THE LAGOS PLAN OF ACTION AND THE DEVELOPMENT OF MINERAL RESOURCES IN AFRICA

By

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INTRODUCTION

The Monrovia Strategy and the Lagos Plan of Action have underlined the following three objectives for the future development of mineral resources in Africa.

(1) Recovery of total and permanent sovereignty over natural resources.

(2) The establishment of mineral-based and related industries.

(3) The need to develop national capacity through development of human resources.

The purpose of these preliminary notes is to examine some of the main issues concerning the realization of these objectives and raise additional questions concerning the development of mineral industries which require proper in-depth examination by African institutions, scholars as well as Governments at the national, sub-regional and regional levels. On the basis of the findings of these future in-depth studies African countries could draw up a practical, comprehensive and realistic strategy for the development of the mineral industries as an integral part of the African economies and for the benefit of the peoples of Africa.

This paper will be devided into three sections: –

I. Mineral Resources in Africa – Their significance to World and African Economies.

II. National Sovereignty over Mineral Resources.

III. Prospects for Mineral-based Industrialization Strategy (MBIS) in Africa.

I. – MINERAL RESOURCES IN AFRICA – THEIR SIGNIFICANCE TO WORLD AND AFRICAN ECONOMIES

1. There is no question that Africa is rich in mineral resources, and many of these have not yet been seriously explored as in the case of the developed countries. These resources account for a big share of world reserves production and exports of many energy minerals, common metals, alloys and precious metals. Mineral industries play an important role in the political and economic and social life of millions of people in Africa. In the following paragraphs statistical data about mineral resources in Africa and their significance to world and African economies will be given.

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* *The views expressed here are solely the author's own. They should not be attributed to the ILO Southern African Team for Employment Promotion (SATEP-Lusaka) with which the author is presently working.*

2. *RESERVES*

In 12 out of 22 principal minerals in the world, Africa is comparatively better endowed than other continents (its share of world reserves is close to or substantially higher than its share in total world population of about 9.9 percent). In another 3 minerals it accounts for 6–7 percent of world reserves. Only in 7 minerals has Africa comparatively low shares. See Table (1). Furthermore, African mineral resources are diversified and cover energy minerals, common minerals, alloy minerals and precious metal. Africa accounts for the following shares in world reserves.

Energy Minerals:	Uranium 27.6 %, petrol 10.5 %, natural gas 9.1 % and coal 79 %.
Common Metals:	Bauxite 33 %, copper 13.3 %, tin 6.5 %, zinc 6.1 % iron ore 3.0 % and lead 3.0 %.
Alloy Metals:	Chronium 97 %, manganese 50 %, and cobalt 42.4 %.
Precious Metals:	Platinum 83.5 %, gold 64.3 %.

3. *PRODUCTION AND CONSUMPTION*

Africa's share in world production is very significant in several minerals: Diamonds 75 %, Cobalt 75 %, Gold 60.9 %, Platinum 44.2 %, Chromium 42 %, Manganese 31 %, Phosphate 27 %, Uranium 18 %, Copper 17.5 %, Bauxite 15.6 %, Asbestos 10.3 %, Petrol 9.8 %, Nickel 8.7 %, Tin 7.3 %, and Iron and Steel 7.2 %.

Relative shares of world consumption of minerals is one of the indicators of the levels of economic development and industrialization of countries, regions and economic groups. Africa consumes an insignificant part of its own production of minerals and accounts for a very small relative share of world consumption. Africa excluding South Africa accounted for between 0.3 % and 1.5 % and an average of 0.9 % of world consumption of 14 major minerals, while its share in world population is 9.9 %.

The major world economic groups account for the following shares of world consumption of 14 major minerals and world population respectively:

Developed Market Economies:	56.66 % and 18. 3 %
Centrally Planned Economies:	32.9 % and 32.5 %
Developing Market Economies:	10.5 % and 49.2 %
The North	27.1 % and 80.4 %
The South	19.6 % and 72.9 %

Within the developed market economies, the major groups account for the following shares of world consumption of 14 major minerals and world population respectively:

U.S.A. and Canada	30.7 % and 5.7 %
Western Europe	18.1 % and 8.7 %
Japan	3.4 % and 2.7 %.

These relative shares of Africa and the different world economic groups in world consumption of minerals and world population could be taken as one of the indicators of their level of development. Africa excluding South Africa comes at the bottom inspite of its comparative advantage in mineral resources endowment.

