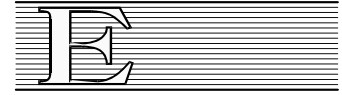




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***MANAGEMENT OF LAND-BASED RESOURCES FOR  
SUSTAINABLE DEVELOPMENT: POLICY  
RECOMMENDATIONS***



## **Introduction**

1. The development strategy of most African countries, since independence, has depended mainly upon the exploitation of their natural resources. These include agriculture, minerals, energy, water and other biological resources. Unfortunately, the strategy did not bring about the expected results but created environmental degradation and increased poverty (World Bank, 2003).

2. After almost four decades of development efforts, Africa is still faced with serious development challenges including rampant poverty, hunger, environmental degradation, and HIV/AIDS pandemic. In fact despite its natural resources endowment, Africa is the only continent where per capita food production and the number of poor is expected to continue to rise over the next decade.

3. The World Summit on Sustainable Development (WSSD) noted that the efforts to achieve sustainable development have been hindered by “conflicts, insufficient investment, limited market access opportunities and supply side constraints, unsustainable debt burdens, historically declining levels of official development assistance and the impact of HIV/AIDS.” (United Nations, 2003 p.36). The situation was exacerbated by the lack of land and land resources use planning couple with overall inappropriate socio-economic policies.

4. Land has many functions that need to be taken into account in development planning to insure efficient allocation if this crucial resource is to provide the greatest sustainable benefits to local and national living standards.

5. This report discusses issues related to land use planning, and the role of land policies in sustainable development. It then, briefly presents some policy recommendations drawn from sectoral case studies on mining, water, energy and land reform, that African countries can pursue to ensure a sustainable use of their land and land resources.

## **Land and planning of land resources use**

6. Concern about the environment, at the global and regional levels, has been highlighted by the continuing rapid growth of the world's human population, the increasing socio-economic interdependence of countries and regions, the growing awareness of the value of natural ecosystems, and the perception that current land use practices may influence the global climatic system (A. Young, 1998). The proper management of land, its water, forests, minerals, pastures, and wildlife is crucial for sustainable development. However, the awareness by African governments of this crucial role of land resources seems to remain poor and institutions dealing with the management of these resources are weak. In fact, Africa is often described as a rich continent inhabited by poor people.

## **Land use planning and management: concepts and definitions**

7. Land resources planning is the process of evaluation of options and subsequent decision-making, which precedes implementation of a development plan.

8. Land resources *management*, in a broader sense, is the implementation of land use planning, as agreed between and with the direct participation of, stakeholders. It is achieved through, among others, political decisions; legal, administrative and institutional execution; demarcation; inspection and control of adherence to the decisions settling of water rights; issuing of concessions for plant and animal extraction (timber, fuel wood, charcoal and peat, non-wood products, hunting); promotion of the role of women and other disadvantaged groups in agriculture and rural development in the area, and the safeguarding of traditional rights of early indigenous peoples.

Physical land planning is the designing of the optimal physical infrastructure of an administrative land unit, such as transport facilities - roads, railways, airports, harbors; industrial plants and storage of produce; mining and power generation, and facilities for towns and other human settlements.

9. Physical planning is normally carried out by the state, or by local government organizations for the general good of the community. The purpose is to take a more nearly holistic view of the development of an area than would be taken by individuals. Physical planning has two main functions: to develop a rational infrastructure, and to restrain the excesses of individuals in the interests of the community as a whole. Land use planning should be a decision-making process that "facilitates the allocation of land to the uses that provide the greatest sustainable benefits" (Agenda 21, paragraph 10.5).

