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# The Use of Social Science Research by Environmental NGOs in Africa: Evidence from Morocco

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## Abstract

The literature on the use of research is both rich and varied. Yet, little is known about the use of available social research by environmental NGOs in the African context. This paper aims at contributing to the debate on this issue from the perspective of Moroccan civil society. In order to achieve this objective, we have analysed the results of a survey conducted among a sample of Moroccan NGOs working in environmental protection. Overall, it seems that a relatively large proportion of surveyed environmental NGOs receive and understand social research findings, but the process remains incomplete, as the use of these findings tends to diminish during the adoption stage and especially during the decision-influencing stage. Moreover, this conclusion must be regarded cautiously, given the confusion that arises from the lack of distinction between research and consulting activities. Finally, PLS regression reveals that the use of social science research by Moroccan environmental NGOs is influenced by three main factors: research adaptation effort, relational proximity between researchers and users, and the NGO director's employment status.

## Résumé

Bien que la littérature sur l'utilisation de la recherche soit riche et variée, on sait peu de choses sur le recours des ONG de l'environnement aux résultats de la recherche en sciences sociales, en particulier dans le contexte africain. Cet article vise à contribuer au débat sur cette question sous le prisme de la société civile marocaine. Pour ce faire, nous avons analysé les résultats d'une enquête menée auprès d'un échantillon d'ONG marocaines opérant dans le domaine de l'environnement. Globalement, il semble qu'une proportion non

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négligeable d'ONG sondées reçoit et comprend les résultats de la recherche en sciences sociales, mais le processus demeure inachevé, car l'utilisation de ces résultats a tendance à diminuer durant la phase de l'adoption et surtout la phase de l'influence des décisions. Aussi, cette conclusion doit être relativisée, compte tenu de la confusion qui découle de l'absence de distinction entre les activités de recherche et de consulting. Par ailleurs, en recourant à la régression PLS, nous avons révélé que l'utilisation de la recherche en sciences sociales par les ONG marocaines de l'environnement est influencée par trois principaux facteurs: à savoir l'effort d'adaptation de la recherche, la proximité relationnelle entre chercheurs et utilisateurs et le statut professionnel du directeur de l'ONG.

## Introduction

As in other African countries, responses to environmental problems in Morocco cannot be global and inclusive without the mutual involvement of civil society organisations and social scientists. The reason for this is that both groups are likely to be willing to develop clear visions about environmental issues with no interest-seeking behaviour (Faraco 2006: 72). In the face of various environmental pressures, NGOs and social scientists are gradually being mobilised to conduct their research and co-operate in this field, which was long the preserve of state actors and researchers in soft and hard sciences. While NGOs are directly involved in this arena, social science researchers have increasingly grasped the importance of the need to support them, especially through a process of research production that meets the NGOs' needs. It is high time, therefore, that research and public policy be linked in the environmental arena, with stronger collaboration between social scientists and NGOs. This convergence is crucial as it has the power to improve the required policy design and implementation towards adequate environmental outcomes and standards. As Emile Durkheim (1991: xxxix) rightly pointed out about sociology, 'We would not judge our research to be worth one hour's trouble if it were to have only a speculative interest'.

Research in social sciences is primarily a matter of discussed and shared truth (Favre 2005: 341). It is an inquiry to identify, describe, understand, explain and evaluate social phenomena involving human behaviour, in this case with regard to the environment. Such research seeks to emphasise innovative knowledge and skills for a better orientation of collective action. In addition, it must contribute to raising awareness around sustainable development issues, which includes environmental concerns. While anticipating problems, pointing out issues, exploring research areas and proposing solutions, social science research is not only the basis for acquiring a knowledge of societies, but also an essential mechanism for sustainable development.

Conceptually speaking, the utilisation of social science research by environmental NGOs is an area where neither methodological tools nor theoretical constructions are accurate enough to form specific approaches. Despite the fact that this research field highlights pioneering challenges, it still seems to be under-exploited. While the use of environmental research results by policy-makers has been widely discussed (Weiss 1979; Garrett and Islam 1988; Stone, Maxwell and Keating 2001; Neilson 2001; etc.), the use of these results by civil society organisations is still in its infancy.

Empirically, environmental issues have not only become a real social problem, but also a mobilising topic that has gradually penetrated the associative sphere. The number of NGOs involved in various environmental issues has significantly increased, from 1,468 in 2004 to 25,050 in 2016, thereby signalling a phenomenal increase of 1,606 per cent in twelve years. This shift is mainly due to the seriousness of the environmental problems that have emerged in Morocco in recent years, particularly those tied to water scarcity, soil erosion, desertification, deforestation, biodiversity and uncontrolled urbanisation. The growing size of civil society is also a result of the positive impact of COP7 and COP22, held in Morocco in 2001 and 2016 respectively. Additionally, one should mention the driving role of international financial aid and governmental incentives, namely the National Initiative for Human Development, launched in 2005.

Of course, associative dynamics like this remain politically regulated, but they are more essential than ever regarding the risks of climate change. Even though they are relatively young, many environmental NGOs are extremely engaged not only in lobbying and advocacy among decision-makers, donors and polluters, but also in the accompanying public-policy activities pertaining to environmental issues (education, awareness-raising, expertise, etc.). Whatever their activities may be, these organisations can count on the commitment and expertise of their members, composed mainly of environmental activists, practitioners and university researchers.

The major purpose of our paper is to build up empirical evidence on the behaviour of environmental NGOs in terms of social science research uptake and utilisation. More specifically, we will attempt to answer the following issues:

- How do environmental NGOs in Morocco use social science research findings?, and
- What factors explain the extent of this use?