4. *EXPORT OF MINERALS*

Since Africa consumes a very small part of its mineral resources, almost over 90 % of its production is exported. Major mineral producers in the developed countries consume substantial parts of their production. In consequence Africa's relative position in world mineral exports is substantially more important than its share in world production.

Three-quarters of minerals of Africa are exported to the developed market economies, and about 20 % to the developing market economies, and the remaining insignificant share for the centrally planned economies. Europe, Japan and U.S.A. are the main importers of African minerals.

U.S.A. is a major producer of many minerals, and is a net importer of several others. Europe, and to a much greater extent Japan account for low share of world reserves and production of the main minerals and hence they are more dependent on mineral imports than the U.S.A. All of them, however are very dependent on the imports of many minerals from Africa particularly uranium, cobalt, manganese, chromium, diamonds, phosphates, copper and bauxite.

5. *IMPORTANCE OF MINERAL RESOURCES FOR AFRICAN COUNTRIES*

In many African countries mineral industries play an important role in the political, economic and social life of millions of people. They account for a major share of the GDP and export earnings and play a major role in influencing directly and indirectly the volume of imports, levels of investment, production, employment and incomes in the main sectors of the economy. For example, revenues from mineral resources account for a very large part of Gross National Product (GNP) in more than 21 countries. The ratio of mineral production to GNP is over 50 % in three countries, Namibia, Gabon and Libya, between 30 % and 45 % in five countries, Angola, Liberia, Botswana, Zambia and Algeria, between 15 % and 30 % in eight countries, Congo, Guinea, Mauritania, Nigeria, South Africa, Zaïre, Sierra Leone, Egypt and between 10 % and 15 % in five countries, Swaziland, Togo, Zimbabwe, Niger and Tunisia.

Earnings from the export of minerals play a dominant and sometimes decisive role in the total export earnings of many African countries. They account for more than 90 % in seven countries, Libya, Gabon, Algeria, Zambia, Nigeria, Mauritania, Namibia and Guinea, between 50 % and 70 % in eight countries, Zaïre, Namibia, Niger, Liberia, Congo, Angola, Tunisia and Togo, between 25 % and 45 % in Egypt, Morocco, Zimbabwe and South Africa.

The total population of African countries where mineral revenues account for a substantial share of GPD and export earnings is over 260 million people out of a population of about 400 million for the whole continent. Hence the mineral industry in Africa is the most important activity in the modern sector. As such any future plan of action for the development of national, sub-region and regional economies will have to pay great attention to the problems of the mineral industry.

II. – NATIONAL SOVEREIGNTY OVER MINERAL RESOURCES

6. The Monrovia Strategy has correctly underlined that it is imperative for African countries to recover total and permanent sovereignty over their natural resources.

National sovereignty over natural resources basically means that:

a) The governement gets at least majority shares;
b) The government should be able to control effectively the management of the different phases of production and have the authority and the capacity to take the basic decisions concerning exploration, mine development, production and marketing.

National sovereignty over mineral resources as defined above is a fundamental pre-requisite for the exploitation of mineral resources for the benefit of the overall development of the national economy and the people. This is due to the fact that in many countries mineral industries play a decisive role in the economy. The political, economic and social activities of millions of people in Africa, (in fact the majority of the population of the continent) are closely linked to and influenced by the performance of the mining industries. This explains the legitimacy of the long overdue objective of African countries to recover total and permanent sovereignty over their natural resources including minerals.

The recovery of national sovereignty over mineral resources in Africa and elsewhere has been and still is one of the complicated and sensitive issues in the relationship between the people and governments of the 'host' countries on the one hand and the mining companies and the industrialized countries on the other. By denying the 'host countries' their national sovereignty over their mineral resources, the mining companies are protecting their vital interests. Mining companies obtain high profits from their investments in the development of mines, production, processing, transportation and marketing of mineral resources.

The exploitation of mineral industries in Africa goes back to the third quarter of the 19th century. Two periods could be distinguished concerning the evolution of the forms of ownership and management of the mining industry, the colonial and post-independence one.

COLONIAL PERIOD

7. The rich mineral wealth of Africa, which is briefly examined in section I of this paper, has occupied a prominent place in the plans of the colonial powers for the military conquest, political domination and economic

exploitation of the 'black' continent. The last third of the 19th century witnessed the beginning of more than a century of exploitation of Africa's minerals and resources when the diamond and gold mines of South Africa were discovered. British capital found in them an outlet for investment. Since then these investments have increased and today occupy a prominent place. These were followed later on by the exploitation of the rich resources of Southern Africa's strategic minerals such as uranium, manganese, cobalt, chrome, copper, to name only few of the important ones. The interwar period witnessed the opening of the rich resources of copper and associated minerals in the copper belt in Zambia, Zaïre and Rhodesia, followed by the exploitation of petroleum and natural gas in North Africa and Nigeria, bauxite in Guinea, iron ore in Liberia and Mauritania, uranium in Gabon, Niger, South Africa and Namibia during the 1960s and 1970s. The leading foreign mining companies in Africa are American, British, French, Italian, Belgian and more recently Japanese ones.

