, the SCPZ authorities should oversee the

undertaking of a SWOT analysis on the establishment of a SCPZ. This would culminate in a SCPZ policy for Zimbabwe that would guide the set-up of SCPZs in the country. Feasibility studies would then be undertaken to pave the way for the identification of pilot SCPZs. On the strength of identified challenges, complexities and successes, further SCPZs could then be replicated in other agro-ecological regions across the country.

Lastly, it is recommended that for SEZs to succeed, Zimbabwe would need to create a conducive environment for business, reducing the cost of doing business and also addressing governance issues. Such an environment would encompass a good business regulatory framework, investor-friendly laws, restraint of corruption, adequate infrastructure and stable macroeconomic conditions, among other factors. The latest World Economic Forum Global Competitiveness Index scores and rankings for Zimbabwe may discourage investors as the environment for doing business in the country is compromised. There is therefore the need to continue addressing the identified gaps and challenges to facilitate more FDI into the agricultural sector. With SCPZs, there is a high likelihood that the agriculture-led economic growth envisaged in the country's Vision 2030 would be realised, which would boost food security and restore local food systems in the country. Zimbabwe could make effective use of the country's National Competitiveness Commission to step up efforts in co-ordinating all the relevant government departments and private sector stakeholders involved in FDI promotion and facilitation, infrastructure development, etc. In doing so it could improve its WEF Competitiveness Rankings and World Bank Ease of Doing Business Rankings, thus enhancing its investment climate and overall attractiveness as an FDI destination. This is because SCPZs largely rely on PPPs, given their huge capital requirements, hence the importance of private sector partnerships.

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Note

1. Nkonyeni Agric-Hub in Mazowe is the only agricultural SEZ in the country. The other eight SEZs, gazetted on 17 August 2018, are ZISCO (Redcliff), Selous Afrochine (Selous), Victoria Falls (Victoria Falls), Norton Business Park (Norton), Ecosoft (Goromonzi), Bernard Diamond and Jewellery Centre, Workington Tradekings and Sunway City Technology Park (all in Harare).

References

- Adedapo, A., 2014, Nigeria: UNIDO – Nigeria's Staple Crop Zones to Gulp U.S. \$1.063 Billion, *AllAfrica*, 13 February, <https://allafrica.com/stories/201402130386.html> Accessed 30 April 2019.
- African Development Bank (AfDB), 2016, AfDB launches 'Feed Africa: A Strategy for Agricultural Transformation in Africa 2016–2025', <https://www.afdb.org/en/news-and-events/afdb-launches-feed-africa-a-strategy-for-agricultural-transformation-in-africa-2016-2025-16122#:~:text=The%20AfDB's%20Feed%20Africa%20strategy,where%20it%20has%20comparative%20advantage> Accessed 9 February 2022.
- African Development Bank (AfDB), 2017a, Study on African Staple Crops Processing Zones (SCPZs), https://www.afdb.org/fileadmin/uploads/afdb/Documents/Generic-Documents/Study_on_African_Staple_Crops_Processing_Zones_SCPZs.pdf, Accessed 9 February 2022.
- African Development Bank (AfDB), 2017b, Feed Africa: Strategy for Agricultural Transformation in Africa 2016-2025, https://www.afdb.org/fileadmin/uploads/afdb/Documents/Generic-Documents/Feed_Africa_-_Strategy_for_Agricultural_Transformation_in_Africa_2016-2025.pdf Accessed 9 February 2022.
- African Development Bank (AfDB), 2020, EOI – Nigeria – Feasibility Studies for Special Agro-Industrial Processing Zones (SAPZs) in Nigeria, AfDB, 30 March, <https://www.afdb.org/en/documents/eoi-nigeria-feasibility-studies-special-agro-industrial-processing-zones-sapzs-nigeria> Accessed 15 June 2020.
- Aggarwal, A., 2015, Promoting food processing through food parks and food processing special economic zones: The Indian experience, in Christy, R. D., Da Silva, C. A., Mhlanga, N., Mabaya, E. and Tihanyi, K., eds, *Innovative institutions, public policies and private strategies for agro-enterprise development*, Singapore: World Scientific Publishing Company, Inc, pp. 189-219.
- Alemu, A. E., Mathijs, E., Maertens, M., Deckers, J. and Bauer, H., 2012, Vertical Coordination in the Local Food Chains: Evidence from Farmers in Ethiopia, *International Journal of Economics and Finance Studies*, Vol. 4, No. 1, pp. 11–20.
- AllAfrica, 2019, *Ethiopia: Agro-Processing Industrial Parks to Be Completed This June, 2 February*, <https://allafrica.com/stories/201902050837.html> Accessed 30 April 2019.
- Ambuko, J., 2017, Why reducing post-harvest losses is a priority for Africa, *The Conversation*, 20 November, <https://theconversation.com/why-reducing-post-harvest-losses-is-a-priority-for-africa-87312> Accessed 20 April 2019.
- Asokan, S. R. and Singh, G., 2003, Role and constraints of contract farming in agro-processing industry, *Indian Journal of Agricultural Economics*, Vol. 58, No. 3, p. 566.

- Bräutigam, D. and Xiaoyang, T., 2011, African Shenzhen: China's special economic zones in Africa, *The Journal of Modern African Studies*, Vol. 49, No. 1, pp. 27–54.
- Chigudu, A., 2019, Institutional frameworks for urban development in Zimbabwe and Zambia: Change and continuities, *Journal of Public Administration and Development Alternatives (JPADA)*, Vol. 4, No. 2, pp. 1–16.
- Chirisa, I. and Mukarwi, L., 2019, Emerging Settlement Planning and Development Paradigms with Reference to Zimbabwe, *The Sustainability Ethic in the Management of the Physical, Infrastructural and Natural Resources of Zimbabwe*, Mankon, Bamenda: Langa Research and Publishing, p. 13.
- Chitongo, L. 2017, The efficacy of small holder tobacco farmers on rural development in Zimbabwe, doctoral dissertation, University of the Free State, Qwaqwa Campus.
- Commission on Growth and Development (CGD), 2008, *The Growth Report: Strategies for sustained growth and inclusive development*, Washington, DC: World Bank.
- Corbridge, S., 2017, Urban–Rural relations and the counter-revolution in development theory and policy, in Potter, R. and Unwin, T., eds, *The Geography of Urban-Rural Interaction in Developing Countries*, London: Routledge, pp. 233–256.
- Crane, B., Albrecht, C., Duffin, K. M. and Albrecht, C., 2018, China's special economic zones: An analysis of policy to reduce regional disparities, *Regional Studies, Regional Science*, Vol. 5, No. 1, pp. 98–107.
- Da Silva, C. A. and Mhlanga, N., 2011, *Innovative policies and institutions to support agro-industries development*, Rome: Food and Agriculture Organization of the United Nations.
- Doronina, I. I., Borobov, V. N., Ivanova, E. A., Gorynya, E. V. and Zhukov, B. M., 2016, Agro-industrial clusters as a factor of increasing competitiveness of the Region, *International Journal of Economics and Financial Issues*, Vol. 6, No. 1S, pp. 295–299.
- El-Enbavy, H., Figueroa, J. L., El-Didi, H. and Breisinger, C., 2016, *The role of agriculture and the agro-processing industry for development in Egypt: An overview*, Egypt SSP Working Paper 3, December 2016.
- Essiet, D., 2014, Can food processing zones do the trick? *The Nation*, 25 July, <https://thenationonline.net/can-food-processing-zones-do-the-trick/> Accessed 30 April 2019
- Farole, T., 2011, *Special Economic Zones in Africa Comparing Performance and Learning from Global Experiences*, Washington DC: The World Bank.
- Farole, T. and Akinci, G., 2011, *Special Economic Zones: Progress, Emerging Challenges, and Future Directions*, Washington DC: The World Bank.
- Food and Agriculture Organization of the United Nations (FAO), 2006, Fertiliser use by crop in Zimbabwe. Rome: FAO, <http://www.fao.org/3/a0395e/a0395e06.htm#:~:text=Zimbabwe%20is%20divided%20into%20five,Vincent%20and%20Thomas%2C%201961> Accessed 20 June 2020.
- Food and Agriculture Organization of the United Nations (FAO), 2016, Country Profile – Zimbabwe, Version 2016, FAO Quastat Reports, <http://www.fao.org/3/i9842en/i9842EN.pdf> Accessed 25 May 2019.
- Food and Agriculture Organization of the United Nations (FAO), 2017, The future of food and agriculture: Trends and challenges, Rome: FAO, <http://www.fao.org/3/a-i6583e.pdf> Accessed 18 April 2019.

- Food and Agriculture Organization of the United Nations, FAO Statistical Database (FAOSTAT), 2019, Rome: FAO, <http://www.fao.org/faostat/en/#home> Accessed 23 May 2019.
- Food and Agriculture Organization of the United Nations (FAO), 2020, FAO in Zimbabwe: Zimbabwe at a glance, Rome: FAO, <http://www.fao.org/zimbabwe/fao-in-zimbabwe/zimbabwe-at-a-glance/en/> Accessed 11 July 2020.
- Gálvez Nogales, E. and Webber, M., eds, 2017, Territorial tools for agro-industry development – A Sourcebook, Rome: FAO, <http://www.fao.org/3/a-i6862e.pdf> Accessed 14 June 2020.
- Government of South Africa (RSA), 2015, Briefing Note on the Agro-Processing Sector in South Africa, <http://pmg-assets.s3-website-eu-west-1.amazonaws.com/151027/brief.pdf> Accessed 28 May 2019.
- Government of Zimbabwe (GoZ), 2012, Comprehensive Agricultural Policy Framework (2012–2032), April, <http://extwprlegs1.fao.org/docs/pdf/zim149663.pdf> Accessed 2 May 2019.
- Government of Zimbabwe (GoZ), 2018, Towards an Upper-Middle Income Economy by 2030: 'New Dispensation Core Values', 19 April, http://www.veritaszim.net/sites/veritas_d/files/GoZ%20Presentation%20DC%20-%2019-4-2018.pdf Accessed 25 May 2019.
- Green Climate Fund, 2018, Staple Crops processing Zone (SCPZ): Promoting sustainable agricultural value chains, 26 March, <https://www.greenclimate.fund/sites/default/files/document/19810-staple-crops-processing-zone-scpz-promoting-sustainable-agricultural-value-chains.pdf> Accessed 25 May 2019.
- Green Trade Initiative (GTI), 2019, Integrated Agro-Industrial Parks in Egypt: Piloting the concept in Qalyoubia Governorate, <https://www.unido.org/sites/default/files/files/2019-05/Agro-Industrail%20Parks%20-%20Qalyoubia%20case%201.pdf> Accessed 20 June 2020.
- International Monetary Fund (IMF), 2020, Zimbabwe: 2019 Article IV Consultation- Press Release; Staff Report; and Statement by the Executive Director for Zimbabwe. International Monetary Fund African Dept., 26 March, <https://www.imf.org/en/Publications/CR/Issues/2020/03/19/Zimbabwe-2019-Article-IV-Consultation-Press-Release-Staff-Report-and-Statement-by-the-49283> Accessed 20 June 2020.
- Japan International Cooperation Agency (JICA), 2009, Feasibility Study on Agro-industrial Park Development in the Jordan River Rift Valley, Final Report Volume 1 (Main Report) May 2009, JICA/Ministry of Planning and Ministry of National Economy/Palestinian National Authority (PNA), http://open_jicareport.jica.go.jp/pdf/11937398_01.pdf Accessed 25 April 2019.
- Jenane, C., 2016, Investing in Agropole and Agro-processing Zones: Agriculture Global Practice, African Development Bank Group Workshop on the Role of Agropoles and Agro-Processing Zones in Feeding and Industrializing Africa. Abidjan, 22–23 March, https://www.afdb.org/fileadmin/uploads/afdb/Documents/Generic-Documents/Investing_in_Agropole_and_Agro-processing_Zones_by_Chakib_Jenane.pdf Accessed 28 April 2019.
- Magoronga, M., 2022, ZISCO Prospective Investors Await Cabinet Nod, *Herald*, 19 January, <https://www.herald.co.zw/zisco-prospective-investors-await-cabinet-nod/> Accessed 9 February 2022.

- Mazwi, F., Chibwana, M. and Muchetu, R. G., 2017, Land, agrarian reform in Zimbabwe viewed from a transformative social policy perspective, *Africanus*, Vol. 47, No. 1, pp. 1–17.
- Ncube, L., 2018, Command agriculture to continue for next 10 years, *The Chronicle*, 29 October, <https://www.chronicle.co.zw/command-agriculture-to-continue-for-next-10-years/> Accessed 10 May 2019.
- Ndlovu, P., 2016, Connecting command agriculture with industry revival, *The Chronicle*, 15 September, <https://www.chronicle.co.zw/connecting-command-agriculture-with-industry-revival/> Accessed 10 May 2019.
- Nyandoro, M. and Muzorewa, T. T., 2017, Transition from growth point policy to liberal urban development in Zimbabwe: The emergence of Ruwa Town, 1980–1991, *TD: The Journal for Transdisciplinary Research in Southern Africa*, Vol. 13, No. 1, pp. 230–239.
- Page, J., 2012, Can Africa Industrialise? *Journal of African Economics*, Vol. 2, Suppl 2, pp. 86–124.
- Pathak, V. K., Chakraborty, H. and Pandey, K. M., 2015, A Study on Feasibility of Cold Storage and Food Processing Units for Pineapple in Assam, *Journal of Basic and Applied Engineering Research (JBAER)*, Vol. 2, No. 17, pp. 1549–1554.
- Rao, K. L., 2006, Agro-industrial parks experience from India, Agricultural and Food Engineering Working Document, Rome: FAO.
- Rawat, I., Chhuneja, N. K., Gite, L. P. and Meena, M. S., 2017, Health Hazards Among Workers of Agro-Processing Industries: An Exploratory Research in Punjab's Context, *National Academy Science Letters*, Vol. 40, No. 1, pp. 1–3.
- Rezaei-Moghaddam, K. and Karami, E., 2008, A Multiple Criteria Evaluation of Sustainable Agricultural Development Models Using AHP, *Environment, Development and Sustainability*, Vol. 10, No. 4, pp. 407–426.
- Scoones, I., 2016, Land reform, livelihoods and the politics of agrarian change in Zimbabwe, in Pallotti, A. and Tornimbeni, C., eds, *State, Land and Democracy in Southern Africa*, London, UK: Routledge, pp. 127–148.
- Sharma, K. D., Pathania, M. S. and Lal, H., 2010, Value chain analysis and financial viability of agro-processing industries in Himachal Pradesh, *Agricultural Economics Research Review*, Vol. 23, pp. 515–522.
- Sibandza, B. M., 1985, Growth points – A focus for rural development in Zimbabwe, *Agricultural Administration*, Vol. 19, No. 3, pp. 161–174.
- Singh, K., 2004, Emerging trends in agro processing sector, *Indian Journal of Agricultural Economics*, Vol. 59, Issue 2.
- Tekwa, N. and Adesina, J., 2018, Gender, Poverty and Inequality in the Aftermath of Zimbabwe's Land Reform: A Transformative Social Policy Perspective, *Journal of International Women's Studies*, Vol. 19, No. 5, pp. 45–62.
- Udemezue, J. C. and Osegbue, E. G., 2018, Theories and models of agricultural development, *Annual Review of Materials Research*, Vol. 1, No. 5, pp. 1–4.
- United Nations (UN), Department of Economic and Social Affairs, Population Division, 2017, World Population Prospects: The 2017 Revision, Key Findings and Advance Tables, Working Paper No. ESA/P/WP/248.

- United Nations Conference on Trade and Investment (UNCTAD), 2021, World Investment Report for 2021, Geneva: UNCTAD.
- United Nations Development Programme (UNDP), 2015, If Africa build nests, will the birds come: Comparative Study on Special Economic Zones in Africa and China, UNDP Working Paper Series No. 6, 2015.
- United Nations Economic Commission for Africa (UNECA), 2018, *Countries must focus on macroeconomic, trade and gender policies in agriculture to achieve the SDGs – ECA Chief, Addis Ababa: UNECA*, <https://www.uneca.org/stories/countries-must-focus-macroeconomic-trade-and-gender-policies-agriculture-achieve-sdgs-eca> Accessed 16 April 2019.
- United Nations Industrial Development Organization (UNIDO), 2018, Integrated Agro-Industrial Parks (IAIPs) in Ethiopia, <https://isid.unido.org/files/Ethiopia/Integrated-Agro-Industrial-Parks-Overview.pdf> Accessed 23 April 2019.
- United Nations Office for the Coordination of Humanitarian Affairs, 2020, Zimbabwe – Agro-ecological Zones Map., <https://reliefweb.int/sites/reliefweb.int/files/resources/7BFF49F0B55F020085257664007D5442-map.pdf> Accessed 17 June 2020
- Waeterloos, E. and Rutherford, B., 2004, Land reform in Zimbabwe: Challenges and opportunities for poverty reduction among commercial farm workers, *World Development*, Vol. 32, No. 3, pp. 537–553.
- Wekwete, K. H., 1988, Rural Growth Points in Zimbabwe – Prospects for the future, *Journal of Social Development in Africa*, Vol. 3, No. 2, pp. 5–16.
- Wekwete, K. H., 1989, Growth centre policy in Zimbabwe, *Tijdschrift voor economische en sociale geografie*, Vol. 80, No. 3, pp. 131–146.
- Wekwete, K. H., 1990, Rural urbanisation in Zimbabwe: Prospects for the future, in Small town Africa, Studies in rural–urban interaction, Seminar proceedings, Vol. 23, pp. 130–142.
- Wilkinson, J. and Rocha, R., 2008, The Agro-processing Sector: Empirical Overview, Recent Trends and Development Impacts, Plenary paper at Global Agro-Industries Forum (GAIF), 14 April.
- World Bank, 2008, Special Economic Zones: Performance, Lessons Learned, and Implications for Zone Development, <https://documents1.worldbank.org/curated/en/343901468330977533/pdf/458690WP0Box331s0April200801PUBLIC1.pdf> Accessed 9 February 2022.
- World Bank, 2016, The Staple Crop Processing Zones (SCPZs) Project, Nigeria, <http://www.worldbank.org/projects/P148616?lang=en> Accessed 19 April 2019.
- World Bank Group, 2022, Rural population (% of total population) – Zimbabwe, <https://data.worldbank.org/indicator/SP.RUR.TOTL.ZS?locations=ZW> Accessed 9 February 2022.
- World Economic Forum (WEF), 2018, The Global Competitiveness Index 2017–2018 edition, Zimbabwe, http://www3.weforum.org/docs/GCR20172018/03CountryProfiles/Standalone2-pagerprofiles/WEF_GCI_2017_2018_Profile_Zimbabwe.pdf Accessed 1 June 2019.
- Zimbabwe Special Economic Zones Authority (ZIMSEZA), 2019, About ZIMSEZA, <https://www.zimseza.co.zw/about-zimseza/> Accessed 1 June 2019.



The Food Security, Employment and Migration Nexus in Zimbabwe Post-Land Reform: A Gender Perspective

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Abstract

Serious inequalities in asset distribution in many developing countries consistently remain a key driver of household food insecurity, high unemployment, poverty and, ultimately, rural outmigration. Yet, the employment-retaining capacity of agriculture and its counter to rural-urban, including international, migration has been proven in many contexts. The 2000 land reform programme in Zimbabwe saw between 12 and 18 per cent of women gaining access to land in their own right. Using a transformative social policy approach, the article explores the extent to which land reform as a social policy instrument enhanced household food security and rural incomes and opened new employment opportunities for beneficiaries relative to non-land reform beneficiary households. Highlighting the migration-social-policy nexus, I argue for land reform as a restraint to not only rural-urban but also international migration. Data gathered through a mixed methods ethnographic approach, combining in-depth interviews and surveys, and analysed using a combination of qualitative and quantitative methods, indicates that access to agricultural land and water can not only reduce but reverse rural to urban, including economically driven, international, migration. This suggests that continuous agrarianisation, in the Zimbabwean context, remains one plausible pathway to tackle the triple challenges of household food insecurity, unemployment and rural outmigration.

Keywords: household food security, poverty, unemployment, migration, land reform, Zimbabwe

Résumé

Dans de nombreux pays en développement, les graves inégalités dans la répartition des actifs demeurent un important facteur d'insécurité alimentaire des ménages, du chômage élevé, de la pauvreté et, en fin de compte, de l'exode rural. Pourtant, la capacité de maintien d'emplois dans l'agriculture et son impact

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dans la lutte contre la migration campagnes-villes, y compris internationale, ont fait leurs preuves dans de nombreux contextes. Au Zimbabwe, le programme de réforme agraire de 2000 a permis à entre 12 et 18 pour cent des femmes d'accéder de plein droit à la terre. En utilisant une approche de politique sociale transformatrice, le document revisite la réforme agraire en tant qu'instrument de politique sociale dans l'amélioration de la sécurité alimentaire des ménages et des revenus des ruraux, et a ouvert de nouvelles opportunités d'emploi pour ses bénéficiaires en comparaison de ménages non bénéficiaires de la réforme agraire. Je souligne le lien entre migration et politique sociale, et plaide pour la réforme agraire en tant que ralentisseur non seulement à la migration campagnes-villes, mais aussi internationale. Les données recueillies grâce à une approche ethnographique à méthodes mixtes, mêlant entretiens approfondis et enquêtes, et analysée à l'aide d'une combinaison de méthodes qualitatives et quantitatives indiquent que l'accès aux terres agricoles et à l'eau peut, non seulement réduire, mais également inverser les flux, y compris de la migration internationale pour des raisons économiques. Cela suggère que l'agrarisation continue, dans le contexte zimbabwéen, demeure une voie plausible pour relever le triple défi de l'insécurité alimentaire des ménages, du chômage et de l'émigration.

Mots-clés : sécurité alimentaire des ménages, pauvreté, chômage, migration, réforme agraire, Zimbabwe

Introduction

Whilst vast populations in the developing world continue to rely on agriculture as their main source of livelihood (Mkandawire 2014: 26), agriculture increasingly provides insufficient incomes and employment opportunities, which stimulates a massive exodus from the countryside. The desire to escape poverty, chronic food insecurity, lack of employment opportunities, as well as ethnic, gender and other forms of discrimination and marginalisation, have been identified as the key drivers of rural to urban, including international, migration in much of the developing world (Sadiddin et al. 2019: 522; Ataç and Rosenberger 2019: 6). In a technical report that links migration, agriculture, food security and rural development, the FAO, IFAD, IOM and WFP concluded that rural areas are a major donor of a large share of international migrants (FAO et al. 2018: 1). In much of the settler colonies, particularly in southern Africa, these processes are, however, not new. Colonial land dispossession of indigenous Zimbabweans was consciously crafted 'to delink the black majority from their source of wellbeing and prosperity (prime land) (Tom 2020: 111). In Chiredzi District, from the 1930s these experiences included the forced removals of indigenous Shangaan people to make way for the establishment of the Gonarezhou National Park (Tavuyanago 2017). In the district, the

triple tragedy of 'arid soils, sparse rainfall and overcrowding in the areas designated for indigenous settlement eliminated guarantee for producing adequate food among the ever-growing African population' (Utete 2003; Tavuyanago 2017: 63; Manamere 2014). Consequently, indigenous farmers, including the Shangaan people, abandoned farming and opted to migrate to work in mines, factories and commercial farms (large-scale commercial sugar plantations in the case of Chiredzi), for wages (Gundani 2003, cited in Tom 2020: 112; Manamere 2014). Vulnerability to food shortages, malnutrition, disease and death, which were the outcomes of alienation from prime land, represented deliberately induced forms of forced migration of indigenous populations (Mukanya 1991, cited in Tom 2020: 111). Thus, in Chiredzi every communal rural household has reported having a migrant worker in South Africa (Manamere 2014).

With the turn of the millennium such processes remained key drivers of rural to urban migration in post-independent Zimbabwe, as a result of limited rural resettlement coupled with dwindling household arable land sizes due to the intergenerational subdivision of plots (Moyo and Makumbe 2000). It is under such circumstances that the so-called inevitable processes of deagrarianisation and depeasantisation need to be interrogated.

Zimbabwe recently implemented an extensive land reform exercise which some view through the prism of the global counter-processes of reagrarianisation and repeasantisation as opposed to hegemonic deagrarianisation and depeasantisation (Hebinck 2018: 6; Scoones et al. 2012: 2). Deagrarianisation is broadly referred to, in the scholarly literature, as a process that produces social, material and biophysical conditions un conducive to the reproduction of agricultural land-based livelihoods (Bryceson 2002a, 2002b). Depeasantisation manifests where farming increasingly becomes organised by corporate entities, which entails the disappearance of the peasantry whose livelihoods are tied to the land (Hebinck 2018: 2).

In many contexts, the processes of deagrarianisation and depeasantisation have been associated with the creation of food insecurity and hunger, which are then used to denigrate family farming in favour of corporate farming. Migration that emanates from the processes of depeasantisation has also been associated with a rise in urban hopelessness and a jobless non-agrarian future (Stone 2000: 575; Hebinck 2018: 4). Land dispossession and the abandonment of farming as a source of livelihood are catastrophic for cities, which find it difficult to absorb great influxes of people due to the displacement of the agricultural peasantry (Stone 2000: 575).

The role of state lending in these processes cannot be ignored, particularly its retreat from the reorientation of agricultural policies, from the provision

of state-led agricultural support for family farms in favour of the market (Rusike 2000, cited in Poulton et al. 2002: 51). The neoliberalisation of national economies and the associated risks since the 1990s negatively affected many family farm operations and peasant land-based livelihoods (Hebinck 2018: 3; see also Tekwa and Tekwa 2022). In the Zimbabwean context, this was accompanied by the dismantling of parastatal agricultural marketing boards, which induced volatility and instability within the domestic agricultural market (Sibanda and Makwata 2017: 9; Zhou 2000: 198; Tekwa and Tekwa 2022). In addition, the repositioning of the state narrowed the political arenas in which family farmers could seek state protection for their rights to land (Borras and Franco 2010). This has an attendant effect of increasing tenure insecurity, household food insecurity and pressure on agricultural employment and incomes, further spurring the rural exodus. These processes provide a more plausible explanation for the observed dynamics of rural livelihoods and migration than those allowed by the inexorable deagrarianisation and depeasantisation theses (Sadiddin et al. 2019; Knoll et al. 2017; FAO et al. 2018; Laborde et al. 2017; Bryceson 2002a, 2002b). The confluence of de-/reagrarianisation and de-/repeasantisation offers critical scope for the understanding and conceptualisation of the food security, employment and migration nexus, particularly in the context of land reforms.

This article explores the gendered implications of Zimbabwe's land reform on migration in one of the country's districts, using detailed quantitative and qualitative empirical information that emanates from the author's doctoral fieldwork conducted in 2016. Specifically, conceptualising land reform as a social policy instrument within the Transformative Social Policy (TSP) framework, the following research questions inform the article.

1. What are the implications of the Fast Track Land Reform Programme (FTLRP) on household cultivable land size and household food and nutrition security for beneficiary versus non-beneficiary households in Chiredzi District, Zimbabwe?
2. What has been the effect of the enhanced access to land on own production and household employment creation for beneficiary relative to non-beneficiary households in Chiredzi District, Zimbabwe?
3. To what extent did access to land enhance household income security between land reform beneficiary households relative to non-land reform beneficiaries in Chiredzi District, Zimbabwe?
4. What policy implications on the gender dimensions of internal and international migration can be drawn from the socioeconomic outcomes of the FTLRP for beneficiary relative to non-land reform beneficiary households in Chiredzi District?

The hypothesis that informs the article sought to empirically test the efficacy of in-kind land transfers to rural households in curtailing or even reversing gendered outward rural migration following enhanced food security, on farm employment and rural household incomes. The rest of the article is structured as follows. The next section presents the conceptual framework, the Transformative Social Policy (TSP), to highlight the social policy-land reform-migration nexus that frames the study. The methods used to collect and analyse the data presented in the article are described, followed by a discussion of the results. The article concludes by highlighting the policy implications of land and agrarian reforms on gendered rural-urban and international migration.

Conceptual Framework: The Transformative Social Policy (TSP)

The transformative approach to social policy, which originates from the UNRISD flagship research programme, Social Policy in a Development Context (2000-2006), defines social policy as ‘collective public efforts aimed at affecting and protecting the wellbeing of people in a given territory’ (Adesina 2009: 38). Building on this, Thandika Mkandawire defined it as ‘collective interventions in the economy to influence access to and the incidence of adequate and secure livelihood and income’ (Mkandawire 2004: 1). As illustrated in Figure 1, the TSP approach offers a diversity of social policy instruments which are important and relevant to a ‘developmental context’ in the pursuit of human welfare and wellbeing. The diagram shows that land and agrarian reform is one redistributive social policy instrument within the TSP framework to enhance the productive capacities of individuals, households and communities; at the same time, it has a social protection function in protecting individuals, households and communities from socioeconomic vulnerabilities, including income, food and nutrition insecurity.

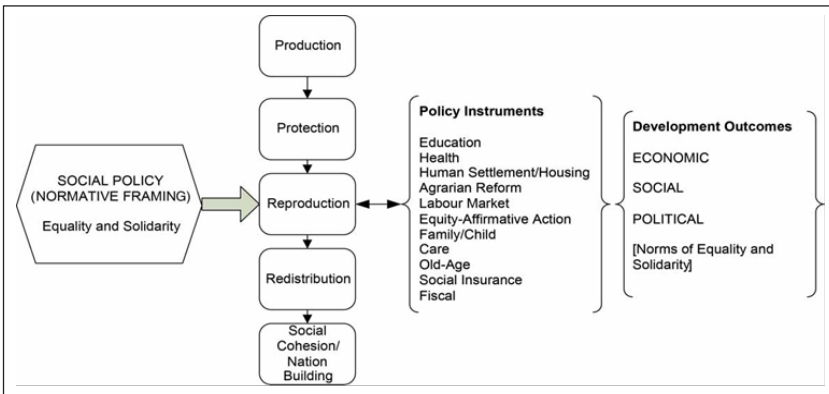


Figure 1: Transformative social policy – norms, functions, instruments and outcomes
 Source: Adesina (2011: 463)

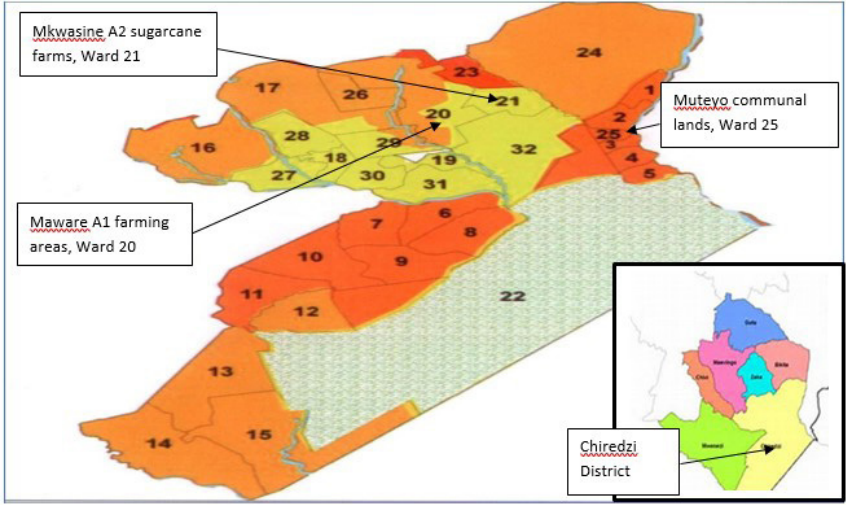
With insecurity of income, food and nutrition identified as the key drivers of rural-urban and international migration in much of sub-Saharan Africa (Sadiddin et al. 2019: 516; FAO et al. 2018; Knoll et al. 2017: 9). Social policy interventions that influence the household asset base, such as the in-kind transfer of productive resources through land and water reforms, have the potential to reduce household vulnerability levels, including food insecurity, and reduce individual and household distress-induced domestic and international migration (Knoll et al. 2017: 9; Laborde et al. 2017: 5). On the gender front, TSP emphasises the transformation of social relations and institutions, including those related to gender (Adesina 2011:466, 2009: 38; Mkandawire 2007). Women's gender disadvantage in access to productive resources (land, agricultural capital, credit and markets) is fuelling female migration in Africa (FAO et al. 2018: 25; Knoll et al. 2017: 13). Available statistics indicate that women constitute up to 48 per cent of migrants in sub-Saharan Africa, with 101 female migrants for every 100 male migrants for those aged twenty years (Knoll et al. 2017: 13; FAO et al. 2018: 25). This indicates that the rate of migration among females has been growing faster relative to that of their male counterparts (Knoll et al. 2017: 13). By implication, gender remains an important dimension in addressing agriculture and rural development in the context of internal and international migration dynamics due to gender discrimination in the access to productive resources (Knoll et al. 2017: 14).