Answering these questions will help us to develop a deeper understanding of the use of social science research findings by NGOs operating in the field of environmental protection in Morocco, particularly in terms of frequency and content. This will also enable us determine the level of utilisation of the knowledge

produced by social scientists and intended for civil society. Finally, this study will allow us to identify, characterise and quantify a variety of factors that determine the use of social science research by environmental NGOs in Morocco.

Our methodological approach is based on the use of primary data from a survey of sixty-six NGOs effectively involved in the field of environment protection in Morocco. The analysis is organised around two sequences. The first aims at characterising, by means of descriptive statistics, the degree of use of social science research by the surveyed NGOs. The second sequence focuses on modelling the determinants of this use by considering Partial Least Squares (PLS) as an estimation method.

The rest of this paper is organised as follows. Section 2 provides a theoretical framework that guides the use of social science research including civil society organisations. Section 3 outlines the research design and presents a brief portrait of the environmental NGOs surveyed. Section 4 presents and interprets the results using the PLS model and discusses their potential robustness. Finally, the principal implications of these results for decision-making are presented.

## Overview of Theoretical Underpinnings

Several theoretical models have been proposed to understand the process of using research findings (Weiss 1979; Huberman and Gather Thurler 1991; Huberman 2002; Neville and Warren 1986). But considering the nature of social science research[1] and the pressing and immediate needs of civil society in a developing country like Morocco, we believe that only four theoretical approaches are able to guide our research: the problem-solving, institutional, interactionist and integrationist approaches.

The science push approach has been ignored or discredited. In most cases, the knowledge generated therein is not always clear, specific, integrated and popularised enough to respond to the problems facing civil society. 'Because they are disconnected from the definition of the research problem, users will either have little interest in the results or will limit their attention on conceptual or symbolic uses' (Blackburn and Demers 1996:8).

### *The problem-solving approach*

In this approach, the research demand is not driven by the supply of researchers, but by the demands of the economy or society. Research findings are generally used because of the ability of the researchers to transform a complex situation into a real problem that can be solved. In this context, the users of research findings are the main initiators of desired change, as they are responsible for defining the needs and requesting research that identifies

and assesses alternative solutions to specific problems (Neville and Warren 1986). The researcher is then considered as a simple technician who is called upon to satisfy the needs and wants of all possible users (Love 1985).

This approach is similar to a client–supplier relationship, where the users are the clients, who define what research they need, and the researchers are the suppliers, who provide a service in exchange for negotiated remuneration. Research results are used more effectively when their users believe that the research meets their needs and are able to perceive its value in their own context (Bedell, Flom and Barbeito 1985; Huberman and Gather Thurler 1991). Thus, research designed to respond to decision-makers' expectations has more chance of being read, discussed, adopted and valued. To this end, two points of view are considered: the use of research as a product, and its use as a process (Amara, Ouimet and Landry 2004).

According to the first thesis, the results of any research are usually associated with decision-making or a specific user event. In this context, research use can take three forms: conceptual, instrumental and symbolic. The conceptual use involves using research results for general enlightenment; the research outcomes generate new ideas and theories that lead to new interpretations of the challenges and realities surrounding a given problem (Sunesson *et al.* 1989). The instrumental use refers to applying research findings in specific, direct ways that yield concrete actions or decisions (Larsen 1980). Finally, the symbolic use involves using research to support or legitimise certain positions or actions that have already been taken or decided (Amara *et al.* 2004).

Furthermore, research fulfils several functions with respect to societal issues (Glover 1994). The first is to set up the terms of the debate on political and social issues. In that respect, research contributes, through a process of data accumulation, to build a framework for reviewing and evaluating problems. The second function consists in analysing past or present facts in order to draw useful lessons that can enlighten public decisions. The last function is to assess facts, interests and opportunities as they arise. Evidence from studies of the impact of social science research on political and social action in the United States suggests that, in the framework of the first function, research has the most lasting impact, but in relation to the third function, it seems ineffective (Intal and Pociano 1999:280).

The second thesis views the use of research as a process, which involves cumulative and interdependent steps. According to Knott and Wildavsky (1980), actors concerned with the utilisation of research findings face a sequential process made up of several stages of rising difficulty. Six principal stages punctuate this process: reception, cognition, discussion, reference,

adoption and influence. Weiss (1986) argues that research rarely provides a quick answer for research actors to employ to solve problems. The results of research are incorporated into the users' overall frame of reference as part of an incremental process of what the author calls 'enlightenment' (Weiss 1995). Lastly, Lomas (1997) believes that research dissemination depends on a better mutual understanding between researchers and research users. For him, decision-makers must recognise that research is not simply a product, but rather a process in which both the design of methods and the definition of the objects of study take time and effort. Such a process is characterised by ten steps: observation of the decision-makers' environment, identification of priorities, identification of the problem to be solved, inventory of feasible options, evaluation, consultation, selection of options and implementation of the decision, justification of the decision and finally evaluation of the decision's impact (Lomas 1997).

### *The institutional approach*

The institutional approach refers to a system of 'disorderly' interconnections that occur between the producers and the users of research. The two sets of actors together play a major role during the process of designing, producing and disseminating research results. 'The more sustained and intense the interactions and collaborations between researchers and users, the more likely research findings are to be utilised' (NACI 2003:8).

This approach is direct and introduces the idea of regular back-and-forth between the worlds of research and practice. Research dissemination takes an active form that is an educational process through which the researcher communicates the results directly to users. It emphasises the institutionalisation of research acquisition and dissemination efforts by both users and researchers. This institutionalisation aims at combining the concerns of various stakeholders into the choice of research projects, the acquisition of data and the interpretation of results (Faye, Lortie and Desmarais 2007).