### **Functions of land and conflicts between land uses**

10. In addition to its main function for agricultural and forestry production, land has many other purposes, including the following:

- It is the basis for many life support systems, through the production of biomass that provides food, fodder, fiber, fuel, timber and other biotic materials for human use, either directly or through animal husbandry including aquaculture and inland and coastal fishery (the *production function*);
- Land is the basis of terrestrial biodiversity by providing the biological habitats and gene reserves for plants, animals and micro-organisms, above and below ground (the *biotic environmental function*);
- Land and its use are a source and sink of greenhouse gases and form a co-determinant of the global energy balance - reflection, absorption and transformation of radioactive energy of the sun, and of the global hydrological cycle (the *climate regulative function*);
- Land regulates the storage and flow of surface and groundwater resources, and influences their quality (the *hydrologic function*);
- Land is a storehouse of raw materials and minerals for human use (the *storage function*);
- Land has a receptive, filtering, buffering and transforming function of hazardous compounds (the *waste and pollution control function*);

- Land provides the physical basis for human settlements, industrial plants and social activities such as sports and recreation (the *living space function*);
- Land is a medium to store and protect the evidence of the cultural history of mankind, and a source of information on past climatic conditions and past land uses (the *archive or heritage function*); and
- Land provides space for the transport of people, inputs and produce, and for the movement of plants and animals between discrete areas of natural ecosystems (the *connective space function*). (FAO, 1995).

11. The suitability of the land for these functions varies greatly. Landscape units, as natural resources units, have dynamism of their own, but human influences affect this dynamism to a great extent, in space and time. The qualities of the land for one or more functions may be improved, but more often than not, the land has been degraded by human actions. The rate of land degradation may continue unabated or even increase under conditions of any human-induced global climatic changes, but this cannot be automatically assumed. Land degradation can be controlled, redressed or even reversed if the land is used wisely, if all the functions of the land are taken into account, and if long-term enlightened interests of all segments of the population replace short-term vested interests of privileged groups globally, nationally and locally.

### **An integrated approach to land resources planning**

12. This refers to participatory and comprehensive cooperation between all institutions and groups at national, provincial and local levels - all partners and stakeholders - that relate to and deal with land resources planning and the management of such planning.

13. Agenda 21 calls for mechanisms aiming to promote a constructive and productive dialogue between the full range of stakeholders. These include ministries, provincial and municipal government departments and their policy development entities, research and resources data base development institutes such as a topographic service or statistics institutes, parastatal organizations in the executive sphere such as national irrigation boards or town water and energy supply companies, and public-interest organizations (NGOs) at both national and local level, such as nature conservation societies, farmers associations and community groups. Increasingly, there is also a call for the establishment of a strong public-private partnership to undertake public projects and objectives in a manner that tasks, responsibilities and risks are optimally allocated among the partners.

14. This implies the need to create an enabling environment in the legislative and administrative sphere, leading to *negotiation platforms for decision making* at all relevant levels, to solve conflicting demands on the use of the land, or components of it, such as mineral resources. These platforms should both be horizontal between ministries, provincial or municipal governing bodies, and vertical between governing bodies and local, actual or potential users of the land resources, all together linking in both top-down and bottom-up directions.

15. It should be realized that for it to be successful, such integrative platforms, , require much time, patience and goodwill. Only with these attributes will they overcome bureaucracy and the historical barriers that have been erected between sectoral institutions that may be blinkered by tunnel vision. A fully integrated approach may be worth the effort only if the conflicting demands on the land concerned are seemingly intractable. If the optimal and sustainable land use is readily apparent, for instance forest conservation in upper river catchments, established national parks or indigenous reserves, then much time need not be spent on ensuring full integration of all interested parties.

16. Land use management hinges on three elements: the stakeholders, the quality or limitations of each component of the land unit, and the viable land use options in the area. In a more technical sense, the factors of planning are the amount of land available and its tenure; the quality, potential productivity and suitability of the land; the level of technology used to exploit the land resources, the population density, and the needs and standards of living of the people. Each of these factors interacts with the others.

### **Land tenure and sustainable use of land resources**

17. In the real world there are many actual or potential conflicts with respect to land. Clarification and security of land rights are essential for the success of an integrated approach to the planning and management of land resources. Settling these rights reduces conflicts between stakeholders; increases the confidence required for sustainable land use practices; determines the respective responsibilities, and provides the basis for a fair and environmentally-sound allocation of incentives, subsidies or taxes.

18. Inappropriate land policies constitute a serious constraint on economic and social development. On the one hand, insecure land tenure and dysfunctional land institutions discourage private investment and overall economic growth. On the other hand, skewed land ownership distribution and discrimination according to gender or ethnicity limit economic opportunities for disadvantaged groups and provide fertile conditions for social conflict - which often erupt in violence.