Methods and Analysis

This article is based on a study conducted in 2016 in Chiredzi, one of the fifty-nine districts in Zimbabwe located in Masvingo Province, 433 kilometres southeast of the capital, Harare (see Map 1). In a context of land reform, the district's long history of labour migration characterised by labour migrants crossing the border to South Africa for generations (Manamere 2014) provides an interesting case for examining the extent to which land reform can reverse some of these long-established migration patterns.

Data from the three study sites was gathered through an ethnographic field study, using a mixed-methods approach that combined structured questionnaires, in-depth interviews, focus group discussions and key informant interviews. The quantitative sample comprised 105 survey participants drawn from three study sites. Two study sites, Maware A1 and Mkwasine A2 farming areas, represented resettlement (treatment areas), and the Muteyo communal area acted as a control, providing a reliable counterfactual. To give weight to the perspectives of women, two-thirds

of the qualitative study involved in-depth interviews with female land beneficiaries. The data analysis combined qualitative and quantitative methods, using Atlas.ti and SPSS, respectively.



Map 1: Chiredzi District (map of Zimbabwe insert) and the study sites
Source: Chiredzi District Agriculture and Extension Office

Discussion of Results

This section begins by profiling household demographic characteristics from the three study sites, to illustrate the migration characteristics of the different households that were surveyed during the research as preliminary evidence to buttress the arguments presented in the article. The survey instrument used in the preliminary quantitative study sought to investigate not only the sex and age of household members but also their residency, whether they stayed in the rural area (on-farm residency) or outside (off-farm residency). For the last, the survey instrument sought to specify the nature of the off-farm residency, that is, outside the rural area but in another rural area, in an urban area or, more interestingly for this research, in the diaspora. The diaspora was conceptualised in the study to mean any household member who had migrated outside Zimbabwe, whether within the southern African region or abroad (though the destination country was not requested). It is on the basis of the data collected from these questions on the survey instrument that the tables presented in the article were constructed.

Table 1 presents household demographic characteristics across four important migration age groups: less migratory – under 15 years; the more migratory, economically active age group of sixteen to forty-five years; the relatively migratory economic age group of forty-six to fifty-nine years; and the less migratory group above sixty years of age. Table 2 presents households' contribution to migration, depicting with or without off-farm residency. The idea was to capture household migration characteristics across the three study sites benchmarked against the socioeconomic outcomes of the Zimbabwean Fast Track Land Reform Programme.

Table 1: Demographic Characteristics of the Study Population Across the Three Study Sites

Study Sites	Below 15 Years	16–45 Years	46–59 Years	60+ Years	Total
Mkwazine A2 areas	35.0	51.6	12.1	1.3	100
Maware A1 areas	48.2	40.6	9.2	2.0	100
Muteyo communal areas	50.6	35.1	7.9	6.4	100

Source: Fieldwork 2016

As presented in Table 1, the communal area that acted as the control group experienced greater attrition of its economic active age group compared to the other age groups presented in the table, if benchmarked against the two resettlement sites in the study. Whilst the A2 medium-size farming areas had the highest percentage of the more migratory economically active sixteen to forty-five age group, at 51.5 per cent, the control group had the smallest percentage, at 35.1 per cent; in the A1 small-scale resettlement areas this age group constituted 40.6 per cent of its population. The lower percentage of the more migratory economically active age group in the control group is offset by the highest rate of the less migratory group aged under 15 years, at 50.6 per cent relative to 35.0 per cent in the A2 medium-size resettlement areas and 48.2 per cent in the A1 small-scale farming areas.

The above observation is further buttressed by a relative high percentage of the less migratory above-sixty age group in the control group, at 6.4 per cent of the total population, relative to 1.3 per cent and 2 per cent in the A2 medium-scale farming areas and A1 small-scale farming areas, respectively.

The demographic structures represented by the data in Table 1 and Table 2 reveal that the A2 farming areas and the control group had an almost equal percentage of off-farm residency – 47 per cent and 48 per cent – combining both local and diaspora off-farm residency. This seemingly

Table 2: Households With and Without Off-Farm Residents: Diaspora and Local

Mkwesine A2 Areas								Maware A1 Areas							
With				Without		Total		With				Without Diaspora		Total	
Diaspora		No Diaspora						Diaspora		No Diaspora					
No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
1	3.0	14	44	17	53	32	100	0	0	1	3	32	97	33	100

Muteyo Communal Areas							
With				Without		Total	
Diaspora		No Diaspora					
No	%	No	%	No	%	No	%
16	40	3	8	21	52	40	100

Source: Fieldwork 2016

equal contribution to off-farm residency, which implies rural outmigration, requires further qualification. The A2 sugarcane plots in Chiredzi District that measured an average of 20 hectares in area, created from the subdivision of former large-scale estate and foreign-owned outgrower sugarcane plots, did not have provision for on-site accommodation, unlike the self-contained sugarcane plots where the farmer residency is within the plot. Land reform sugarcane plot beneficiaries were allocated former estate managers' accommodation, which was not enough to accommodate all the incoming indigenous sugarcane growers. A good number were housed in former farm labourer compounds, which meant that they lived off-site but in proximity to their fields. Whilst some sugarcane plot beneficiaries moved in with their families, others had household members staying in Chiredzi town, but not as migrants. Thus, much of the off-farm residency – that is, 44 per cent in the A2 farming households – was local (Chiredzi town) relative to only 3 per cent diaspora. Contrastingly, in the control group, the diaspora constituted 40 per cent of the households with off-farm residency relative to 8 per cent of local off-farm residency. The above statistics support observations by the Food and Agriculture Organization (FAO) (2018) that

a large share of international migrants originate from rural areas (2018: 1). The A1 farming areas had the least number of households with off-farm residency, with 97 per cent on-farm residency, indicating that no household members had migrated elsewhere in the majority of the surveyed households. Subsequent sections seek to qualify the observed household demographic migration characteristics across the three study sites.

Gender-Household-Land Size-Migration Nexus

In Chiredzi District, as in other resettlement districts, one of the redistributive outcomes of the latest land reform programme in Zimbabwe was the transfer of productive agricultural land to ordinary people, including women, which was dubbed 'the return to the land' (Moyo et al. 2009; Scoones et al. 2010; Moyo 2011). Illustrating the redistributive function of social policies framed within the TSP framework, Table 3 shows the net transfer of land to households engendered by the FTLRP in Zimbabwe in the 2000s. It depicts that per capita cultivable land was highest in resettled areas, at 3.36 hectares and 2.28 hectares for A2 and A1 areas, respectively. This is in contrast to 0.4 hectares in the control group, where the minimum was as low as 0.08 hectares. Such disparities in landholdings between resettled and communal households help in explaining the food-nutrition-migration nexus, where land shortage leads to household food and nutrition insecurity resulting in outmigration from the communal areas of Zimbabwe (Potts 2010; Knoll et al. 2017: 3; Lowder, Skiet and Raney 2016; Choithani 2016). Prior to the FTLRP, symptoms of land hunger in the communal areas included squatting and encroachment onto underused commercial land (Moyo et al. 2009; Moyo 2011).

The smaller land sizes in the control group represent a colonial legacy in which the continual subdivisions of land within the former 'native reserves' (now the 'communal areas', a consequence of population expansion) had given rise to livelihood viability problems (Moyo and Makumbe 2000; Amanor-Wilks 2009: 19). A gendered analysis of Table 3 reveals a statistically significant correlation with a Chi-square exact test of significance *p*-value of .01 between gender of household head and land size within the control group area, which suggests the effect of cultural norms in access to land. The concomitant effect on the demographic composition of the rural to urban migration (Table 1) would comprise males and females with a higher rate for the latter, as suggested in recent literature (Knoll et al. 2017: 13; FAO et al. 2018: 25).

Table 3: FTLLRP Land Transfers and Household Cultivable Land Size (ha) by Gender

land Size (Ha)	Mkwesine A2 Areas						Maware A1 Areas						Muteyo Communal Areas					
	Male		Female		Total		Male		Female		Total		Male		Female		Total	
	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
3 ha and below	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	14	35.0	17	42.5	31	77.5
4-5 ha	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	4	10.0	5	12.5	9	22.5
6-10 ha	0	0.0	0	0.0	0	0.0	7	21.2	11	33.3	18	54.5	0	0.0	0	0.0	0	0.0
11-15 ha	2	6.3	1	3.1	3	9.4	5	15.2	4	12.1	9	27.	0	0.0	0	0.0	0	0.0
16-20 ha	5	15.6	9	28.1	14	43.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
21-25 ha	2	6.3	6	18.8	8	25.0	0	0.0	1	3.0	1	3.0	0	0.0	0	0.0	0	0.0
Above 25 ha	3	9.4	4	12.5	7	21.9	3	9.1	2	6.1	5	15.2	0	0.0	0	0.0	0	0.0
Chi-square P-value						1.727						1.943						.001
Per capita land ave.						3.36						2.28						0.40
Per capita max (ha)						8.60						8.33						1.0
Per capita minimum						1.38						0.38						0.08

The hypothesis that links gender of household head to the size of cultivable land they control was rejected in both the resettlement sites where the Chi-square test of significance recorded a p-value above 0.05, suggesting no correlation between gender of household head and available land size. Thus, the effect of access to land on household food and nutrition security is likely to equalise irrespective of the gender of the household head, equally dampening the desire to migrate across gender (Ba et al. 2017: 32; Knoll et al. 2017: 13; FAO et al. 2018: 25). Relatedly, FAO et al. (2018) found gender inequalities in access to land to be one factor that pushed younger women into cities in search for better economic opportunities (2018: 25). This points to land shortage as one key driver of rural to urban migration, including international migration, in Zimbabwe, as shown in Table 1.

The household migration characteristics presented above suggest that, while anecdotal evidence indicates only 10 per cent of households in Zimbabwe to have benefited in the FTLRP, there is sufficient evidence to show that enhanced access to land has the potential to curtail or reverse rural outmigration, including the diaspora, altogether. Evidence presented in the article affirms that mainly rural households with poor endowments are the ones most likely to send younger members out for work elsewhere (FAO et al. 2018: 20). In the Zimbabwean case, Potts (2010) observed that as early as the 1990s an increasing proportion of urbanites (one beneficiary category of the FTLRP) were planning or anticipating return moves to rural areas in 1994, and an even larger proportion in 2001. Most urban migrants had positive attitudes towards the land reform programme and judged that the beneficiaries had generally gained materially. In addition, the perceptions of the security and benefits of urban-based livelihoods had deteriorated very sharply compared to the 1980s – a rational response to national economic trends (Potts 2010). As such, Zimbabwe was already tilted towards a return to the countryside, resulting in reagrarianisation and repeasantisation and a potential reversal in the rural to urban migration characteristic of the 1990s (Scoones et al. 2012; Hebinck 2018).

Land Access, Own Account Production/Employment and Migration

The employment-retaining capacity of agriculture exemplified by the South-East Asian experience provides important insights into the land-employment-migration nexus in Africa (Mkandawire 2014). Whilst one of the key drivers of migration is the lack of employment opportunities in the rural economy, the empirical evidence from this study points to the potential of family farms to provide employment for a much larger number of people per unit of farmland than large-scale capital-intensive farming

Table 4: Use of Permanent, Casual and Family Labour by Gender of Plot Owner

	Hire Permanent Labour				Hire Casual Labour				Use of Family Labour				
	Yes		No		Yes		No		Yes		No		
	No	%	No	%	No	%	No	%	No	%	No	%	
Mkwesine A2 farms	Male	12	37.5	0	0.0	7	21.9	5	15.6	1	21.9	5	15.6
	Female	20	62.5	0	0.0	17	53.1	3	9.4	9	28.1	11	34.4
	Total	32	100	0	0.0	24	75.0	8	25.0	16	50.0	16	50.0
		Male	4	12.1	11	33.3	12	36.4	3	9.1	15	45.5	0	0.0
Muteyo A1 farms	Female	3	9.1	15	45.5	18	54.5	0	0.0	18	55.5	0	0.0
	Total	7	21.2	26	78.8	30	90.9	3	9.1	33	100	0	0.0
	Male	2	5.0	15	37.5	2	5.0	16	40.0	18	45.0	0	0.0
	Female	0	0.0	22	55.0	0	0.0	22	55.0	22	55.0	0	0.0
Total	2	5.0	37	92.5	2	5.0	38	95.0	40	100	0	0.0	

Source: Field notes (2016)

units do, due to their labour intensity (Milone and Ventura 2010; Lowder et al. 2016; Van der Ploeg 2017). Illustrating the extent to which social policies framed within the TSP approach seek to enhance the productive capacities of individuals, households and communities, Table 4 presents the use of permanent, casual and family labour in the three study sites that were investigated. The table reveals the considerable scope for expansion of employment in agriculture and the rural economy in the aftermath of land and water sector reforms, with the potential to retain the economically active age groups and curtail rural outmigration (Laborde et al. 2017).

A closer analysis of Table 4 reveals a higher use of farm labour in resettlement areas as opposed to the communal (control) areas, suggesting that the employment opportunity potential is greater in the former than in the latter. In the A2 areas (medium-scale farms), all households hire permanent farm labour, with above 50 per cent of the households making use of both casual and family labour on their farms. Whilst the A1 farming areas (small-scale farms) reported a low percentage use of hired permanent labour, close to 80 per cent of the households used casual labour and all households made use of family labour on the farms. The lack of potential employment opportunities in the control area can be deduced from the absence of the use of permanent and casual labour, with over 90 per cent of the households making use of neither of the two. As suggested by Table 1 and 2, such a lack of employment opportunities in the control group, which represents much of the communal areas in Zimbabwe, has the potential to stimulate the desire to migrate out of the rural areas in search of economic opportunities elsewhere, internally or internationally (Knoll et al. 2017: 3; FAO et al. 2018: 20).

Reinforcing the importance of land as a source of employment, particularly in the rural areas, all households in the control group indicated land as their source of employment. Paradoxically, this is against a backdrop of increasing land shortages and sub-economical average household cultivable land size of less than 0.4 hectares, which spurred rural outmigration to the urban areas in the 1990s and to the diaspora from the 2000s. The labour absorption and employment-retaining capacity of rural economies in the context of agriculture and land reforms is presented in Table 5, showing the size and forms of employment across the three study sites in Chiredzi. The table illustrates that access to land not only provided employment in the form of hired labour but also absorbed family labour of land reform beneficiaries working on their newly government-created family farms.

Table 5: Utilisation of hired and family labour in Chiredzi resettled and communal areas

Labour Utilisation	Mkwazine A2 Areas			Maware A1 Areas			Muteyo Communal		
	Hired	Family	Total	Hired	Family	Total	Hired	Family	Total
Mean/Average	3.69	2.58	6.27	2.14	5.6	7.7	1.5	4.4	5.9
Maximum	10	7	-	6	23	-	1	1	-
Minimum	1	0	-	1	2	-	2	10	-

Source: Fieldwork (2016)

Whilst the A2 sugarcane plots indicated the highest amount of hired labour with an average of 3.69 persons, it is the smaller-scale A1 farms that provided the highest absorption of family labour, with a combined labour absorption of 7.7 persons. Such a labour-retaining capacity of access to land is particularly important in the face of high youth unemployment and migration, currently emerging as an important and contemporary agrarian question (Hebinck 2018: 3; Chipenda and Tom 2019). The labour-absorption capacity of land, despite the economic challenges land reform beneficiaries are facing, is critical in enabling people to remain in their place or country of birth and to migrate out of choice rather than as the only option to escape poverty and economic hardship (Laborde et al. 2017: 5).

It has been observed that youths in Africa are facing the highest under- and unemployment rates and many move away from rural areas because of the unattractiveness of low-productivity agriculture (FAO et al. 2018: 24). With around 20 million people entering the labour market every year (of which 12 million are in rural areas), the challenge for policy-makers in sub-Saharan Africa in the next decades is to generate enough employment to absorb its booming labour force (AfDB 2016: 1). Therefore, policies to tackle the challenges associated with migration must consider its agricultural, rural and gender dimensions. This suggests that agriculture and rural development must be an integral part of any policy response to large-scale migratory movements. In Senegal, according to recent surveys in the Groundnut Basin, the Delta and the Niayes regions, 51 per cent of young people who had migrated to an urban area did not possess any productive resource (land or livestock) in the locality of origin (Ba, Bourgoin and Diop 2017: 32). This situation was even more pronounced for women, at 76 per cent, reflecting not only the gendered pattern of migration but also asset ownership in Africa (Ba et al. 2017: 32; Knoll et al. 2017: 13; FAO et al. 2018: 25). Such statistics highlight the importance of the land-gender-employment-migration nexus on the African continent.

In the 2000s, engendered by the economic crisis, Zimbabwe witnessed unprecedented outmigration to neighbouring countries, particularly South Africa, which is currently estimated to be hosting over three million migrant Zimbabweans (Sisulu, Moyo and Tshuma 2007, cited in De Jager and Musuva 2016: 16). A sizeable number migrated overseas, mainly to the UK. Anecdotally, some have directly linked these patterns of migration to the land reforms of the 2000s. Evidence presented in this paper, though at a micro level, suggests that such assertions require further critical investigation; the nexus between land reform in Zimbabwe, particularly the FTLRP, and outmigration is yet to be fully interrogated. Knoll et al. (2017) hint at the impact of state-sponsored resettlement programmes on migration (Knoll et al. 2017: 12). Below are some perceptions and field experiences gathered during the researcher's ethnographic in-depth interviews with female land beneficiaries in Chiredzi District, with regard to access to land and migration, particularly to South Africa:

One of my sons who had gone to South Africa to look for work had actually returned and I am working with him on the farm. He even testifies that it is better to work here than being in South Africa. At times you hear him saying how can I work on a white man's farm in South Africa whilst my father has a farm back home? (A1 female land beneficiary, 11 April 2016)

The programme has created employment opportunities for many people. I no longer need to go to town or to South Africa to go and look for work. Right now, people are picking chilli and may get USD 30 at the end of the month to use in the household. (Married A1 female land beneficiary, 15 April 2016)

Many people come here looking for work to maintain their households. Even some young people who used to go to South Africa are realising that they are wasting time. Some who had gone to South Africa would come back and find people here owning televisions, cars and so on. (Female A1 land beneficiary, 21 April 2016)

I had employed relatives, but I found it difficult working with them, I then employed an irrigator including one of our sons. This son was in South Africa and is back to work on the farm. These two we pay them \$120 each per month. There are five household members working on the field. (Female A2 sugarcane land beneficiary, 13 September 2016)

The above narrative from field experiences suggests that access to land not only has an inverse relationship with internal migration, particularly rural to urban migration, but also international migration. The land reform beneficiaries cited above suggest that access to land provides economic options apart from migrating to South Africa to look for employment. Witnessed in the field sites were South African migrants who had returned to Zimbabwe to work on their family farms together with other household

members. These testimonies provide important policy insights on the land reform-migration dynamics in Zimbabwe, which experienced a mass exodus in the face of land redistribution at the turn of the millennium. It will be particularly insightful to investigate the donor areas, or areas of origin, of the majority of these international migrants in light of the above-lived experiences of beneficiaries of the 2000 land reform. Arguably, they have to be those experiencing deteriorating urban-based rather than rural livelihood insecurity, particularly in the resettlement areas.

Reinforcing the above observations but from a gender perspective, in her study of female land beneficiaries of the FTLRP at Merrivale Farm, Mwenezi District, Mutopo documented women farmers who engaged in short-term migration to neighbouring South Africa, not to seek employment as described in the mainstream literature but as a form of 'mobility pattern of agricultural marketing' (Mutopo 2014: 205, 2011: 1039; Mutopo, Manjengwa and Chiweshe 2014: 55). Such migration patterns were engendered by asset accumulation through the FTLRP (Mutopo 2014: 205). Collectively, the above points to the as yet inadequately explored nexus between land reform, gender, food security, employment and migration patterns in Zimbabwe post 2000. Such evidence suggests the potential impact of access to land not only on gender inequalities in economic terms but also on the gender dimensions of migration. This represents an interesting area for future and ongoing research on the socioeconomic outcomes of the land reform programme in Zimbabwe post-redistribution.

Access to Land, Guaranteed Source of Household Income and Migration

The causes or triggers of migration in Zimbabwe appear to be associated strongly with acute poverty, that is, people living on less than a US dollar a day (Dzingirai et al. 2015; Bracking and Sachikonye 2006; Raftopoulos 2011). Furthermore, migrants have been found to be drawn from households whose consumption expenditure per capita is below the food poverty line (Dzingirai et al. 2015). Consequently, I argue that if poverty gives rise to migration, it also appears to be eased by it. The study sought to understand the extent to which access to land had enhanced household incomes benchmarked against those obtaining in the communal areas that served as a baseline control group disaggregated by gender of household head. Undoubtedly, as presented in Table 6, access to productive agricultural land provides not only a source of employment but also an opportunity for access to personal as well as household income, reinforcing the income-generating capacity of access to land (Burgess 2001: 1).

Table 6: Per Capita Household Net Income by Gender of Household Head

Per Capita Household Income USD	A2 Farming Areas		A1 Farming Areas		Communal Areas	
	Male	Female	Male	Female	Male	Female
Household per capita mean	4,038.00	4,859.56	429.55	185.46	75.90	23.89
Household per capita max.	11,600.00	11,000.00	2,444.00	400.00	449.00	277.00
Household per capita min.	1538.00	1714.00	21.00	90.00	0.00	0.00
Household per capita income by area						
Study site per capita mean	4,462.03		333.39		50.56	
Chi-square p-value exact test of significance	.269		.823		.048	

Source: Field data (2016)

Benchmarked against the control group, access to land has had a positive net effect on gendered household incomes. A key finding from this research is the varied net effect of access to land, depending not only on the size of household cultivable land but also the type of crop being cultivated. In the A2 farming areas that specialised in the cultivation of sugarcane, annual per capita household incomes were found to be above USD 4,000 in 2016. An analysis that disaggregates by gender of household showed female-headed households having a higher annual per capita household net income of USD 4,859.56 relative to USD 4,038.00 for their male counterparts. These higher per capita household incomes in the A2 farming areas are attributed to beneficiary integration into high-value sugarcane production in the aftermath of Fast Track Land Reform.

In an attempt to assess the return to labour to provide a picture of the adequacy of the newly gained lands for households to reproduce themselves, I benchmarked the above per capita household incomes against 2014 wage structures compiled by the Labour and Economic Development Research Institute of Zimbabwe (LEDRI). If wages are a return to labour, the average wage for the private and public sector in 2014 was pegged at USD 409, which translates to a household per capita income of USD 981.6 for a family of five. This is more than four times lower than the per capita incomes obtaining in the A2 sugarcane farming areas. In the A1 areas that specialised in chilli production and other marketable fresh produce, such as green mealies grown under irrigation, despite the relatively low per capita household net incomes these households relied more on own-produced calories than purchased calories (food grain) (FAO et al. 2018: 18). The

shadow price for own-produced calories for A1 households positions them relatively better compared to their counterpart urban households (Tekwa 2020: 195) with the potential to dampen the propensity for outward migration. Reflecting the gendered dimensions of poverty and the gender transformative potential of land reform, a strong association existed between the gender of the household head and household per capita income in the control group with a Chi-square test of significance at p-value of 0.048. This hypothesis was rejected in both resettlement sites with a Chi-square test of significance at p-value above 0.5, suggesting no correlation between the gender of the household and per capita net household income in these areas.

Presented below are some perspectives from female study participants with the potential to rule out any slight desire for outward migration.

The government gave me employment I am on an employment ticket. (In-depth interview, A2 female sugarcane farmer, 3 September 2016)

I had managed to purchase three tractors which I also put in the pool for transporting cane during harvest time getting additional money from that. This additional income helped me obtain money to purchase more tractors. (In-depth interview, A2 female land beneficiary, 19 September 2016)

The programme (chilli cultivation) has enhanced the lives of women to a greater extent. When the crop is ready for harvest women are getting on a monthly basis income that allow them to cover their household expenses ... on average I could get \$300 per month from my crop sales. (In-depth interview, polygamous married A1 female land beneficiary, 7 May 2016)

These field experiences highlight the extent to which access to land had provided female land beneficiaries with not only a source of employment but also a guaranteed source of household income with the potential to counter rural outmigration, including international migration. This represents a superior and robust source of social protection emanating from social policies framed within the TSP approach relative to the current meagre cash transfers being promoted by International Finance Institutions in most developing countries.

Land Reforms, Household Food Security and Migration

Access to land has long been established as an important resource for those seeking to produce their own food (Burgess 2001). Table 7 presents the food security situation across the three study sites disaggregated by marital status of head of household to reflect the effect of landholding on gendered household food insecurity, one key driver of migration, particularly for landless and land-short households (Choithani 2016: 201; Knoll et al. 2017: 9).

Table 7: Land Reform, Household Food Security and Marital Status of Household Head

Study Area			% Total				Total
			MGM	PLG	DSS	WD	
Mkwasi A2 farms	Faced food shortage	No	100	100	100	100	100
		Yes	11.1	7.7	50.0	0.0	9.1
Maware A1 farms	Faced food shortage	No	88.9	92.3	50.0	100	90.9
		Yes	72.7	60.0	60.0	89.5	82.5
Muteyo communal areas	Faced food shortage	No	16.3	40.0	40.0	10.5	17.5

Source: Field work (2016)

Key: MGM – monogamous; PLG – polygamous; DSS – divorced/single/ separated; WD – widowed)

An analysis of the household food security situation across the study sites revealed that 82.5 per cent of households within the control group experienced food shortages in the 2014/15 seasons. A gendered analysis within this study area indicated a higher vulnerability to food insecurity within female-headed households, with 89.5 per cent of widow-headed households reporting food insecurity in the season in question. The situation existing in the control group reinforces the inextricable link between land shortage, gender, household food insecurity and migration. Contrastingly, in the resettlement areas, a mere 9.1 per cent of A1 households experienced food shortage in the 2015/16 season and none in the A2 farming areas, including female-headed households. The food security situation within resettlement areas curtailed outmigration from these areas, as presented in tables 1 and 2.

Corroborating the above, Table 8 presents the correlations between household cultivable land size and selected household food security indicators, namely: household food shortage, number of meals per day, household main source of food and dietary diversity. Presented in the table are p-values from the calculated Chi-square exact test of significance.

Table 8: Correlations between Household Landholding and Selected Food Security Indicators

Household Food Security Indicator	P-Value Chi-square Exact Test of Significance
Household food shortage (2015/16 season)	0.03
Number of meals per day	0.43
Household main source of food	0.01
Dietary diversity	0.01

Source: Fieldwork (2016)

As shown in Table 8, ownership of productive agricultural land exerts a positive effect on household food security. In all but one of the food security indicators presented, a strong association exists between landholding and household food security status. All the household food security indicators produced a Chi-square p-value less than 0.05, except for the household number of meals per day, which had a Chi-square p-value of 0.43. While these findings relate more to a micro-level analysis, their policy implications in countering out migration cannot be underestimated.

Below are women's experiences with regard to household food security as captured during in-depth interviews:

The land we had in the communal areas was not enough to grow enough food to feed my children. But now we have large pieces of land where I can grow enough food to feed my family. (In-depth interview female A1 land beneficiary, 8 May 2016)

Now my household is food secure throughout the year. There is no time when I do not have cooking oil, sugar or rice. After harvesting, we leave four tonnes of maize for household consumption. (In-depth interview with polygamous married female A1 land beneficiary, 9 May 2016)

After harvesting I leave 1.5 tonnes of maize for household consumption. In my household we have three meals per day. (Polygamous married female A1 land beneficiary, 7 May 2016)

Most of these households in the A1 farming areas indicated producing more grain for exchange than use-value to satisfy their household needs:

After harvesting I sell more maize grain than what I retain for food... I usually leave one tonne for consumption and hiring labour. I have three meals per day throughout the year. (In-depth interview widow female land beneficiary, 6 May 2016)

From our produce we retain a smaller percentage than what market. We sell 75 per cent and retain 25 per cent every harvest. We leave a small produce for consumption enough for only three months because we will be harvesting again (In-depth interview female A1 irrigating land beneficiary, 14 May 2016)

My household is food secure. I sell more grain than I reserve for household consumption. We have three meals a day and this does not change throughout the year. My relatives from the communal areas come here and obtain grain to feed their families. (In-depth married permit own name, 9 May 2016)

The above experiences reflect the positive effect of access to land on household food security with the potential to curb outmigration from rural areas. Laborde et al. (2017) note the robustness of in-kind transfer of arable land to households. They argue that solving hunger problems

through either cash transfers or food stamps will not significantly impact on international migration, as such interventions have to be accompanied by efforts to provide economic opportunities for people to stay in their country of birth (Laborde et al. 2017: 5). In the context of agriculture, food security and rural development, the assertion by Laborde et al. (2017) has significant policy implications in the developing world where cash transfers have been rolled out as a poverty reduction strategy.

Land Access and Household Main Sources of Food

Migration has been identified as one of the livelihood options available to households to cope with increasing socioeconomic vulnerabilities including food insecurity, particularly in the context of land shortage (Rawal 2008: 45). The desire to migrate has been found to increase with the severity of food insecurity (Sadiddin et al. 2019: 515) that is caused, mainly, by landlessness. Table 8 reveals a statistically significant correlation between a household's main source of food and household land, with a Chi-square exact test of significance at p-value 0.01. All A1 farming households, including female-headed households, identified land as their main source of food. Arguably, access to land serves not only as a source of income but also as a means of producing cheaper food, with a more profound effect on migration through ensuring the security of food supply by own production. This view is also supported by Chiweshe (2015), who argues that food security in rural areas is based on the ability to produce, which is dependent on access to productive resources such as land (2015: 50).

Analysed and presented in Table 9 are the main sources of food grain across the three study sites – own production, purchases and safety nets, food aid or work for food – disaggregated by gender of household head. Resulting from poor household land endowment with a capita average of 0.4 ha, see Table 3, a mere 12.5 per cent in the communal control group reported land (own production) as their main source of food grain. Interestingly, despite the poor land endowment, a gender analysis reveals that female-headed households relied more on land as a source of food, with a figure at 60 per cent relative to 40 per cent for male-headed households. Coupled with the gendered lack of access to land typical of customary communal areas, this presents a potential risk factor for female-headed households, resulting in a high probability of increased rural outmigration (Knoll et al. 2018: 13).