The use of research results tends to increase when institutional measures are implemented to support acquisition efforts by targeted groups, as well as dissemination and adaptation efforts by researchers (Huberman and Gather Thurler 1991; Landry, Lamari and Amara 2000). From this perspective, Huberman and Gather Thurler (1991) argue that the user should not be considered as a passive element to be educated, but rather as a welcoming entity with its own dynamics, and that dissemination efforts should come from both researchers and users. These authors also emphasise the need to integrate the efforts of researchers as determinants of the research dissemination process. Such efforts can be measured by the time

spent on dissemination, the level of available resources and the existence of a dissemination strategy, but also the effectiveness and realisability of dissemination strategies.

Other authors, such as Lemire, Souffez and Laurendeau (2009), stress the importance of four factors in the successful dissemination of research results: the research context, the user context, the characteristics of the research and the funding sources. As suggested by Scullion (2002), all key elements of the dissemination process must be carefully examined during the design phase of the research. The prior definition of transfer objectives in the research project, informal personal contacts, participation in committees, adaptability of research and institutional constraints are among the factors that determine the successful dissemination of research results.

On another level, Addis (2002) highlights the importance of mechanisms for bridging the gap between researchers and potential users in terms of priorities, work rules, the jargon used and even work culture. In this sense, users who operate in a context of multiple and diverse sharing mechanisms are most likely to reduce the gaps between the two communities. Furthermore, users who establish proximity links and continuous interactions with research institutions are most likely to access and operationalise research results. In these conditions, it seems that researchers have a strong interest in popularising and disseminating the results of their research in a language that is understandable, digestible, accessible and adapted to the existing real needs of the targeted groups.

### *The interactive approach*

As with the dissemination approach, the interactive approach is based on the idea that the use of research is strongly influenced by the kind of repeated interactions between researchers and users at the different stages of the research process, including design, production, dissemination and utilisation (Landry, Amara and Lamari 2001; Mitton *et al.* 2008). Such interactions boost the development of social capital, which plays a major role in strengthening linkages between these two communities, particularly in contexts where market mechanisms do not work effectively and optimally. The use of research results would be all the more likely, as this capital is very important (Landry *et al.* 2001).

The use of research is also influenced by the contexts from which the researchers and other stakeholders originate. As the people involved in this operation discover the contexts of their interlocutors, they gradually manage to understand the needs, constraints and facilitators of exchanges (Elissalde, Gaudet and Renaud 2010:137).

Researchers are not seen as mere prescribers of solutions, but as true vectors of progress and social transformation. As for the users, they are viewed as co-producers of knowledge. They actively participate in all stages of research by communicating to the researchers not only their priorities, but also their problems and comments, which are integrated into the research issue (Huberman 1987). Based on this information, researchers will then be required to continually adjust their research design. Users also contribute to the validation of data collection tools and/or the validation of results. This dynamism has been described by Lemire *et al.* (2009) as a spiral transfer of knowledge. Thus, ongoing collaboration remains the key to successful research use. On the one hand, the objectives and results of research take into account the real needs of the users. On the other, trust and interpersonal relationships between researchers and users are likely to create synergies and facilitate the understanding of the scope and limits of the results.

The interactive approach can be termed action research. It is a cyclical process of thought and facts in which there is a deliberate action to transform reality. Research comes with a complementary dual objective: transforming social reality, and producing knowledge about these transformations (Hugon and Seibel 1988:13). Action research refers not only to the idea of transforming reality through a research process, but also that of mobilising action towards research development. The result of such a recursive process is conditioned by strong collaboration that must develop and powerfully increase amongst the various stakeholders (Albano 2012:2).

According to the followers of this model (Groulx 2006; Fernandez 1986; etc), there is no simple connection between research and action, but rather a modification of research in many of its dimensions, because society's need is assumed to force research to renew itself and think about new rules. The production of research is developed in and through the action of social groups (Gergen and Gergen 1995). This production is focused not only on a project of construction and the formulation of new knowledge, but also on the development of operational knowledge for practitioners (Goyette and Lessard-Hébert 1985). Its function is to explain, apply and, above all, facilitate involvement. Thus, the status of the researcher must not remain static, but should evolve and adapt to new social demands (Mondada 2003:73).

With particular reference to the interaction between researchers and civil society, Hardt (1995) points out that there is no hierarchy between these two communities; they act as a relay, one advancing the other. For this author, the roles of research institutions and civil society should not be framed in terms of a 'theoretical–practical' duality pattern, but rather as a 'theoretical–

theoretical' paradigm. Indeed, even civil society activists are able to produce theory and are sometimes even ahead of academic researchers in this regard. The most important thing, he stressed, is to observe the theory that evolves in civil society and envision different approaches to the same problems, and thus recognise a crucial role for civil society within the world of scientific research.

### *The integrationist approach*

Inspired by sociology, this approach focuses on the nature of the intensity of the relationship between researchers and civil society activists. It defends the idea of a coalition between these two communities. The separation between research and practice is considered obsolete or fictional in a context where researchers are called on not only to construct theories and achieve results, but also to become directly involved in social and political actions. It is then common to speak of 'committed researchers', 'organic intellectuals' or 'researcher-practitioners', who constitute the very bedrock of the existence and vitality of society. These expressions mean that the dual identity must be verified, and that neither of them should dominate the other.

Gramsci is often mentioned as the precursor of this approach. The author has devoted considerable attention to the role of researchers in society. For him, modern researchers are not only producing discourses, but are involved in the organisation of social practices. In addition, he distinguishes between 'traditional intellectuals' who are engaged in the pursuit of serving the goals of a social movement. In addition, Gramsci made a useful distinction betwen'traditional intellectuals', who saw themselves as separated from society and incapable of understanding their activity as part of the economical production of the social order, and organic intellectuals, who organised the political and economic interests of a given social class (Said 1994:4). These new intellectuals do not simply describe social life according to scientific rules, but rather express experiences and feelings that the masses cannot express on their own. 'Each social class organically creates one or more groups of intellectuals who give it homogeneity and consciousness of own function not only in the economic but also in the social and political fields' (Gramsci 1959:429).