As a result of this Africa occupies an important place in world mining industry as an important source of supply of fuels and minerals and as a place where large capital investments are made which generate a high rate of profit. The preservation of these investments and their future expansion and consolidation is a prime concern of the industrialized countries and their foreign mining companies.

During the late 19th century and the first decades of the 20th century, many of the foreign mining companies (as well as those involved in other activities) supported and defended by their respective colonial powers, used brutal force and violence as a primary way of obtaining labour power. They coerced the African people, under the threat of severe sanctions, to build the necessary infrastructure, such as roads, railways, prisons, government offices, bungalows for the colonial administrators and to work in the mines under very severe and inhumane conditions. The 'wages' paid to the 'workers' were far below those paid to the white workers in the colonies and in the metropolitan countries and were just enough to cater for the bare physical existence. Forced labour was used extensively in the diamond and gold mines of South Africa, where African labourers worked deep underground to recover gold and diamonds from deposits which elsewhere would be regarded as non-commercial. The Portuguese had one of the worst records of engaging in forced labour practices for which they were repeatedly condemned by international public opinion. Angolans and Mozambicans were exported to South African mines to work for subsistence, while the capitalists in South Africa paid the Portuguese government a certain sum of money for each labour supplied. Forced labour under extremely low wages was used in the copper mines of Congo, in the tin mines of Nigeria, in the gold mines of Ghana and Tanganyka and in the phosphate mines of North Africa. The economic surplus from all these mining activities was exported by the foreign companies to Europe to finance their industrial development leaving only big holes in most African countries.

THE MINING COMPANIES AND THE CONCESSIONS

8. It was not only by the use of forced labour that the Foreign mining companies extracted superprofits but also through the concession agreements which allowed them to plunder freely the natural resources of African countries.

The concessions for the exploration and exploitation of mineral resources which were made either during the colonial rule in the British, French, Portuguese, Belgian colonies or at the time of their formal independence, have many things in common. They were made between the colonial administration in the respective country and the foreign companies which were in most cases of the same nationality as that of the colonial administration itself. As such there were agreements between two sides whose role and common aim was to exploit to the full the mineral resources of the African colony concerned. The concessions made with the independent African countries in the early 1960s were not very much different from those made during the colonial era. The concessions were characterized by the following: –

a) The area of concessions was enormous. If it did not comprise the whole country, it covered the best and largest part of it.
b) The duration of the concession was exceptionally very long usually more than 50 years and in some cases 75 years.

The concessions gave the full ownership of the mining operation to the foreign companies. It allowed the foreign companies to retain all the profits except the small royalties paid to the 'host' government. These royalties could not compensate for the depletion of the mineral resources of these countries. In many cases these royalties were used to build up the necessary infrastructure of the mining companies, state apparatus and other services essential for the preservation of foreign domination and economic exploitation of the country.

The full ownership of the mining industry gave the foreign companies the right for complete control of the management of the *administrative, financial and technical aspects of the industry.* To secure the continuity of exploitation of the mineral wealth for as long as possible, all the important and effective posts in the administrative, financial and technical departments were given to expatriates usually with the same nationality as that of the mining company, and whose interests and those of the company coincided. *The indigenous staff were completely excluded from any jobs of importance and were essentially employed in manual and semi-skilled jobs. Even in cases where and when they were given senior posts under government and popular pressure, their posts were essentially symbolic and did not permit them to learn the real problems of management, finance and technology.*

By controlling the top administrative posts, the concessionnaires retained the complete freedom in such vital matters as determining the level of production, investment, cost of production, utilization of profits, choice of technology. This meant among other things that the financial aspects such as costs and returns were only known to the mining company, since the 'host' country was completely excluded. As such the company was capable and interested to minimize the royalties paid to the government. The foreign mining company usually overinvoiced the cost of the different factors of production and determined the price of the primary minerals with the aim of showing small profits for the company and small profits meant small revenues to the governement. The success of OPEC in raising the price of oil, showed that the price of oil according to which companies paid royalties to the host government was low and administratively decided by the foreign oil companies and in their favour. It also shows the importance of controlling the management of these mining companies.