Table 9: Household Main Sources of Food by Gender of Household Head

Household main sources of food (grain)	Mkwesine A2 Farming Areas				Maware A1 Farming Areas				Muteyo Communal Areas (Control)									
	Male		Female		Male		Female		Male		Female		Total					
	No	%	No	%	No	%	No	%	No	%	No	%	No	%				
Own production	4	26.7	4	23.5	8	25.0	20	100.0	13	100.0	33	100	1	4.8	1	5.3	2	5.0*
Purchases	11	73.3	13	76.5	24	75.0	0	0.0	0	0.0	0	0.0	5	23.8	5	12.5	10	25.0*
Safety net / Food aid / Work for food	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	15	71.4	13	68.4	28	70.0*

Source: Fieldwork 2016

The multiple sources of food grain characteristic of the control group relative to the A1 farming areas reflect their high vulnerability to food insecurity, a situation that triggers rural outmigration in these areas. Reflecting the vulnerability of households in the control group, in spite of poor household incomes as shown in Table 6, 32.5 per cent of the households reported purchase as one of their main sources of food. A gender analysis reveals that a lower percentage of female-headed households (FHHs) depended on purchases relative to male-headed households (MHHs), with figures at 38.5 per cent and 61.5 per cent respectively. This supports the earlier observation that more FHHs rely on land as their main source of food and the assertion that access to land is particularly important in securing their household food security and reducing the propensity to migrate. Thus the gendered scarcity of land and limited potential to inherit land have been identified as key drivers of youth and female migration in sub-Saharan Africa (FAO et al. 2018: 24–25).

An interesting finding on the effect of land reform on one of the pillars of food security with a potential to reduced rural outmigration is evident in the A2 category. Similar to the control group, a meagre 18.8 per cent of households reported own production as the main source of food. In the A2 sector a lower percentage of households reported that land, as the main source of food, did not translate into household food insecurity, with the potential to trigger rural outmigration, as was the case with the control group. What the study confirms in the A2 category is that households become food insecure only when they lack the capacity to produce enough food (access to land) and the financial resources to purchase food from the market. Where households cannot produce food for their own consumption, access to an adequate income to purchase food equally contributes to household food security. These incomes need not necessarily come from migrant remittances (Choithani 2018), or many of the assumptions in the mainstream literature, but from other land-based economic activities. The above dynamics have been well captured during in-depth interviews with the sugarcane A2 land beneficiaries themselves:

I buy my groceries in bulk and stock. When I get money, I buy a beast and put my meat in the fridge. The other remaining beef I would sell to others. I have at least three meals a day. As part of my meals there is beef, fish, milk, polonies, salad and so on. (In-depth interview female A2 land beneficiary, 17 September 2016)

After selling my sugarcane I buy two tonnes of maize and my household is food secure. When I used to get into a supermarket, I wished for apples but could not afford them. Now I can buy apples, grapes for my children as much as I would want. I buy beef, chicken, goat meat, sausages and put in the fridge. (In-depth interview female A2 sugarcane farmer, 3 September 2016)

I include on my budget food for the family for the whole year. When we first came, we ate whatever we liked. Now we have actually reduced as a sign of living pretty. The kind of food has drastically changed. Now we can have breakfast with eggs. (In-depth interview female A2 land beneficiary, 20 September 2016).

This has been facilitated by access to productive water coupled with rich vertosols characteristic of Chiredzi district. Field observation indicated that A2 farmers are growing not only maize but also vegetable crops, such as tomatoes, potatoes and onions, on these smaller plots, which enhances their household food/nutrition security with the likelihood of dampening the desire to migrate out of the rural areas.

Meals per Day and Dietary Diversity Proxies for Household Food Security

The nutritional dimension of food security is often ignored in the food security-migration nexus, yet it is critically important (Knoll et al. 2017: 8). The number of meals per day and dietary diversity are important household food security indicators. This study employed the weekly recall method to capture dietary diversity within resettled and communal households and the likely effect of access to adequate pieces of land on household migration patterns. Whilst a Chi-square exact test of significance suggests no strong association between household cultivable land size and number of meals per day, with a p-value of 0.43 (see Table 8) resettled households were more food secure than communal households. In the A2 and A1 farming areas, above 70 per cent of the households reported three meals a day in contrast to only 35 per cent in the control group. The remaining 65 per cent in the control reduced the number of meals as a coping mechanism to household food shortages. A gender analysis in the control group reveals that 57.7 per cent of households that reduced meals as a coping mechanism were female-headed relative to 42.3 per cent for MHHs. If household food security is a key driver of vulnerability and rural outmigration, this is likely to be more profound in the communal areas with a gender dimension as opposed to resettlement areas, due to the disparities in land endowments between the study sites, as satisfaction with one's standard of living is negatively associated with migration desire (Sadiddin et al. 2019: 525). Thus, land reforms conceptualised as a social policy instrument are not only redistributive but also hold the potential to enhance the productive capacities of individuals, households and communities and act as a prophylactic and ex ante social protection instrument, dampening the desire for people to migrate, including women.

Conclusion

This study pioneers research in an area seldom explored in post-land reform Zimbabwe, the nexus of the socioeconomic outcomes of the Fast Track Land Reform Programme – employment, household income, food security and migration dynamics, both internal and international. This is particularly important in the context of the massive exodus experienced in Zimbabwe at the turn of the millennium. The article argues that access to land enabled previously landless and/or land-short households to exploit their newly gained land to produce food, attain a higher income and generate employment for their families and others. This scenario curtailed and, to some extent reversed the common trend of outmigration from rural areas to urban areas, including international migration. Key findings from the study confirm household food insecurity, lack of employment opportunities and depressed rural incomes as the key drivers of outmigration from the countryside. Using quantitative data comprising demographic and household migration characteristics, the socioeconomic outcomes of the FTLRP, complemented with qualitative empirical information from in-depth interviews with female land reform beneficiaries, the study confirms that the key drivers of rural outmigration are closely associated with poor access to productive resources such as land. Access to land was found to have a negative effect on all the identified key drivers of rural outmigration, including international migration. The study contributes to ongoing global discussions on the nexus of food security and international migration but from a gendered, transformative, social policy, land reform, migration perspective. Its contribution has national and global policy implications for countries that are experiencing an influx into urban areas resulting from a rural exodus. At the supranational scale, the findings presented in the paper are critical in addressing international migration, particularly as it results from a lack of livelihood options in countries of origin. Additionally, the Zimbabwean case reveals that reagrarianisation and repeasantisation are plausible options, particularly in the context of rising urban turmoil emanating from high insecurity in urban labour markets, xenophobic attacks in destination countries and global pandemics resulting from population influxes.

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References

- Adesina, J., 2009, Social policy in sub-Saharan Africa: A glance in the rear-view mirror, *International Journal of Social Welfare*, Vol. 18, No. 1, pp. 37–51.
- Adesina, J., 2011, Beyond the social protection paradigm: Social policy in Africa's development, *Canadian Journal of Development Studies*, Vol. 32, No. 4, pp. 454–470.
- African Development Bank (AfDB), 2016, Jobs for youth in Africa: Catalysing youth opportunity across Africa, African Development Bank, South Africa.
- Amanor-Wilks, D-E., 2009, Land, labour and gendered livelihoods in a 'peasant' and a 'settler' economy, *Feminist Africa*, Issue 12, pp. 31–50.
- Ataç, I. and Rosenberger, S., 2019, Social Policies as a Tool of Migration Control, *Journal of Immigrant & Refugee Studies*, Vol. 17, No. 1, pp. 1–10.
- Ba, C. O., Bourgoin, J. and Diop, D., 2017, The fluidity of internal migration as an answer to local constraints, in Mercandalli, S. and Losch, B., eds, 2017, *Rural Africa in motion. Dynamics and drivers of migration South of the Sahara*, Rome: FAO and CIRAD, pp. 32–33.
- Borras, S., and Franco, C., 2010, Contemporary discourses and contestations around pro-poor land policies and land governance, *Journal of Agrarian Change*, Vol. 10, pp. 1–32.
- Bracking, S., and Sachikonye, L., 2006, Remittances, Poverty Reduction and the Informalisation of the Household Well-being in Zimbabwe, Working Paper No 45, Global Poverty Research Group, Oxford.
- Bryceson, D. F., 2002a, The scramble in Africa: Reorienting rural livelihoods, *World Development*, Vol. 30, pp. 725–739.
- Bryceson, D. F., 2002b, Multiplex livelihoods in rural Africa: Recasting the terms and conditions of gainful employment, *Journal of Modern African Studies*, Vol. 40, pp. 1–28.
- Burgess, R., 2001, Land and Welfare: Theory and Evidence from China, Department of Economics and STICERD, London School of Economics.
- Chipenda, C. and Tom, T., 2019, The generational question after land reform in Zimbabwe: A social reproductive perspective, *African Journal of Economic Management Studies*, Vol. 2.
- Chiweshe, M. K., 2015 Women and emergence of grassroots institutions on post-Fast Track Land Reform farms in Zimbabwe, *Journal of Gender, Agriculture and Food Security*, Vol. 1, No. 1, pp. 40–53.
- Choithani, C., 2018, Understanding the linkages between migration and household food security in India, *Geographical Research*, Vol. 55, No. 2, pp. 192–205.
- De Jager, N. and Musuva, C., 2016, The influx of Zimbabweans into South Africa: A crisis of governance that spills over, *Africa Review*, Vol. 8, No. 1, pp. 15–30.
- Dzingirai, V., Egger, E-V., Landau, L., Litchfield, J., Mutopo, P. and Nyikahadzoi, K., 2015, Migration out of poverty in Zimbabwe, Working Paper 29 September 2015, Migrating Out of Poverty Research Programme Consortium.
- FAO, IFAD, IOM and WFP, 2018, The linkages between migration, agriculture, food security and rural development, Rome.

- Hebinck, P., 2018, De-/re-agrarianisation: Global perspectives, *Journal of Rural Studies*, May, Editorial.
- Knoll, A., Rampa, F., Torres, C., Molina, P.B. and Cascone, N., 2017, The nexus between food and nutrition security, and migration: Clarifying the debate and charting a way forward, European Centre for Development Policy Management (ECDPM) Discussion Paper No. 212, May 2017.
- Laborde, D., Bizikova, L., Lallemand, T. and Smaller, C., 2017, What is the link between hunger and migration? International Institute for Sustainable Development (IISD) and International Food Policy Research Institute (IFPRI). Lowder, S., Scoet, J. and Raney, T., 2016, The number, size, and distribution of farms, smallholder farms, and family farms worldwide, *World Development*, Vol. 87, pp. 16–29.
- Manamere, K. T., 2014, Majoni-joni – wayward criminals or a good catch? *African Diaspora*, Vol. 7, No. 1, pp. 89–113.
- Milone, P. and Ventura, F., 2010, *Networking the Rural, the Future of Green Regions in Europe*, Assen: Royal Van Gorcum.
- Mkandawire, T., 2004, Introduction. Social policy in a development context, in Mkandawire, T., ed., *Social policy in a development context*, Basingstoke: UNRISD/Palgrave Macmillan, pp. 1–33.
- Mkandawire, T., 2007, Transformative social policy and innovation in developing countries, *The European Journal of Development Research*, Vol. 19, No. 1, pp. 13–29.
- Mkandawire, T., 2014, Lessons from the social policy and development of South Korea: An interrogation, in Yi, I. and Mkandawire, T., eds, *Learning from the South Korean developmental success: Effective developmental cooperation and synergistic institutions and policies*, Basingstoke: UNRISD/Palgrave Macmillan, pp. 11–30.
- Moyo, S., 2011, Three decades of agrarian reform in Zimbabwe, *Journal of Peasant Studies*, Vol. 38, No. 3, pp. 493–531.
- Moyo, S., Chambati, W., Murisa, T., Siziba, D., Dangwa, C., Mujeyi, K. and Nyoni, N., 2009, Fast track land reform baseline study in Zimbabwe: Trends and tendencies, 2005/06, Harare: African Institute for Agrarian Studies.
- Moyo, S. and Makumbe, J., 2000, The Socioeconomic Environment and NGOs, in Moyo, S., Makumbe, J. and Raftopoulos, B., eds, *NGOs, The State and Politics*, Harare: SAPES Books, pp 7–20.
- Mutopo, P., 2014, 'Belonging and rural livelihoods: Women's access to land and non-permanent mobility at Merrivale Farm, Mwenezi District.' *Erdkunde*, Vol. 68, No. 3 (July–September 2014), pp. 197–207.
- Mutopo, P., Manjengwa, J. and Chiweshe, M., 2014, Shifting gender dimensions and rural livelihoods after Zimbabwe fast track land reform programme, *Agrarian South: Journal of Political Economy*. Vol. 3, No. 1, pp. 45–61.
- Potts, D., 2010, Internal migration in Zimbabwe: The impact of livelihood destruction in rural and urban Areas, in Crush, J. and Tevera, D., eds, *Zimbabwe's Exodus: Crisis, Migration and Survival*, Cape Town: SAMP Publication.

- Poulton, C. Davies, R., Matshe, I. and Urey, I., 2002, A review of Zimbabwe's agricultural economic policies: 1980 –2000, ADU Working Paper, 02/01 March 2002.
- Raftopoulos, B., 2011, A Study on Migration and Remittances in Matebeleland, Zimbabwe, Cape Town: Solidarity Peace Trust.
- Rawal, V., 2008, Ownership holdings of land in rural India: putting the record straight, *Economic and Political Weekly*, Vol. 43, No. 10, pp. 43–47.
- Sadiddin, A., Cattaneo, A., Cirillo, M. and Miller, M., 2019, Food insecurity as a determinant of international migration: evidence from Sub-Saharan Africa, *Food Security*, Vol. 11, pp. 515–530.
- Scoones, I., Marongwe, N., Mavedzenge, B., Murimbarimba, F., Mahenehene, J. and Sukume, C., 2010, *Zimbabwe's land reform: Myths and realities*, Harare: Weaver Press.
- Scoones, I., Marongwe, N., Mavedzenge, B., Murimbarimba, F., Mahenehene, J. and Sukume, C., 2012, Livelihoods after Land Reform in Zimbabwe: Understanding Processes of Rural Differentiation, *Journal of Agrarian Change*, Vol. 12, pp. 503–527.
- Sibanda, V. and Makwata, R., 2017, *Zimbabwe Post Independence Economic Policies: A Critical Review*, Saarbrücken: Lambert Academic Publishing.
- Stone, G. V., 2010, Malthus, Agribusiness, and the Death of the Peasantry, *Current Anthropology*, Vol. 42, No. 4.
- Tavuyanago, B., 2017, 'Our fathers and grandfathers were born here...': Shangaan eviction experiences from the Gonarezhou National Park, 1957–1968, *Historia*, Vol. 62, No. 2, pp. 46–67.
- Tekwa, N., 2020, Gender, land reform and welfare outcomes. A case study of Chiredzi district, Zimbabwe, PhD thesis, University of South Africa, Pretoria.
- Tekwa, N., and Tekwa, H., 2022, Gender, household food security and neoliberal decimation of the grain producing peasantry in Zimbabwe, in Mazwi, F. Helliker K. and Mudimu G. T., eds, *Capital Penetration and the Peasantry in Southern and Eastern Africa – Neoliberal Restructuring*, Heidelberg: Springer Nature.
- Tom, T., 2020, The wider vision of social policy: An analysis of the transformative role of the fast track land reform programme in Zvimba District, Zimbabwe, PhD Thesis, University of South Africa.
- Van der Ploeg, J. D., 2017, Differentiation: Old controversies, new insights, *Journal of Peasant Studies*, pp. 1–36.
- Utete, C. M. B., 2003, Report of the Presidential Land Review Committee, under the Chairmanship of Dr Charles M.B. Utete, Volumes 1 and 2: Main report to His Excellency the President of The Republic of Zimbabwe, Presidential Land Review Committee (PLRC), Harare.
- Zhou, G., 2000, Public enterprise sector reforms in Zimbabwe: A macro analytical approach, *Zambezia*, Vol. 27, No 2, pp. 195–219.



Social Capital and Food Security Amongst Women in Smallholder Farming in the Face of Climate Change in Bikita, Zimbabwe

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Abstract

Food insecurity is a devastating setback for vulnerable women in smallholder farming in Zimbabwe. Women's low or limited adaptive capacity is caused by diverse factors, including , which include poverty, an unstable economy, political crisis and climate change. Adaptive strategies that differ from the conventional national and civic interventions to circumvent these factors have yielded subtle food security outcomes. As a result, there are growing calls for the adoption of social capital as an alternative grassroots-based adaptive strategy. This study examined the potential for and challenges faced by women who use social capital in adapting to food insecurity. Using in-depth interviews, focus group discussions and key informant interviews it revealed that women in smallholder farming were utilising bonding, bridging and linking capital as a means of adaptation. These three types of capital were operationalised in four projects: Food For Assets (FFA), community gardening, the Boer goat project and Fushai. It emerged that three of the projects performed better in some wards but did not do well in others. Despite its potential, the Boer goat project was riddled with challenges, which emanated from the absence of bonding capital. I therefore conclude and recommend that social capital is critical for women in food insecurity adaptation. However, it needs to be buttressed by a harmonious relationship between the three forms of social capital and all stakeholders for sustainability to be realised.

Keywords: Food security, social capital, vulnerability, climate change, adaptation

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Résumé

L'insécurité alimentaire est un revers dévastateur pour les exploitantes agricoles vulnérables du Zimbabwe. La capacité d'adaptation faible ou limitée des femmes est causée par divers facteurs, notamment la pauvreté, une économie instable, la crise politique et le changement climatique. Des stratégies d'adaptation différentes des interventions nationales et civiques conventionnelles d'évitement de ces facteurs ont produit des résultats subtils en matière de sécurité alimentaire. En conséquence, il y a de plus en plus d'appels en faveur de l'adoption du capital social comme stratégie alternative d'adaptation basée sur le communautaire. Cette étude a examiné le potentiel et les défis auxquels sont confrontées les femmes qui utilisent le capital social pour s'adapter à l'insécurité alimentaire. À l'aide d'entretiens approfondis, de discussions de groupe et d'entretiens avec des informateurs clés, il a été révélé que les femmes dans les petites exploitations agricoles utilisent le capital de caution et de liens intra et intergroupes comme moyen d'adaptation. Ces trois types de capital ont été opérationnalisés dans quatre projets : Food For Assets (FFA), le maraîchage communautaire, le projet Boer goat et Fushai. Il est apparu que trois des projets ont obtenu de meilleurs résultats dans certains services, mais pas dans d'autres. Malgré son potentiel, le projet Boer goat était semé d'embûches qui émanaient de l'absence de capital de cautionnement. Je conclus donc que le capital social est essentiel pour les femmes dans l'adaptation à l'insécurité alimentaire. Cependant, pour réaliser la durabilité, il doit être étayé par une relation harmonieuse entre les trois formes de capital social et toutes les parties prenantes.

Mots-clés : sécurité alimentaire, capital social, vulnérabilité, changement climatique, adaptation

Introduction

The food security-insecurity conundrum has become a tenacious issue in Africa in the twenty-first century (IPCC 2007; Kaswan 2013). Sub-Saharan Africa is the most vulnerable region on the continent to droughts and other disasters, and it is anticipated that the situation will only worsen in the future (AGRA 2014). The drastic decrease in food production is mainly caused by diverse factors such as insufficient rainfall, shorter rain seasons and the multiplication of crop-consuming pests. Worryingly, the coping and adaptive capacity of vulnerable populations to severe and prolonged droughts is heavily compounded by other multi-layered factors (Chagutah 2010). The common observed factors that aggravate food insecurity and slow adaptive strategies include severe poverty, increasing political crisis, failing economies, population boom and climate change.

Indeed, one of the repeatedly debated factors in the food security-insecurity discourse is uncontrolled population growth (AGRA 2014). In this regard, sub-Saharan Africa is considered to be at a crossroads at the nexus of food production and a drastically increasing population. Attempts to balance the increase in population with industrial growth, or lack thereof, show uncontrollable vulnerabilities to severe food insecurity. Indeed, statistical projections have indicated that the current population of 800 million will skyrocket to 1.5 billion by 2050. If this trend materialises, sub-Saharan Africa will not have the capacity to cope or adapt to the escalating demand for food production, which is estimated to hit the 360 per cent mark by 2050 (AGRA 2014). Meeting the food demand against a backdrop of worsening political instability and uncertainty, nose-diving economies and increasingly extreme climate change impact will prove to be a mammoth task (Manjengwa and Matema 2014). Needless to say, these conditions point to a predetermined and prolonged food insecurity and vulnerability in the near future amongst poorly resourced populations who depend on rain-fed smallholder farming systems. In a situation of intensified drought, malnutrition becomes one of the greatest challenges affecting the young and ailing members of populations in sub-Saharan Africa (IPCC 2007).

Apart from the other mentioned threats to food insecurity, climate change is considered one of the most dangerous hazards to affect poorly resourced smallholder farmers in sub-Saharan Africa (Manjengwa and Matema 2014). It is worth noting that the impacts of climate change on human beings and livelihoods are not gender-neutral (AGRA 2014). Evidence from various studies has revealed that women and children are more prone to food insecurity and other effects of climate change in sub-Saharan Africa, and in Zimbabwe in particular (Kaswan 2013; Chagutah 2010). Gender-sensitive scholars have acknowledged the need for a narrower focus when measuring the vulnerability of smallholder farmers to droughts and other climate change shocks and stresses. The prevalence of gender-based vulnerability calls for holistic approaches and policies that address the climate change impacts and their effects on women and children (Agrawal 2008).

Against this background, this article interrogates several debates on women, social capital and food security-insecurity in Zimbabwe. Firstly, it explores how climate change impacts are increasing poorly resourced women's susceptibility to unprecedented food insecurity threats in smallholder farming systems. Secondly, it considers women not as victims in this regard, but as rational and calculative beings who improvise various strategies to avoid succumbing to extreme climate change impacts. Thus, the study examines how they use social capital in adapting to droughts, and how they use it to

maximise their gains during favourable farming conditions. In particular, the study highlights how bonding, bridging and linking forms of social capital boost women's efforts to counter perennial food insecurity. Thirdly, and lastly, the article investigates the effectiveness of the types of capital combined, or the absence of one or two of them, in ensuring sustainable coping and adaptive strategies to food insecurity.

Conceptualising Social Capital

Social capital is fast gaining attention in climate change discourse, despite the fluidity of its conceptualisation (Flores and Rello 2003). This is as a result of growing challenges to the conventional, grand narrative on adapting interventions. Current attempts to debunk the 'one size fits all' approach of the grand adaptive narratives are paving the way for context-specific and grassroots-based coping and adapting strategies. Social capital is proving to be one of the acceptable and sustainable ideal solutions to adapting to the food insecurity problems that affect women in smallholder farming. In the social capital discourse, contemporary development practitioners and scholars are popularising this approach, drawing inspiration from two proponents of social capital, namely Putnam (1993) and Coleman (1990).

Increasing praise for the thesis of social capital aside, its definition remains shrouded. To date, there has been no straightforward definition of it although there also are no direct antagonistic conceptualisations. In general, the concept was defined by Hanifan Lydia, cited in Agrawal (2008) as: 'The tangible asserts that count for most in the daily lives of people, namely goodwill, fellowship, sympathy and social intercourse of the individuals and families who make up social units.' Most scholars agree that social capital is a fundamental tool mainly used in development, poverty reduction initiatives and coping with economic shocks and other wide-ranging disasters (Moser 2008; Grootaert and Narayan 2004). The common belief surrounding social capital is that its maximum utilisation remains the bedrock of adaptation to and coping with disasters, especially amongst poorly resourced and vulnerable communities and localities (Agrawal 2008).

Social capital is described in the context of three building blocks: bonding, bridging and linking capital (Grootaert and Narayan 2004). Central to these building blocks is networking. The social networking phenomenon is rooted in trust, collectivism and balanced reciprocity amongst various social units. The social units' capacity to cope or deal with disasters is realised if group members fully utilise the three types of capital correspondingly (Woolcock and Narayan 2000; Pelling 2003). Social units with an intact collectivism will bank and draw on exclusive benefits through

their membership of established networks and other social structures. Needless to say, communities or social units that are riddled with conflict, disunity and individualism are vulnerable and have a weak adaptive capacity to ongoing and impending disasters.

Bonding is one of the most highly rated social tools. Szreter and Woolcock (2004) conceptualised bonding capital as horizontal relationships that are built on foundations of trust and cooperation. They further explained that bonding capital also relates to closely knit groups and associations which are brought together by homogenous sociodemographic traits. The traits include family, culture, tribe, ethnicity and race. The perceived role played by these traits is to galvanise the group members to pursue beneficial common interests at grassroots level. For instance, relying on family members and other social associations is a common phenomenon in coping and adapting to idiosyncratic and systemic risks and disasters. Putnam (1993) stated that collectivism and reciprocity offer social protection, stewardship and improved welfare for vulnerable group members. In smallholder agriculture, poorly resourced farmers collaborate in sharing labour and seasonal information as a form of adaptation or improving their crop and livestock production. Szreter and Woolcock (2004) discovered that smallholder farmers who have cohesive relations in the form of farm groups and other associations have an implacable advantage in dealing with risks and hazards that threaten their livelihood. Bonding capital is considered to be a defence strategy and sustainable in supporting autonomous and planned adaptation.

Bridging capital is also an important component of social capital and adaptation. Putnam (1993) described bridging capital as a form of networking that extends to connections between different groups, villages and communities. Just like bonding capital, bridging capital is common at horizontal levels. The power of bridging relationships is facilitated and nurtured by the presence of common interests that are pursued by different groups, villages and communities. In his studies, Putnam (1993) discovered that bridging capital is mediated by differences in ownership of critical resources, such as grazing lands, farmlands and water reservoirs, among other things. Automatically, well-organised societies with wider bridging connections and reciprocity are less vulnerable to external risks and hazards. The bridging social groups consciously spread their risk and adaptation by co-opting counterparts who may be better off when disaster strikes (Agrawal 2008).

The third important tool in the social capital domain is linking capital. Sanginga et al. (2004) defined linking capital as engagement with institutions and agencies that are in positions of higher influence. Practically,

it means that poorly resourced groups in villages and communities forge vertical links with outside and influential local institutions, donor agencies, private organisations and government departments in pursuing benefits to cope and adapt to disasters. The link between the vulnerable groups and powerful and resourced local institutions is used to benchmark the ability to adapt and cope with disasters that threaten human life, property and livelihood strategies (Putnam 2000). It also has been highlighted that strong linking capital provides in-groups or associations and social units with vital external financial resources, technology and new technical expertise (Njuki et al. 2008). It is expected that vulnerable social groups will take advantage of these resources to help them boost their coping and adaptive capacities.

Unfortunately, the absence of external institutional intervention reduces the resilience and adaptive capacity of poorly resourced smallholder farmers even if they have strong bonding and bridging capital (Sanginga et al. 2004). It is clear that institutional intervention needs to be synchronised with the exact needs and requests of the social units or groups in order to be successful (Agrawal 2008). In developing strategies to cope with drought, for example, it is prudent that, before intervention, in-depth research and consultation are evaluated and documented to ensure the acceptability and sustainability of these strategies. These sentiments echo observations made by Scott (1984), who explained that despite people being poor and vulnerable they still have the power to reject what does not suit them. Through the use of such 'weapons of the poor', uncalculated linking capital intervention thus may be futile despite the social groups being steeped in poverty and disaster.

Social capital and maladaptation

Whilst positive outcomes for social capital in adaptation have been acknowledged, some scholars have discovered its weaknesses (Aldrich 2012). According to Granovetter (1983), social capital also has its downside. For instance, too much bonded closeness may result in in-group hospitality and devastating out-group hostility, which usually weakens bridging and linking capital (Costa and Kahn 2003; Hawkins and Maurer 2010). This condition could be disastrous for adaptation because the chances of success of social capital-based adaptation are primarily buttressed by the coalesced efficiency of the different forms of capital. Communities that lack bridging and linking capital end up disrupting the normal flow of ideas, information, technology and financial aid that would otherwise help them to recuperate from tragedies and disasters (Hill and Matsubayashi 2005).

It is clear that excessive bonding capital may result in exclusion, especially of those who do not fall in the bracket dominated by closely knit majority groups. It has been noted that during disasters, in many cases, unhealthy relations that previously manifested through heightened ethnocentrism and tribalism result in the exclusion of other vulnerable victims and survivors of disasters. For instance, following the earthquake that ravaged Haiti in 2010, groups of a lower status were prejudiced against and marginalised in accessing housing services and other survival consumables (Rhodes 2012). In the worst cases, the well-bonded majority may end up reinforcing antisocial practices, such as excluding stigmatised social groups like widows, orphans and people living with disabilities (Aldrich 2012). A good illustration is the study by Mayoux (2001) on micro credit schemes in Cameroon. The male-dominated scheme excluded widows from benefiting from credit. Thus, the bonded male relationships acted as a barrier to women's welfare as they strived to supplement their small-scale farming activities through credit schemes. Such outcomes are referred to as maladaptation (Barnett and O'Neill 2010). Maladaptation becomes the new order if some disadvantaged members of the society remain marginalised and prone to disasters.

Maladaptation is also prevalent if bonding and bridging capitals are not supported by strong linking capital (Bernier and Meinze-Dick 2014). Vulnerable social groups that are hard-hit by disaster, such as hunger and famine, are in great need of external intervention for coping and adapting. Indeed, intervention by strong local institutions may save lives during dire conditions. Communities that have failed to harness this capital are destined to fail in coping and adapting to disasters (Di Gregorio et al. 2012; Gugerty and Kremer 2010). The 'weak ties' as expressed by Gravonetter (1983) usually result in dire consequences that make other permanent victims.

Women, Food Security-Insecurity and the Adaptation Conundrum in Zimbabwe

Women in Africa contribute a large share of agricultural labour across the continent – some 40 per cent. They are of vital importance to the household food security that is generated through rearing poultry, small livestock and growing subsistence food crops (Chisi 2019). It is also estimated that they produce 60 per cent to 80 per cent of the food that is consumed in developing countries. Women in Zimbabwe's rural economies are primarily involved in smallholder farming. According to the Zimbabwe Smallholder Organic Farmers Forum (ZIMSOFF), smallholder farmers are the highest producers of diverse food crops, estimated to be over 80 per cent of what the whole country consumes. Rural women are responsible for the bulk of this

contribution. However, women's food production is heavily compromised by a wide range of factors, chief among them being climate change.

Increasing and extreme climate change impacts have detrimental effects on poorly resourced women in smallholder farming. Studies have shown that most female smallholder farmers have limited adaptive capacity to provide household food security (Manjengwa and Matema 2014). Statistics have shown that, in 2013, about 72 per cent of female smallholder farmers were devastatingly vulnerable because of overdependence on climate-sensitive rain-fed agriculture (ZIMSTAT 2013). Women's limited or low adaptive capacities are exacerbated by many other factors, which include patriarchal regimes, poverty, economic hardship, political instability, cyclones and clumsy land reform (Manjengwa and Matema 2014; Reid et al. 2012). Furthermore, the government's ineptness in establishing gender-sensitive national strategies and policies on adaptation have left female smallholders drowning downstream of poverty and food insecurity. As a result, most food-insecure women and their households survive on food handouts from donor communities (Reid et al. 2012).