19. The vast majority of the land area in Africa is operated under customary tenure systems that, until very recently, were not even recognized by the state and therefore remained outside the realm of the law. To incorporate more land under formal tenure and thus within the rule of law, many African countries have given legal recognition to customary tenure as well as to the institutions administering it (World Bank, 2003). However, implementing these laws remains a major challenge. Most African governments, however, recognize that secure land rights and access are critical for peace, stability, economic growth and sustainable resource use.

20. Many of the challenges arising from land reform in Africa stem from the plurality of systems of authority related to land (customary land tenure versus modern land laws). A number of African countries face particular challenges to tenure reform given past seizure and settlement of the best land during the colonial period.

21. In the past, land reforms were initiated in order to comply with conditions associated with structural adjustment or as a result of donor-led packages for wider reforms. The present generation of land policy reforms follows a general failure of earlier approaches to land reform, in which free market models, emphasizing the conversion of customary tenure to individualized freehold rights, or alternatively, egalitarian socialist models were dominant. Research studies by ECA (2004 b) indicate that some current land reforms have moved away from the 'free market models' and now recognize that customary tenure can often provide tenure security.

22. Women's land rights are particularly vulnerable, and in addition to equitable policies and laws, practical measures to promote gender inclusion at all levels are needed. The rising incidence of HIV/AIDS makes women even more vulnerable to dispossession. The impacts of these intertwined challenges, on the security of women's access to land are becoming more severe in the context of increasing demand for land and tensions stemming from competition for this valuable resource.

23. A significant number of studies and research work have demonstrated that land tenure has strong linkages to development goals such as poverty reduction and economic growth; increasing agricultural productivity; promoting private sector investments especially through private ownership of assets such as land; attracting direct foreign investment; ensuring environmental sustainability; achieving social security and promoting gender equity with regards to access to land; reconciling conflicting claims to land; and strengthening institutional development.

24. Despite being central to peaceful development, economic growth and sustainable resource use, land issues have often not received the attention they deserve in most African countries development strategies. Governments have been reluctant to implement full-fledged land reform and land tenure reform programmes mostly because of the perceived political risks.

25. African countries need to adopt innovative land tenure policies that can strike a satisfactory balance between the needs to provide safeguards for traditional smallholders and for African commercial agriculture, as well as to promote increased legal access by women, young farmers, and other vulnerable groups to agricultural land and other natural resources.

26. Within the framework of the New Partnership for Africa's Development (NEPAD) there is a critical need to address long-term enabling factors for the effective implementation of land reforms and land management issues. Among the list of actions required to achieve success in agricultural development under NEPAD, the Comprehensive Africa Agricultural Development (CAADP) document cites *improving the security of land tenure for traditional and modern farming by introducing appropriate land reform*<sup>1</sup>.

### **Institutional aspects of land use planning**

27. It would clearly be a waste of time and effort to create systems and programmes if they cannot be efficiently implemented. Applying a mixture of a systems approach, and experience in

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<sup>1</sup> CAADP document, Annex 3, page 85.

many countries over a long period, the following institutional components appear to be necessary at the three most common levels of land use planning (FAO, 1995).

(i) National level:

Through national resource planning committee, natural resources conservation boards or commissions; ministries and departments whose basic functions are to provide information, recommend, and implement.

(ii) Regional or district level: Through provincial or district land use planning or development groups whose basic functions are to identify priorities, allocate resources, make or approve sub-national plans, monitor implementation, and make bye-laws to

(iii) Village or community level: Through special interest groups which exist or can form at grass roots community level for different purposes, priorities and objectives.

### **Sustainability indicators**

28. All land use planning should result in local land uses that are sustainable. The systematic assessment of sustainability of current or planned land uses is in its infancy. Many groups of researchers are trying to define *sustainability indicators* and devise methods to monitor them in field conditions. ECA is currently working on the elaboration of a set of indicators to monitor progress made in all areas of sustainable development in Africa.