POST-INDEPENDENCE PERIOD

9. The early sixties witnessed the achievement of political independence by the majority of African countries, which is a necessary prerequisite for winning economic independence, and regain national sovereignty over natural resources.

During the last two decades few positive and important changes in the ownership and management of the mining industry in Africa have taken place. These changes have been possible thanks to the struggle of the peoples and governments of these countries and the support they got from sub-regional, regional and international organizations for the establishment of a New International Economic Order.

Presently there are several forms governing the relationship between the Mineral Producing Countries and the Mining Companies in Africa. The spectrum of these forms begins with colonial and semi-colonial relationship that gives the mining companies full control over the mining industries and ends with the relationship where the Governments of host countries have full ownership and strong positive role in the management and control of the mining industries.

COLONIAL AND SEMI-COLONIAL RELATIONSHIP

10. Namibia is probably the only country where classical colonial exploitation of mineral resources still exists, where the full ownership and management and control of the mining industries is completely in the hands of South African and other European and American Mining Companies. For example in the case of uranium, which is the most important mineral in Namibia, the principle interests in Rossing Uranium Ltd., the biggest uranium company in the country, are distributed as follows: –

1)	Rio Tinto Zinc RTZ and its Canadian Subsidiary	46.5%
2)	Industrial Corporation of South Africa (IDC)	less than 20 %
3)	General Mining Federal Mynbou Group	less than 20 %
4)	Total (Companie Française de pétrole)	10 %

Although RTZ has the largest share (but not majority share) the control over the voting rights of all shares is in the hands of the Industrial Corporation of South Africa and the General Mining/Federal Mynbou Group which holds (not exactly disclosed) a large number of the higher voting shares.

Other mining activities in Namibia such as diamonds, copper, nickel are controlled by South African, British and American companies.

The colonial nature of the exploitation of Namibia's mineral and other resources, is underlined by the fact that the Gross National Product is two thirds of the Gross Domestic Product, the difference being transferred by South African and other foreign mining companies working in the country. The policy of the mining companies is to keep complete control of the managerial, technical, financial jobs in the hands of non-Namibians. The five thousand qualified manpower are white South Africans, expatriates and settlers while the 20,000 African Namibians are semi-skilled and unskilled.

Zimbabwe is an example of countries where semi-colonial relationships exist in the mining industry. Zimbabwe won its independence just two years ago, and the Government has already started to take the necessary, appropriate and gradual steps to regain its national sovereignty over its mineral resources. One such recent step is the establishment of the public board for the marketing of minerals.

The major mining companies which fully own and control the mining industry are either British or South African; Anglo-American Corporation of South Africa, Lonrho Limited, Rio Tonto, Johannesburg Consolidated Investment Limited, Messine (Transvaal) Development Company Limited and Union Carbide. The managerial, professional, administrative and technical jobs have been reserved for the white expatriates and settlers while the black Zimbabwians occupy only semi-skilled and unskilled jobs in the mining industry. One of the first steps taken by the newly established Ministry of Manpower Planning and Development was to assess the skills of Africans. It was found that many of the semi-skilled workers were actually skilled but they were not allowed to fill skilled posts. The Ministry is presently upgrading these workers to enable them to occupy their rightful positions in the different sectors of the economy.

11. *FOREIGN MINING COMPANIES HAVING MAJORITY SHARES AND EFFECTIVE CONTROL*

This is the second form of relationship. It differs slightly from the first colonial and semi-colonial form essentially with regard to ownership and hence the distribution of economic benefits. This is the case of some of the mining operations in countries like Gabon, Niger and Botswana.

In Gabon for example the main uranium mining company in the country is the «Compagnie des Mines d'Uranium de France-Ville» which was formed on the eve of independence in 1958. In 1976 the shares were distributed between the partners as follows:

Gabon Government	25 %
Compagnie de Uokta (French)	28.125 %
COGEMA (CEA subsidiary)	15.0 %
Minatome (French)	13.125 %
CFMU (French)	7.5 %
Compagnie de Gestions d'Investissements Internationaux (COGEI)	7.5%
Compagnie des Mines de HUNRON	3.75 %

In Niger the Government has minority shares in the two uranium companies, SOMAIR and COMINAK. The principal interests in SOMAIR are as follows: –

The Government Body (ONAREM)	33 %
COGEMA (French Company)	27 %

Other partners in the company are 'Compagnie Française des Minerais d'Uranium' CFMU 11.8%, Minatome (France) 7.6%, Peching Mokta 7.6%, West German Company Urangesellschaft 6.5 % and Agip Nuclear 6.5%.