Like other sub-Saharan African countries, Zimbabwe is ranked amongst the most vulnerable to extreme climate change disasters (Gutsa 2014). As indicated earlier, a composite of other threats to agriculture and increasing climate change risks reduces the adaptive capacity of the women who dominate smallholder farming regimes. Adapting to climate change and variability is highlighted as a government's main responsibility, though with some help from civil society (Reid et al. 2012). However, in Zimbabwe, the persistent agricultural failure and lack of political will and ineptness has reduced the government's ability to consider women as a special group in the food insecurity-adaptation matrix (Reid et al. 2012; Manjengwa and Matema 2014; Dodman and Mitlin 2015). Thus, they have not provided gender-sensitive alternative livelihood strategies and agricultural and climate change adaptation policies that support women as key players in food production.

The need for solid and practical gender-sensitive climate change and agricultural policies remains one of the top suggestions made by many agricultural development scholars (Manjengwa and Matema 2014). They suggest that gender-sensitive and innovative policies will solve common problems that increase gender inequalities in the food insecurity and adaptation battle. Despite government's recognition of the need to provide such policies, practical action remains a dream to be realised (Gutsa 2014). The main problem cited is that the formulation of policies in Zimbabwe is riddled with complexities driven by rigid patriarchal regimes, politics

and economic constraints (Dodman and Mitlin 2015). The persistence of these complexities hinders the full realisation of the pledges made when the government joined the UNFCCC and the Kyoto Protocol in 1992 and 1995 respectively (Chagutah 2010; Gutsa 2014). Even though joining the two giant climate change institutions opened an opportunity to form multiple agriculture and environmental policies, Zimbabwe's government still lags behind in terms of other fundamental issues, like tackling gender inequality.

Literature on food security, insecurity, adaptation and resilience is calling for a new attitude to farmers – that they should not be treated as a homogenous group (Walker et al. 1999). Farmers are different based on different variables, such as wealth, social class (including gender), agro-ecological location, age and experience. Considering these differences is critical for proffering context-specific coping and adaptive strategies to disasters. For example, poorly resourced smallholder women need coping and adaptive mechanisms that directly suit their conditions and experience. In order to empower women, it is prudent to consider grassroots-based mechanisms such as social capital and indigenous knowledge systems. Grassroots-based adaptive strategies do not only equip them with assets and resources but also increase their preparedness to deal with future known and unknown climate change shocks and stresses (Agrawal 2008).

Problem Statement

The burgeoning literature on the food security-insecurity matrix in Zimbabwe is biased towards studies at the national level. These studies usually reflect national food deficits and government's incapacity to feed its starving poorly resourced populations. Most of the intervention strategies and national policies are also skewed towards the grand national level yet disregard the potential of the most affected victims' ability to turn their fortunes around. For example, it is known that women and children are more vulnerable to droughts and food deficits compared to men, yet government treats vulnerability to food insecurity as a gender-neutral phenomenon.

This study does not follow the general trend, but considers women as key and calculative beings who are capable of dealing with food insecurity problems. It focuses more narrowly on how women at smallholder levels are improvising and using social capital to reduce their vulnerability to food insecurity. The success of social capital in enhancing their capacity is expected to fulfil the expectations of the Human Development Index and the Sustainable Development Goals (SDGs), which call for total development of the general populace without discrimination.

Materials and Methods

The study was carried out in Ward 21, in Bikita District. I used qualitative methodology in the selection of research participants and data collection, exercising my personal judgement and purposive sampling in identifying the participating villages as well as information-rich female participants. The selected villages were Ziwacha, Nebarwe and Negwari. Including three villages helped to provide a greater diversity of experiences and strategies employed by women in their on-farm and off-farm activities to overcome serious household food deficits.

For data collection, I used focus group discussions, in-depth interviews and key informant interviews. For the in-depth interviews, I selected female participants who had hands-on experience of smallholder farming systems. The major purpose here was to gather invaluable data on their experiences in the day-to-day provision of food for their households. Also, the female participants provided detailed explanations on how they used social capital in fighting food security threats.

For the focus group discussion, I purposively drew participants from the three selected villages. I conducted four focus group discussions from each village and each group comprised twelve female participants who were actively farming. The discussions revealed diverse and complex perceptions and experiences that they encountered in the farming enterprise.

Lastly, I purposively selected three key informants who had active roles in assisting smallholder farmers in on-farm and off-farm activities in Ward 21. The CARE International programme officer gave information on how CARE International serves as a linking capital partner with women in smallholder farming and other off-farm activities to reduce vulnerability to drought. The PLAN International programme officer also provided information on how they help women to improve household food security. Thirdly, the extension service officer detailed how they help smallholder farmers, particularly women who are more active in farming, to cope and adapt to adverse climatic conditions that threaten food security. The information on the tools and participants is shown in Table 1.

Table 1: Data collection tools and projects

Data Collection Tool	Justification	Projects in Respective Villages
Focus group discussion	For cross-checking and validating information gathered from individual responses.	Four focus group discussions were conducted on the Boer goat project, community gardening, Food For Assets and Fushai in all the three villages.
In-depth interviews	As custodians of household food security, women were considered to share how they utilise social capital in coping and adapting to food insecurity.	The interviews were evenly conducted in line with projects in Negwari, Ziwaacha and Nebarwe.
Key informant interviews		
Extension services officer	Provides invaluable information on seasonal outlook and trends and advises farmers on constructing crop-ping calendars and timelines, which reduces vulnerability to droughts.	The extension services officer is a government employee who oversees all the farming related interventions in the area under his jurisdiction.
CARE International field officer	Provides the linking capital that boosts women's efforts in farming as they cope and adapt to climate change induced food insecurity.	The officer oversees the Boer goat project in Negwari village, community gardening and Food For Assets (FFA) in Ziwaacha and Nebarwe villages respectively.
Plan International field officer	Like CARE International, they support women-based projects that strive to fight increasing food insecurity.	The officer manages various projects: the heifer project in Negwari, which was taken over by men; community gardening; Food for Assets; and Fushai. These were all operating in the three villages under study.

Study site

Bikita is one of seven administrative districts in Masvingo Province in Zimbabwe. Most parts of Bikita lie in an arid and semi-arid belt with poor topographic characteristics. Most smallholder farmers in this district depend on subsistence crop production of small grains, such as rapoko, millet and sorghum. For livestock production, they herd cattle, donkeys, goats and sheep. Bigger livestock like cattle and donkeys are used as a source of draught power as well as a safety net to cushion them during severe food insecurity. Furthermore, during severe droughts, most of the vulnerable farmers depend on food aid from donors; others migrate to towns and cities or work on irrigated commercial farms in Chipangayi, Chipinge, Middle Sabi and Birchneough. Figure 1 shows the position of Bikita District in Masvingo Province and its place in the broader map of Zimbabwe.

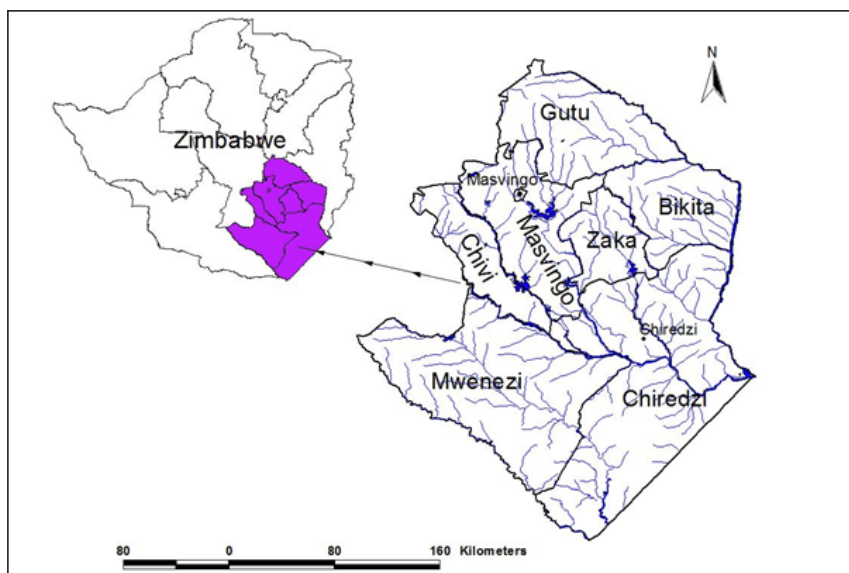


Figure 1: Map of Zimbabwe

Source: Google Maps

Presentation of Findings

Bonding capital as an adaptive strategy amongst women

Data gathered through key informant interviews, in-depth interviews and focus group discussions showed that Ward 21 of Bikita is vulnerable to perennial droughts. The study participants acknowledged that drought is

one of the greatest challenges to their agro-based livelihood. However, the study also revealed that women used various forms of capital to survive the difficulties brought by drought. With bonding, bridging and linking capital, women improvised strategies such as the communal pooling of resources, migrating and diversifying their livelihood. These strategies helped to reduce their vulnerability as well as improve their general wellbeing in the face of escalating climate change risks and hazards. The study highlighted various on-farm and off-farm projects in which the women were engaged. The projects common to all the villages in the study were the Boer goat project, the Fushai credit scheme, community gardening and Food for Assets (FFA). In most cases, women participated in these projects with the help of children. In a few cases, women received minimal help from their male counterparts. Women's active participation in these projects was understood as their commitment to provide enough household food.

Information gathered through the focus group discussions with female farmers revealed that, in 2014, CARE International introduced a Boer goat project in Negwari village. Boer goats are a breed (weighing between 90 to over 130 kilograms when fully grown) that quickly adapts to weather and climatic conditions without difficulty. Also, they grow fast and are highly fertile. Initially, the project was targeted for all the people in the community, but most of the men withdrew to focus more on the heifer project that was concurrently introduced by PLAN International.

On the inception of the Boer goat project, female respondents explained that they were organised into groups of eight participants. Their task was to keep and breed the Boer goats and later sell the offspring. In addition, the goats were meant to improve the breed quality of local goats. Selling the goats was projected to supplement household income particularly during unfavourable farming seasons. Despite intervention by CARE International, participants in the study commented that the project did not succeed as projected due to conflicts that were mainly caused by the men's withdrawal. The women confirmed that they wanted to avoid scenarios where they appeared to be challenging their husbands in owning livestock. In Bikita, livestock ownership remains a prerogative of men. Whilst women are not barred from owning livestock, it is socially problematic for them to do so. This is caused by men's fear that their power and social status would be challenged. Thus, men's honour is maintained by their direct control of livestock while women are left to deal with food security issues in the fields and other household chores. Commenting on the failed Boer goat project, two key informants confirmed the collapse of the project introduced by CARE International. Box 1 highlights their views.

Box 1: Key informants' reflections on the Boer goat project

EXTENSION SERVICE OFFICER – CARE International consulted us on the self-help projects which are less hectic and which could help in improving household income. Due to the dryness of the place, we advised them to introduce the Boer project since goats are drought resistant. However, the project failed to succeed because the withdrawal of men created divisions and conflicts in households and later amongst women on their own.

PROGRAMS OFFICER FROM CARE – After our pilot study and consultation with the extension services officer in Negwari, we introduced the Boer goat project to cushion local farmers from perennial droughts. Though the project targeted women as the main household food producers, we later decided to involve men as well to reduce household tensions and infighting and unfortunately, the men were the first to withdraw and women also failed to remain in the project.

Women in Ziwacha, Negwari and Nebarwe also engaged in successful community gardening projects. Since their area is more rocky and dry, the women from Negwari banked on bridging capital, and travelled to Nebarwe and Ziwacha to take advantage of the availability of the vleis and swampy areas and intensify the gardening projects there. The participants expressed that they got support from CARE International and PLAN International. The two NGOs drilled the boreholes and fenced the gardens to protect them from being devoured by domestic and wild animals. The NGOs also offered them high-value horticulture crops such as cabbages, tomatoes, onions and legumes, like beans, among others. Information obtained from the focus group discussions and in-depth interviews showed that the projects progressed well compared to the Boer goat project. Some participants were of the view that the success of the gardens was based on the fact that men have no interest in such activities. Though they cited that the income from the horticulture was low, it helped them with some modest income to supplement food particularly during failing dryland farming. They also commented that the produce not only helped them in supplementing food availability and providing a steady income but also reduced malnutrition. Despite the positive outcome from gardening, they pointed out that this project overburdened them with labour as they strived to increase food availability.

The key informants explained the various processes, successes and challenges experienced in the gardening projects. A CARE International programme officer confirmed that community gardening was one of their successful projects, mainly in Nebarwe and Ziwacha villages. He acknowledged that the availability of good water reservoirs there aided the

successful intensification of gardening. Furthermore, he credited the success of the project to good social relations amongst the women as the main participants. Equally, men's absence from the gardening projects allowed women to fully exploit their potential without any fear of challenging their husbands. A difficulty was that women producers needed to access better markets so that they didn't end up getting far less than expected. Low income was noted to reduce their capacity to supplement food, especially during dry seasons with low harvests.

The study observed another successful project, known as Food For Assets (FFA). As linking capital, FFA was introduced by CARE International and PLAN International in their efforts to assist smallholder farmers, particularly women, in enhancing their farming productivity. The participants in the focus group discussions stated that the two NGOs educated and supported local farmers in the construction of their own dams, which could save many functions. The dams were expected to store water for domestic animals and be used in the community gardens and for other domestic uses. To motivate participation, the two NGOs gave a 50-kilogram bag of mealie meal to every participating household. The small-scale dam project attracted women mainly because they wanted the mealie meal immediately more than the anticipated benefits of the project in the long run. Focus group discussions showed that the lack of food at home pushed them and their children to participate, at the same time as repelling men from committing themselves to the project. The key informant from CARE International (programme officer) confirmed that the small damming projects were successful since most women from different households were committed to the new development.

One of the noted projects undertaken by women, who were driven by bonding and linking capital in the three villages, was the establishment of small-scale credit groups known as the Fushai project. Through focus group discussions and in-depth interviews, women confirmed that the concept, training and help in managing the Fushai scheme came from CARE International and PLAN International officers. Participants in the credit schemes explained that they formed small groups to which they paid a nominal fee on a monthly basis. Though the project seemed lucrative, however, it created different problems for different social groups. Participants in the three villages joined groups depending on their level of earning. Those who earned less money joined groups that contributed between USD 1 and USD 5 per month. The other group consisted of high earners who could afford to contribute USD 20 per month. The motive behind the Fushai project was to invest the collected money and use it to buy and sell goods, provide loans, and brew and sell traditional beer. The main motive for collecting this money was to generate interest. The accrued

interest was expected to be equally shared every six months. The sharing of interest was not standard across the different social groups. Focus group discussions and in-depth interviews reflected that some members bought and shared goods whilst the most vulnerable bought mealie meal as their main source of food. Most of the participants confirmed that the money was helpful in supplementing other benefits they received from farming and gardening. Nevertheless, it was noted that conflicts arose from time to time around the management of the Fushai projects, though their impact was not very disruptive to their general operations.

Discussion of Findings

Women, social capital and food security

Smallholder farming communities with adaptive strategies that do not incorporate social capital as a critical factor are vulnerable to common climate change disasters like droughts. Such vulnerable communities are usually poorly resourced and have low adaptive capacity. In most cases, the lack of critical livelihood resources, particularly amongst women, exacerbates their vulnerability to severe droughts. As noted in Ward 21 in Bikita, local farmers' exposure to precarious ecological conditions worsened their vulnerability at the same time as reducing their potential to cope, adapt and build resilience against drought. The current literature on the climate change-food security-adaptation nexus highlights that communities with strong social bonds are well prepared to face disasters with minimal outside intervention (Putman 1993). In adaptation, collectivism allows members to pool their communal resources and diversify their strategies, among other ways of enhancing their livelihood chances. On the other hand, social units with weak social capital are more susceptible to known and unknown climate change disasters. As elsewhere, social groups or units with robust horizontal and vertical connections are better positioned to communicate, share and deal with disasters such drought.

As noted in the study, the three forms of social capital are never independent from each other. Despite the fact that women were given linking capital, which introduced the Boer goat project, the weak bonding capital distorted the whole project, which had been earmarked to increase household livestock and income. The literature reflects that the success of social capital is perhaps determined by all three types of capital functioning and corresponding fully at the same time (Putman 1993). This is supported by Gugerty and Kremer (2008), whose study in Kenya and Rwanda showed that well-bonded community farming groups failed to yield positive results due to the lack of linking capital. Likewise, in Ward 21, poor bonding

capital is seen as the cause of the failure of the Boer goat project. However, household and inter-group conflict and mistrust rendered the whole exercise obsolete. Szreter and Woolcock (2004) stated that though bonding capital is critical, its functional value is compromised if there is a lack of corresponding action from all the stakeholders. Furthermore, the absence of a corresponding relationship between the forms of social capital usually leads to the emergence of welfare dependence.

Interesting observations can be noted from the experiences cited in Ward 21. In as much as some scholars have been calling for vibrant external intervention to bankroll coping and adaptive activities, the absence of grassroots co-operation affects everything. The works of Njuki et al (2008) reflect that linking capital is there to complete the missing components in the social capital and adaptation discourse. Their arguments defy the popular views that romanticise the value of linking capital as critical to adaptation on its own. Romanticising linking capital in adaptation to climate change impacts is tantamount to regarding vulnerable smallholder farmers as blank slates. Women's adaptive potential to deal with food deficits is largely affected by other wide-ranging factors, which can hinder the good intent of collectivism. As noted in the Boer goat project and the Fushai scheme in Ward 21, social dynamics can be detrimental to the effective functioning of bonding, bridging and linking capital in adaptation. Community-based social associations do not always guarantee successful results. Sometimes, they generate antagonism amongst the members, as noted in the Boer project. The existence of social divisions precludes community associations from coping and adapting to climate change shocks and stresses (Pelling 2003). Associations riddled with fragmentation fail to work together collectively in reducing the impacts of climate change on all community members.

In other projects, such as the Fushai scheme, Food For Assets and community gardening, the most interesting fact is their success, which is largely attributed to social harmony and unity among women in their execution. Good horizontal and vertical relationships helped in the undisrupted production of these projects. For instance, the success of the damming project is largely attributed to women's common interests of getting mealie meal for immediate consumption and. In this scenario, harmonious relationships made a substantial contribution to the women's total production in smallholder farming. As noted by Portes and Landholt (1998), co-operative efforts by vulnerable social units mark the starting point of building resilience and adaptation to disasters. Most group members will benefit from working together. Notably, women share their

challenges across the general community without much difficulty. Also, women collectively deal with household challenges such as food insecurity without much need for top-down and 'one size fit all' approaches to attain food security. The success of social capital-bound adaptation expands their capacity to sustainably adapt to food security. It also offers them the ability to deal with food security challenges on their own with minimum external help and avoid submitting to dependence on the donor community.

Conclusion

From the study, it has been observed that social capital is a critical component in coping, adapting and building the resilience of vulnerable farmers in Ward 21, in Bikita District. It was noted that communities without the three forms of social capital are not in a good position to adapt and cope with climate change disasters like drought. Linking capital on its own does not help in coping with disasters but needs to be combined with bonding and bridging capital. Romanticising the role of linking capital has been rendered redundant as far as the provision of sustainable strategies that enhance food security are concerned. The success of women's projects is anchored on the healthy nature of grassroots livelihood strategies. These strategies allow women to pool their communal resources for resilience as well as diversify their strategies rather than depending on smallholder farming. Though social cohesion is problematic in most communities, combining grassroots strategies with external links guarantees sustainable coping mechanisms against droughts. Combining the three types of social capital forms solid ground for sustainable adaptation against food insecurity amongst women in smallholder farming. Lastly, it can be highlighted that all smallholder farmers with poor social capital cannot adapt to climate change disasters like drought. Also, interventions in terms of adaptation and development need to be initiated from the grassroots so as to guarantee acceptability and sustainability of the strategies.

References

- AGRA, 2014, Africa Agriculture Status Report 2014: Climate change and smallholder agriculture in Sub-Saharan Africa, Nairobi: Alliance for a Green Revolution in Africa.
- Agrawal A., 2008, Social Dimension of Climate Change, Social Development Department, Washington DC: The World Bank.
- Aldrich, D. P., 2012, *Building resilience: Social capital in post-disaster recovery*, Chicago, IL: University of Chicago Press.
- Barnett, J. and O'Neill, S., 2010, Maladaptation, *Global Environmental Change*, Vol. 20, No. 2, pp. 211–213.

- Bernier, Q. and Meinzen-Dick, R., 2014, Networks for resilience: The role of social capital, Washington, DC: International Food Research Policy Institute (IFPRI), <http://reliefweb.int/sites/reliefweb.int/files/resources/2020resilienceconfpaper04.pdf> Accessed 21 August 2020.
- Chagutah, T., 2010, *Climate Change, Vulnerability and Adaptation Preparedness in South Africa*, Cape Town: Heinrich Böll Stiftung Southern Africa.
- Chisi, D., 2019, Women Farming Contribution Vital to Growth of Rural Economies, *AllAfrica*, 13 March, <https://allafrica.com/stories/201903130636.html> Accessed August 2020.
- Coleman, F. J. S., 1990, *Foundations of Social Theory*, Cambridge, MA: Harvard University Press.
- Costa, D. L. and Kahn, M. E., 2003, Civic engagement and community heterogeneity: An economist's perspective, *Perspectives on Politics*, Vol. 1, No. 01, pp. 103–111.
- Di Gregorio, S., Hagedorn, K., Kirk, M. and Korf, B., 2012. Property Rights and Collective Action for Poverty Reduction: A Framework for Analysis, in Mwangi, E., Markelova, H. and Meinzen-Dick, R., eds, *Collective Action and Property Rights for Poverty Reduction: Insights from Africa and Asia*, Philadelphia, PA: Penn Press for International Food Policy Research Institute, pp. 25–48.
- Dodman, D. and Mitlin, D., 2013, Challenges for community based adaptation: Discovering the potential for transformation, *Journal of International Development*, Vol. 2, No. 5, pp. 640–659.
- Flores, M. and Rello, F., 2003, Social Capital and Poverty Lessons from Cases Studies in Mexico and Central America, FAO Working Paper.
- Granovetter, M., 1983, The strength of weak ties: A network theory revisited, *Sociological Theory*, Vol. 1, No. 1, pp. 201–233.
- Grootaert, C. and Narayan, D., 2004, Local Level Institutions, Poverty and Household Welfare in Bolivia, *World Development*, Vol. 27, No. 3, pp. 1179–1198.
- Gugerty, M. K. and Kremer, M., 2008, Outside Funding and the Dynamics of Participation in Community Associations, *American Journal of Political Science*, Vol. 52, No. 3, pp. 104–115.
- Gutsa, I., 2014, Climate Change and Policy Making in Zimbabwe: In search of evidence based policy making? *Acta Universitaria*, Vol. 24, No. 6, pp. 21–28.
- Hawkins, R. L. and Maurer, K., 2010, Bonding, bridging and linking: How social capital operated in New Orleans following Hurricane Katrina, *British Journal of Social Work*, Vol. 40, No. 6, pp. 1777–1793.
- Hill, K. Q., and Matsubayashi, T., 2005, Civic engagement and mass–elite policy agenda agreement in American communities, *American Political Science Review*, Vol. 99, No. 2, pp. 215–224.
- Intergovernmental Panel on Climate Change (IPCC), 2007, Climate Change 2007: Synthesis Report, Contribution of Working Group 1, 11 and 111 to the Fourth Assessment Report of Intergovernmental Panel on Climate Change (Core Writing Team, Pachauri, R.K. and Reisinger, A., eds), Geneva: Intergovernmental Panel for Climate Change.
- Kaswan, A., 2013, Principles for Equitable Adaptation, Centre for Progressive Reform, San Francisco.

- Manjengwa, J. and Matema, C., 2014, *Children and climate change in Zimbabwe*, Harare: UNICEF.
- Mayoux, L., 2001, Tackling the down side: Social capital, women's empowerment and microfinance in Cameroon, *Development and Change*, Vol. 32, No. 3, pp. 435–464.
- Moser, C., 2008, *Pro-poor Climate Change Adaptation in the Urban Centres of Low and Middle-Income Countries*, London, UK: World Bank and IIED.
- Njuki, J. M., Mapila, M. T., Zingore, S. and Devore, R., 2008, The Dynamics of Social Capital in Influencing Use of Soil Management Options in the Chinyanja Triangle of Southern Africa, *Ecology and Society*, Vol. 132, p. 9.
- Reid, H., Ampomah, G., Olazábal Prera, M., Rabbani, G. and Zvigadza, S., 2012, *Southern voices on climate policy choices: Analysis of and lessons learned from civil society advocacy on climate change*, London, UK: International Institute for Environment and Development (IIED).
- Rhodes, J., 2012, The ties that divide: Bonding social capital, religious friendship networks, and political tolerance among Evangelicals, *Sociological Inquiry*, Vol. 82, No. 2, pp. 163–186.
- Pasteur, K., 2011, *From Vulnerability to Resilience: A Framework for Analysis and Action to Build Community Resilience*, Rugby, UK: Practical Action Publishing.
- Pelling, M., 2003, *The vulnerability of cities: Natural Disasters and Social Resilience*, London, UK: Earthscan.
- Pigeon, P., 2002, *Réflexions sur la géographie des risqué dits naturels*, Nice: Université Nice-Sophia Antipolis.
- Portes, A. and Landholt, P., 1996, The Downside of Social Capital, *The American Prospect*, Vol. 26, p. 1822.
- Putnam, R. D., 1993, *Bowling Alone: The Collapse and Revival of American Community*, New York: Simon and Schuster.
- Sanginga, P. C., Best, R., Chitiske, C., Delve, R., Kaaria, S. and Kirkby, R., 2004, Enabling rural innovation in Africa. An approach for integrating farmer participation in research and market orientation for building the assets of rural farmers, *Uganda Journal of Agricultural Sciences*, Vol. 9, pp. 942–957.
- Scott, James C., 1984, *Everyday Forms of Peasant Resistance*, New Haven, CT: Yale University Press.
- Szreter, S. and Woolcock, M., 2004, Health by Association? Social capital, Social Theory, and the Political Economy of Public Health, *International Journal of Epidemiology*, Vol. 33, pp. 650–67.
- Walker, D. H., Thorne, P. J., Sinclair, F. L., Thapa, B. and Wood, C. D., 1999, A systems approach to comparing indigenous and scientific knowledge: consistency and discriminatory power of indigenous and laboratory assessment of the nutritive value of tree fodder, *Agricultural Systems*, Vol. 62, Issue 2, pp. 87–103.
- Woolcock, M. and Narayan, D., 2000, Social Capital: Implications for Development Theory, Research and Policy, *World Bank Research Observer*, Vol. 15, pp. 225–249.
- ZIMSTAT, 2013, Poverty and Poverty Datum Line Analysis in Zimbabwe 2011/12, Harare: ZIMSTAT, <https://thousandcurrents.org/partners/zimsoff> Accessed August 2020.



The Reformed Agrarian Structure and Changing Dynamics of Rural Labour Migration in Zimbabwe

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Abstract

This article examines the changing dynamics of rural labour migration in Zimbabwe following the radical land redistribution since 2000 through the Fast Track Land Reform Programme (FTLRP). Since the colonial period, dispossessed peasants with inadequate land access were forced to offer cheap migrant wage labour for large-scale capitalist farms (LSCFs) and beyond. Despite the wide acknowledgement of the redistributive nature of the FTLRP, there is sparse understanding of how the new land access patterns impacted on rural labour migration. Empirical evidence from Goromonzi and Kwekwe districts demonstrates that while there were many peasant beneficiaries, land shortages were not completely eradicated and the new farm labour markets depended on the super-exploitation of landless migrants. Altogether, the data contradicts the conventional wisdom that views migration as a deliberate diversification strategy of household labour to enhance a livelihood. Rather, resistance to proletarianisation undergirds the struggles of farm labourers as they largely seek autonomous land-based social reproduction outside the wage economy.

Keywords: migration, labour reserve, land reform, farm workers, Zimbabwe

Résumé

Cet article examine l'évolution de la dynamique de migration de la main-d'œuvre rurale au Zimbabwe à la suite de la radicale redistribution de terres à partir de 2000 à travers le programme Fast Track Land Reform (FTLRP). Depuis la période coloniale, les paysans sans terres ou ayant un accès

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inadéquat à la terre ont été contraints de se transformer en main-d'œuvre migrante bon marché pour les grandes exploitations capitalistes et au-delà. Malgré une large reconnaissance de la nature redistributive du FTLRP, il existe une compréhension limitée de l'impact des nouveaux modèles d'accès à la terre sur la migration de main-d'œuvre rurale. Des données empiriques provenant de districts de Goromonzi et de Kwekwe démontrent que, même si de nombreux paysans en sont bénéficiaires, les pénuries de terres ne sont pas complètement éradiquées et les nouveaux marchés de travail agricole dépendent de la surexploitation des migrants sans terre. Dans l'ensemble, les données contredisent la sagesse populaire qui considère la migration comme une stratégie délibérée de diversification du travail des ménages pour améliorer leurs moyens de subsistance. Au contraire, la résistance à la prolétarianisation sous-tend les luttes des ouvriers agricoles qui recherchent, en grande partie, une reproduction sociale autonome basée sur la terre en dehors de l'économie salariale.

Mots-clés : migration, réserve de main-d'œuvre, réforme agraire, travailleurs agricoles, Zimbabwe

Introduction

The main purpose of this article is to examine the changing dynamics of rural labour migration in Zimbabwe following the radical land redistribution since 2000 through the Fast Track Land Reform Programme (FTLRP). As the programme was rolled out, the dominance of large-scale capitalist farms (LSCFs) land ownership waned. The article's first objective relates to the examination of the extent to which migrant labour remains a key source of labour for the new range of agricultural production units. This assessment is located within a context in which land reform allocations were made predominantly to the peasantry, who constituted the 'labour reserve' of the LSCFs (Moyo 2011a, b, c; Bush and Cliffe 1984; Arrighi 1970). Migration for wage employment is often conceptualised as an 'exit strategy' from the vagaries of peasant production (Sender 2016; De Janvry and Sadoulet 2000) and/or a deliberate strategy to diversify livelihoods (De Haas 2008; Scoones 1998, 2009, 2015). Therefore, prospects for better incomes and food security are predicted for labour migrants and their families. The second objective of this contribution thus sought to test these assertions by assessing the socioeconomic conditions of the labour migrants on the new peasant and smaller-scale capitalist farms.

Research on the extent to which the new land access patterns affected migration dynamics in the mobilisation, sources and material conditions of wage labour on the new smaller-scale capitalist farms has been limited. The redistributive nature of the FTLRP in terms of the scale of land reallocated

and the beneficiaries reached is now widely acknowledged (Moyo et al. 2009; Scoones et al. 2010; Murisa 2009). However, there is sparse understanding of how the new land access patterns impacted on the migration of labour from communal areas to farms on the land of the former LSCFs. Alternatively, whether the communal areas continued to be a labour reserve for the new farming units as prevailed in the former LSCFs. Relatedly, what are the implications of the redistribution of land to the previously land-short peasants from the communal areas for the availability of farm labour? Land scarcity has played a major role in propelling the exodus of males from communal areas in search of wage employment in the capitalist sectors (Potts 2000). Moreover, the outcomes of labour migration on the incomes and food security of the migrants and their households have also been under-researched.