Similarly, French sociologist Pierre Bourdieu (2001) introduced the concept of the 'collective intellectual', which describes the intellectual who offers his or her expertise to the social movement; it is an autonomous intellectual who is able to intervene in the political field and draw on his or her specific skills and moral authority to support a social cause.

Bourdieu maintains an aristocratic distinction between the knowledge of researchers and the know-how of activists, between the science that might

think politics and the practice that carries it out. According to him, the collective intellectual can and must fulfil two main functions: a negative (i.e., critical) function, which consists in criticising and promoting tools against the discourse of the dominant power; and a positive (i.e., constructive) function, which contributes to a collectively perceived political reinvention and to political and economic alternatives. In this context, the intellectual must join forces with the social movement to fight 'neoliberal imperialism' in the strategic field of knowledge.

Croteau (2005) distinguishes between three types of actors: the activist, the researcher and the researcher-activist. The last must undertake to produce two versions of research: a 'popular' version, which will probably not be evaluated or recognised by academic institutions, and an academic version that is fundamental in nature (theoretical research). Hence, research becomes an integral part of the process of understanding and solving society's problems. Alcaras (2012), in turn, refers to the figure of the 'committed researcher', the one who systematically engages in social projects through defending values and goals in line with his or her scientific activities and explicitly establishes the link between disciplinary skills and commitment. This researcher has a very high level of scientific and practical competence in the field of action, in contrast to the committed intellectual. Thus, it seems that the list of committed researchers is less extensive than that of committed intellectuals.

For their part, Kohn (2001) and Albarello (2004) focus on the 'researcher-practitioner', defined as an actor engaged both in a socio-professional field practice and in a research activity (Albarello 2004:5). Research is then embedded in the field of action or intervention. Its role is not only to encourage the exploration of society's reality, but also to help it discover its problems and resolve them. The researcher becomes a strong community organiser, whose research activities reorient his or her actions, and reciprocally, whose professional activities generate and orient continuously his or her research activities. 'Research is at the service of action, as action is at the service of research, mutually discovering and metamorphosing in their most vivid aspects' (Perrault Soliveres 2001:46).

## Research Design and Portrait of The Environmental NGOs Surveyed

The data used in this paper was collected through a survey of sixty-six Moroccan NGOs that have been active regularly during the last few years in the field of environmental protection and sustainable development.

### *Research design*

In this paper, we consider research as a process through which results are applied to solve environmental problems or achieve other climate change objectives. For the sake of operationalising this variable, we used Knott and Wildavsky's (1980) scale. This is due to the fact that this scale is multidimensional and widely applied in other contexts. Thus, the use of social research results is based on an ordinal scale that comprises six stages: reception, cognition, discussion, reference, adoption and influence. For each of these stages, respondents (directors of the environmental NGOs) were asked to estimate what had become of their research, using a five-point scale ranging from 1 (never) to 5 (always). Table 1 provides a description of these items.

**Table 1:** Scale of social science research use

| ITEMS | STAGE | MEANING |
|---|---|---|
| USE1 | Reception | The director of the environmental NGO receives social research relevant to its work. |
| USE2 | Cognition | The director of the environmental NGO reads and understands the research received. |
| USE3 | Discussion | The director of the environmental NGO engages in meetings, conferences or workshops to discuss the research findings. |
| USE4 | Reference | The director of the environmental NGO cites the research and its findings in reports or documents. |
| USE5 | Adoption | The director of the environmental NGO exerts efforts to adopt the research findings into decisions or actions. |
| USE6 | Influence | The decisions taken by the environmental NGO are effectively influenced by the research findings. |

*Source:* Adopted from Knott and Wildawsky (1980).

Before computing the index to measure the intensity of research use, we tested the reliability of the scale. The purification tests we carried out showed a fairly good reliability. On the one hand, Cronbach's Alpha score is within the order of 79 per cent, exceeding the critical threshold of 70 per cent. On the other hand, the degree of correlation of the items with the overall scale exceeds the threshold of 0.4, which is statistically valid.

In order to construct the composite index that measures the intensity of social science research use, we assumed that each step in the process of this use is more important than the previous one. Because the stages are cumulative, we allocated a score to each stage, with increasing order of weights to each higher stage. The selected items were then weighted by a coefficient ranging from 1 (reception) to 6 (influence). The final index was obtained by adding the scores of the six items, which may range from 21 to 105.

The independent variables were derived from the results of the exploratory study and other similar studies (Huberman and Gather Thurler, 1991; Landry et al. 2000). In this paper, we retained the following eight main independent variables: seniority of the NGO, NGO director's employment status (position held by the director outside the NGO), NGO director's educational level, membership of a research network, relational proximity, research acquisition effort, research adaptation effort and barriers to research use.

As the first four variables are factual in nature and describe some of the attributes of the NGO and its director, we coded them as dummy variables. Thus, seniority takes the value of 1 if the NGO has more than 10 years, and the value of 0 otherwise. The NGO director's employment status takes the value of 1 if the director holds a high-level position (executive or senior manager), and the value of 0 otherwise. The NGO director's educational level takes the value of 1 if the director holds a Master's degree or a doctorate, 0 otherwise. Finally, the network takes the value 1 if one of the influential members of the NGO is also a member of the research community, 0 otherwise.

The other four attributes are intended to measure the perception of the director of the environmental NGO of the conditions under which research results are received and used. Table 2 summarises the items selected to operationalise each of them.