The other company is Cominak which was created in 1964 with the following partners. ONAREM (31 %), COGEGA (34 %), CURD (Japan) (25 %) and ENUSA (Empresa Nacional del Uramo SA) (10 %). In both Gabon and Niger the foreign companies fully manage and control the mining industries.

12. *GOVERNMENTS WITH MAJORITY SHARES OR FULL OWNERSHIP AND FOREIGN MINING COMPANIES MAINTAIN EFFECTIVE CONTROL OF THE OPERATIONS*

This is the situation in several of the mining activities in Africa. The recovery of majority shares or full ownership by National Governments is a necessary pre-requisite, but not sufficient for gaining more revenues from the mining operations and effectively controlling them. In some countries Governments have nationalized the industries but they have not been able to get substantially better distribution of mineral revenues, because the management has been left to the same foreign companies, who have succeeded in retaining their original benefits. Although the Govern-of Zaïre nationalized the main Belgian Copper Mining Company in the country, Union Minière du Haut Katanga, fifteen years ago the management of the copper industry is fully controlled by foreign companies.

In Mauritania the iron resources were exploited by the French 'Société Anonyme des Mines de Fer de Mauritanie' (MIFERMA) established in 1959. The Government nationalized it in 1974 but up to now the management is in the hands of the French foreign company.

13. *GOVERNMENTS HAVING MAJORITY SHARES OR FULL OWNERSHIP AND SHARING IN THE MANAGEMENT OF THE MINING INDUSTRIES*

Few countries, like Algeria, Lybia, Nigeria and Zambia have managed to attain this relationship with foreign mining companies. Most probably the existence of strong political will to achieve economic independence is the main factor behind this positive relationship. Other reasons could be that these countries are rich oil countries and as such are in a relatively strong financial position vis-à-vis the multinationals, and that oil is an important mineral. Lastly in some of these countries nationals are available to take key decision-making positions.

The examination of these different forms of relationships with the foreign mining companies clearly indicates that in spite of several positive developments over the last two decades no African Government has yet managed to regain total and permanent sovereignty over its mineral resources. The Monrovia Strategy and the Lagos Plan of Action have correctly identified the most important objective in the future plan of action in mineral resources as the regaining of national sovereignty.

14. *PRE-REQUISITES AND PROSPECTS FOR REGAINING NATIONAL SOVEREIGNTY OVER MINERAL RESOURCES*

The two crucial pre-requisites for regaining national sovereignty over mineral resources are: (1) the existence of political will and (2) the development of national capacity.

The existence of political will depends on the outcome of the struggle between the nationalist forces calling for economic independence on the one hand and the foreign mining companies and their domestic political allies. In many African and third world countries the rise to power of nationalist Governments has frequently led to positive changes in the ownership and management of the mining industry favourable to the host countries.

The second pre-requisite is the existence of developed national capacity to run the mining industries. One of the strongest points of the mining companies allowing them to retain their effective control on the industries is that they have deliberately neglected the development of a national, technical and administrative cadre who could run the mining industries. Twenty years after the independence of the majority of African countries, little has been done in many countries to correct this situation.

The African Governments should prepare and implement a comprehensive plan for the development of national capacity. This plan should consist of the following:

a) plan for the training of qualified manpower at all levels in cooperation with other African countries.
b) plan for the programmed localization of key decision-making positions of *management, administration and finance* supported by statutory powers for the National localization committees.
c) the appointment of nationals as counterparts in the technical posts with the purpose of gaining experience on the job.

15. *PROSPECTS*

There are several favourable situations and options which are becoming increasingly available and which can help the African countries in achieving their objective of regaining national sovereignty over mineral resources:

a) the natural advantages of resource endowment; For example the African producers of Uranium, Copper, Cobalt, Chromium, Manganese are in a relatively strong position because of their large share of world exports to negotiate better deals with the mining companies.

b) there might be better prospects in dealing with the smaller mining companies -- the «independents» -- as opposed to the major ones. In order to increase their share in the market or gain access to raw materials such «independents» may be prepared to allow the national Governments to have a more effective role in the management of the industry.

c) presently mineral technology is widely available and could be bought from many sources.

d) technical assistance and expertise could be obtained from other developed countries, developing countries as well as centrally planned economies. The present mining companies in Africa no longer have the monopoly of technology and expertise.

e) even capital finance could be made available from financial institutions from the oil rich countries.

f) the prospects for cooperation between major mineral countries in Africa and Third World countries and the implications of this on regaining national sovereignty could be examined.