29. According to an FAO study (FAO, 1995), sustainability indicators can be of many kinds: physio-biotic or socio-economic. Depending on the type of land use or non-use, and analogous to the listing of land qualities, physio-biotic indicators can be mainly land cover related (constancy of the natural vegetation structure or of its biodiversity), land surface related (absence of wind or water erosion, constancy of runoff), soil quality related (absence of human-induced salinization, acidification, compaction or loss of soil biologic activity) and substratum related (absence of human-induced waterlogging or pollution, constancy of depth and quality of groundwater).

30. Among the socio-economic sustainability indicators one can use are rural-urban migrations, rural labor opportunities for all of working age; constancy or increase in primary school attendance; maintenance of food sufficiency and well-balanced diets; stable herd structures in grazing areas; the absence or decrease of unhealthy conditions within rural population groups; harmonious relations between different land users; or simply the constancy or increase of *per caput* from the land as recorded in agricultural statistics per village, district, province or country (though this may mask unsustainability in parts of the area concerned).

31. ECA, over the last decade, has embarked on a series of sectoral studies that have led to the development of analytical frameworks and tools, to assist its member States to formulate vision, policies, and strategies to implement development programmes that are economically sound, socially acceptable and environmentally friendly. In addition to the Population, Environment, Development and Agriculture model (PEDA), an analytical tool to simulate the impact of various demographic, economic, and social policies on the state of food security in a given country, that was developed in early 2000 and presented to previous meetings of the CSD,

substantive work has been carried out recently in the area of mining, water, energy and land tenure. The objectives of these studies are to assess on-going policies and make recommendations on actions to be taken by African countries in order to better manage their land and land resources, and achieve a broad-based economic and social development. The findings and recommendations arising from the various studies are briefly examined in the next section.

### Assessment of current land reform policies.

32. Recent land reforms in Africa demonstrate that many African governments realize the importance of providing access to land and security of tenure. The general consensus surrounding these initiatives is that individual and collective land rights can foster sustainable land management practices and higher agricultural productivity. Therefore, the newer regimes of land reforms in Africa recognize land ownership both under customary and statutory tenure systems. To bring about land policy change, some African countries are engaged in land regulation and administration reforms, mainly in the context of broader reforms emanating from recent democratization and decentralization (Table 1).

**Table 1 Addressing land-related challenges through policy and institutional reforms**

Land-related challenge	Example of policy response
Security of tenure	<ul style="list-style-type: none"> <li>• Côte d'Ivoire's rural land plan seeks to identify and map all existing rights in order to give them legal status (Delville 1999).</li> <li>• Cameroon's 1974 land ordinance rescinded legal recognition of customary and communal tenure rights and imposed land titling as the only means of acquiring private ownership (Hobbs 1996).</li> <li>• Uganda's 1995 constitution transfers title from the state straight to landholders.</li> </ul>
Conflict management	<ul style="list-style-type: none"> <li>• Niger's 1986 rural code seeks to resolve land tenure conflicts (Lund 1993).</li> </ul>
Decentralization of land administration	<ul style="list-style-type: none"> <li>• Land boards were established in Botswana (now also in Namibia and Uganda), rural councils in Senegal, land commissions in Niger, community trusts and communal property associations in South Africa and land committees in rural Lesotho.</li> <li>• Public participation in decision making through local institutions was improved.</li> <li>• Lesotho's 1998 land regulations require land committees to revoke an allocation in the event that the recipient refuses to adopt soil conservation measures.</li> </ul>