The director of each NGO surveyed was asked to indicate the frequency with which they carried out certain activities, representing the evaluation items of the variables relating to relational proximity, the effort to adapt research, and the effort to acquire research. The possible answers are presented as a Likert scale, ranging from 1 (never) to 5 (always). Participants were also asked to comment on the extent of some of the constraints that inhibited the use of research by using a reverse scale, with five possible answers ranging from 1 'strongly agree' to 5 'strongly disagree'. The reversal of this scale is due to the fact that, unlike the other variables, barriers are expected to have a negative impact on social research use.

The reliability analysis showed that the value of Cronbach's Alpha for each construct exceeds the critical threshold generally used in the social sciences, which is 0.70. The values obtained were significant enough to

establish the internal consistency of the scale. Also, coefficients of correlation of items with total score were greater than 0.4, indicating that all the items contributed to the scale.

A simple index was then calculated for each variable by summing up the scores assigned to the different items. This index ranges from 6 to 36 for relational proximity and research adaptation effort, from 8 to 40 for research acquisition effort, and from 5 to 25 for barriers to research use.

**Table 2:** Operationalisation of independent variables

| VARIABLES | ITEMS |
|---|---|
| Relational proximity | • Delivery of courses or social science seminars at the university<br>• Meeting with social science researchers<br>• Involvement in social research projects conducted by researchers<br>• Conducting social research in collaboration with researchers<br>• Consultation of social science research evidence<br>• Participation in social science events |
| Research Adaptation effort | • Social science research results are easy to locate<br>• Social science research results are easy to understand<br>• Social science research results are available in a timely manner<br>• Social science research results are reliable and relevant<br>• Social science research results are useful<br>• Social science research results are easy to implement |
| Research acquisition effort | • Regularly consulting articles published in scientific journals<br>• Regularly consulting papers presented at scientific events<br>• Regularly consulting books or book chapters<br>• Regularly consulting research reports<br>• Regularly consulting specialised websites<br>• Participation in informal meetings with researchers<br>• Discussion with researchers about the research findings<br>• Discussion with researchers about applications and monitoring |
| Barriers to research use | • Complexity of research language<br>• Resistance of other members of the NGO<br>• Difficulty of access to research results<br>• Lack of financial and human resources<br>• Lack of expertise in translating social science research into useful outcomes |

### *The portrait of the environmental NGOs interviewed*

Officially, Morocco has more than 25,000 NGOs working in the field of the environment and sustainable development, which represents 21.24 per cent of all registered NGOs in the country. Nevertheless, only a minority carry out regular activities; the others are registered but, due to a lack of resources, they struggle to carry out their missions and are often condemned to remain at a standstill.

The survey of the environmental NGOs by date of founding reveals that 55 per cent of them were created after 2005, with an age average of fifteen years. This result reflects the relatively young character of NGOs operating in the field of environmental protection and climate change in Morocco. In our view, four factors explain this tardy awareness of environmental issues on the part of Moroccan civil society. First, government incentives, in particular the National Human Development Initiative (NHDI) launched in 2005, offer enormous opportunities for financing and supporting NGOs working in the field of sustainable development. Second, the hosting of COP7 in 2001 and COP22 in 2016 in Morocco inspired Moroccan civil society to work on environmental issues. Third, since 2011, freedom of association has been elevated to constitutional status. The Moroccan Constitution recognises civil society's contribution to policy development, and encourages the action and advocacy role of NGOs, particularly in the field of environment, climate action and socioeconomic development. Fourth, the media, in all its forms, is increasingly mobilised to lead the debate on the pressures on Moroccan natural resources and the main problems affecting the environment in general, while promoting eco-friendliness and greener living practices.

The distribution of environmental NGOs, surveyed by geographical coverage, reveals a domination of local actions. The majority of them, 73 per cent, have a very strong local basis, i.e., the protection of the immediate environment. This can take the following forms: promotion of solar energy, household waste collection, green space development, beach clean-up and environmental education. Fewer environmental NGOs have national coverage, which can be explained by the deliberate choices of their members, but also by a lack of organisational capacity and resources. NGOs with a national scope work mainly in the area of advocacy, and therefore need a minimum critical size to succeed in their mission. Although they are defending the same cause, these two types of organisations are in opposite positions. While local NGOs are real partners of the state, national NGOs prefer to remain autonomous and assume the role of counter-power by seeking to propose new models that are more respectful of the environment.

By activity sector, the environmental NGOs surveyed are far from being highly specialised. More than 80 per cent of them offer a wide range of activities, combining environmental education and lobbying, but also awareness-raising, improving the living environment, solving specific problems and supporting ecological projects (ecotourism, reforestation, waste recycling, renewable energies, etc.). The other NGOs are mainly active in the fields of public awareness around environmental protection issues (9 per cent) and the development of concrete projects in favour of the environment and sustainable development (5 per cent). Issues relating exclusively to lobbying are of interest to only four out of sixty-six NGOs.

The educational level of the environmental NGO directors is high. The majority (79 per cent) have obtained a university degree or equivalent. Only 3 per cent declared having a very low level of education. This profile will certainly help promote good governance within the target NGOs, and will facilitate the task of these NGOs in terms of communication, networking, partnership and advocacy.

Furthermore, most environmental NGOs are networked at the regional or national level.[2] This networking, which is essentially initiated by the public authorities, allows NGOs to break out of isolation and to benefit from mutualised resources. It also allows them to enhance visibility, identify synergies and exchange best practices in the field of environmental protection.