16. OWNERSHIP AND REVENUES

The question of ownership is basic to national sovereignty. Ownership of the dominant share, if not all, of the equity in mineral industries should be a fundamental objective of African mineral producing countries. While national ownership in itself may not necessarily provide either increased revenue or greater effective national control, ownership is an important aspect of the process of increasing national capacity.

Attention needs to be focussed on the terms under which national ownership is acquired, particularly where equity interests are purchased from TNCs and on the question of control, both in joint ventures where a TNC may retain significant decision-making power even though holding only a minority of the equity, and even in wholly nationally-owned industries which deal with TNCs for such downstream operations as processing, distribution and marketing.

III. -- PROSPECTS FOR MINERAL-BASED INDUSTRIALIZATION STRATEGY IN AFRICA

Presently most African and Third World countries export their minerals as ores and in few cases as refined metals. These crude minerals are sent to the developed countries where they are processed and used for the different needs of the metallurgical and engineering industries. This division of labour between the countries exporting crude minerals and the developed industrialized countries, denies the former of many benefits and favours the latter countries. The mining industries in Africa are closely integrated with the economies of the industrialized countries and consequently have very weak forward and backward linkages with economies of the mineral producing countries.

The developed industrialized countries provide the mining industries in Africa with the necessary capital goods and technology for exploration, mine development, mineral production, semi-processing of the minerals and other necessary inputs including the personel needs of the mining communities.

Furthermore the crude minerals are sent to the developed industrialized countries where they are processed, semi-fabricated, fabricated and used for producing the necessary components for the manufacturing industries. Hence the mineral industries 'located' in Africa contribute more to the growth of the GDP, the development of manufacturing and technology, employment opportunities, balance of payment in the developed market economies *than* to the economies of the African mineral producing countries.

This becomes very evident when one compares the relation between export prices and consumer prices of selected minerals exported by developing market economies including the African ones. Let us take the example of copper, iron ore and aluminium.

For copper the average export price per metric ton for the period (1967–72) in the Philippines was US$964, the corresponding price for refined copper in Zambia was US $ 1154, while the price of copper wire in France was US $ 1762 at the same period. The price of copper concentrates, (the form in which Zaïre, Uganda and partly Zambia export their copper) is 55 percent of the price of metric ton of copper wire in France and the price of metric ton of refined copper in Zambia is 65 percent of the price of a metric ton of copper wire in France.

For iron ore, the price of a metric ton of metal content exported by the developing countries was 10 percent of the price of merchant bars of iron in West Germany, 8 percent of the price of merchant bars in the U.S.A. and 5 percent the price of heavy plates in the U.S.A.

For aluminium, the export price of metric ton of bauxite in alumina content in the developing countries was 3.5 percent the price of a ton of aluminium rod in the U.S.A. and 4.7 percent, the price of ton of aluminium sheet in France. Even the export price of a metric ton of aluminium (ingot in the developing countries) was 29 percent of the price of a ton of aluminium rod in the U.S.A.

These differences in export prices of the raw minerals from the producing developing countries and the prices of the fabricated metals in the developed market economies show that the different stages of processing and fabrication of minerals account for a major part of the prices of the fine metals. And this major part of the prices is partly due to the low prices of exports of ore and fuel dictated by the consuming countries on the producing countries and partly due to the value added created during the process of transportation, marketing, refining and utlimate fabrication in the developed countries.

To allow the African mineral producing countries to get greater benefits from their mineral wealth, it might be appropriate for them to integrate the mineral industries with the rest of their economies. This could mean that the mineral producing countries *adopt a new mineral-based industrialization strategy to:*

a) manufacture necessary capital and intermediate goods for the mining industries;
b) to process and refine and semi-fabricate the crude minerals.

It is not the purpose of this paper to examine all the aspects of the strategy of industrialization linked to the mineral wealth. The issue is very complicated and *it* needs a proper study at the theoretical and practical level by African governments and scholars before embarking on the implementation of this strategy.

In these brief notes, one would only try to raise some of the important issues which need to be studied in depth.

18. *GENERAL ISSUES FACING THE MINERAL-BASED INDUSTRIALIZATION STRATEGY (MBIS)*

Mineral-based industrialization strategy in African mineral producing countries raises four major issues which need to be examined at the general level and also in relation to the particular country and specific mineral concerned. The four major issues are:

a) economic dependency;
b) economic development and allocation of capital and human resources;
c) industrial capacity and economic feasibility, and
d) implications on the industrialized countries.