Land-related challenge	Example of policy response
Sustainable management of natural resources	<ul style="list-style-type: none"> <li>• Mozambique’s National Policy on Land of 1995 seeks to enforce ecologically sustainable use of natural resources.</li> <li>• The White Paper on Land Reform in South Africa shows that sustainability of production and the environment are key elements of the land reform process.</li> <li>• Land consolidation in Kenya helps in curbing land fragmentation and restoring production efficiency.</li> <li>• Maximum farm size regulations were introduced in Zimbabwe.</li> </ul>
Land use development and agricultural productivity	<ul style="list-style-type: none"> <li>• There are proposals for land taxation in Namibia’s land policy</li> <li>• The Swynnerton Plan of Kenya supported African agriculture through agricultural research programmes, credit schemes, transfer of new technology and introduction of high value crops and a new set of institutions.</li> <li>• Ethiopia’s agricultural development–led industrialization seeks to increase the productivity of smallholder farmers by dispersing fertilizers and improved seeds, establishing credit schemes and providing support services.</li> </ul>
Equitable redistribution to reduce landlessness	<ul style="list-style-type: none"> <li>• Redistributive land reform policies seek to give more land to landless blacks in Malawi, Namibia, South Africa and Zimbabwe.</li> <li>• Mozambique’s 1998 land law recognizes the right to land through occupation on the part of rural families, based on oral testimony.</li> </ul>
Development of land information system	<ul style="list-style-type: none"> <li>• Kenya’s tenure reforms sought to establish a well maintained registry that could be used to monitor land transfers and distribution and provide the basis for introducing property taxes.</li> </ul>

Source: UNECA 2004 b.

### The way forward

33. Recent food security crises in Africa have revived the debate on whether current land tenure systems constrain farmer innovation and investment in agriculture. Both direct and indirect linkages between land tenure and food security are suggested. Recognizing the importance of a better understanding of these linkages, the Economic Commission for Africa

(ECA) undertook a study on *Land Tenure Systems and their Impacts on Food Security and Sustainable Development in Africa*, with the following objectives:

- a) To improve the current understanding of the linkages between land tenure systems, food security and sustainable natural resource management in Africa;
- b) To assess the current land tenure policy reforms in selected African countries using case studies and emphasizing the extent to which these reforms aim to enhance food security and natural resource management and identifying major constraints;
- c) To draw lessons based on best practices as well as failures of ongoing and past policies and their implementation; and
- d) To make policy recommendations to assist States in addressing issues of land reform implementation and hence improve their food security situation and the stewardship of natural resources.

34. ECA is now working in collaboration with the African Union (AU), African Development Bank, NEPAD Secretariat, and relevant UN agencies to address the land agenda in Africa. This Africa-led consortium will define a framework for developing appropriate land policies and practical approaches based on existing experiences in land issues and taking into account on-going processes, experiences and initiatives in Africa. The ultimate goal of this work is to broaden perspectives on land issues and help African countries to design and implement land reforms that take into account the specificities of their social, economic, political, and cultural contexts.

### **Water resource management in Africa**

35. As a land-based resource, water is crucial for African development. The freshwater situation in Africa, however, is not encouraging. Of the almost 800 million who live on the African continent, more than 300 million live in water-scarce environment. The importance of water for socio-economic development is well recognized globally, but with increasing population, industrialization and the demand for water, scarcity is looming in many countries of the world. Lack of water hampers development through constraining food production, health and industrial development.

36. Using the simplified model of society's response to water scarcity as a guide, the key issues in Africa are investing in the development of Africa's potential water resources, reducing drastically the number of people without access to safe water and adequate sanitation, ensuring food security by expanding irrigation areas and protecting the gains of economic development by effectively managing droughts, floods and desertification (ECA, 2004).

### **Societal responses to water scarcity**

37. In a very simplified sense, a society that is subjected to water scarcity responds in three progressive steps: it stores water (dam-building); conserves water and, in the most advanced phase, it may begin to realize that it must do different things with the water it has in order to get

more value out of every drop. This last phase is exemplified by urbanization in which industries and cities which produce much more value per water drop, than agriculture, become the predominant users of the scarce water and provides greater proportion of the means of livelihood.

38. Societies and nations in arid areas have developed appropriate skills for sustainable water resources management. These include measures to avoid waste of water, the adoption of technologies appropriate to the prevailing conditions, making efficient use of water for agriculture and other productive activities, and the development of institutional and regulatory conditions that largely influence the behavior of rural and urban societies. These adaptations to live with limited water availability also include measures and practices to cope with extreme scarcity conditions when drought aggravate the limited water supplies. The situation in most societies, therefore, correspond to a strong blend of cultural heritage with modern management, engineering, social and institutional practices to respond to the challenges of development.