The problem stems partly from the failure to understand and appreciate the emerging agrarian class structure and/or new sources of wage employment that followed land reform. Some analysts claim that since most of the land was allocated to peasants, production was mainly organised using family labour and that hardly any wage labour was hired (Masiiwa and Chipungu 2004; Hellum and Derman 2004; ZHRF and JAG 2007). As such, the dynamics of continued wage labour migration were not anticipated. This is akin to other perspectives on sub-Saharan Africa that associate farm wage labour with only the LSCFs in the former settler colonies, while the preponderance of self-employed labour across the peasantry who dominate the agrarian landscapes elsewhere is noted (Binswanger, McIntire and Udry 1989; Sender 2016; Sender and Johnston 2004). The new diversified agrarian structure that resulted from the land reforms transformed not only landholding patterns but also land use practices, integration into markets and labour utilisation (Moyo 2011a, 2013). It is now composed of three farm classes, namely the peasantry, middle to large capitalist farms, and agro-industrial estates, which hire wage labour to various degrees (Moyo 2011a; Chambati 2009, 2013).

To ascertain the implications of the redistributive land reforms on rural labour migration, a series of research questions are posed for this article:

- What are the forms of farm (wage) labour utilised on the new farms?
- What is the role of migrant workers in the supply of farm labour?
- Does access to land still affect the participation of migrants in the labour market?
- How have the new land access patterns impacted on the availability of farm labour, which was previously abundant due to landlessness and land shortages in the communal areas?
- What material conditions are derived from labour migration to the new farms?

Following this introduction, the next section outlines the research methods utilised to mobilise data to answer the research questions. A brief context is then provided to set out a basis upon which to evaluate the changes and continuities in rural labour migration in the aftermath of land reform. The agrarian restructuring that was prompted by the FTLRP nationally and in the two districts studied are then analysed, to understand the differentiated sources of farm (wage) employment. The next three sections explore the variegated forms of labour used by the new farm households, the role of migrant workers in the supply of farm labour and the influence of land shortages in the migratory patterns. The material conditions derived from migrant farm labour precede the conclusion.

Methods and Study Areas

The new farm labour mobilisation strategies, including the sources of recruitment, were explored on the basis of micro-level questionnaire survey data from randomly selected households that had been allocated land under the A1 and A2 schemes¹ in the two districts of Goromonzi and Kwekwe in 2017.² Data elicited from the survey included the sources of farm labour (hired versus family labour), the geographic origins of wage labour, and the wages and benefits the workers received. A farm labour survey targeting the wage workers in the same districts provided further insights into employment patterns, access to land by farm workers, and their socioeconomic conditions. Moreover, it corroborated the evidence of the material conditions given by the new farm employers.

The two district case studies provided an opportunity to examine the differentiated outcomes of redistributive land reform in the two areas, which are characterised by contrasting socioeconomic and agro-ecological patterns. Goromonzi District is in a high-potential agro-ecological zone, near major agricultural markets in the capital city, Harare, and is endowed with high per-capita public infrastructure. Altogether, these features affect the agricultural production patterns and labour relations of this case study. In contrast, Kwekwe District is located farther away from Harare, in a dry and low-potential agro-ecological zone, with gold mining as the key characteristic of the district's economy. These micro-level district case studies were also motivated by the need to comprehend how migration dynamics play out at the sub-national level, given that the FTRLRP entailed a differentiated process in terms of the land sizes allocated and the types of beneficiaries. Specifically, the agro-ecological location and per-capita infrastructure partly shaped the competing claims for land by different groups, including peasants, farm workers and elites (see Moyo 2011a, b, c; Scoones et al. 2010; Mkodzongi 2013; Murisa 2009).

Conceptualising Rural Labour Migration

Historical-structural approaches rooted in Marxist political economy informed this analysis of the new agrarian labour relations (including wage labour migration tendencies). This is because, during the colonial and immediate independence period in Zimbabwe, labour relations were based on a historical context of specific land-labour utilisation created by land dispossession and discriminatory agrarian policies (Chambati 2011). Beyond this, gender issues, intra-household relations and the agency of the workers were considered to understand the trajectory of labour relations.

Historical-structural approaches propose that labour relations are influenced by the wider history of the people (e.g. colonisation and global capitalist integration) and structural factors (e.g. asset distribution) in a particular economy (Wood 1982: 302). The structural factors can be internal or external to the economy (O’Laughlin 2002) and in sub-Saharan Africa are rooted in historically specific conditions, such as differentiated and uneven colonial land dispossession and the incorporation of peasants into the global capitalist system (Arrighi 1970; Wood 1982; Neocosmos 1993; Mafeje 2003).

While the ownership and control of land is not the only decisive factor in explaining the evolution of agrarian labour relations, it is critical in shaping who sells or hires labour in Africa (Cousins 2009; Mafeje 2003; Mamdani 1996; Moyo 2011a, 2013; Moyo and Yeros 2005a; O’Laughlin 2002). Often, ‘... property rights in land also *strongly* influence access to other productive resources, most notably credit, but sometimes water rights, grazing rights and other entitlements’ (Evers and Walters 2000: 1342–1343, *emphasis added*). In capitalist social relations, ‘... productive assets (capital) are unequally distributed and held largely as private property, those who do not own capital must sell their labour power [for their social reproduction]’ (Cousins 2009: 10–11). This means that those deprived of an autonomous means of production (including land) are induced into wage work to survive. The hiring in or out of labour by rural households is thus a class relation evolving from the ownership of property (Cousins 2009; O’Laughlin 2002). Moreover, access to land enhances food security outcomes at the household level since some of the food needs can be met from own agricultural production (Moyo et al. 2009). Without access to land, wage incomes to procure food and other social requirements from volatile markets are crucial to sustain households. Given the low wages associated with farm labour across Africa (Tsikata 2015), those dependent on this source of income for their survival are more likely to be food insecure compared to those who own land. This proposes the need

to carefully examine the distribution of landholdings and related productive resources within a given agrarian structure in order to understand the varied forms of wage labour that exist in it.

This stance contradicts the approaches that conceptualise agrarian labour as one of the resources at the household's disposal that could be diversified in different agricultural and non-agricultural livelihood portfolios (Bebbington 1999; Niehof 2004; De Haas 2008), rather than being the fulcrum of peasant livelihoods. Migration and/or wage labour relations thus emerge from the diversification of household labour resources across rural and urban locales in both farming and non-farming activities (Scoones 1998, 2009, 2015; Bebbington 1999; De Haas 2008; Niehof 2004). Labour migration is considered '... not so much ... a coping strategy, but the deliberate diversification of family and household forms and sizes' (Niehof 2004: 327). It is associated with livelihood improvement, enhanced financial capacity to develop other non-farm activities, and the curtailment of the instability of household incomes that are sourced mainly from highly variable rain-fed farming (De Haas 2008: 37).

Those who argue that rural–urban migration to join wage labour markets is a 'voluntary' choice also argue that the abolishment of institutionalised and forced labour migration after the end of colonisation in settler southern Africa did not stem the flow of labour to towns to seek employment (Niehof 2004). This perspective, however, obscures the influences of structural factors, such as the persistence of land shortages and adverse economic conditions, in compelling peasants to migrate to wage labour markets in the post-independence period (Moyo 2008). In relation to southern Africa, an analysis of contemporary livelihoods cannot be divorced from the 'historical understanding of the proletarianisation' of peasants that evolved during the colonial period (O'Laughlin 2002: 513–4). What passes as the diversification of household labour resources is therefore rooted in the uneven distribution of the means of production promoted by colonial administrations (O' Laughlin 2002).

The point of departure of these approaches is that agriculture is just one of many activities in people's livelihoods and that its importance varies for different places and times. The importance of land to peasants is neglected, since it is seen '... as just one among several different assets/capitals required to make a living ...' (Chimhowu and Hulme 2006: 729–30), despite its multiple social, economic, political and cultural functions, which are critical to the sustenance of households (Moyo 1995). Consequently, the importance of self-employed agricultural labour in the livelihoods of the peasantry is also undervalued. Approaches that analyse livelihoods viewing land and labour as disconnected entities thus conceal how land access can extend self-

employment in agriculture or wage labour in the case of the landless (Amanor 2001; Tsikata 2009). These approaches are thus bereft of an analysis of class and class struggles, which are central to how people realise their social reproduction (Murray 2002).

Migration for wage employment has also been argued to offer an escape route from the vagaries of peasant production (De Janvry and Sadoulet 2000). Empirical research has shown, however, that despite the decline in farm incomes over the last three decades, there has been an expansion in the number of African households for whom farming is the centre of their social reproduction strategies (Hazell, Poulton, Wiggins and Dorward 2010).³ This points to the continued importance of agricultural labour, especially in its self-employment forms, to the sustenance of rural households.

The rising demand for small plots of land to farm is also evidenced by the re-emergence of land reclamation movements in much of the countryside in the global South in response to the dispossession of the means of production (Van den Berg, Hebinck and Roep 2018; Edelman and Borrás 2016; Moyo, Jha and Yeros 2013). This suggests that the peasantry is, in fact, being resuscitated rather than 'disappearing', as some scholars profess (Bryceson 2000; Riggs 2006). The increased demand for land is expressed in the concept of *repeasantisation*.⁴ At the centre of this notion is the ownership of land for autonomy to subsist based on the land and delink from super-exploitation in the labour market (Van der Ploeg 2010; Moyo et al. 2013). Indeed, many urban-based social reproduction strategies are under threat from deindustrialisation and poor-quality employment, let alone precarious farm wage work.⁵ Therefore, the countryside is increasingly becoming an option for the reconstitution of social reproduction through petty commodity production (Moyo et al. 2013).

Gender intersects with class dynamics, kinship and customary practices to influence labour migration outcomes in rural sub-Saharan Africa in diverse ways. Women's marginalisation in the control of land resources, in particular, reproduces gender inequalities in intra-household labour relations, which men deploy to control women and children's labour (Evers and Waters 2000; Tsikata 2009, 2016). Indeed, women tend to be prevented from leaving the household to search for wage work to stabilise family farm labour supplies (O'Laughlin 1998).⁶

However, in a changing context, various bargaining processes within the confines of patriarchal institutions have allowed women to enter wage labour (Bryceson 1980; O'Laughlin 1998, 2002; Potts 2012). The need to widen family income, especially after the withdrawal of state subsidies for social services as part of the neoliberal reforms is a case in point (Bryceson 1980).

Gender inequalities at the workplace have nonetheless restricted women to irregular, insecure and poorly paid types of jobs (ILO 2015; Tsikata 2015, 2016; Torvikey, Yaro and Teye 2016).

Context: Agrarian Restructuring in Zimbabwe

Before colonial land dispossession became widespread among the local peasantry, foreign migrant labour imported from Nyasaland (now Malawi), Portuguese East Africa (now Mozambique) and Northern Rhodesia (now Zambia) formed most of the labour supply for the settler LSCFs (Clarke 1977; Amanor-Wilks 1995). Thereafter, until 2000, land-short and landless people from the communal areas were compelled to augment small-scale farming with migration, of chiefly male members, for cheap wage employment on the LSCFs and elsewhere for their survival. This process has been characterised as the semi-proletarianisation of migrant labour (Moyo and Yeros 2005b; Neocosmos 1993).

After 2000, over 90 per cent of the LSCF land was redistributed during the FTRLP, using two resettlement models – the A1 and A2 schemes (Scoones et al. 2010; Moyo 2011a, b).⁷ This relieved land shortages (and consequential household food insecurity), which have been noted as the key drivers of labour migration from the communal areas since the colonial period (Arrighi 1970; Mhone 2001; Clarke 1977). Resettlement largely involved the relocation of beneficiaries from various places.

The dominant phenomenon entailed rural-to-rural migration, whereby peasants from the communal areas relocated to better quality lands in the former LSCFs and constituted as much as 62.1 per cent of the beneficiaries (Moyo et al. 2009: 21). The second-largest migration tendency (urban-to-rural migration) related to the movement of urban-based (former) proletariats and/or semi-proletariats to the resettlement areas. As the latter reoriented their livelihood and centred it on farming, the process has been called repeasantisation (Moyo and Yeros 2005b; Moyo 2011a). About 23 per cent of the land beneficiaries traced their origins to the urban areas across the models (Moyo et al. 2009: 22), but most of them were resettled in the A2 schemes. Only a few rural proletariats who had been employed on the LSCFs received land allocations.⁸ Circa 2010, over 145,000 and 22,000 beneficiaries had received land in the A1 and A2 schemes respectively, on land formerly belonging to about 4,500 LSCFs (Moyo 2011: 512).

Overall, three farm classes were created by the land reforms, namely the peasantry, small to medium and large capitalist farms (Moyo 2013; Shonhe, Scoones and Murimbarimba 2021; Mazwi, Muchetu and Mudimu

2021). The peasantry, which includes those who were allocated new A1 farms; existing old resettlement and communal areas are now the dominant category in the share of the number of farm households (98 per cent) and agricultural land owned (79 per cent) (Moyo 2011a: 262). The small to medium capitalist farms included the new A2 farms; and the old small-scale commercial farms (SSCFs) account for 2 per cent and 13 per cent of the farm households and agricultural land owned respectively (ibid: 262). The remainder is accounted for by large capitalist farms, which include the remaining LSCFs and agro-estates. Simultaneously, the farm labour market was transformed by the increase in the number of farm households and/or potential employers, and shifting agricultural production practices (World Bank 2012).

The redistributive outcomes, however, varied across districts depending on the local dynamics of land reform. In Goromonzi, the number of farm households increased from 20,253 in 2000 to 23,626 in 2014 (MLRR 2014). Most of the 1,673 new farm households were A1 land beneficiaries, who complemented the 19,976 existing peasant households in the communal areas. The A2 land beneficiaries boosted the ranks of the small to medium and large capitalist farms – 778 and 89 respectively. About sixteen agro-estates are part of the new agrarian structure in the district. In sum, the land controlled by the LSCFs was downsized from 61.8 per cent to 29 per cent. The peasantry, in contrast, increased their share of land from 31.7 per cent to 44.87 per cent during the same period. Compared to the national situation and experience in other districts (including Kwekwe) (Chambati 2013; Moyo 2011a), the peasantry in Goromonzi got a smaller share of the land distributed due to high demand for the larger-sized A2 plots in this peri-urban district by elites who wanted land close to the capital city. Agro-estates in Goromonzi, which include private agribusiness companies, state farms, mining companies and church and trust institutions, control about 8 per cent of the land area. Patriarchal structures were in operation, as males received the lion's share of the land allocations across the A1 and A2 models (Mutopo 2011).

The FTLRP in Kwekwe created 3,586 and 266 new A1 and A2 farm households respectively, on 308,495.6 hectares of land formerly belonging to mainly white LSCFs (MLRR, 2014). The A1 scheme increased the number of peasant households from 29,066 in 2000 to over 33,801 by 2014, accounting for 98.6 per cent of the farm units in the district (ibid). The share of the land area they held increased dramatically between 2000 and 2014, from 52.5 per cent to 71.2 per cent. The first phase of land redistribution in the early 1980s in Kwekwe had already increased the shares of land held by peasants by 10.1 per cent.

By 2014, the new A2 farms had expanded the category of small to medium capitalist farms that were previously made up the SSCFs. The share of this category in the total number of farm households in the district grew from 0.4 per cent to 0.76 per cent. In relation to the total land area, their proportion rose from 1.4 per cent to 4.11 per cent. The large capitalist farms (which included remaining LSCFs and the large A2 farms) accounted for 0.6 per cent of the farm households and 16 per cent of the total land area controlled (*ibid*).

Notwithstanding the extensive redistribution, there were still land-short and landless people especially in a district like Goromonzi, which prioritised land allocations to the larger-sized A2 farms. Land pressure in this communal area was being exacerbated by the conversion of agricultural land into residential spaces in the Domboshava area, which shares a border with Harare. This suggests the continued significance of the labour markets for the survival of those who were still land short (Chambati 2013). In contrast, Kwekwe redistributed 56.2 per cent of the land acquired to peasants, and thus the number of land-short households in communal areas was substantially reduced, compared to Goromonzi.

Results and Discussion

The previous section demonstrated that redistributive land reforms generated new farm classes and/or sources of employment at both the national and sub-national levels. This provides a framework for examining the diverse forms of farm labour using the detailed empirical data obtained from the household and labour surveys. After establishing the findings, this section proceeds to analyse the role of migrants in the supply of farm labour. An analysis of the character of the farm labourers from within the families and beyond extends the discussion on the influence of land access on the insertion of rural people into wage labour markets and the provision of unpaid family farm labour. Emphasis is placed on whether the communal areas still serve as the labour reserve for the new agricultural production units.

Forms of farm labour

Despite the proliferation of unpaid family labour in the resettled areas, farm wage labour did not disappear, as postulated by some analysts (De Janvry 1981; Sender and Johnston 2004; Hellum and Derman 2004; Sender 2016). The peasantry who benefited most from the land reform allocations did not exclusively rely on family farm labour, as these analysts claim. Hiring in wage labour was prevalent even among the smaller A1 landholdings, let alone on the larger A2 farms.

The A1 households in both districts were the ones that mostly, as before, depended on the backs of their families for farm labour to produce mostly food crops and livestock for consumption and surplus sales, akin to their counterparts in the communal areas (Moyo 1995; Adams 1991). In the A2 households, which were more integrated into cash and/or export crops, the use of unpaid family labour was far less important than in the A1 and communal areas, especially in Goromonzi District. Hence, approximately 60 per cent of the Goromonzi A2 households mimicked former LSCFs by depending entirely on hired farm wage labour, albeit with reduced absolute numbers of workers per farm unit. Their counterparts in Kwekwe, however, imitated the patterns of family labour use on the A1 farms in Goromonzi.

Up to 77.6 per cent of the Goromonzi A1 landholders hired wage labour to complement family labour. In the dry district of Kwekwe, this was true for as much as 64.9 per cent of the A1 households. These findings oppose claims that associate wage labour with large capitalist farming in southern Africa (Barrett, Reardon and Webb 2001; Sender and Johnston 2004; Barrett et al. 2005). That recruitment of farm wage labour was more pervasive in the A2 scheme (94.6 per cent in Goromonzi and 88.9 in Kwekwe) is in line with the expected trends. Hired labour was composed of permanent and casual labour. Both forms of labour were pervasive in the A2 households in the two districts studied, in terms of the proportions who utilised them and the average number of workers recruited per farm unit.

Gender inequities characterised the farm wage labour force: over 68 per cent of the permanent workers in the resettled households of Goromonzi were men and as much as 84 per cent in Kwekwe. Women's presence was higher in the casual labour component, echoing tendencies that prevail in many parts of sub-Saharan Africa (Torvikey et al. 2016; Tsikata 2015, 2016; Oya 2010, 2013). Even after land reform, the restriction of women to the margins of part-time farm work did not abate.

It is apparent that labour markets remained active even after the whittling down of the LSCFs through land redistribution. This paper's focus now turns to understanding the sources of farm labour in the new agricultural production units. Specifically, the research sought to ascertain the role of migrant workers in the supply of farm labour.

Sources of farm labour: migration dynamics in the new agrarian structure

In the 1980s and 1990s, women and children were left behind to actively contribute unpaid family farm labour as men migrated for employment to the LSCFs, mining centres and industries (Muchena 1994; O'Laughlin 1998; Potts 2000).⁹ Such tendencies perpetuated the migrant labour

systems that had evolved in southern Africa during the colonial era (Bush and Cliffe 1984; Cross and Cliffe 2017). However, as previous studies have revealed, the levels of male non-residency prevailing in the resettled areas (Moyo et al. 2009; Scoones et al. 2010; Matondi 2012; Chigumira 2018) were far less than those seen before 2000 in the communal areas. Both men and women provided unpaid family farm labour to the households. Unpaid family labour was extracted from the families of the landholders who had established permanent homes (up to 82 per cent of the surveyed beneficiaries) in the new resettlement areas.

The family labour supply was also coloured by migration dynamics through the co-optation of extended family relatives who stayed with them.¹⁰ Indeed, a larger share of the A2 households (71.6 per cent) was organised as extended family units, compared to the A1 households (61.8 per cent) in Goromonzi. In Kwekwe, however, it was the A1 households who were frequently organised as extended family units. Earlier work in six districts (including Goromonzi and Kwekwe) in 2005/2006 observed that 80.1 per cent and 69.6 per cent of the A1 and A2 households were structured as nuclear families (Moyo et al. 2009: 25). This suggests that over the years, as agricultural production expanded, the importation of relatives into the resettled areas escalated in response to the demand for labour.

The survey evidence indicates that the resettled households mobilised mostly landless relatives from communal areas of origin, or *kumusha*. By controlling land, the FTLRP beneficiaries were thus able to call on the labour of their kin from the communal and other areas distressed by land shortage, as done by other landholders in Zimbabwe's communal areas (Gaidzanwa 1995; Mvududu and McFadden 2001) and many rural dwellers in sub-Saharan Africa (Tsikata 2009, 2015; Oya 2013).

The new agrarian wage labour force comprised former and new farm workers. Former farm workers included those who had been previously employed in the redistributed LSCFs and now worked on the new farming units. They remained in the old farm compounds after some of their colleagues were displaced during the land occupations or trekked back to the communal and other areas (Sachikonye 2003; Magaramombe 2010; Scoones et al. 2018). The new farm workers, in contrast, lacked any previous employment connection to the LSCFs and were imported mainly from various communal areas.

Migration from the communal areas remained an important source of farm wage labour in the resettled areas. Excluding former farm workers who were already resident in the LSCFs prior to the FTLRP, over 57.6 per cent of the Goromonzi workers came from rural areas, namely communal areas,

old resettlement areas and SSCFs. The children of former farm workers who were not in LSCF employment before 2000 composed the remaining workforce. Numbers of Kwekwe workers reported originating from other rural areas outside the LSCFs, more so than workers in Goromonzi.

The sources of permanent labour included the communal area of origin, or *kumusha*, of the land recipients, irrespective of the distance from their farm households. About 15.4 per cent of the Goromonzi A1 households had recruited permanent labour from there (Table 1). None of the A2 households in this district had mobilised labour from their *kumusha*. Other communal areas, including Chikwaka (western side) and Chinhomora (north-eastern side), which are on the margins of the resettled areas, and Chinyika, located at the centre of the district, provided permanent labour to 80.8 per cent and 67.7 per cent of the A1 and A2 farms. Overall, permanent farm workers in the surveyed households were mobilised from over twelve districts spread in half of the eight rural provinces in the country. Only three of the districts were in Mashonaland East Province, where Goromonzi is located, namely Mutoko, Murehwa and Seke. The peasantry as a source of permanent labour now consists of those from the communal areas working alongside the new peasantry from the local A1 farms that 4.8 per cent of the A2 landowners in Goromonzi hired.

Recruitment from the same district was more frequent among A2 farms than in the A1 farms in Goromonzi (Table 1). Former farm workers were mentioned as a source of permanent labour by 15.4 per cent and 83.9 per cent of the A1 and A2 farms respectively (Table 1). An estimated 6.5 per cent of the A2 farm households had imported former farm workers from outside Goromonzi as well. That the A2 farms were the ones that were integrated into the production of commodities for international markets (e.g. tobacco), and valued the skills of former farm workers, resonated in their hiring patterns of permanent labour.

Comparable sources of permanent labour were identified in farm households in Kwekwe but, unlike Goromonzi, workers from urban areas featured in this district (Table 1). Even so, the communal areas were the primary source of permanent labour but not their *kumusha* (Table 1). Peasants from the Silobela and Zhombe communal areas in Kwekwe resisted the poorly paid farm work offered by the new range of producers because they had alternative livelihoods (Murray Li 2011), especially in gold panning, which they combined with their own low-productivity agricultural production (Moyo et al. 2009; Chigumira 2018). Consequently, Gokwe South District, which neighbours Kwekwe on the northern border of the district, was a key source of permanent labour.¹¹ In fact, over 51 per cent

of the farms that utilised communal areas as a source of permanent labour mobilised workers from there, compared to 18.4 per cent from the Zhombe and Silobela communal areas. The balance was sourced from other districts, in the Midlands, Masvingo, Mashonaland West and Manicaland provinces. Overall, permanent farm workers engaged in Kwekwe in the A1 and A2 households were traced to sixteen rural districts in Zimbabwe.

Table 1: Sources of permanent and casual farm labour (%)

Source	Permanent				Casual				
	Goromonzi		Kwekwe		Goromonzi			Kwekwe	
	A1	A2	A1	A2	A1	A2	CA	A1	A2
Communal area of origin	15.4	0	6.1	17.5	50.8	0	90	3.7	4.1
Other communal areas	80.8	67.7	71.4	72.5	5.1	56.9	10	2.8	14.3
Local A1 farmers	0	4.8	16.3	27.5	8.5	1.5	0	87	73.5
Urban areas	0	0	0	10	74.6	0	0	7.4	16.3
Former farm workers in same district	15.4	83.9	6.1	12.5	0	89.2	0	4.6	16.3
Former farm workers in different district	0	6.5	4.1	0	6.8	1.5	0	0	0
N	26	62	49	40	55	65	20	108	49

Source: Author fieldwork (2017)

The mobilisation of part-time labour was dependent mostly on local sources of labour within the redistributed farms, in direct contrast to that of permanent labour. In Goromonzi, most part-time labour included workers from old farm compounds, whereas the new peasantry from the A1 farms supplied the main source of part-time farm labour in Kwekwe (Table 1).

It is suggested from the above, from the residential roots of the farm workers, that the 'new' agrarian labour force largely retained its rural character since it consisted of mainly communal area residents (Amanor-Wilks 1995; Moyo et al. 2000; Kanyenze 2001). Nonetheless, the 'new' agrarian labour force had also been 'partially urbanised' (Tabak 2000) by the inclusion of urban areas as a source of labour. About 18 per cent of the workers in Goromonzi traced their roots to the urban areas, compared to 16 per cent in Kwekwe. If mining towns were added, then those who had urban roots escalated to 20.5 per cent in the latter district. Nowadays, it is not unusual to encounter job adverts looking for farm workers in the urban townships.¹² Temporary migration by some poor urban residents for farm work from nearby Mbizo Township into Kwekwe resettled areas was

indeed observed during the field research. The same patterns were visible in Epworth and Ruwa townships near Goromonzi's new farms. Furthermore, these shifting recruitment patterns were due to the urban roots of the capitalist farmers in the A2 scheme. The new farm labour markets thus gave some insight into the deteriorating macroeconomic conditions and the dwindling employment opportunities in the urban areas.¹³

Apart from being a survival strategy by land-short rural people, their recruitment as migrant labour by both A1 and A2 farm employers has also been viewed as a response to increased resistance from former farm workers. New A1 and A2 farmers were neither able to convert the residential population from the old compounds into farm labour, as the former LSCFs had, nor exert control on the social life of farm workers (Chambati 2013, 2019).

Access to land as a key driver of rural labour migration

The finite nature of land resources limits the extent to which land reform can satisfy the demand from all those who require land for their subsistence (De Janvry 1981; Delgado, Wise and Veltmeyer 2016). Therefore, even extensive land reforms such as experienced in Zimbabwe do not entirely resolve land shortages. Many land-short rural people will still require integration into the labour market for their survival. In Zimbabwe, land reforms reached only 10 per cent of the peasantry nationally in the land-scarce communal areas (Moyo 2011a). This suggests that were substantial segments of the rural population afflicted by land shortages who were constrained to survive based on farming opportunities alone.

Underlining the importance of land in structuring (farm) labour market participation, and/or migration for wage work, about 60 per cent of the surveyed farm workers did not own this means of production. The communal and resettled areas provided routes to land ownership for farm workers. In the former, 38.7 per cent owned farms in Goromonzi and 25.2 per cent in Kwekwe; their arable land sizes averaged 1.48 hectares and 2.78 hectares in the two districts respectively. As the data from the farm household surveys also revealed, Kwekwe had a higher share of farm labourers (13 per cent) who had received FTLRP land allocations than Goromonzi (5 per cent). The average arable land sizes they owned in the A1 sector were 5.4 and 5.3 hectares in the corresponding districts.

Even though many other farm workers accessed land informally from the compounds and unused resettled lands, and leased land from land beneficiaries, 33.4 per cent were still landless. Permanent workers (36.9 per cent) more than casual labourers (29.9 per cent) were separated from the means of production. Neither gender was shielded from landlessness, and it

was plain to see in 34.4 per cent and 30.3 per cent of the male and female workers, correspondingly. That few former farm workers benefited from the FTLRP land allocations indicates their limited prioritisation as a category of beneficiaries targeted to receive land, since they were earmarked to continue their role as wage labourers (Chambati 2011; Scoones et al. 2018).

Accessing land for independent residency and agricultural production was a key strategy of farm workers to exit from the oppressive LSCF labour market or to at least supplement their meagre wages (Rutherford 2001; Moyo et al. 2000; Vhurumuku et al. 1998).

Table 2: Aspirations of farm labourers (%)

Aspirations	Goromonzi				Kwekwe			
	P	S	PWD	Total	P	S	PWD	Total
Get own piece of land	49	5	51.9	45.7	36.9	51.6	39.2	39.9
Change profession	15	45	20.3	20.1	1	3.2	5.4	2.9
Better paying farm job	13	20	12.7	13.6	27.2	6.5	14.9	19.7
Buy cattle	12	0	8.9	9.5	9.7	16.1	10.8	11.1
Start a business	11	30	6.3	11.1	25.2	22.6	29.7	26.4
Total	100	100	100	100	100	100	100	100
N	100	20	79	199	103	31	74	208

Source: Author fieldwork (2017)

*P-permanent worker; S-seasonal worker; PWD-piecemeal/daily labourers

Many aspired to be land-owners and/or exit the farm labour market by changing profession or starting their own businesses (Table 2). If cattle ownership, which is also dependent on land access, is added to those wanting land, then land-based social reproduction strategies predominantly marked the future aspirations of the farm workers. Resistance to proletarianisation therefore continued to undergird the struggles of farm labourers, as they largely sought autonomous social reproduction outside the wage economy. Through participating in the land occupations and formally registering for land allocation with different authorities, as per state policy, farm workers took direct action to translate their aspirations into reality (Moyo 2001; Moyo et al. 2000; Sadomba 2011, 2013; Helliker and Bhatasara 2018). Such findings contradict perceptions that migration was an escape from volatile peasant agricultural production (De Janvry and Sadoulet 2000).

Overall, the data presented above suggests that the communal areas continued to be the labour reserve for the new agricultural production units, as the land-short still trekked to these areas in search of wage work (see also Chambati 2013). However, the labour shortages that the new farms sometimes

experienced illustrated the contraction of the labour reserve as some of the potential farm labourers from the communal areas gained land during the FTLRP. Around 2006, Moyo et al. (2009: 106) exposed the severe 'labour shortages' that were being experienced by 38.4 per cent of the 2,084 A1 and A2 households surveyed nationally. Beyond influencing the migration of rural labour for wage work on the new range of capitalist farms, access to land also distinguished households' capacities to achieve their food requirements and/or obtain incomes to acquire the same, as elaborated below.

Material conditions of (migrant) farm labourers

Before the FTLRP, poor wages and working conditions characterised employment on the LSCFs. These tendencies were also visible in the new range of smaller-scale capitalist farms. Even for the few workers who earned above the stipulated minimum wage of USD 75 per month, this was well below meeting their social reproduction requirements.¹⁴ As if the problem of paltry wages was not enough, farm labourers also faced challenges related to the accumulation of arrears, irregular pay dates, part payments and, devastatingly, non-payments by the A1 and A2 households.¹⁵

Poor wages were thus etched in the minds of permanent and casual workers, and over 82 per cent in Goromonzi ranked this as the foremost challenge in their social reproduction; 74.2 per cent and 62.1 per cent of the permanent and seasonal workers in Kwekwe communicated the same. Perhaps pointing to their diverse social reproduction strategies, 50 per cent of the piece/daily workers said low wages was their biggest challenge.