19. *a) Economic Dependency*

Presently the economies of major mineral producing countries are heavily dependent on one or two minerals for a big, and in several cases the dominant share of the GDP, total export earnings and Government revenues, which decisively influence the levels of public and private expenditures, investment and hence levels of employment and incomes in the economy.

The earnings of these countries from their mineral exports are determined by the world demand for minerals and their prices. The demand for and the prices of the minerals are closely linked to the business cycle in the Developed Market Economies. The instability in world demand for minerals and the unstable and generally low prices paid for the majority of crude minerals have adversely affected the economies of most of the major mineral-producing countries over the last two decades.

In consequence, the dependency of the mineral producing countries on the export of minerals is being seriously questioned. And these countries are advised to decrease this dependency through diversification of their economies.

The mineral-based industrialization strategy which requires that the mineral producing countries be involved in one or more of the stages of industrialization could probably increase the present undesirable dependency of these countries on minerals and hence increase the vulnerability of their economies.

20. *b) Economic Development and Resources Allocation*

Substantial and in many cases the biggest share of scarce capital resources, economic and social infrastructure, scarce human expertise, and concern and attention of society have been allocated to the mining industries in the major producing countries, while other important sectors of the economy like agriculture, particularly food production, manufacturing industries, and the informal sector have been neglected.

This has led to a lopsided development which is mainly responsible for many of the present economic problems in these countries. Mineral-based industrialization strategy might result in reallocation of present capital and human resources in favour of the mining sector and further lead to inadequate development of the other sectors and more lopsided development of the economy. Hence before embarking on mineral-based industrialization strategy, the question of the optimum sectoral allocation of national industrial resources and its implications on the economic development should be examined carefully.

21. *c) Industrial Capacity and Economic Feasibility*

Even if a mineral-based industrialization strategy does not lead to increased economic dependence on world markets or to lopsided economic development, it could still be not feasible for technical and economic reasons.

Because of the existing weak industrial structures in African countries, they are not technically equiped to implement a mineral-based industrialization strategy. This strategy requires the establishment of a number of engineering, electrical, processing, metallurgical, fabricating industries. Futhermore it requires the technology and technical expertise which is not available in most of the mineral producing countries.

It is true that the technical requirements for the MBIS are not available locally, but this by itself does not at all mean it is not feasible. Complete turnkey factories, technologies and technical expertise could be bought to establish any industry in the most underdeveloped country if money is available. Until recently, some of the present rich oil producing countries were among the most under-developed countries in the world. This however did not stop them from embarking on an industrialization programme based on imported factories, technologies and expertise.

More important constraint to MBIS is that economically this strategy might not be feasible in African countries. The economic feasibility constraint needs to be examined with regard to each of the two stages of the mineral-based industrialization strategy.

Let us consider the first stage, that of industries supplying the mining industries with the following types of inputs: –

a) heavy duty transport, electrical, mechanical and engineering equipments and installations;
b) light duty transport, electrical and engineering equipments and installations;
c) chemicals, fuels timber, cables and building materials;

The size of the domestic, sub-regional and regional markets will be the most important factor for the economic feasibility of such industries. In certain cases where the domestic markets are very small it might not be economically feasible to establish any of these industries. In countries with large markets like Nigeria, Algeria and Egypt it might be feasible to establish some of these industries. In cases where national markets are very limited, the sub-regional and regional markets could be adequate for the establishment of one or more of these industries. The prospects for sub-regional and regional cooperation should be examined carefully to determine the economic feasibility.

For example in Southern and Central Africa there are be good chances for such cooperation: Angola, Botswana, Namibia, Zambia, Zaïre, Zimbabwe are major mineral producing countries. Their total requirements for transport, electrical, mechanical equipment and installation fuels and chemicals could be adequate for the establishment of joint ventures to produce these requirements.