### **Integrated Water Resources Management (IWRM)**

39. Part of the objectives of integrated water resources management is to resolve all the various issues of imbalances between availability and demand, degradation of surface and groundwater quality, inter-sectoral allocations, inter-regional and international allocations, conflicts, etc. Dealing with water scarcity situations resulting from aridity usually requires the establishment of engineering and management measures that lead to the conservation and perhaps the seasonal augmentation of the available resources. On the other hand, droughts require the development and implementation of preparedness and emergency measures).

40. Desertification and freshwater shortage are associated with problems such as soil erosion, land degradation mainly through salinization, over-exploitation of soil and water resources, and water quality degradation. Thus, there is need for policies and measures to be oriented to solving the existing problems and to prevent new occurrences of these problems.

41. IWRM recognizes that coping with water scarcity requires that measures and policies of water management should be in line with the concept of sustainable development. It is, therefore, not just a question of implementing new technologies and management approaches for allocating and controlling water and land uses, but also of considering the driving forces governing the pressures on the resources themselves, the behavior of the users, and the diverse human and social objectives.

42. The major achievement in the water resources field stems from the formulation of the African Water Vision 2025 by all stakeholders under the leadership of ECA, ADB and the AU. This Vision was developed as part of the preparatory processes to the World Water Forum and has served as the Framework for all activities by the major stakeholders in the water sector.

## **Mainstreaming Mineral Resources Exploitation in Africa**

### **Mining and other land uses**

43. No single industry has precipitated more disputes over land use than mining (Gavin Higon 2002). Intensive mining activity can cause severe community disruption, hinder the development of other potentially profitable industries and cause major environmental complications, which can render land unsuitable for a number of other important industrial applications. Disputes over land often occur between mine management and community groups who might have vital interests on how land is used and who makes decisions regarding it. (MMSD, 2002).

44. Decision-making on land use requires prior informed consent, negotiations and consultation between all stakeholders. In this respect, decision-making processes must be open to a refusal to mine in circumstances where cultural, environmental or other factors override access to minerals or where mining would bring unacceptable loss in the view of those it is being imposed upon (MMSD, 2002).

45. The schools of thought on mining are divided between those who argue that mineral resources are a curse and those who consider them an endowment that can promote growth and development in developing countries.

46. There is a prevailing view that mining in developing countries is a capital-intensive enclave industry, foreign-owned, operated largely by expatriates and using inputs (especially equipment) purchased abroad. Many scholars have argued that the richer the mineral resources endowment, the greater the likelihood of decelerating economic growth and that the track record of oil and mineral rich States in alleviating poverty is worse than States with similar levels of income, but little or no oil and mineral wealth.

47. But, other scholars counter that the reported negative outcomes of mineral economies are case-specific; that minerals are not to blame for problems of corruption and rent-seeking, and that economic performance is mixed, heterogeneous and, therefore, should not be generalized. Some contend that, for example, among African mineral economies there are fast growing and well-performing economies like Botswana, and that others, like South Africa, developed on the strength of their mining industry.

### Complex challenges and difficult policy responses.

48. Mineral resources have attributes that make them difficult to manage and pose daunting public policy challenges. One of the major challenges of sustainable development in the context of non-renewable resources (such as minerals) is how to use the wealth they generate to promote growth and development and sustain it long after the minerals have been depleted. This is a challenge relevant to most African mineral-producing countries and it is linked to: Creating a viable integrated and diversified mining industry (**the creation challenge**); Investing transitory mineral revenues to ensure lasting wealth, deciding how much ought to be saved, how much should be invested and in what area (**the investment challenge**); distributing benefits from mining equitably (**the distributional challenge**); and ensuring sound systems of governance and a stable macroeconomic policy (**the governance and macro-economic challenges**).

49. Auty<sup>2</sup> suggests that the policy responses to the challenges a given mineral economy faces need to take into consideration the local context and stage of development of the economy in the minerals-driven cycle, that is, whether the economy is at a nascent, youthful, early mature or late mature stage of the cycle (Table 2).