The international partnership also offers promising opportunities for Moroccan environmental NGOs, including those in our sample. Out of the sixty-six, thirty-eight, representing 58 per cent, reported that they maintain partnership relations with foreign NGOs. However, partnership with private companies is still in an embryonic stage, with only eight NGOs engaged in this of the sixty-six surveyed. This last result seems paradoxical, given that the Moroccan government has introduced several fiscal mechanisms to encourage companies to practise environmental responsibility.

According to the surveyed NGO directors, social science research is of real interest in boosting associative action in the environmental field. We asked them: 'In your opinion, what can social science research bring to environmental NGOs?'. The participants focused their responses on five main aspirations: developing new programmes (61 per cent), solving problems (52 per cent), justifying decisions (45 per cent) and understanding the rules of public policy (36 per cent). For 27 per cent of the respondents, research helps to satisfy their intellectual curiosity. Thus, whether it is practical, moral or civic, social science research is generally valued by civil society activists working for environmental protection.

**Table 3:** Distribution of NGOs by stage of use of social science research

| | NEVER | RARELY | SOMETIMES | USUALLY | ALWAYS | INDEX MEAN |
|---|---|---|---|---|---|---|
| Reception | 0.06 | 0.33 | 0.30 | 0.20 | 0.11 | 2.95 |
| Cognition | 0.09 | 0.38 | 0.33 | 0.12 | 0.08 | 5.42 |
| Discussion | 0.14 | 0.45 | 0.23 | 0.09 | 0.09 | 7.64 |
| Reference | 0.21 | 0.52 | 0.17 | 0.06 | 0.05 | 8.85 |
| Adoption | 0.26 | 0.52 | 0.15 | 0.05 | 0.03 | 10.38 |
| Influence | 0.50 | 0.42 | 0.08 | 0 | 0 | 9.45 |
| Degree of use | | | | | | 44.69 |

Table 3 shows the frequency distribution of stages and level of using social science research by environmental NGOs.

Regardless of the item considered, it appears that reception and cognition of social research are high, as more than half of the responses fell within the range of 'sometimes' to 'always'. In the advanced stages of research use process (reference, adoption and influence), we observed a progressive decrease in the percentage of social research that is never or rarely used. Moreover, the average score of the index measuring the intensity of research use is about 44.69 on a scale ranging from 21 to 105.

Clearly, this is a positive assessment not only since most Moroccan environmental NGOs are young, but also because of the unfavourable conditions in which social scientists work in Morocco. Besides, this result corroborates those obtained by other authors under more favourable contexts. For example, in a study on public and social research in Canada, Belkhodja *et al.* (2007) found that 39 per cent of Canadian administrators use research data to make changes to the services offered by their institutions. Similarly, in a survey of 447 psychosocial workers in Canada, Chagnon and Malo (2006) concluded that only 18 per cent of those interviewed reported frequent use of research results in their professional activities. Furthermore, in a study on the use of university research by government agencies in Canada, Landry, Lamari and Amara (2003) found that the score ranges from 41.03 per cent for municipal and regional affairs, public works and public infrastructure, and 56.62 per cent for education and information technology.

Additionally, four remarks should be made about the results of our survey. First, the use of research by environmental NGOs relates to the quantitative aspect only. We cannot therefore draw any conclusions as to the quality of the research disseminated by social scientists. Second, the issue of research use is fuzzy (Graham *et al.* 2006:13), as many respondents tend to

confuse research with consulting. The needs expressed by environmental NGOs are mostly linked to expert studies (responses to decision-making concerns), which is a soft form of instrumental research. Third, Moroccan environmental NGOs rely mainly on research produced by geographers, economists and sociologists. Fourth, successes in research use are often the result of individual and isolated initiatives taken by the directors of NGOs. The level of institutionalisation and formalisation of the use of social science research remains, in our view, relatively low.

## Factors Influencing the Use of Social Science Research

In order to enhance our analysis, we conducted an econometrical investigation of the use of social science by the Moroccan environmental NGOs. The objective was to measure the impact of eight previously identified variables on the use of social science research by sixty-two Moroccan environmental NGOs.[3] This exercise was done using the Partial Least Squares (PLS) regression method.

### *Why PLS regression?*

The main objective of the PLS regression is to predict a set of dependent variable(s) (Y) from a set of predictor variables (X) and to describe their common structure when the number of independent and/or dependent variables is high or when multicollinearity is strong. To do so, the descriptors are summarised in a series of factors, $t_h$ (factorial axes, latent variables, X-scores), which are orthogonal in pairs.

Compared to the PCA (Principal Component Analysis), these factors are constructed in such a way as to best explain Y. Similarly, the target variables are summarised in a series of components, $u_h$ (Y scores). The orthogonality constraint does not apply to them. During the modelling process, PLS regression will allow the factor series to be constructed ($t_h$, $u_h$) such that their covariance is maximal. The covariance criteria help to compromise between the restitution of X variability and investigating the relation between X and Y. Thus, it is possible to predict the dependent variable (Y) from the independent variables (X) by separating the signal from the noise, i.e. between what is common to the data and what is more specific to the processed data sample.

There are three main reasons for using PLS regression in this paper. First, this method is well-known to be compatible with cases where we can expect to analyse a phenomenon of complex relations involving a large number of independent variables. However, the conservation of all variables is likely

to minimise the residual variance. The results are therefore closer to the observed reality. According to Sosik, Kahai and Piovoso (2009: 17), the PLS method is more effective in practice because the primary data used in modelling is never perfect. By selecting the best linear combination to predict dependent variables, the PLS method provides more significant structural coefficients than methods based on 'maximum likelihood'.

Second, the size of our sample is not large enough to ensure normal residual distribution, and in this case the application of OLS and parametric tests would yield questionable results. The PLS method was designed to correct this deficiency, since it can be applied to small sample sizes, which may be smaller even than the number of explanatory variables. This method is particularly applicable when the number of variables is greater than the number of compounds in the data sets (Cramer 1993).