Not even the other non-monetary benefits that some of the workers received, such as food rations and land access, made up for the low wages to meet their subsistence requirements. Under this super-exploitation of labour many farm workers were not able to consume three meals per day. Food shortages afflicted more of the families of irregular wage-earning piece/daily workers (44.3 per cent) than those of permanent and seasonal labourers (32 per cent) in Goromonzi. Kwekwe had a larger proportion of farm worker households who failed to eat three meals per day compared to Goromonzi: for 6 per cent, one meal was all they could manage. Consumption patterns in Kwekwe were less balanced between the different forms of farm workers, but, as seen in Goromonzi, the piece/daily workers ate fewer meals than the permanent and seasonal labourers. The new landholders were not immune to food shortages, but they were far fewer, proportionately, than the landless farm workers. As earlier research revealed (Chambati 2011), the food consumption patterns of the A1 and A2 landholders were better than those of farm workers: over 70 per cent were able to eat three meals a day in 2017.

Moreover, evidence from the labour survey revealed the poor nutritional quality of the carbohydrate-dominated diets of farm workers. Repeatedly, land-beneficiary households had higher healthy food scores than the farm workers.¹⁶ Most of them (over 80 per cent) also had acceptable food consumption scores. The land-short households, especially in Goromonzi, were the most challenged, expressed in the food consumption scores as less than expected daily meals consumed and nutrition gaps. Close to 41 per cent and 19.7 per cent of the workers fell in the borderline food consumption score in Goromonzi and Kwekwe respectively, while poor food consumption scores were recorded among 7 per cent and 4.9 per cent of farm-worker households in these two districts. Kwekwe land-short households, it seems, made up the limitations of their agricultural income with non-farm labour, particularly in high-return alluvial gold mining.

The lack of money to pay school fees impeded access to education for farm-workers' children. All groups of farm workers were affected by this problem and it was not related to the type of employment. Overall, non-school attendance was counted in 25.4 per cent and 25.8 per cent of households who had school-going-age children in Goromonzi and Kwekwe respectively. Now compare this with over 90 per cent of resettled households who were managing to keep their children in school.

It is plain to see from the results that land access distinguished a household's capacity to achieve its food requirements and/or obtain income to offset other social needs. However, even the landed classes were not free from exploitation. This was frequently reflected by the high input and low output prices offered by agrarian capital (Mazwi, Chambati and Mudimu 2020; Chambati and Mazwi forthcoming), as well as threats to the land tenure that small-scale farmers sometimes faced from large landholders and agribusiness that sought to extend their landholdings (Moyo et al. 2009).

These findings continue to expose the inadequacy and precariousness of (migrant) farm wage employment to meet basic requirements, a similar scenario to that documented with the former LSCFs. The small capitalist farms that resulted from the A2 scheme have therefore seen the perpetuation of the super-exploitation of farm labour, perceived in low wages that were below the cost of social reproduction.

Conclusion

This article has demonstrated that land reforms do not necessarily allocate land to all land-short and landless people (Borras 2005; De Janvry 1981). Consequently, the agrarian labour reserve, though reduced by the allocation of land to formerly land-short peasants, continued to operate and the farm

labour market retained its relevance as a source of livelihood. Beyond land shortages and/or landlessness, the resistance of labour from the former LSCF compounds, and gender issues within and without households, influenced rural labour migration dynamics. Tellingly, 'labour shortages', which were uncommon in the former LSCFs (Tandon 2001), became characteristic of the farm labour market. This suggests a decline in the aggregate supply of labour as a result of some of the potential workers now being landholders in their own right.

Continuities and changes marked the new agrarian wage labour relations. While the new jobs for farm workers were commonly informal and part-time, the payment of wages well below the cost of social reproduction resonated with the tendencies of the former LSCFs. Even with the expansion of the wage structure through the receipt of 'social wages', such as access to informal land for own production provided by land beneficiaries, natural resource trading and food subsidies, the poverty that afflicted most farm workers was not substantially altered. Also replicating past tendencies of the former LSCFs, the marginalisation of women in the labour markets as irregular wage earners did not abate. Altogether, the data contradicts the literature that views migration as a deliberate diversification strategy to enhance the livelihoods of migrant labourers (Niehof 2004; Scoones 1998, 2009, 2015; De Haas 2008). Rather, resistance to proletarianisation marked the struggles of land-short rural proletariats and semi-proletariats as they aspired to become peasants and delink from the labour market (Jacobs 2018; Zhan and Scully 2018).

The findings validate assertions by Tsikata (2015) that farm work in its many diverse contexts in Africa is one of the worst paid forms of work. Therefore, analyses that claim that wage labour migration to LSCFs was crucial for the survival of rural people in settler southern Africa (Sender 2016; Bernstein 2014; Sender and Johnston 2004; Hellum and Derman 2004) need to be revisited. To the contrary, it was the undervalued self-employed jobs within the peasantry that provided better prospects for the livelihoods of the rural people. Indeed, the inequalities in the material conditions of the landholders and land-short farm workers were plain to see.

Notes

1. The households allocated land in the A1 and A2 schemes are also referred to as new farm households in this article.
2. Data was collected from 407 landholders in Goromonzi and Kwekwe districts by the author in 2017; the farm labour survey interviewed 200 farm labourers in each district in 2017.

3. Another study of nine countries representing 51 per cent of the SSA population found that 92 per cent of the rural households surveyed were involved in own farming, and income from this averaged about 69 per cent of the total household income (Davis, Di Giuseppe and Zezza 2017: 169). The nine countries examined were Madagascar, Malawi, Nigeria, Ghana, Ethiopia, Kenya, Niger, Tanzania and Uganda. In fact, the agricultural population in SSA grew from 316.21 million in 1988 to 432.49 million in 2007 (IFAD 2011: 247-248).
4. Repeasantisation is a process where farming is taken up by former proletariats and semi-proletariats as a major component of their social reproduction (Bernstein, 2010: 128; Van den Berg, Hebinck and Roep 2018: 4).
5. The quality of employment is also a major challenge, as 80 per cent of the people employed in SSA are in vulnerable employment (ILO 2015: 54). Vulnerable employment includes workers who earn less than USD 2 per day (ILO 2015: 43).
6. In southern Africa, this was reinforced by colonial policies that preferred the extraction of male labour while restricting the movement of women from the rural areas through various pass laws (Arrighi 1970; Clarke 1977; O’Laughlin 1998).
7. The former model had between 5 and 7 hectares of arable land and 15 hectares of grazing land allocated to the beneficiaries in the higher-potential agro-ecological regions (I to III) (GoZ 2001; Sukume et al. 2004); those in low-potential agro-ecological regions (IV and V) were earmarked to receive relatively larger land sizes of about 10 hectares of arable land and 30 hectares of grazing land. The A2 scheme was targeted to receive larger land sizes than those in the A1 settlements, ranging from 20 to 2 000 hectares, also contingent upon the agro-ecological location (see Utete 2003; Sukume et al. 2004; Moyo et al. 2009).
8. About a third of the 350,000 former LSCF farm workers were displaced to various geographical areas, including the communal areas (Chambati and Moyo 2004; Chambati 2011; Magaramombe 2010; Hartnack 2005). Beyond these, rural-to-urban migration dynamics were also noted during the FTLRP via the relocation of displaced proletariats in the LSCFs to urban areas, while rural-to-rural migration dimensions also involved in the latter retrenched from their jobs.
9. For instance, a trade union survey report in the 1990s suggested that as much as 75 per cent of the working class had links to the countryside and combined wage work in the cities with farming in the communal areas (Moyo et al. 2009: 29). Several studies by Deborah Potts have also reflected the pervasive nature of the semi-proletarian condition among urban workers in Harare in the 1990s (Potts 2000, 2012).
10. Instead of the traditional family, which is composed of a husband, wife and their offspring, also known as the nuclear family, ‘extended’ families include additional relatives alongside the nuclear family (Mvududu and McFadden 2001).
11. Furthermore, Gokwe South is one of the 11 districts that did not have any LSCFs and the prospects of many peasants from this area to gain land were more constrained than others belonging to districts that implemented the FTLRP (see

Mkodzongi 2013b). This was largely due to ethnoregionalism whereby those originating from within the district were preferred for land offers than those from elsewhere (see Moyo 2011a; 2013). So, compared to other communal areas in districts with LSCFs, land shortages were higher and compelled residents in Gokwe South to work in farm labour in Kwekwe and beyond. Additionally, the options for peasants in Gokwe to survive on the small pieces of land were severely dented by the collapse of cotton production, which had been its mainstay for decades, due to the challenges in contract farming and slump in international prices of cotton lint (World Bank 2012).

12. During the field research in Kwekwe in December 2017, I saw a job advert for farm workers placed by an A2 farmer at one of the shopping centres in Redcliff Town.
13. Between 2009 and 2014, the number of manufacturing jobs declined from 135,500 to 92,700 (GoZ 2014: 10). These trends were an outcome of the drop in capacity utilisation in the manufacturing sector. The industrial capacity utilization, which had declined from 35.8 per cent in 2005 to 18.7 per cent in 2007, recovered to 57 per cent in 2017 before falling to a trough of 34.3 per cent in 2015 (CZI 2015: 13-14).
14. The monthly rural PDL for a family of five averaged USD 835 in 2017 (ZIMSTAT 2018)
15. Such deficits in the new farm labour relations were also confirmed by various press reports. For instance, in a case brought before the Bindura Labour Court against Pasango A2 Farm in 2012, 150 farm workers deposed an affidavit claiming they were owed over two years of wages, amounting to USD 107,250. See 'Workers at Masawi farm offered \$13 wages', *Newsday*, 27 April 2012, www.newsday.co.zw/2012/04/27/2012/04/27/workers-at-masawi-farm-offered-13-wages/ Accessed 17 June 2016.
16. The food consumption score (FCS) is an index that was designed by the World Food Programme of the United Nations to measure the acceptability of the food consumption of households (WFP 2008). It assigns weights to the different food items based on their nutritional importance, namely cereals and tubers (a_1), pulses (a_2), fruits (a_3), vegetables (a_4), proteins (a_5), milk (a_6), sugar (a_7) and cooking oil (a_8). Proteins and milk command the highest weight. The FCS is obtained by the summation of the weight of each food item multiplied by the number of days (x_i) that each was consumed for all the food categories over the last seven preceding the survey. The $FCS = a_1x_1 + a_2x_2 + a_3x_3 + a_4x_4 + a_5x_5 + a_6x_6 + a_7x_7 + a_8x_8$. The FCS delineates households into three distinct groups, namely poor food consumption, borderline and acceptable consumption based on the score. The ranges of the FCS for the three categories in places such as Zimbabwe where sugar and oil are part of the daily diet are: (i) poor consumption: 0 to 28; borderline: 28.5 to 42; and acceptable: > 42. Poor and borderline food consumption scores signify the infrequent consumption of milk and proteins.

References

- Adams, J., 1991, The Rural Labour Market in Zimbabwe, *Development and Change*, Vol. 22, pp. 297–320.
- Amanor, K. S., 2001, Land, Labour and the Family in Southern Ghana: A critique of Land Policy under Neo-liberalisation, Research Report No. 116, Uppsala: Nordiska Afrikainstitutet.
- Amanor-Wilks, D., 1995, *In Search of Hope for Zimbabwe's Farm Workers*, Harare: Dateline Southern Africa and Panos Institute.
- Arrighi, G., 1970, Labor Supplies in Historical Perspective: A Study of Proletarianization of the African Peasantry in Rhodesia, *The Journal of Development Studies*, pp.197–234.
- Barrett, C., Reardon, T. and Webb, P., 2001, Nonfarm income diversification and household livelihood strategies in rural Africa: concepts, dynamics, and policy implications, *Food Policy*, Vol. 26, No. 4, pp. 315–331.
- Barrett, C. B. M., Besfuneh, D., Clay, C. and Reardon, T., 2005, Heterogenous Constraints, Incentives and Income Diversification Strategies in Rural Africa, *Quarterly Journal of International Agriculture*, Vol. 44, No. 1, pp. 37–60.
- Bebbington, A., 1999, Capitals and Capabilities: A Framework for Analysing Peasant Viability, Rural Livelihoods and Poverty, *World Development*, Vol. 27, No. 12, pp. 2021–2044.
- Bernstein, H., 2010, Class Dynamics of Agrarian Change, *Agrarian Change and Peasant Studies Series*, Vol. 1, pp. 1–139, The Hague: Initiatives in Critical Agrarian Studies (ICAS).
- Binswanger, H., McIntire, J. and Udry, C., 1989, Production Relations in Semi-arid African Agriculture, in Bardhan, P., ed., *The Economic Theory of Agrarian Institutions*, New York: Oxford University Press, pp. 122–144.
- Borras, S., 2005, Can Redistributive Reform be Achieved via Market-Based Land Transfer Schemes? Lessons and Evidence from the Philippines, *Journal of Development Studies*, Vol. 41, No. 1, pp. 90–134.
- Bryceson, D., 2000, Peasant Theories and Smallholder Policies: Past and Present, in Bryceson, D., Kay, C. and Mooij, J., eds, *Disappearing Peasantries?* Rugby, UK: Practical Action Publishing, pp. 1–36.
- Bush, R. and Cliffe, L., 1984, Agrarian policy in migrant labour societies: Reform or transformation in Zimbabwe? *Review of African Political Economy*, Vol. 11, No. 29, pp. 77–94.
- Chambati, W., 2009, Land Reform and Changing Agrarian Labour Processes in Zimbabwe, Master of Management Thesis, University of Witwatersrand.
- Chambati, W., 2011, Restructuring of Agrarian Labour Relations after Fast Track Land Reform in Zimbabwe, *Journal of Peasant Studies*, Vol. 38, No. 5, pp. 1047–1068.
- Chambati, W., 2013, The Political Economy of Agrarian Labour Relations in Zimbabwe After Redistributive Land Reform, *Agrarian South: Journal of Political Economy*, Vol. 2, No. 2, pp. 189–211.

- Chambati, W., 2019, Changing agrarian labour relations in Zimbabwe in the context of the 'fast track land reform', Unpublished PhD thesis, University of South Africa.
- Chambati, W., and Mazwi, F., forthcoming 2022, Contract Farming in Zimbabwe: Review of Issues, Debates and Practice with special reference to Cotton, Tobacco and Sugar, in Jha, P., Yeros, P., Chambati W. and Mazwi F., eds, *Farming and Working under Contract: Peasants and Workers in Global Value Systems*, New Delhi: Tulika Press.
- Chambati, W., and Moyo, S., 2004, Impacts of Land Reform on Farm Workers and Farm Labour Processes, Harare: AIAS Working Paper.
- Chigumira, E., 2018, Political ecology of agrarian transformation: The nexus of mining and agriculture in Sanyati District, Zimbabwe, *Journal of Rural Studies*, Vol. 61, pp. 265–276.
- Chimhowu, A., and Hulme, D., 2006, Livelihood Dynamics in Planned and Spontaneous Resettlement in Zimbabwe: Converging and Vulnerable, *World Development*, Vol. 34, No. 4, pp. 728–750.
- Clarke, D., 1977, *Agricultural and Plantation Workers in Rhodesia*, Gwelo: Mambo Press.
- Confederation of Zimbabwe Industries (CZI), 2015, Annual Manufacturing Sector Survey 2014 Report. Harare: CZI.
- Cousins, B., 2009, Capitalism Obscured: The Limits of Law and Rights-based Approaches to Poverty Reduction and Development, *The Journal of Peasant Studies*, Vol. 36, No. 4, pp. 893–908.
- Cross, H. and Cliffe, L., 2017, A comparative political economy of regional migration and labour mobility in West and Southern Africa, *Review of African Political Economy*, Vol. 44, pp. 381–398.
- Davis, B., Di Giuseppe, S. and Zezza, A., 2016, Are African Households (not) Leaving Agriculture? Patterns of Households' Income Sources in Rural Sub-Saharan Africa, *Food Policy*, Vol. 67, pp. 153–174.
- De Haas, H., 2008, The Myth of Invasion: The Inconvenient Realities of African Migration to Europe, *Third World Quarterly*, Vol. 29, No. 7, pp. 1305–1322.
- De Janvry, A., 1981, *The Agrarian Question and Reformism in Latin America*, Baltimore, MD: Johns Hopkins University Press.
- De Janvry, A. and Sadoulet, E., 2000, Rural poverty in Latin America: Determinants and exit paths, *Food Policy*, Vol. 25, No. 4, pp. 389–409.
- Delgado-Wise, R. D. and Veltmeyer, H., 2016, *Agrarian Change, Migration and Development*, Rugby, UK: Practical Action Publishing.
- Edelman, M. and Borrás, S. M., 2016, *Political Dynamics of Transnational Agrarian Movements*, Rugby, UK: Practical Action Publishing.
- Evers, B., and Walters, B., 2000, Extra-Household Factors and Women Farmers' Supply Response in Sub-Saharan Africa, *World Development*, Vol. 28, No. 7, pp. 1341–1345.
- Gaidzanwa, R., 1995, Land and the Economic Empowerment of Women: A Gendered Analysis, *Southern Africa Feminist Review: The Gendered Politics of Land*, Vol. 1, No. 1, pp. 1–2.

- Government of Zimbabwe (GoZ), 2001, Fast Track Land Reform Programme, Harare: Government Printers.
- Government of Zimbabwe (GoZ), 2014, Statutory Instrument 116 of 2014, Harare: Government Printers.
- Hartnack, A., 2005, 'My life got Lost': Farm Workers and Displacement in Zimbabwe, *Journal of Contemporary African Studies*, Vol. 23, No. 2, pp. 173–192.
- Hazell, P., Poulton, C., Wiggins, S. and Dorward, A., 2010, The Future of Small Farms: Trajectories and Policy Priorities, *World Development*, Vol. 38, No. 10, pp. 1349–1361.
- Helliker, K. and Bhatasara, S., 2018, Inside the Land Occupations in Bindura District, Zimbabwe, *African Studies Quarterly*, Vol. 18, No. 1, pp. 1–18.
- Hellum, A., and Derman, B., 2004, Land Reform and Human Rights in Contemporary Zimbabwe: Balancing Individual and Social Justice through an Integrated Human Rights Framework, *World Development*, Vol. 32, No. 10, pp. 1785–1805.
- International Fund for Agricultural Development (IFAD), 2011, Rural Poverty Report 2011: New Realities, New Challenges: New Opportunities for Tomorrow's Generations, Rome: IFAD.
- International Labour Organization (ILO), 2015, World Employment and Social Outlook: Trends 2015, Geneva: ILO.
- Jacobs, R., 2018, An urban proletariat with peasant characteristics: land occupations and livestock raising in South Africa, *The Journal of Peasant Studies*, Vol. 45, No. 5–6, pp. 884–903.
- Kanyenze, D., 2001, Zimbabwe's Labour Relations Policies and the Implications for Farm Workers, in Amanor-Wilks, D., ed., *Zimbabwe's Farm Workers: Policy Dimension*, Lusaka: Panos Southern Africa, pp. 86–113.
- Mafeje, A., 2003, The Agrarian Question, Access to Land, and Peasant Responses in Sub-Saharan Africa, United Nations Research Institute for Social Development (UNRISD) Research Report, Geneva: UNRISD.
- Magaramombe, G., 2010, 'Displaced in Place': Agrarian Displacements, Replacements and Resettlement among Farm Workers in Mazowe District, *Journal of Southern African Studies*, Vol. 36, No. 2, pp. 361–375.
- Mamdani, M., 1996, *Uganda: Studies in Labour*, Dakar: CODESRIA.
- Masiwa, M. and Chipungu, L., 2004, Land Reform Programme in Zimbabwe: Disparity between Policy Design and Implementation, in Masiwa, M., ed., *Post-independence Land Reform in Zimbabwe: Controversies and Impact on the Economy*, Harare: Friedrich Ebert Stiftung and University of Zimbabwe, pp. 1–24.
- Matondi, P., 2012, *Zimbabwe's Fast Track Land Reform*, London and New York: Zed Books.
- Mazwi, F., Chambati, W. and Mudimu, G., 2020, Tobacco Contract Farming in Zimbabwe: Power Dynamics, Accumulation Trajectories, Land Use Patterns and Livelihoods, *Journal of Contemporary African Studies*, Vol. 38, No. 1, pp. 55–71.
- Mazwi, F., Muchetu, R. and Mudimu, G., 2021, Revisiting the Trimodal Agrarian Structure as a Social Differentiation Analysis Framework in Zimbabwe: A Study,

- Agrarian South Journal of Political Economy*, Vol. 00, No. 00, pp. 1–26, DOI: 10.1177/2277976020973837 journals.sagepub.com/home/ags
- Mhone, G., 2001, Labour Market Discrimination and its Aftermath in Southern Africa, Conference Paper, Durban, South Africa, 3–5 September.
- Ministry of Lands and Rural Resettlement (MLRR), 2014, Land Allocation Excel Sheets, Unpublished data, Harare.
- Mkodzongi, G., 2013, Fast Tracking Land Reform and Rural Livelihoods in Mashonaland West Province of Zimbabwe: Opportunities and Constraints, 2000–2013, PhD thesis, University of Edinburgh.
- Moyo, S., 1995, *The Land Question in Zimbabwe*, Harare: SAPES Books.
- Moyo, S., 2001, The Land Occupation Movement and Democratization in Zimbabwe: Contradictions of neo-liberalism, *Millennium: Journal of International Studies*, Vol. 30, No. 2, pp. 311–330.
- Moyo, S., 2008, *African Land Questions, Agrarian Transitions and the State: Contradictions of Neoliberal Land Reforms*, Dakar: CODESRIA.
- Moyo, S., 2011a, Three decades of agrarian reform in Zimbabwe, *Journal of Peasant Studies*, Vol. 38, No. 3, pp. 493–531.
- Moyo, S., 2011b, Changing agrarian relations after redistributive land reform in Zimbabwe, *Journal of Peasant Studies*, Vol. 38, No. 5, pp. 939–966.
- Moyo, S., 2011c, Land Concentration and Accumulation after Redistributive Reform in Post-Settler Zimbabwe, *Review of African Political Economy*, Vol. 38, No.128, pp. 257–276.
- Moyo, S., 2013, Land Reform and Redistribution in Zimbabwe since 1980, in, Moyo, S. and Chambati, W., eds, *Land and Agrarian Reform in Zimbabwe: Beyond White Settler Capitalism*, Dakar: CODESRIA, pp. 29–78.
- Moyo, S., 2014, Family Farming in Sub-Saharan Africa, in Griffiths J., ed., *Deep Roots*, Rome: Food and Agriculture Organization (FAO), pp. 17–21.
- Moyo, S., Chambati W., Murisa, T., Siziba, D., Dangwa, C., Mujeyi, K. and Nyoni, N., 2009, Fast Track Land Reform Baseline Survey in Zimbabwe: Trends and Tendencies, 2005/06, Harare: AIAS Monograph.
- Moyo, S., Jha, P. and Yeros, P., 2013, The Classical Agrarian Question: Myth, Reality and Relevance Today, *Agrarian South: Journal of Political Economy*, Vol. 2, No. 1, pp. 93–119.
- Moyo, S., Rutherford, B. and Amanor Wilks, D., 2000, Land reform and changing social relations for farm workers in Zimbabwe, *Review of African Political Economy*, Vol. 27, No. 84, pp. 181–202.
- Moyo, S., and Yeros, P., 2005a, The Resurgence of Rural Movements under Neoliberalism, in Moyo, S. and Yeros, P., eds, *Reclaiming the Land: the Resurgence of Rural Movements in Africa, Asia and Latin America*, London and New York: Zed Books, pp. 8–66.
- Moyo, S., and Yeros, P., 2005b, Land Occupations and Land Reform in Zimbabwe: Towards the National Democratic Revolution, in Moyo, S. and Yeros, P., eds, *Reclaiming the Land: The Resurgence of Rural Movements in Africa, Asia and Latin America*, London and Cape Town: Zed Books and David Philip, pp. 165–208.

- Muchena, O., 1994, The Changing Perceptions of Women in Agriculture, in Rukuni, M. and Eicher, C., eds, *Zimbabwe's Agricultural Revolution*, Harare: University of Zimbabwe Publications, pp. 348–360.
- Murisa, T., 2009, Emerging Forms of Social Organisation and Agency in the Newly Resettled Areas of Zimbabwe: The Cases of Goromonzi and Zvimba Districts, Unpublished PhD thesis, Rhodes University.
- Murray, C., 2002, Livelihoods Research: Transcending Boundaries of Time and Space, *Journal of Southern African Studies*, Vol. 28, No. 3, pp. 489–509.
- Murray Li, T., 2011, Centering Labor in the Land Grab Debate, *The Journal of Peasant Studies*, Vol. 38, No. 2, pp. 281–298.
- Mutopo, P., 2011, Women's Struggles to Access and Control Land and Livelihoods After Fast Track Land Reform in Mwenezi District, Zimbabwe, *The Journal of Peasant Studies*, Vol. 38, No. 5, pp. 1021–1046.
- Mvududu, S. C. and McFadden P., 2001, *Reconceptualizing the Family in a Changing Southern African Environment*, Harare: Women and Law in Southern Africa Research Trust.
- Neocosmos, M., 1993, The Agrarian Question in Southern Africa and Accumulation from Below, Economics and Politics in the Struggle for Democracy, Research Report 93, Uppsala: Scandinavian Institute of African Studies.
- Niehof, A., 2004, The Significance of Diversification for Rural Livelihood Systems, *Food Policy*, Vol. 29, pp. 321–338.
- O' Laughlin, B., 1998, Missing Men? The Debate over Rural Poverty and Women Headed Households in Southern Africa, *The Journal of Peasant Studies*, Vol. 25, No. 2, pp. 1–48.
- O' Laughlin, B., 2002, Proletarianisation, Agency and Changing Rural Livelihoods: Forced Labour and Resistance in Colonial Mozambique, *Journal of Southern African Studies*, Vol. 28, No. 3, pp. 511–530.
- Oya, C., 2010, Rural Inequality, Wage Employment and Labour Market Formation in Africa: Historical and Micro-level Evidence, Working Paper No. 97, Geneva: International Labour Organization (ILO).
- Oya, C., 2013, Rural Wage Employment in Africa: Methodological Issues and Emerging Evidence, *Review of African Political Economy*, Vol. 40, No. 136, pp. 251–273.
- Potts, D., 2000, Worker-Peasants and Farmer-Housewives in Africa: The Debate about 'Committed' Farmers', Access to Land and Agricultural Production, *Journal of Southern African Studies*, Vol. 26, No. 4, pp. 807–832.
- Potts, D., 2012, *Whatever happened to Africa's Rapid Urbanisation?* London, UK: Africa Research Institute.
- Riggs, J., 2006, Land, Farming, Livelihoods and Poverty: Rethinking the Links in the Rural South, *Journal of World Development*, Vol. 34, No. 1, pp. 180–202.
- Rubert, S., 1997, Tobacco Farmers and Wage Laborers in Colonial Zimbabwe, 1940-1945, in Jeeves A. and Crush, J., eds, *White Farms, Black Labor: The State of Agrarian Change in Southern Africa, 1910–1950*, Oxford and Pietermaritzburg: James Currey Publishers and University of Natal Press.

- Rutherford, B., 2001, *Working on the Margins: Black Workers, White Farmers in Post-Colonial Zimbabwe*, Harare and London, UK: Weaver Press and Zed Books.
- Sachikonye, L., 2003, The Situation of Commercial Farmers after Land Reform in Zimbabwe, Report Prepared for the Farm Community Trust in Zimbabwe, Harare.
- Sadomba, W. Z., 2011, *War Veterans in Zimbabwe's Revolution: Challenging Neocolonialism and Settler and International Capital*, Rochester, UK and Harare: James Currey Publishers and Weaver Press.
- Sadomba, W. Z., 2013, A Decade of Zimbabwe's Land Revolution: The Politics of the War Veteran Vanguard, in Moyo, S. and Chambati, W., eds, *Land and Agrarian Reform in Zimbabwe: Beyond White-Settler Capitalism*, Dakar: CODESRIA, pp. 79–122.
- Scoones, I., 1998, Sustainable Rural Livelihoods: A Framework for Analysis, IDS Working Paper 72, Brighton: IDS.
- Scoones, I., 2009, Livelihoods perspectives and rural development, *Journal of Peasant Studies*, Vol. 36, No. 1, pp. 171–196.
- Scoones, I., 2015, *Sustainable Livelihoods and Rural Development*, Rugby, UK: Practical Action Publishing.
- Scoones, I., Marongwe, N., Mavedzenge, B., Mahenehene, J., Murimbarimba, F. and Sukume, C., 2010, *Zimbabwe's Land Reform: Myths and Realities*, Johannesburg and Harare: Jacana Media and Weaver Press.
- Scoones, I., Mavedzenge, B., Murimbarimba, F. and Sukume, C., 2018, Labour After Land Reform: The Precarious Livelihoods of Former Farmworkers in Zimbabwe, *Development and Change*, Vol. 00, No. 0, pp. 1–31, DOI: 10.1111/dech.12449
- Sender, J., 2016, Backward Capitalism in Rural South Africa: Prospects for Accelerating Accumulation in Eastern Cape, *Journal of Agrarian Change*, Vol. 16, No. 1, pp. 3–31.
- Sender, J. and Johnston, D., 2004, Searching for a Weapon of Mass Production in Rural Africa: Unconvincing Arguments for Land Reform, *Journal of Agrarian Change*, Vol. 4, No. 1–2, pp. 142–164.
- Shonhe, T., Scoones, I. and Murimbarimba, F., 2021, Medium-scale commercial agriculture in Zimbabwe: The experience of A2 resettlement farms, *Journal of Modern African Studies*, Vol. 58, No. 4, pp. 601–626.
- Sukume, C., Moyo, S. and Matondi, P. B., 2004, Farm Sizes, Decongestion and Land Use: Implications of the Fast-Track Land Redistribution Programme in Zimbabwe, Harare: African Institute for Agrarian Studies.
- Tabak, F., 2000, Informalization and the Long Term, in Tabak, F. and Crichlow, M., eds, *Informalization Process and Structure*, Baltimore, MD: Johns Hopkins University Press, pp. 1–15.
- Tandon, Y., 2001, Trade Unions and Labour in the Agricultural Sector in Zimbabwe, in Raftopolous, B. and Sachikonye, L., eds, *Striking Back: The Labour Movement and the Post Colonial State in Zimbabwe 1980–2000*, Harare: Weaver Press, pp. 221–249.
- Torvikey, G. D., Yaro, J. A. and Teye, J. K., 2016, Farm to Factory Gendered Employment: The Case of Blue Skies Outgrower Scheme in Ghana, *Agrarian South: Journal of Political Economy*, Vol. 5, No. 1, pp. 77–97.