**Table 2: Policy responses in a minerals-driven cycle**

Stage	Character	Macro effects	Policy response
Nascent	Mineral investment flow	Exchange rate pressure	Create rent tax Build capital fund Establish revenue stabilization fund Grant central bank independence
Youthful	Rapid mineral expansion	Exchange rate Appreciation Dutch disease effects	Sterilize windfall rent Expand domestic absorptive capacity
Early-Mature	Slowdown of Output mineral	Growing tax and Foreign exchange constraints	Substitute new tax Sources Encourage Domestic saving Promote sectoral diversification
Late-Mature	Decline in mineral output	Persisting tax and Foreign exchange Shortages Rising unemployment	Depreciate real Exchange rate Boost skills acquisition

Source: Macroeconomic policy for mineral economies, Richard Auty

### African strategies for minerals development

50. In the 60's and 70's, many African countries adopted policies with a view to making the mining sector the engine for growth and rapid industrialization. However, the lack of managerial and technical expertise, inability to access finance, and depression of mineral prices, among

<sup>2</sup> (<http://www.natural-resources.org/minerals/CD/docs/unctad/auty2.doc>, accessed on 5 September 2005)

others, contributed to the stagnation and even decline of the nationalized mining industry (ECA, 2004 a). By late 80's, much of the African mining industry was in a state of crisis and under-performance. To reverse the trend, many African countries embarked on a radical reform process to attract foreign direct investment to rehabilitate their moribund minerals and mining sector. This resulted in a mining boom, increased foreign direct investments and associated influx of mining capital, technology and skills.

51. However, as noted by Pedro (2005), by late 90s, the boom and the ensuing rise in export earnings in several mineral economies in Africa were producing questionable development outcomes. He argues that most reforms were narrow-minded, sectoral-centred and geared towards attracting foreign investment and export promotion rather than fostering local development.

### **The emerging dispensation**

52. There is now a shift from the traditional focus on benefit allocation between mining investors and the host country to increasing attention on the benefits derived by the communities where mining operations take place. The benefits to the local community may come in various forms including property rates and land rents; benefits which are the community's share of central government revenues from mining, and non-income benefits such as employment for local residents; assistance to community health and educational institutions; and access to the use of mine infrastructure by the general public, etc (Pedro, A, opt. cit)

53. In order to assist African countries in addressing some of the challenges that mining faces, ECA has developed conceptual frameworks, formulated policies and designed strategies and practical tools to better understand the link between mining and development, and identify entry points to mainstream mining into growth and poverty reduction. This has led to the development of an integrated approach to mineral resources development centering on its inclusion on poverty reduction strategies, vertical and horizontal integration, and better governance and management of mineral wealth (ECA, 2004).

54. However, more needs to be done to achieve change (Pedro, A, opt.cit). Policies, revenue-improving tools, legal and regulatory frameworks to facilitate equitable participation by local businessmen, communities and other stakeholders in mining activities need to be refined.

55. Transparency and efficiency in the management of revenue paid to various governmental authorities have become an important part of the mineral policy agenda. Mechanisms for enhancing these are still in the early stages of implementation, but have significant potential for improving the public benefit in many resource rich African countries. They need to be coupled with efforts to strengthen institutional capacities and competencies at government and other levels for efficient long-term planning, prudent management and smart spending, saving and investment of mineral wealth.

## **Harnessing energy resources for sustainable development in Africa**

### **Considerations on energy resources development in Africa**

56. Although Africa is endowed with fairly abundant energy resources in the form of fossil fuels (oil, gas and coal), hydropower, uranium, biomass and other renewable energy sources (solar, wind, geothermal power, etc.), the continent is still lagging behind other regions of the world in terms of commercial energy consumption. With slightly more than 13% of the world's population, Africa accounts for about 3% of the world's total commercial energy consumption. This is due to the fact that Africa's energy resources have remained largely underdeveloped and unable to generate electric power and other commercial energy supplies needed for ensuring economic growth and sustainable development. Structural problems have also impaired Africa's capacity to use its energy resources.

57. Currently, only seven percent of Africa's hydropower potential is being used, while the large amounts of natural gas associated with oil production are being wasted through flaring and venting, especially in sub-Saharan Africa, in general, and, Nigeria in particular. This is due to the fact that inadequate energy infrastructure, (such as power transmission lines and gas pipelines), does not allow for the development and transfer of excess production of electricity or gas produced to deficit areas through cross-border energy trade. In this regard, it is worth mentioning the Mozambique-South Africa gas pipeline, which has been operational since last year and allows South Africa to tap into Mozambican natural gas reserves. Similarly, the West African Gas Pipeline project will facilitate the transportation of Nigerian gas to Ghana via Benin and Togo; and the Grand Inga hydropower power project, which could ultimately supply electricity to all sub-regional power pools.