The establishment of these capital goods industries should not be confined to the provision of the mining industry with the necessary equipment. It must necessarily provide all the other economic sectors of the economies on the national, sub-regional and regional levels with their requirements. Hence MBIS could be more realistic and feasible if it is an integral part of a comprehensive development strategy that addresses itself to the basic transformation of the present under-developed national and sub-regional economies. In fact the Lagos Plan of Action has underlined the imperative of cooperation among African countries in the field of mineral resources and industrial development. It declares that:

«Member States are convinced of the fundamental role of intra-African industrial cooperation, in all its various forms, as an instrument for self-reliance and acceleration of industrial development to achieve the 2 percent Lima target for Africa, taking into account, in particular, the discouraging attitude of developed countries, and of the present low progress in the intra-African cooperation. Member States have therefore decided to give concrete expression to their will to cooperate by adopting the following measures:

a) preparation of sub-regional and regional plans for the creation of major industrial complexes whose cost and production capacity would exceed national financial and absorptive capacities;

b) giving high priority to the establishment of multinational industries in Africa, especially in such basic areas as metallurgy, foundry, chemicals, etc., with high investment costs, expand bilateral industrial cooperation among Member States through such means as joint ventures;

c) strengthening of existing institutions such as:

i) the African Regional Centre for Technology;

ii) the African Regional Centre for Engineering Design and Manufacturing;

iii) the African Industrial Development Fund.»

PROCESSING OF MINERALS

As already mentioned, it is argued in developing mineral producing countries that by establishing processing industries at home they can capture important benefits since there is a big difference between the price of the raw mineral and that of the refined metal. (See Section III – 17). Most African countries export only crude minerals. There are very few processing industries. The refined petrol accounts for a small share of the total production of crude petroleum in Africa. There are few oil refineries in Africa and they supply only part of the domestic demand for refined oil. Liberia and Mauritania export their iron ore in its crude form. Steel industries are established only in South Africa, Zimbabwe, Nigeria, Algeria and Egypt. Zambia exports refined copper and Zaïre exports blister copper; the other remaining African countries export unrefined copper.

The question of processing of minerals needs to be looked at in detail in the light of specific circumstances in different industries and different countries. A few points could be mentioned here and which need thorough examination.

a) the optimum scale of processing to satisy each of the domestic, sub-regional, African regional and international markets.

b) the social cost-benefit analysis of the different scales for the different cases.

c) assessment of the role of size of the processing operation on:

- national resource allocation
- employment creation (direct and indirect)
- technology diffusion and development of local technological capabilities
- skill formation and training
- development and use of infrastructure.

d) Implications on the Industrialized Countries

Any mineral-based industrialization strategy in Africa will have certain implications on the foreign mining companies and the industrialized countries. These implications concern the whole range of presently existing Engineering, Mechanical, Electrical, Chemical and Metallurgic Industries which account for a significant share of the industrial sector employing millions of people. Mineral-based industrialization strategy in Africa might lead to big losses and serious adverse consequences to the economies of the developed countries and the interests of the foreign mining companies.

The developed countries and the foreign mining companies would obviously not accept relocation strategy that will harm their interests, and will take the necessary measures to defend their present position in the international division of labour. Any industrialization strategy should examine carefully the possible reactions of the developed countries and TNCs in mining.

RESUME

Dans cet article l'auteur examine les principaux problèmes liés à la réalisation des objectifs du Plan d'Action de Lagos (PAL) en matière de développement des ressources minières en Afrique et soulève d'autres questions qui selon lui, appellent un examen plus approfondi de la part des Institutions africaines, des intellectuels et des gouvernements aux niveaux national, sous régional et régional. Après avoir montré que l'industrie minière est en Afrique l'activité la plus importante dans le secteur moderne et qu'en tant que telle, elle devra nécessairement figurer dans tout plan d'action futur pour le développement économique de ce continent, l'auteur aborde dans la deuxième partie de son article le problème de la souveraineté nationale sur les ressources minières. Il y étudie l'évolution des différentes formes d'appropriation et de gestion des industries minières et pose quelques conditions qui, si elles étaient remplies, pourraient aider à la récupération de la souveraineté nationale sur les ressources minières. Ces conditions sont essentiellement au nombre de deux : 1) L'existence d'une volonté politique et 2) Le développement des capacités nationales. Dans la troisième partie qui est consacrée aux perspectives d'une stratégie d'industrialisation de l'Afrique basée sur les ressources minières, l'auteur note d'abord que les industries minières installées en Afrique contribuent beaucoup plus au développement des économies des pays développés qu'à celui des pays africains producteurs de ces minerais. Pour que ces pays africains puissent tirer le maximum de profits de leur richesse minière, ils devront intégrer les industries minières dans la stratégie globale de développement économique. Ils devront aussi accorder une attention particulière aux problèmes suivants:

- *la dépendance économique*
- *le développement économique et la répartition du capital et des ressources humaines*
- *la capacité industrielle et la faisabilité économique ainsi que leurs implications dans les pays industrialisés.*