- Tsikata, D., 2009, Gender, Land and Labour Relations and Livelihoods in Sub-Saharan Africa in the era of Economic liberalisation: Towards a Research Agenda, *Feminist Africa*, Vol. 12, pp. 11–30.
- Tsikata, D., 2015, *The social relations of agrarian change*, London, UK: Institute of Environment and Development Working Paper, <http://pubs.iied.org/17278IIED/> Accessed 19 July 2016.
- Tsikata, D., 2016, Gender, land tenure and agrarian production systems in sub-Saharan Africa, *Agrarian South: Journal of Political Economy*, Vol. 5, No. 1, pp. 1–19.
- Utete Report, 2003, Report of the Presidential Land Review Committee under the chairmanship of Dr Charles M.B. Utete, Vol. 1 and 2, Main report to His Excellency The President of The Republic of Zimbabwe, Harare: Presidential Land Review Committee (PLRC).
- Van den Berg, L., Hebinck, P. and Roep, D., 2016, ‘We Go Back to the Land’: Processes of re-peasantisation in Araoponga, Brazil, *Journal of Peasant Studies*, Vol.45, No. 3, pp. 653–675.
- Van der Ploeg, J., 2010, The Peasantries of the Twenty-First Century: The Commoditisation Debate revisited, *The Journal of Peasant Studies*, Vol. 37, No. 1, pp. 1–30.
- Vhurumuku, E., McGuire, M. and Hill, V., 1998, Survey of Commercial Farm Worker Characteristics and Living Conditions in Zimbabwe: Verification report, Agricultural Labour Bureau, Farm Community Trust of Zimbabwe, Harare: USAID Famine Early Warning System.
- World Bank, 2012, *Recovery and Economic Growth of Zimbabwe Agriculture*, Harare: World Bank.
- World Food Programme, 2008, Food consumption analysis: Calculation and use of the food consumption score in food security analysis, Rome: United Nations World Food Programme.
- Wood, C., 1982, Equilibrium and Historical-Structural Perspectives on Migration, *International Migration Review*, Vol. 16, No. 2, pp. 298–319.
- Zhan, S., and Scully, B., 2018, From South Africa to China: Land, migrant labor and the semi-proletarian thesis revisited, *The Journal of Peasant Studies*, Vol. 45, Nos 5–6, pp. 1018–1038.
- Zimbabwe Human Rights NGO Forum (ZHRF) and Justice for Agriculture (JAG), 2007, Adding Insult to Injury: A Preliminary Report on Human Rights Violations on Commercial Farms, 2000 to 2005, Harare: ZHRF and JAG.
- Zimbabwe National Statistics Agency (ZIMSTAT), 2018, Poverty Analysis. Poverty Datum Analysis – May 2018, Harare: ZIMSTAT.



Food Security in Epworth, Zimbabwe: Leveraging Rural-urban Linkages for Resilient Food Systems in Peri-urban Areas

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Abstract

In Zimbabwe, persistent political and economic problems have instigated and exacerbated food insecurity over the past two decades. Low food production, combined with high levels of inflation, a stagnating economy and increasing food prices, have worsened the plight of consumers in the country. High levels of poverty in the rural areas continue to influence rural-urban migrations, but most migrants to the city generally face deprivation, especially in peri-urban areas such as Epworth, where most migrants prefer to settle owing to its semi-formal nature. How then, do the poor in these peri-urban areas feed themselves amidst high urban poverty levels? Using data collected from different surveys between 2008 and 2016, the article explores four major strategies adopted by households to cope with food insecurity: reliance on urban farming; dependence on rural remittances; utilisation by urban residents of employment opportunities in the surrounding farms; and participation in, as well as dependence on, informality. A more nuanced appreciation of these survival strategies will engender an informed theoretical understanding on how to leverage these linkages to create resilient food systems in peri-urban areas.

Keywords: urban food security, urban agriculture, survival strategies, rural-urban linkages, resilient food systems

Résumé

Au Zimbabwe, la persistance de problèmes politiques et économiques a provoqué et exacerbé l'insécurité alimentaire, au cours des deux dernières décennies. La faible production alimentaire, combinée à des niveaux élevés d'inflation, une économie

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stagnante, et l'augmentation des prix des denrées alimentaires, ont aggravé la situation des consommateurs dans le pays. Les niveaux élevés de pauvreté dans les zones rurales continuent d'influencer les migrations des campagnes vers les villes, mais la plupart des migrants vers la ville sont généralement confrontés à des privations, en particulier dans les zones périurbaines telles qu'Epworth, où la majorité des migrants préfèrent s'installer en raison de sa situation semi-urbaine. Comment alors se nourrissent les pauvres de ces zones périurbaines lorsque que les niveaux de pauvreté urbaine sont élevés ? À l'aide de données recueillies entre 2008 et 2016 à partir de différentes enquêtes, l'article explore quatre grandes stratégies adoptées par les ménages pour faire face à l'insécurité alimentaire : le recours à l'agriculture urbaine ; la dépendance aux envois de fonds ruraux ; l'utilisation par les citadins des possibilités d'emploi dans les terres environnantes ; et la participation et la dépendance à l'informalité. Une appréciation plus nuancée de ces stratégies de survie engendrera, une compréhension théorique éclairée sur la manière de tirer avantage de ces liens et créer des systèmes alimentaires résilients dans les zones périurbaines.

Mots-clés : sécurité alimentaire urbaine, agriculture urbaine, stratégies de survie, liens campagnes-villes, systèmes alimentaires résilients

Introduction

Zimbabwe is a country in crisis (Chitiyo, Vines and Vandome 2016). Dzimir (2017) describes the twenty-first-century period in Zimbabwe as the crisis decades. This is because since 2000 the country has been moving from one crisis to the other. The country's economy has been stagnating amidst high levels of inflation, currency depreciation, rising food prices and the depletion of foreign currency reserves (Dore 2018). These economic challenges have instigated and exacerbated food security challenges in the country and spurred different migration trends. These migrations include, but are not limited to, the movement of people from rural to urban areas in times of agricultural crisis, the movement from urban to rural areas when economic conditions in the urban areas have deteriorated, the movement from small to larger urban areas in search of employment, and the movement from large to smaller urban centres where urban costs for accommodation and transportation are relatively lower. While rural and urban areas are generally treated as disparate geographic entities in development literature, the reality is that these areas are not completely detached from each other but are rather linked by an umbilical exchange of people, money, food, goods, technology, information and ideas (Potter and Unwin 1995).

In Zimbabwe, as in most African countries, most urban dwellers have a dual system of multispatial households – one in the city and one in the village

(Potts 2000). A significant proportion of urban residents in the country see themselves as living temporarily in the city to avail themselves of economic gain, education or health services, and plan on retirement to go back to their rural areas where most own pieces of land which they will have invested in during the course of their life in the city. Many Zimbabwean urbanites thus maintain a strong attachment to a particular rural area that they consider to be their home. The findings of Potts and Mutambirwa (1990), in a survey on postcolonial rural-urban migrants to Harare, for example, suggested that migrants retained their rural linkages because of the need for security in their old age or when they fell sick or lost employment. Hence, most periodically visit the rural areas for holidays, funerals, ceremonies and rituals. The movement between the rural and urban areas and between the small and larger urban centres in the country thus creates circular migration patterns.

The practice of circular migration in Zimbabwe dates back to the colonial period, when indigenous populations were restricted to staying in the urban areas only when their labour was required. Although the coming of independence removed these restrictions on living in the city, circular migration continued especially during the economic crisis of the 1990s. During that period, the country went through economic challenges emanating from the implementation of the Economic Structural Adjustment Programme (ESAP). Acute economic challenges in the urban areas forced many people to relocate to their rural areas (Ranga 2004; Kawewe and Dibie 2000). In the post-2000 period, the implementation of land reform also increased urban-rural migration, as a significant number of urban families sought and acquired land in the rural areas through the resettlement programme.

However, not much success has been achieved in raising rural productivity, and rising poverty in the rural areas has led to a resurgence of rural-urban migration. Close to a third (28%) of the country's rural population faces severe food shortages in an environment where national stocks have become virtually depleted (ZimVAC 2019). A host of factors – recurring droughts, inadequate financial and technical support to the land reform programme and depressed producer prices – have made farming less viable. A significant proportion of households that used to survive through farming have been forced to migrate to the city, particularly to the peri-urban areas where it is relatively easier to settle. However, the majority of these migrants have encountered an equally challenging environment in the peri-urban areas, where unemployment is estimated at over 90 per cent (Mlambo 2017). Therefore, the population is experiencing similar and even worse economic and food challenges in the urban areas. According to the

2018 Urban Livelihoods Assessment, 37 per cent of the urban population were unable to meet their food needs – a 6 per cent increase from the 31 per cent that was recorded in 2017 (ZimVAC 2018), hence there has been a decline in household food security. Food security occurs ‘when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life’ (FAO 2013: 313). For the urban poor, the struggle to achieve household food security is incessant as households rarely have enough resources to ensure adequate food for everyone. While this is generally true even in countries with stable economies, the situation in Zimbabwe is dire. Under these economic challenges, which have afflicted the country since 2000, the poor have become even more vulnerable. Food prices have risen 50 to 150 per cent above the five-year average, and inflation had surged to 59.4 per cent by March 2019 (Naidoo 2019). The livelihoods and food security situation of most urbanites have thus become precarious. For residents of the peri-urban area of Epworth, the challenges are equally daunting because of acute levels of poverty, high unemployment, high levels of informality and a collapsed formal food system. How, then, do poor residents of these peri-urban areas survive and feed themselves?

To answer this question, this article interrogates the survival strategies of households in Epworth. Epworth is a peri-urban settlement on the outskirts of Harare, housing approximately 170,000 people. Run by the Epworth Local Board, close to 70 per cent of the settlement is informal (Muchadenyika 2020) with most of the residents living in informal dwellings. Poverty in the area is endemic, and most households frequently go without water, income, food and electricity (Tawodzera and Chigumira 2018). Because of the high levels of informality in the area, many households who face hardship in Harare move into Epworth because it is more affordable. Additionally, new migrants to the city also start by establishing themselves in Epworth before moving on when their economic conditions improve. Given these conditions of extreme material deprivation, the article explores four major strategies adopted by households in Epworth to cope with food insecurity: reliance by households on urban farming; dependence on rural food (and monetary) remittances; the utilisation by urban residents of employment opportunities in the surrounding farming lands; and participation in, as well as the dependence by households, on informality. A more nuanced appreciation of these survival strategies engenders better understanding of how to leverage these linkages for a more resilient food system in the peri-urban areas of the country. A resilient food system is defined as a system that is able to persist, adapt

and transform under conditions of uncertainty (Folke et al. 2010). Before attempting to deal with these questions, however, it is prudent to give a brief background to the decline of the Zimbabwean economy.

The Background to the Decline of the Zimbabwean Economy

The deterioration of the Zimbabwean economy can be attributed to the impact of four key developments: the Economic Structural Adjustment Programme (ESAP), the Fast-Track Land Redistribution Programme, Operation Murambatsvina and a perpetually unstable political environment. ESAP precipitated a serious downward trajectory in the country's economy (Chisvo 2000) because its austerity measures led to the closure of factories, massive retrenchments, declining real wages, skyrocketing consumer prices, a contracting formal economy and the subsequent rise of the informal sector (Tibajuka 2005). This affected households especially in the urban and peri-urban areas where food access is primarily through purchase. The land reform programme, on the other hand, interfered with farming operations and drastically lowered food production in the country. Maize deficits averaged over 500,000 tonnes per year in the post-2000 decade (Sachikonye 2003).

Food production improved through the government-initiated command agriculture programme. In the 2016/2017 agricultural season, approximately 2.8 million tonnes of maize were produced (Kuhudzayi and Mattos 2018). However, the harvest in the subsequent season, was not as productive and food security in the country's urban areas. The food system is thus mainly supplied by food importations – a tenuous position considering the country's perennial shortage of foreign currency.

Operation Murambatsvina, implemented in 2005, caused massive destruction of livelihoods. This was a programme in which the government partnered with municipalities to destroy informal houses and businesses in the urban areas of the country. It is estimated that more than 700,000 people lost their home, livelihood or both in urban areas (Mugara 2007), worsening the plight of the urbanites. The majority of those affected have not rebuilt either their housing and livelihoods, much to the detriment of their food security. On the political front, almost every election result since the year 2000 has produced disputed results (see Bratton and Masunungure 2018; Masunungure 2010; Dzimiriri 2017). As a result, Zimbabwe has been shunned by many countries internationally, which has negatively affected trade and reduced foreign currency inflows. The disposable income for consumers has continued to decline, reducing their purchasing power and increasing food insecurity.

In peri-urban areas such as Epworth, the economic challenges have further weakened the food system. Much of the trade occurs in the informal sector, transport and food distribution systems are inefficient and water and electricity supply is largely intermittent. Most households in Epworth leverage their linkages with the rural areas to survive. This therefore brings to the fore the central role that rural-urban linkages play in the food security of households in peri-urban areas. This is in spite of the fact that rural and urban areas are generally treated in literature as separate geographic entities, without much attention to the symbiotic relations that exist between them.

Migration, Urbanisation and Food Security

Urban and rural areas are different functionally. Rural areas provide the space for agricultural production whereas cities are sites for industrial development that leads to higher GDP per capita (Bravo 2008). Cities are ‘engines of economic growth and social development’ (Potter 1990:1) – centres that draw in human resources and raw materials, coupled with superior urban infrastructure to spur industrial and commercial development (UN-HABITAT 2008). In the developed world, the relationship between urbanisation and economic growth has been established (Bravo 2008). In the developing world, however, such a relationship is barely tenable, as development seems to have been ‘decoupled from urbanisation’ (Watson 2007: 208).

Where migrants in the developed world were ‘pulled’ to the city by the availability of jobs, in the developing world they have been ‘pushed’ from the countryside because of poverty (Njoh 2003). According to Bryceson (2006), urbanisation in southern Africa has often taken place independent from industrialisation. People who have migrated from the rural areas to the city have thus often found themselves in poverty, unemployed or underemployed in the informal sector, creating a large body of urban poor who have very little or no income to meet their daily food requirements.

Regardless of these urban challenges, rural-urban migration continues because of expected rather than real urban wages (Rogers and Williamson 1982). Without a guaranteed income in the city, the food security of the migrants in the city becomes challenging. Hence the ‘urbanisation of poverty’ thesis, which argues that ‘far from being an upwardly mobile strategy, migration to cities has become a rural coping strategy of last resort’ (Maxwell 1998: 12). Rather than migration to the city leading to the upward mobility that is envisaged, those who move from the rural areas because of poverty, more often than not find themselves again immersed in poverty in the city. In peri-urban areas such as Epworth, the urban poor find themselves being

marginalised from life and opportunity in the formal city and are usually 'invisible' to the authorities, who are reluctant to improve their welfare. Although they live within city boundaries, the economic condition of the peri-urban dwellers is generally worse than for residents in the rest of the city. They often have to survive by straddling the rural-urban divide, leveraging the social and economic relationships embedded therein for survival.

Although urban and rural areas are often portrayed in literature as separate geographic entities, the reality is that these areas are linked by an umbilical exchange of people, money, food, goods, technology, information and ideas (Potter and Unwin 1995). In most sub-Saharan African countries, people migrate to town to work in urban areas and retire to the village where most own pieces of land. They also send resources from the city to the rural areas. While these resource flows were much stronger in the 1960s and 1970s, when urban households typically earned enough to meet their urban needs and send some money to their rural homesteads (Moseley 2001), declining conditions and opportunities in today's African urban centres are reducing these flows to the village.

In Zimbabwe, circular migration dates back to colonialism when male migrant labourers would work and live in urban areas but leave their family in the rural areas (Potts 1997). Although independence removed restrictions on living in the city, circular migration continued. The introduction of ESAP made urban life expensive and the rural home became an important safety net for distressed urban households (Potts and Mutambirwa 1990). A significant proportion of urban dwellers in Zimbabwe thus maintain a strong attachment to rural areas. While huge income differences between the urban and the rural areas in the past made sure that net resource flows were directed to the rural areas, there is evidence that these resource flows may be changing as the gap between urban and rural incomes narrows (Gelderblom 2005). A two-decade-long economic crisis in Zimbabwe seems to have almost closed this gap (Chimhowu 2009). Given evidence of the 'urbanisation of poverty' in sub-Saharan Africa (Mehta 2001), the possibility of reduced flows from urban to rural areas, and increased flows from rural to urban areas, is conceivable.

While the transfer of remittances from urban to rural households is now well documented, the reverse flows are not well researched and the social and economic context within which these exchanges occur remain poorly understood. In Zimbabwe, where the rural-urban linkages remain part of the urbanisation process (Potts and Mutambirwa 1998), an understanding of the social and economic linkages between urban and rural areas may be crucial to understanding resilience in the peri-urban areas.

Theoretical Framework: The Resilience Approach

The background to the food crisis in Zimbabwe has been discussed in the preceding sections. What these sections make apparent is the fact that most households in the country's urban areas live in abject poverty and are therefore susceptible to food insecurity. In the midst of high levels of food security in the peri-urban environment, households resort to coping strategies. These allow the household to maintain its various objectives, including food and livelihood security, health status and overall wellbeing. While coping is generally short-term and aims to deal with the immediate crisis (Davies 1993), a longer-term outlook concerns itself with resilience to food security. This article thus uses a resilience lens to interrogate the food security survival strategies of households in Epworth in order to appreciate how these can be used as a basis for creating more resilient food systems in peri-urban areas in general.

The term 'resilience' was first used by Holling (1973:17) in the context of ecological research, when he argued that 'resilience determines the persistence of relationships within a system and is a measure of the ability of these systems to absorb changes of state variable, driving variables, and parameters and still persist'. Walker and Salt (2006) defined it as the capacity of a system to absorb disturbance and retain its basic function and structure. In the same vein, the Intergovernmental Panel on Climate Change (IPCC 2012:34) perceives resilience as:

the ability of a system and its component parts to anticipate, absorb, accommodate, or recover from the effects of a hazardous event in a timely and efficient manner, including through ensuring the preservation, restoration, or improvement of its essential basic structures and functions.

Essentially, the major objectives that underlie the notion of resilience are to prevent the system from moving to an undesired alternative regime in the face of change, to preserve the components that allow the system to renew and reorganise after a disturbance (Thulstrup 2015), and to allow for the development of a capacity for learning and adaptation.

Southwick et al. (2014) argue that resilience can be perceived differently by different people, not only because of its complexity but also because different disciplines define it differently. Van Breda (2018) shows that in the recent past there have been two major ways of looking at resilience – either as a process or as an outcome. When resilience is viewed as an outcome, the focus is on the 'state of being resilient' in the face of adversity (Van Breda 2018), hence resilience is seen as an end product. In food security studies, this state is seen as being one in which households have built the capacity to

resist adversity and are therefore not susceptible to further shocks, stresses and crises. On its own, however, this view is problematic as it ignores processes that lead some households to have negative outcomes while others have positive outcomes. On the other hand, there are also perceptions that resilience is a process – i.e. the capacity to rebound from adversity strengthened and more resourceful (Walsh 2006: 4). Van Breda (2018) argues that such distinctions are unnecessary, and that a more encompassing view of resilience should incorporate all critical components, these being the process, mediating factors and the outcome. Hence, a broader definition of resilience would be ‘the multilevel processes that systems engage in to obtain better-than-expected outcomes in the face or wake of adversity’ (Van Breda 2018: 4). Resilience, therefore, denotes the capacity of a people to maintain functionality in the presence of disturbances by drawing upon their resources and competencies to manage change. In the case of Epworth, it is postulated that households in this peri-urban area draw on their linkages with the rural areas to enhance their resilience to food insecurity. The ways in which these households are affected, the manner in which they cope and manage change, as well as the way that they function after and/or in anticipation of adversity should therefore be understood as a way to enhance more resilient food systems in peri-urban areas.

Research Methods

This section details the methodological approach taken in the study. It first gives a background to the area, highlighting its origin and growth, population growth and relevant socioeconomic data to understand how residents survive in the challenging urban environment. It then describes the four studies carried out in Epworth between 2009 and 2016.

The study site

Epworth is a peri-urban settlement approximately 15 kilometres outside Harare, Zimbabwe’s capital city (Figure 1).

It lies on land donated by Cecil John Rhodes to the Wesleyan Methodist Mission Trust in 1900 (Rakodi 1995). Historically, Epworth was a subsistence farming area (Butcher 1988). In the 1970s, Epworth became an attractive destination for refugees who were fleeing insecurity in the countryside due to the intensification of the war of liberation (Chikwete-Biti et al. 2012). The Methodist Church welcomed the refugees, particularly towards the end of the war (Rakodi 1995). Epworth is generally an attractive destination for migrants because of its semi-formal nature (Butcher 1988), which

allows residents to pursue multiple livelihoods, including urban farming and informal sector activities. A huge number of people also moved into Epworth during the post-2000 economic crisis and after the 2005 Operation Murabatsvina, which destroyed informal housing in most of the country's urban areas. The population of the area swelled from 20,000 people in 1980 to 120,000 in 2009, and 167,462 by 2012 (Central Statistical Office, 2013). In 1986, faced with the population increase, the Methodist Church passed ownership of Epworth to the government (Butcher 1988). A local board now runs the area.

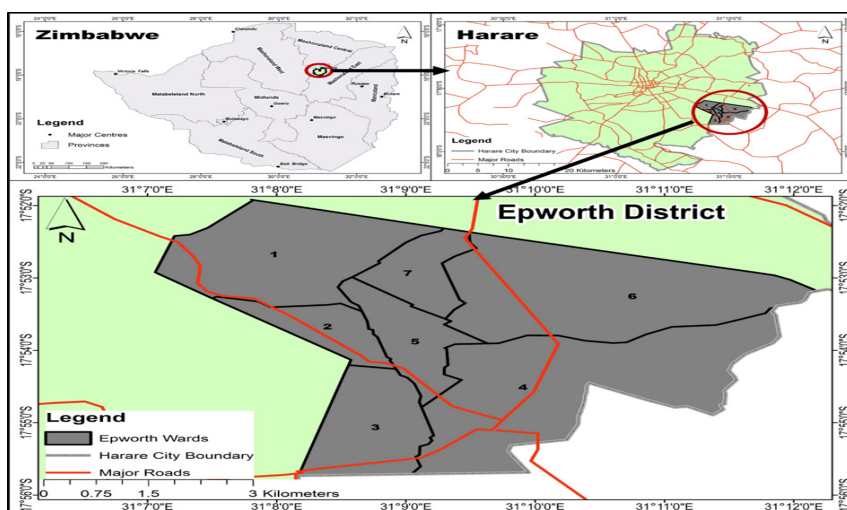


Figure 1: Map of Epworth

Source: Author, 2018

The four surveys

Four surveys were carried out in Epworth between 2009 and 2016: two household food security surveys (2009 and 2016); a retail census (2016); and a retail survey (2016). From these studies, this article extracts only data that is relevant to its objective: interrogating the survival strategies of households in the peri-urban area of Epworth as a way to understand how to leverage these linkages for a more resilient food system in peri-urban areas.

The 2009 household food security survey

This involved the collection of information from 200 randomly selected households through a standardised household questionnaire administered to an adult household member above the age of eighteen years. The study

combined quantitative and qualitative methods to examine household survival under Zimbabwe's crisis conditions. The data from the 2009 survey is used in this article to indicate household food security levels in Epworth as a basis for comparison with the 2016 survey to see what changes, if any, occurred during the period. Food security was measured using the household food insecurity access prevalence (HFIAP) indicator. The HFIAP, developed by the Food and Nutrition Technical Assistance Project (FANTA), uses household responses to a set of questions in order to group households into different food security status levels: food secure; mildly food insecure; moderately food insecure; and severely food insecure. In this article, for ease of analysis, the first two categories are combined to form the food-secure category while the last two are combined to form the food-insecure category.

The 2016 household food poverty survey

In this study, 483 questionnaires were administered to households who were selected through systematic random sampling. The questionnaire captured information on household demographic characteristics, income and expenditure patterns, food insecurity experiences and coping mechanisms. This data was used to calculate household poverty using the Lived Poverty Index (LPI). The LPI is a multidimensional poverty measure designed by Afrobarometer (Mattes et al. 2016). The LPI measures how frequently people self-report going without certain basic necessities, such as food, clean water, medicine, fuel to cook food and an income, over the course of the previous year. An LPI score is calculated for each household and ranges from 0.00 (complete satisfaction of basic needs) to 4.00 (always without basic needs). The calculation of household food security levels was through the HFIAP scores, as explained in the previous section.

The 2016 retail census

A retail census was carried out in Epworth in 2016. Its aim was primarily to identify all retail services in the peri-urban settlement. The census sought information on the location of the retail services, the type of service, the foods sold and retail store ownership. The census identified 1,607 retail services and mapped them. The data from this survey was used in the article to indicate the spatial distribution of retail food shops in Epworth, as such distribution has a bearing on food access and, by extension, the food security status of households.

The retail survey

The retail survey entailed identifying a statistically representative sample of 127 retail services in all the wards of Epworth and examining these services in detail. Information sought included: retail store ownership, type of retail services, foods sold, business strategies, problems, challenges and opportunities. This data enabled the creation of a food-store typology in Epworth, highlighting which type of stores were in existence and what foods were available and being traded. This impacted on food availability and the types of foods available on the market for consumers to purchase, ultimately having a bearing on household food security status and survival.

Results

This section presents the results on household poverty and food security in Epworth. It also discusses data on the food system of the area as well as the strategies adopted by the households to cope with food insecurity.

Household poverty

In this study, the Lived Poverty Index (LPI) was used to measure poverty. The LPI is multidimensional and measures household deprivation on a variety of basic necessities over a defined period. In the 2009 food security study, household poverty was high, as reflected by an average sample LPI of 2.80. This figure was attributed to the fact that the study was carried out when the economic crisis in the country was at its peak. Although the 2016 household food poverty study showed a lower average sample LPI of 1.69, this nevertheless reflected that poverty was rife in the area. As Figure 2 shows, a significant proportion of households in Epworth had gone without basic necessities several times in the preceding year: food (27.4 per cent), clean water (26.1 per cent), fuel to cook food (31.3 per cent) and a cash income (32.7 per cent).

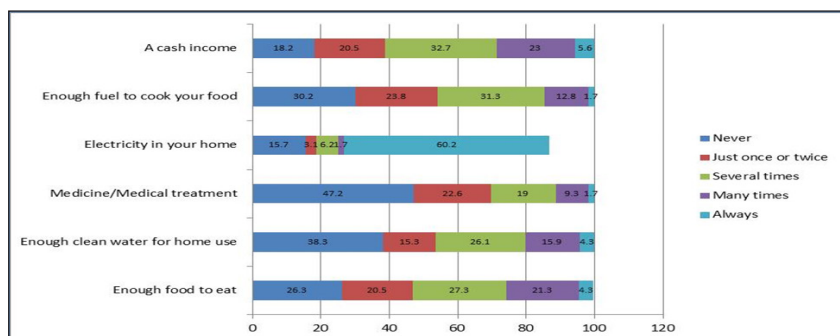


Figure 2: Proportion of households going without necessities in Epworth

Source: Author, 2018

As these statistics show, a significant proportion of these households were struggling to access necessities. The 32.4 per cent of households who reported going without cash several times in the previous year was also reflective of the low mean monthly household income in the area, which stood at USD 185.55. This low income had grave repercussions for household food security, given that the monthly food basket at the time of the survey was USD 567 (Consumer Council of Zimbabwe 2016). For a more resilient local food system in Epworth, there is a need to improve water and electricity infrastructure. Without these, food utilisation remains low and impacts negatively on health and food security outcomes.

Household food security

The acute poverty levels among households in Epworth had a negative effect on food security. The levels of food (in)security in the area were measured using the household food insecurity access prevalence (HFIAP) indicator. The HFIAP uses household responses to a set of questions to group households into food-secure and food-insecure households. The findings of both the 2009 and 2016 surveys showed acute levels of food insecurity: in 2009, only 9.5 per cent of the households in the area were food secure; the comparable figure for 2016 was 12.3 per cent (Table 1).

Table 1: Household food security in Epworth

	2009		2016	
	N	%	N	%
Food secure	19	9.5	59	12.3
Food insecure	181	90.5	421	87.7
Total	200	100.0	480	100.0

In addition to these low levels of food security, dietary diversity was low, with only an average household dietary diversity score of 4.45 (out of a possible score of 12.00) being reported in the 2009 survey and 4.12 in the 2016 survey. What this indicates, in both years, was that households were consuming an average of only four different food types out of the possible twelve food types that were investigated. Such low levels of household food insecurity are a huge indictment not only of the economic situation in the country, but also of the food system, which is unable to provide food more efficiently and at a cost affordable to consumers.

Household food sources in Epworth

Epworth is predominantly served by informal food sources. Results from the 2016 food retail survey found that tuck-shops (19.5 per cent) dominated as food sources in the area, followed by market stall vendors (16.3 per cent) and grocery shops (12.3 per cent). The dominance of informal retail stores in the area is a product of both the shambolic state of the economy at the national level, which has drastically curtailed formal food retailing, as well as the absence of any significant formal food outlets in Epworth, owing to the poor road network, lack of electricity and poor water supply.

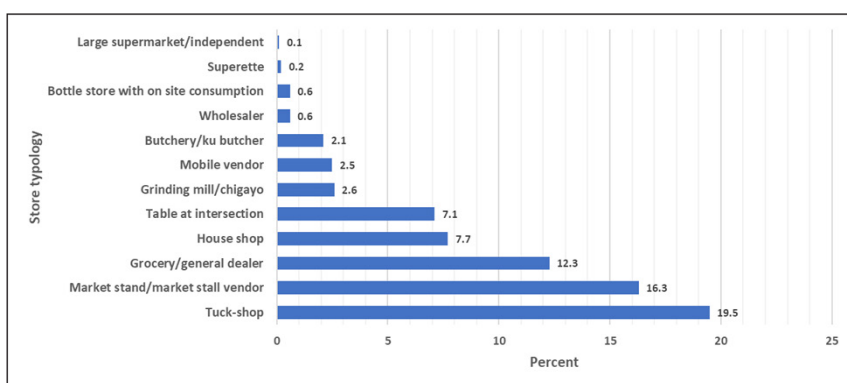


Figure 3: Store typologies in Epworth

Source: Author, 2018

As the 2016 food retail survey further reveals, these informal food sources (street vendors, stalls and tuck-shops) are spread across all the wards (Figure 4), along roads and within residential areas. In an area dominated by the poor, such a spatial arrangement is the most convenient as it increases access to households who have limited financial capacity to travel to supermarkets that may be located far away. Street vendors in the area trade in a variety of food items, which range from fruits, vegetables and meat to cooked foods and even cooked beans. While this largely informal food system serves the needs of the local population, one needs to point out the negative impact on food cost, given the high cost per unit of food that is generally characteristic of informal food systems.

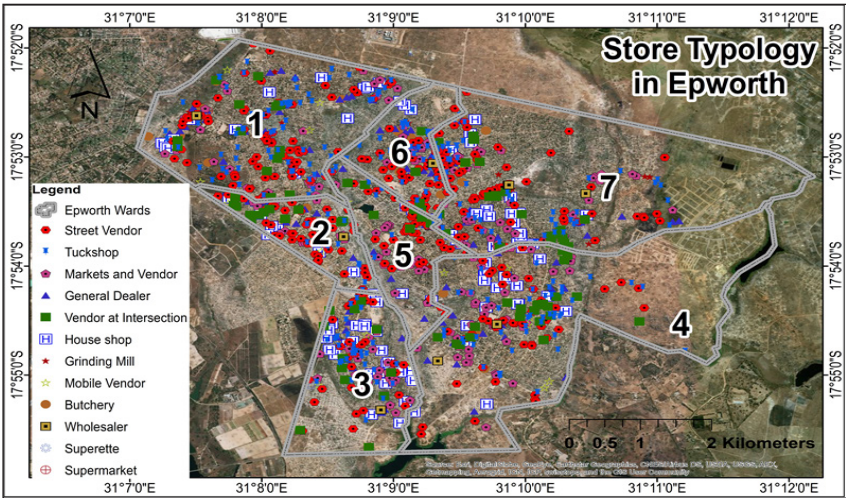


Figure 4: Spatial distribution of retail food sources in Epworth

Source: Author, 2018

Food sources for retailers

Retailers are key to the food system. The viability and resilience of a food system is generally measured by how it enables or impedes access to residents of an area and ultimately affects the pricing of the foodstuffs. It is therefore crucial to understand where the key foods in Epworth come from. A component of the 2016 retail survey studied value chains for food items in the area. The value chain analysis served to identify where the major foods (maize, vegetables and rice) traded in the area come from. Maize is a staple crop used by households for the preparation of their main meal, *sadza*, which is served with a relish. As Figure 5 shows, maize-meal traded in Epworth was either imported from South Africa and Zambia or accessed from the local farmers and GMB, a government agency.