Third, some independent variables are highly correlated with each other (multicollinearity), making classical linear regression irrelevant, in the sense that the coefficients that emerge from it become very unstable when trying to noise data. Based on covariance criteria, PLS regression is considered the best response to the problem of multi-collinearity. The coefficients remain stable and better verify statistical significance, even in the presence of strong correlations between the variables.

## Results and Discussion

The PLS regression is established using a single component ($t_1$), which is sufficient to capture the maximum covariance between the eight predictors and the research use index. Table 4 illustrates the quality of the PLS regression as a function of the generated component. The $Q^2$ index of Stone-Geisser is very high (74.7 per cent). In addition, the $R^2Y$ and $R^2X$ that correspond to the correlations between the independent (X) and dependent (Y) variables with the components are considered relevant. This suggests that the predictive capacity of the model is large.

**Table 4:** Model Quality Indexes

| Indexes | Comp1 |
|---|---|
| Stone-Geisser's $Q^2$ | 0.7570 |
| Explanatory power of the component for the dependent variable ($R^2Y$) | 0.7775 |
| Explanatory power of the component for the independent variables ($R^2X$) | 0.4480 |

Table 5 presents the indicators that assess the contribution of independent variables to the construction of the model. We can see that the correlation of the variables with the selected component is very good. Only one variable, 'seniority of the NGO', has a low correlation coefficient. Similarly, the observation vector *w**, which reflects the weight of the explanatory variables in the construction of this component ($t_1$), reveals a certain homogeneity. Apart from the NGO's seniority and membership of a network, all the other variables contribute correctly to the construction of the model. Finally, the VIPs (Variable Importance of Projection) reflect the importance of the explanatory variables in the construction of the model and in its ability to predict the target variable. Following Chong and Jun's recommendations (2005), only variables with VIP coefficients greater than 1 are significantly influential. This is the case for the seniority of the NGO and membership in the research community.

**Table 5:** Relative Contribution of Independent Variables to the Prediction

| Variables | Correlation with $t_1$ | Vecteur w* | VIP |
|---|---|---|---|
| NGO director's level of education | 0.696 | 0.365 | 1.032 |
| Seniority of the NGO | 0.113 | 0.055 | 0.154 |
| NGO director's employment status | 0.719 | 0.389 | 1.100 |
| Membership of a research network | 0.469 | 0.203 | 0.576 |
| Research adaptation effort | 0.879 | 0.453 | 1.281 |
| Research acquisition effort | 0.769 | 0.372 | 1.052 |
| Relational proximity | 0.776 | 0.448 | 1.266 |
| Barriers to research use | - 0.621 | -0.357 | 1.010 |

Considering the VIP results, only six variables in eight have a significant effect on the construction of the model. Nevertheless, only two variables, namely the adaptation of research effort and relational proximity, have a strong influence in explaining the use of social science research results by environmental NGOs.

Table 6 presents the standardised coefficients of the PLS regression. Based on the results, it appears that the individual attributes of the NGO director (level of training and employment status outside the NGO) have a positive effect on the use of research by environmental NGOs. Thus, the more educated the NGO's director, the more likely he or she will use social research. Obviously, it seems that the diploma of the director of environmental NGOs is not only a prestigious academic credential, but also a facilitating factor for dialogue and co-operation between the research world and the voluntary sector in the field of the environment.

**Table 6:** The Regression Coefficients of the PLS Model

| VARIABLES | Standardised Coefficients | Standard Deviation |
|---|---|---|
| NGO director's level of education | 0.170 | 0.028 |
| Seniority of the NGO | 0.025 | 0.042 |
| NGO director's employment status | 0.181 | 0.023 |
| Membership of a research network | 0.095 | 0.030 |
| Research adaptation effort | 0.211 | 0.024 |
| Research acquisition effort | 0.173 | 0.024 |
| Relational proximity | 0.209 | 0.032 |
| Barriers to research use | -0.167 | 0.031 |

Also, the NGO director's employment status is statistically associated with the use of social science research. This suggests that lower-level occupations are a barrier to the dissemination of research results in the associative sector with respect to environmental issues.

The attributes of the environmental NGO, namely seniority and membership of a research network, have no statistically significant effect on the use of social science research. On the face of it, Moroccan environmental NGOs are not yet institutionally and organisationally mature enough to act and build their interventions as a formal legal entity. The NGO director often exerts a kind of informal power that influences strategic decisions and eventually engages the NGO in important acts and events. The weight of the other members of the executive board remains marginal.

In relation to the attributes of social science research (relational proximity, research acquisition effort, research adaptation effort and barriers to research use), we find that they have statistically significant coefficients. The PLS model suggests that environmental NGOs with strong social capital in the research community are more likely to increase their use of social science research than those with little or no social capital. This result seems to make sense since, in the social sciences, knowledge is generally conceptualised as a social construct that must always be linked to existing values and structures. It is perfectly consistent with the conclusions derived in Landry et al. (2000), who emphasise that the relational capital deficit justifies, among other things, the low level of cognitive capital accumulation by potential users.

Moreover, the results show that there is a strong statistical link between the effort to acquire social research and the level of use of such research by environmental NGOs. The relative weight of the variable 'research acquisition effort' is positive (normalised coefficient > 0.1) and statistically

significant (VIP > 1). This result suggests that the greater the effort to acquire social science research, the more intensive will be the use of such research by environmental NGOs. In essence, this can be explained by the fact that at least partial mastery of the aspects of social science research facilitates its popularisation and increases the chance of its application.