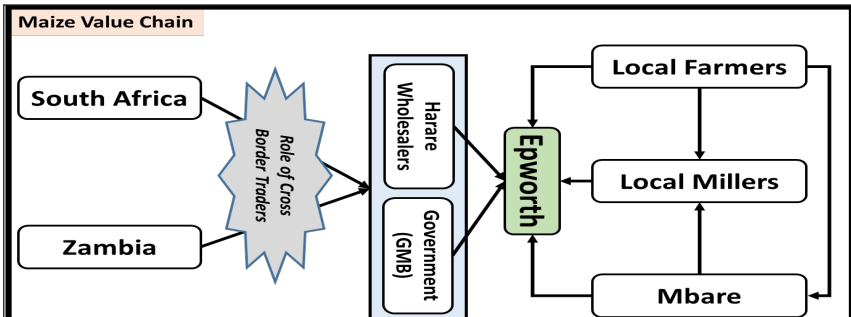


Figure 5: Value chain analysis of maize

Source: Author, 2018

The greater proportion of the maize-meal was, however, imported by cross-border traders and then sold to wholesalers. Cross-border traders played a key role in the importation of maize meal and supplied it to the informal sector to resell to consumers. Some of the maize-meal purchases were also made from local grinding mills or from the market at Mbare Musika in Harare. The value chain for vegetables was short. Most of the vegetables sold in the area were sourced from Mbare market in Harare and from surrounding farming areas. Other sources included the nearby Marondera and Dema rural areas. The value chain for vegetables thus did not extend beyond the national boundaries. Like maize, most of the rice sold in Epworth was sourced internationally: from South Africa, Mozambique, China, Vietnam and Singapore. The length of the rice value chain was long and showed Epworth's vulnerability to global food systems through changes in international food prices.

Household food sources: survival on the informal sector

A significant source of vulnerability for urban consumers is the configuration of the food distribution networks. This is particularly because intra-urban food distribution networks generally favour high-income residential areas rather than peri-urban areas such as Epworth, where infrastructure such as roads, retail and marketing systems is poorly established. In most cases this creates discrepancies in pricing systems, as food reaches these areas mainly through informal systems. The 2009 food system study unequivocally buttressed this point by showing the dominance of informal food sources in Epworth. Figure 6 indicates that the two most important sources of food for poor urban households were the informal market (95.5 per cent) and own production (63 per cent). Supermarkets accounted for only 21 per cent and small shops 14.5 per cent.

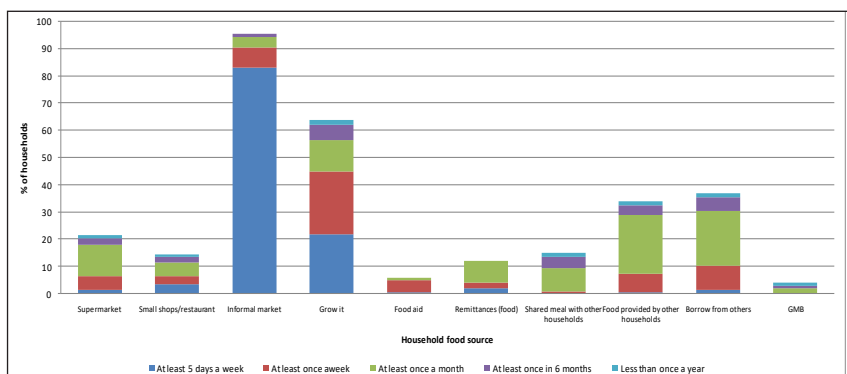


Figure 6: Household food sources in Epworth

Source: Author, 2018

A more important point is that households were obtaining food more frequently from informal rather than formal sources: 83 per cent of the households reported obtaining food from the informal market at least five days a week, reflecting the high frequency with which the poor buy in small quantities. While attempts were made in the past to introduce large supermarkets into the area, these have failed largely. This failure is attributed to the fact that supermarkets generally sell food in bigger units that are unaffordable to the poor who dominate the area.

Survival on reciprocity between rural and urban areas

The findings presented in this section show that most households leverage social and economic relations of reciprocity that exist between the rural and the urban areas for survival. According to the 2009 food security survey, about two-thirds (64.5 per cent) of the surveyed households reported at least one member visiting the rural home once every year, while 28 per cent visited every six months (Table 2).

Table 2: Frequency of rural visits by urban household

Frequency of Visits	N	% of Households
Every week	0	0.0
Every month	12	6.0
Every six months	56	28.0
Every year	129	64.5
Never	3	1.5
Total	200	100.0

Such visits are a way of life, a tradition through which urbanites remain 'anchored' to their rural homes. The reasons for such visits to the rural areas also bear testimony to the central role that rural-urban linkages play in food security in Epworth. As Table 3 shows, 64 per cent of the surveyed households reported members visiting the village to collect food and/or money. Thus, the social and cultural linkages that exist between urban and rural family members act as conduits for the movement of food and money between the two areas.

While urbanites also send money or food, the percentage of households doing so was lower, at 34 per cent, unarguably due to increasing economic hardships in the city. Urban households were reported to be getting more resources from the village than they were sending, suggesting that the flow of resources between the rural and the urban area may very well have reversed: more than three-fifths of the surveyed households (62%) reported normally receiving food from the rural areas, whereas 34 per cent reported receiving money (Table 4).

Table 3: Reasons why household members visit their rural home

Reason For Visiting	N	% of Households
To see relatives and friends	160	80.0
Social events (e.g. marriages, funerals, tombstone unveiling)	132	66.0
To get food and/or money	128	64.0
For farming and other economic purposes (e.g. to sell livestock)	70	35.0
To take money and/or food to their family	68	34.0
To send children to school	65	33.0
Others	11	6.5

Table 4: Households that reported normally receiving food and money from rural areas

	Normally Receive Food		Normally Receive Money	
	N	%	N	%
Yes	123	61.5	68	34.0
No	77	39.5	132	66.0
Total	200	100.0	200	100.0

The money that the households were receiving was mostly from the sale of agricultural crops and livestock. The most common foods that were transferred from the rural areas were, in order of importance: cereals, roots and tubers, meat and poultry. The transfer of food from rural to urban areas is critical to survival: 58 per cent of the households reported that the food they received from the rural area was very important, whereas 18 per cent regarded it as being critical to their survival in the city (Table 5).

Table 5: Importance of rural food transfers to urban households receiving transfers

Importance Of Food From Rural Areas	N	% of Households
Not important at all	0	0
Somewhat important	12	9
Important	18	15
Very important	71	58
Critical to survival	22	18
Total	123	100

Rural-urban food transfers thus represent vital safety valves and welfare options for households who are vulnerable to economic fluctuations in the city. It is through these food flows that households were able to survive in the city. All the households receiving food from the rural areas were using it for household consumption, with only a few (26 per cent) also selling it to raise income to pay for other urban expenses. It is clear, therefore, that rural-urban food transfers are an important component of the survival strategies of poor households in Epworth.

Survival on urban agriculture and working on farms

The practice of urban farming is prevalent in Zimbabwe's urban areas. A 1996 study by ENDA-Zimbabwe indicates that areas under urban farming in Harare doubled between the years 1990 and 1994 (ENDA-Zimbabwe 1994). In Epworth, the peri-urban nature of the settlement is conducive for urban farming due to the prevalence of empty pieces of land that residents can utilise. In the 2009 food security study, 66 per cent of the surveyed households indicated that they were growing field crops, whereas 43.5 per cent were growing garden crops. During the economic crisis that existed then, urban agriculture provided urban households with food that they would otherwise have had to buy on the market and gave households an income through the sale of the produce. Toriro (2009) found that 40 per cent of farmers produced enough cereals to cover half a year's consumption, underlying the importance of urban farming in supplying the needs of the households in peri-urban areas. Another study by Toriro (2018), confirmed the widespread prevalence of urban agriculture in Epworth where the majority of sampled households reported growing maize and leaf vegetables (Table 6).

Table 6: Urban farming in Epworth

Type of Farming	%
Maize	89
Vegetables	79
Fruits	100
Small livestock (e.g. chickens, rabbits)	25

The lower proportion of residents rearing livestock is largely attributed to the planning and regulatory framework, which is much less tolerant of livestock-keeping in urban areas. In addition to urban farming, some residents of Epworth earned their livelihood by working on the farms that surround the settlement. In the 2009 food security study, 29 per cent of the surveyed households indicated that they had at least one member who periodically

worked on the farms. The greater proportion of this employment occurred during the rainy season when work was plenty and labour in high demand on the farms. Farmers from the surrounding areas sent their trucks and tractors to Epworth in the morning to fetch workers and returned them in the evening. More than three-quarters (83 per cent) of those who were working on the farms were employed on a casual basis, with only 17 per cent working there permanently. The farms produced crops as well as livestock (chickens, pigs, cattle). Thus, work on the farms had also become a survival strategy for economically distressed households in Epworth.

Discussion

The history of migration is as old as the history of human beings; people have been moving for centuries, for reasons that range from security, trade and wars to territorial expansion, among other factors. In Africa's recent history, various researchers have observed that strong relationships and linkages exist between the urban and the rural areas. As this study observed, about two-thirds of the surveyed households reported at least one member visiting the rural home once every year, while 28 per cent visited every six months. Most households reported having a 'home' in the village, despite more than half of the population in the area having been born in the city. Hence, the degree to which these urban households have recourse to resources in the rural areas for their survival in the city depends on the extent to which they interact with rural households, both physically and socially. Such interactions thus can be leveraged to create resilient food systems in a peri-urban area such as Epworth. Frayne (2001) demonstrates that such interactions are the primary assets that ameliorate vulnerability for urban households and are the key to urban survival.

Central to many of these human movements between rural and urban areas, though, is a desire to survive and to create a livelihood and to move resources between areas with different resource endowments. In Africa generally, and in Zimbabwe in particular, a prominent historical movement has been the transfer of resources from urban to rural areas. Such movements are well documented. In the 1960s, the wide gap between urban and rural incomes meant that urbanites could afford to remit consistently to the rural areas (Jamal and Weeks 1998). However, the era of economic decline and structural adjustment programmes in the 1980s and 1990s narrowed this gap considerably. This resulted in the emergence of new forms of migration, where resource flows from the village to the city began to increase. Smit (1998), in South Africa, documented the importance of rural food transfers to the well-being of the households in the city. Similarly, in Zimbabwe,

Potts and Mutambirwa (1990) reported that some Zimbabweans in the city were holding onto their land in the rural areas to grow food.

This article has provided evidence of the role of rural-urban linkages to the food security of households in Epworth. It has been shown that the majority of households in the area have strong linkages with their rural areas from which they access food and money. In times of economic distress in the city, these households are able to rely on these linkages to survive. While households periodically return to the village to farm, relatives in the village also send them resources that enable them to fend off hunger and food insecurity in the urban area. It is thus logical that improving the food system of Epworth needs to be grounded in a holistic understanding of the role that these linkages play in the food system of the area. Such an understanding will enable the government and municipalities to leverage these linkages to the betterment of the urban residents. Without continuous food flows to the city, most of these residents would be poorer.

In this article we have also discussed strategies that distressed urban households adopted to survive, such as urban agriculture and employment in the farms close to the settlement. While these may seem detached from rural-urban migrations, they are in fact interlinked, as most of those who farm or are in farming employment use skills and knowledge garnered in the rural areas. This section thus highlights important aspects that can be leveraged to create a resilient food system in the area. As the study has shown, urban farming was widespread in Epworth. Most households were growing their own food in the city in order to complement their food purchases. While well-resourced households may have been able to purchase their food requirements on the market, the study findings showed that the generality of the population was poor and was therefore unable to make adequate purchases to satisfy their food needs from the market. Urban farming is therefore integral to the area's food system. Improving the resilience of the area's food system means incorporating urban farming and acknowledging its role in urban food security. The local authority must therefore incorporate this activity into its planning process and move away from the current systems and policies that see the activity as a rural activity with no place in a modern urban area.

Besides growing some of their own food, a significant proportion of people in Epworth reported working on neighbouring farms. These farms are an important source not only of labour and income but also of vital foodstuffs, which include vegetables and meat. While some of the people commuted to the farms daily during the farming season, others moved to and lived temporarily on the farms for the duration of the farming season, and migrated back to Epworth in the off-season. Hence, seasonal migration

is a very important component of a significant proportion of the residents of Epworth. Creating a resilient food system entails incorporating this facet into the planning process, recognising how the residents earn their income for their food security and sustenance.

Further to the livelihoods outlined above, the analysis of the maize value chain indicated that Epworth's food system was interlinked with that of the broader national, regional and even global food system. This is especially important, as maize is critical as a staple food in the country. While some of the maize was sourced from countries such as South Africa and Zambia, some also was sourced from within the local area. The integration with the local producers was critical, as this allowed local retailers to buy closer to home, shorten the value chain and therefore benefit the consumers through reducing retail prices. In good years, when production within the local farming areas is good, the prices of maize and maize-meal in Epworth tend to be lower than in other parts of Harare. This is because some of the production filters into the settlement and depresses the market prices, thereby increasing food access to consumers.

Besides maize, the local farmers were also supplying chickens and beef to the local market, hence improving food flows into the area. In an economic environment where foreign currency was in short supply nationally, and the importation of maize was not guaranteed, the linkages with local producers had an important moderating effect on food prices. A more resilient food system in Epworth could thus be improved by taking into consideration the value of these local supply chains. This consideration would equally apply to vegetables that are sold in Epworth, which are sourced primarily from within the surrounding farming areas as well as from nearby areas such as Marondera and Dema. The proper integration of the local farmers into the food system of the area will therefore improve how residents in Epworth access vegetables and the cost at which they access them. Concerning other foods, such as rice, the value chain is long, spanning regional and international boundaries. Without direct control of how rice is imported into the country, retailers and consumers in Epworth have limited room to influence its trade. Regardless, the presence of alternative foods may serve to moderate the price at which rice is made available on the market.

Additionally, the food system of Epworth was dominated by the informal sector. Transport systems in Epworth are generally not well developed and there were few formal food outlets from which customers could access food. Small retailers that were operating in the informal sector dominated the retail space: vendors, street traders, mobile vendors and tuck-shop operators. Some of these informal traders sourced their food from the rural areas and

from remittances of food sent from the rural areas, while others farmed in the rural areas and brought the produce to the city after the harvest, hence underlining the importance of migration in the food system of Epworth. Informal food traders are the lifeline of Epworth's food system. Any attempt to improve the resilience of the food system of the area must consider this reality. Rather than marginalising or criminalising informal trade in the area, the local authorities would do well to find ways of assisting these traders to operate more efficiently and from designated points that have infrastructures suitable for their needs and those of their consumers.

Conclusion

Epworth, as a peri-urban area, is steeped in the migration systems of the country. Migrants from the rural areas use the area as a first port of call, and when conditions improve they move farther away, to Harare. In the other direction, migrants who find it difficult to survive in Harare move to Epworth where rentals are affordable. The interaction between Epworth and rural areas enables the flow of resources that are critical to urban survival. Enhancing survival in the area entails improving the food system of the area through the creation of a resilient food system. This article agrees with Van Breda (2018: 4) that a resilient food system should focus on the multilevel processes it engages in to obtain better-than-expected outcomes in the face of adversity.

In the case of Epworth, its food-system resilience requires looking at a number of key issues. First, migration is at the centre of the food system, as food and money move into the area on the back of social relations between multi-spatial households who are domiciled in both geographic locations. Second, the location of Epworth as a peri-urban area enables its residents to migrate to nearby farms temporarily and seasonally to work and generate an income that is critical for their food security. Creating a resilient food system in the area thus requires a clear understanding and recognition of this important component of the area's food system. Third, the practice of urban households growing their own food in the area is a reality to be acknowledged. While urban residents born in the city do partake in this practice, the infusion of rural-urban migrants with adequate knowledge of farming means that this practice has taken root in the area. Thus, legislation governing urban agriculture should be realigned to allow this important economic activity to be recognised so that households can farm legally and sustainably. Fourth, the greater proportion of food trade in the area occurs in the informal sector. This informality is also linked to migration, as food from the rural areas finds its way into the informal sector. The local authority should thus accept that informality is key to the food system of the area. Any laws and regulations

promulgated should consider this economic reality to create an environment that facilitates rather than impinges on households' ability to access food. Fifth, infrastructure such as roads should be improved to facilitate trade and therefore improve the food system. In addition, electricity and water services must be improved, as these are necessary to allow retailers to sell a wider array of foods. Sixth, the relationship with local farmers in the surrounding areas should be improved in order to allow for foods (e.g. vegetables and maize) to enter the market directly from the farms to Epworth rather than using Mbare as an intermediary, which lengthens the value chain and increases food prices for the consumers. Lastly, peri-urban areas like Epworth generally lack industrial development, so the majority of the residents survive on the informal sector, on working for surrounding farms, and on capitalising on rural-urban linkages to source food. Any proper understanding of peri-urban food systems and their resilience needs to consider these key issues.

References

- Bratton, M., and Masunungure, E. V., 2018, Public Attitudes Towards Zimbabwe's 2018 Elections: Downbeat Yet Hopeful, Afrobarometer Policy Paper No. 47, http://afrobarometer.org/sites/default/files/publications/Documents_per cent20de per cent20politiques/ab_r7_policypaperno47_public_attitudes_toward_zimbabwe_2018_election_1.pdf Accessed 22 May 2019.
- Bryceson, D. F., 2006, Fragile Cities: Fundamentals of Urban Life in East and Southern Africa, in Bryceson, D. F. and Potts, D., eds, *African Urban Economics: Viability, Vitality or Vitiation*, New York: Palgrave Macmillan.
- Butcher, C., 1988, Epworth: A Review of the Densification Policy, Report prepared for the Epworth Local Board, Harare.
- Central Statistical Office, 2013. *Census 2011; Zimbabwe Preliminary Report*, Central Census Office, Harare.
- Chikwete-Biti, B., Mudimu, P., Nyama, G. M. and Jera, T., 2012, Developing an Informal Settlement Upgrading Protocol in Zimbabwe: The Epworth Story, *Environment & Urbanization*, Vol. 24, No. 1, pp. 131–148.
- Chimhowu, A., 2009, *Moving Forward in Zimbabwe: Reducing Poverty and Promoting Productivity*, Manchester Brooks Poverty Institute.
- Chirisa, I., 2013, Epworth in Zimbabwe: An Analytical Approach to the Concepts of Inclusivity, Housing and Stewardship, *The Built and Human Environment Review*, Vol. 6, pp. 18–28.
- Chisvo, M., 2000, *Reaping The Whirlwind: Economic Liberalisation and Food Security in Zimbabwe*, London, UK: Catholic Institute for International Relations (CIIR).
- Chitiyo, K., Vines, A., and Vandome, C., 2016, The Domestic and External Implications of Zimbabwe's Economic Reform and Re-Engagement Agenda, Research Paper, Chatham House, <https://www.chathamhouse.org/sites/default/files/publications/research/2016-09-08-zimbabwe-economic-reform-re-engagement-chitiyo-vines-vandome-final.pdf> Accessed 4 June 2019.

- Clemens, M., and Moss, T., 2005, *Costs and Causes of Zimbabwe's Crisis*, Washington DC: Center for Global Development, https://www.cgdev.org/sites/default/files/2918_file_Zimbabwe_Crisis.pdf Accessed 1 September 2019.
- Crush, J., and Frayne, B., 2009, *The Invisible Crisis: Urban Food Security in Southern Africa*, Urban Food Security Series Number 1, African Food Security Urban Network, Cape Town: Idasa.
- Davies, S., 1993, Are Coping Strategies a Cope-Out? *IDS Bulletin*, Vol. 24, No. 4.
- Dore, D., 2018, The Art of Creating Money: An Appraisal of Zimbabwe's Economy, Johannesburg: Institute for Security Studies, <https://issafrica.s3.amazonaws.com/site/uploads/SAR-18-2.pdf> Accessed 4 June 2019.
- Dzimiri, P., 2017, African Multilateral Responses to the Crisis in Zimbabwe: A Responsibility to Protect Perspective, *Strategic Review for Southern Africa*, Vol. 39, Issue 2, pp. 50–77.
- ENDA-ZW, 1994, Urban Agriculture in Harare, Report on IDRC-Supported Project, ENDA-Zimbabwe, Harare.
- Folke, C., Carpenter, S. R., Walker, B., Scheffer, M., Chapin, T. and Rockström, J., 2010. Resilience thinking: integrating resilience, adaptability and transformability, *Ecology and Society*, Vol. 15, No. 4, p. 20.
- Food and Agriculture Organization (FAO), 2003, *Trade Reforms and Food Security: Conceptualizing the Linkages*, Rome: FAO, p. 313.
- Food and Agriculture Organization (FAO), 2008, Soaring Food Prices: Facts, Perspectives, Impacts and Actions Required, Report on the Proceedings of the High-Level Conference on World Food Security: The Challenge of Climate and Bioenergy, 3–5 June, Rome.
- Food and Agriculture Organization (FAO), 2008a, *The State of Food Insecurity in the World 2008*, Rome: FAO.
- Frayne, B., 2001, Survival of the Poorest: Food Security and Migration in Namibia, Unpublished PhD thesis, Queens' University, Canada.
- Gelderblom, D., 2005, Limits to the Urbanization of Poverty in South Africa, Paper for IIS conference, Stockholm 5–9 July 2005.
- Holling, C., 1973, Resilience and Stability of Ecological Systems, *Annual Review of Ecology and Systematics*, Vol. 4, pp. 1–23.
- International Panel on Climate Change (IPCC), 2012, in Field, C. B., Barros, V., Stocker, T. F., Qin, D., Dokken, D. J. and Ebi K. L., eds, Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation: A Special Report of Working Groups I and II of the Intergovernmental Panel on Climate Change, Cambridge, UK and New York: Cambridge University Press, p. 582.
- Jamal, V., and Weeks, J., 1988, The Vanishing Rural-Urban Gap in sub-Saharan Africa, *International Labour Review*, Vol. 1, No. 27, p. 3.
- Kawewe, S. M., and Dible, R., 2000, The Impact of Economic Structural Adjustment Programs (ESAPs) on Women and Children: Implications for Social Welfare in Zimbabwe, *The Journal of Sociology and Social Welfare*, Vol. 27, Issue 4, Article 6, pp. 78–107.

- Kuhudzayi, P., and Mattos, B., 2018, A Model for Farmer Support in Zimbabwe—Opportunity for Change, <https://agecon.unl.edu/cornhusker-economics/2018/farmer-support-model-zimbabwe> Accessed 25 May 2019.
- Masunungure, V. E., 2010, Voting for Change: The 29 March Harmonised Elections, Konrad Adenauer Foundation, http://www.kas.de/upload/dokumente/2010/05/Defying_4.pdf.
- Mattes, R., Dulani, B., and Gyimah-Boadi, E. Africa's Growth Dividend: Lived Poverty Drops Across Much of the Continent, Afrobarometer Policy Paper No. 29.
- Maxwell, D., 1998, The Political Economy of Urban Food Security in Sub-Saharan Africa, FCND Discussion Paper Number 41, Washington DC: IFPRI.
- Maxwell, D., Watkins, B., Wheeler, R. and Collins, G., 2003, The Coping Strategies Index: A Tool for Rapidly Monitoring Food Security in Emergencies. Field Methods Manual, Nairobi: Care and WFP.
- Mbiba, M., 1995, *Urban Agriculture in Zimbabwe: Implications for Urban Agricultural Policy*, London, UK: Ashgate Publishing.
- Mehta, D., 2000, Urbanization of Poverty, *Habitat Debate*, Vol. 6, No. 4, http://www.unhabitat.org/mdg/documents/global/Vol6_No4_urbanization Accessed 11 May 2018.
- Mlambo, A. S., 2017, From an Industrial Powerhouse to a Nation of Vendors: Over Two Decades of Economic Decline and Deindustrialisation in Zimbabwe 1990–2015, *Journal of Developing Societies*, Vol. 33, No. 1, pp. 99–125.
- Moore, D., 2014, Death or Dearth of Democracy in Zimbabwe? *Africa Spectrum*, Vol. 49, No. 1, pp. 101–114.
- Moseley, W. G., 2001, Monitoring Urban Food Security in Sub-Saharan Africa, *African Geographical Review*, Vol. 21, pp. 81–90.
- Muchadenyika, D., 2020, *Seeking Urban Transformation: Alternative Urban Futures in Zimbabwe*, Harare: Weaver Press.
- Mugara, T., 2007, The Impact of Operation Murambatsvina (Clean Up) on Urban Livelihoods of Informal Vendors in Harare, Zimbabwe, Paper prepared for the Living on the Margins Conference in Stellenbosch, Cape Town, South Africa, 26–28 March.
- Mupedziswa, R., 1997, *Empowerment or Repression? ESAP and Children in Zimbabwe*, Gweru: Mambo Press.
- Naidoo, P., 2019, Zimbabwe's Surging Inflation Is Set to Slow as State Acts, *Bloomberg*, <https://www.bloomberg.com/news/articles/2019-03-15/record-zimbabwe-annual-inflation-set-to-slow-as-government-acts> Accessed 3 June 2019.
- Njoh, A. J., 2003, Urbanization and Development in Sub-Saharan Africa', *Cities*, Vol. 20, No. 3, pp. 167–174.
- Owuor, S. O., 2005, Coping with Urban Poverty: A Case Study of Rural Farming by Urban Households in Nakuru, Kenya, *Hekima—Journal of Humanities and Social Sciences*, Vol. 3, No. 1, pp. 84–101.
- Potter, R. B. and Unwin, T., 1995, Urban-Rural Interaction: Physical Form and Political Process in the Third World, *Cities*, Vol. 12, No 1, pp. 67–73.

- Potts, D., 1997, Urban Lives: Adopting New Strategies and Adapting Rural Links, in Rakodi C., ed., *Urban Challenge in Africa, Growth and Management of its Large Cities*, New York: United Nations University Press, pp. 447–494.
- Potts, D., 2000, Urban Unemployment and Migrants in Africa: Evidence from Harare 1985–1994, *Development and Change*, Vol. 31, pp. 879–910.
- Potts, D., 2008, Displacement and Livelihoods: The Longer Term Impacts of Operation Murambatsvina, in Vambe, M., ed., *Zimbabwe: The Hidden Dimensions of Operation Murambatsvina*, Harare: Weaver Press.
- Potts, D., and Mutambirwa C. C., 1990, Rural Urban Linkages in Contemporary Harare: Why Migrants Need their Land, *Journal of South African Studies*, Vol. 6, No. 4, pp. 676–698.
- Potts, D., and Mutambirwa C. C., 1998, ‘Basics Are Now a Luxury’; Perceptions of Structural Adjustment’s Impact on Rural and Urban Areas in Zimbabwe, *Environment and Urbanization*, Vol. 10, No. 1, pp. 55–65.
- Rakodi, C., 1995, *Harare: Inheriting a Settler-Colonial City: Change or Continuity?* New York: John Wiley and Sons.
- Ranga, D., 2004, The Migration Effects of the Economic Structural Adjustment Programme on a Rural Community in Zimbabwe, *African Population Studies*, Vol. 19, No. 1, pp. 165–184.
- Rogers, A., and Williamson, J. G., 1982, Migration, Urbanization, and Third World Development: An Overview, *Economic Development and Cultural Change*, Vol. 30, No. 3, pp. 463–482.
- Sachikonye, L., 2003, The Situation of Commercial Farm Workers After Land Reform, Report for Farm Community Trust of Zimbabwe, London, UK: Catholic Institute For International Relations (CIIR).
- Smit, W., 1998, The Rural Linkages of Urban Households in Durban, South Africa, *Environment and Urbanization*, Vol. 10, No. 1, pp. 77–87.
- Southwick, S. M., Bonanno, G. A., Masten, A. S., Panter-Brick, C. and Yehuda, R., 2014, Resilience Definitions, Theory and Challenges: Interdisciplinary Perspectives, *European Journal of Psychotraumatology*, Vol. 5, DOI: 10.3402/ejpt.v5.25338.
- Tawodzera, G., and Chigumira, E., 2018, *Food Poverty in Epworth, Zimbabwe*, in Watson, V. and Battersby, J., eds, *Urban Food Governance and Poverty in African Cities*, London, UK: Routledge, pp. 249–260.
- Toriro, P., 2009, The Impact of the Economic Meltdown on Urban Agriculture in Harare, *Urban Agriculture Magazine*, http://www.ruaf.org/sites/default/files/UAM21_p.26-27.pdf, Accessed 5 May 2012.
- Toriro, P., 2018, Urban Food production in Harare, in Battersby, J. and Watson, V., eds, *Urban Food Systems Governance and Poverty in African Cities*, London, UK: Routledge, pp. 154–166.
- Thulstrup, W. A., 2015, Livelihood Resilience and Adaptive Capacity: Tracing Changes in Household Access to Capital in Central Vietnam, *World Development*, Vol. 74, pp. 352–362.

- Tibaijuka, A., 2005, Report of the Fact-Finding Mission to assess the Scope and Impact of 'Operation Murambatsvina' in Zimbabwe, UN-Habitat Special Envoy on Human Settlements, 18 July 2005, <http://www.unhabitat.org/documents/ZimbabweReport.pdf>, Accessed 10 June 2020.
- UN-HABITAT, 2008, State of the World's Cities 2008/2009: Harmonious Cities: Overview of Findings, Nairobi: United Nations Human Settlements Programme, <https://unhabitat.org/state-of-the-worlds-cities-20082009-harmonious-cities-2>, Accessed 14 April 2022.
- Van Breda, A. D., 2018, A Critical Review of Resilience Theory and its Relevance for Social Work, *Social Work*, Vol. 54, No. 1, <http://dx.doi.org/10.15270/54-1-611>
- Walker, B., and Salt, D., 2006, *Resilience Thinking: Sustaining Ecosystems and People in a Changing World*, New York: Ireland Press.
- Walsh, F., 2006, *Strengthening family resilience*, New York: Guilford Publications.
- Watson, V., 2007, Urban Planning and Twenty-First Century Cities: Can It Meet the Challenge? in Garland, A. M., Massoumi, M. and Ruble, B. A., eds, *Global Urban Poverty: Setting the Agenda*, Washington DC: Woodrow Wilson International Center for Scholars, Comparative Urban Studies Project, pp. 205–237.
- World Bank, 2009, World Development Report 2009: Reshaping Economic Geography, Washington DC: World Bank.
- Wratten, E., 1995, Conceptualizing Urban Poverty, *Environment and Urbanisation*, Vol. 7, No. 11, pp. 11–38.
- Zimbabwe Vulnerability Assessment Committee (ZimVAC), 2009, Zimbabwe Vulnerability Assessment Committee Urban Food Security Assessment January 2009 National Report, Harare: ZimVAC.
- Zimbabwe Vulnerability Assessment Committee (ZimVAC), 2019, Lean Season Monitoring Report, February 2019, Harare: ZimVAC, http://fnc.org.zw/wp-content/uploads/2019/02/zimvac-2019-lean-season-assessment_final.pdf Accessed 4 June 2019.

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