Research adaptation effort is the most influential variable in the model (VIP = 1,281). Indeed, it seems that the availability of research is not necessarily conducive to its use by environmental NGOs. NGOs that are confident that the format of the research findings is consistent with reality are more likely to use it. The term 'format' refers here to a set of perceived qualities that social research findings must verify in order to be adapted to the needs expressed by the environmental NGOs. These qualities include: availability, understanding, relevance, clarity, accessibility and practical usefulness. In this sense, the involvement of NGOs in research projects is a factor that could make the operational and realistic process of producing research more fluid.

The last independent variable, 'perceived barriers to research use', has the expected result (inverse relationship) and is statistically significant (VIP > 1). Thus, it seems that Moroccan environmental NGOs are very sensitive to the constraints that are usually imposed on users during the process of exploiting and implementing research results. For instance, we can refer to the language complexity of research, the difficulty of getting access to research results, the lack of financial and human resources, the resistance of other members of the NGO, and the lack of expertise for translating research into useful services. This result largely corroborates predictions derived from early theoretical works on the determinants of research use (Hemsley-Brown 2004).

## Conclusion

Moroccan environmental NGOs have gradually established themselves as an important catalyst towards transformation of Moroccan society and the consolidation of sustainable development. Improvements in this arena are closely associated with the democratic and ecological changes that Morocco has undergone during the last couple of decades. Over time, and in response to the intensity of climate-related disasters, these organisations have acquired relative credibility and accumulated commendable experience in all areas tied to environmental issues. They often have been very active to the point that today they represent not only a space for denunciation, alertness, supervision and awareness, but also a force for proposals and a real partner in environmentally friendly development.

This associative dynamism was verified through the results of the survey conducted among a sample of environmental NGOs in Morocco. Contrary to common belief, the use of social science research by Moroccan environmental NGOs is quite promising. However, this use does not yet cover all stages of the research use process. If the reception and cognition of social research findings are generally well admitted, the final adoption and influence are still very little guaranteed.

The construction of a PLS model suggests that the use of social science research by Moroccan environmental NGOs is strongly correlated with two individual characteristics of the NGO (the NGO director's employment status and the NGO director's level of education) and four characteristics of the social research itself (relational proximity, research acquisition effort, research adaptation effort and barriers to research use).

On the other hand, we found no statistically reliable relationship between the characteristics of the NGO, in terms of seniority and membership of a research network, and the use of research. Although this last result goes against our initial assumptions and existing theoretical predictions, essentially it can be explained by the very nature of the Moroccan associative reality. This is characterised by a strong personalisation of power, which remains concentrated in the hands of the director of the NGO. In Moroccan associative practices, informal rules seem to override formal rules.

Following the derived empirical results, questions are being asked about the most appropriate strategies that are likely to intensify the exchange flows between the social science research community and civil society organisations involved in the field of environment. The strength of the exchange flows cannot be assessed without deeper thought on the reference frame of both communities. They need to be engaged in a mutual endeavour to know each other better by reducing their respective cultural gaps in order to pave the way for more robust and sustainable collaborations. Researchers must be prepared to live and work with civil society activists who are taking on responsibilities in the various fields related to the environment and who are re-appropriating certain research results for specific situations and problems.

From this perspective, it seems useful to put in place incentive mechanisms that will reduce the barriers hindering the utilisation of research by the environmental NGOs. This could take the form of partnership or collaborative research structures that involve researchers and civil society activists. The outcomes that would result from such a collaboration would provide a real opportunity to experiment with new ways of thinking about relationships between social science researchers and civil society actors

around environmental issues. However, the success of such initiatives would depend on the legal and organisational upgrading of the target NGOs. Rather than setting up thousands of NGOs, it would be better to start by bringing order to those that exist and improving their capacity.

It is equally important to rehabilitate social science research as it is to set up an interface likely to facilitate the popularisation of the results that stem from that research. Without such a structure, some compelling research results may never find their way into environmental practice. Such a structure would also serve as a platform where social scientists and environmental NGOs could get to know each other better, in order to co-operate in the design and implementation of good practices. It would also serve to reduce the time between the production of social research and the delivery of the resulting knowledge to environmental NGOs.

Finally, it should be noted that the results derived from this research should be put into perspective. First, only the quantitative aspect is taken into account. The directors of environmental NGOs expressed themselves only in terms of the amount of research used. We therefore have no guarantee as to the quality of the research disseminated in civil society in relation to the environment. It is even possible to argue that the quality of scientific production is not always taken seriously. This is all the more true since there is no serious body to evaluate social research work in Morocco. Second, it seems that the work made available to environmental NGOs does not necessarily constitute research in the academic sense of the term, but rather consulting reports. In recent years, the consultancy syndrome has invaded the social science research sphere. Third, we recognise that the 'study effect' may potentially produce biases in the empirical estimates. Indeed, it seems that some respondents tend to be overly optimistic about their accomplishments by overestimating the answers given to situational and behavioural questions. This is particularly true as associative activities carried out in the field of the environment in Morocco have become a source of rent-seeking. In search of legitimacy, some politicians prefer to use the associative label to distinguish themselves from political parties and their bad reputation within a less developed transitional democratic system.

## Notes

1. It is commonly accepted that social science research is characterised, among others, by a strong presence of the social variable, the variety of the studied phenomenon, the risk of censorship or self-censorship, the high uncertainty of the results, the strong presence of criticism and the strong interaction between the researcher and their subject.

2. Two major networks of associations are actively involved in the environmental field in Morocco: the Moroccan Alliance for Climate and Sustainable Development, and the Network of Moroccan Associations of the South for the Environment and Sustainable Development.
3. Only 62 Moroccan environmental NGOs were included in the modelling, as 4 of the original 66 NGOs reported never using social science research.

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