58. Another striking feature of the African energy sector is that the development of oil/petroleum resources is geared towards external markets. It is estimated that Africa accounts for about 7% of the world's commercial energy production, but only 3% of the world's commercial energy consumption. This means that Africa is a net energy exporter. However, most of sub-Saharan African countries, including some petroleum producing countries, are importing refined petroleum products due to lack of refining capability to process their crude oil (e.g. Equatorial Guinea, Chad) or inadequate technical performance of existing refineries to produce the required petroleum for domestic market use (e.g. Nigeria).

### **The problem of access to modern energy services and energy poverty in Africa**

59. Africa also lags behind other regions of the world in f access to modern energy services. The rate of access to electricity<sup>3</sup> varies widely from country to country, with striking discrepancies between rural and urban areas. For example, while in Northern Africa an estimate 90% of people had access to electricity in 2002, in sub-Saharan Africa, this number ranges from 4% to about 70%<sup>3</sup> depending on the country. Also electricity access in rural areas of many sub-Saharan African countries can be as low as 1%, while the average is about 8%.

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<sup>3</sup> A person has access to electricity, if he/she lives in the vicinity of an electrified zone, where electric lighting is available

60. While it is recognized that over half of the estimated 2.4 billion people relying on traditional biomass for cooking and heating live in China and India, the proportion of the population depending on biomass is heaviest in sub-Saharan Africa (IEA, World Energy Outlook 2002). It is estimated that over 90% of final energy consumption in some sub-Saharan African countries derives from biomass, despite its attendant environmental consequences, such as deforestation and increased pace of desertification. Extreme poverty and lack of access to other fuels (e.g., kerosene, LPG, electricity) mean that 80% of African population relies primarily on biomass to meet its residential needs<sup>4</sup>.

61. Heavy reliance on traditional biomass fuels and limited access to modern sources of energy such as electricity and petroleum-based fuels (LPG and kerosene) cannot help poor people living in rural areas escape from poverty. This form of energy poverty<sup>5</sup> is also becoming common among a growing proportion of people living in peri-urban areas.

62. It is increasingly recognized that access to affordable modern energy services is a prerequisite for sustainable development and poverty alleviation. Without such access, most of the MDGs will not be met. Limited access to adequate and appropriate energy, including electricity, means that value-adding income-generating activities are constrained.

63. Therefore, increasing access to affordable and reliable energy services for domestic uses and productive activities is probably the most critical challenge facing African countries in the energy sector. This is particularly true for many countries in sub-Saharan Africa where the availability and consumption of modern energy is far too low to ensure the minimum conditions for economic growth and sustainable development.

### **Harnessing energy resources for sustainable development in Africa**

64. There are many challenges to harnessing energy resources for sustainable development and poverty reduction in Africa. These include:

- Lack of adequate policy and institutional framework;
- Poor performance and lack of creditworthiness of power utilities;
- Inadequate approach to addressing the problems of rural energy supplies, including the problem of incentives and credit facilities linked to rural electrification programmes;
- Imbalance in the geographical distribution of energy resources and inadequate energy infrastructure;
- Small size of the energy markets;
- Lack of integrated energy infrastructure such as regional power grids and gas pipelines networks; and
- Difficulties associated with financing energy projects.

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<sup>4</sup> IEA, Energy Outlook, Energy and Poverty, 2002

<sup>5</sup> Energy poverty has been defined as the absence of sufficient choice in accessing adequate, affordable, reliable, high quality, safe and environmentally benign energy services to support economic and human development.

65. In the past, it has been possible to address some of these challenges through the creation of a more enabling environment and setting up the appropriate institutional, policy, legal and regulatory framework necessary for attracting investment in the development of major energy projects. This has involved, among other things, building trust and confidence among participating countries so as to commit themselves to joint development projects such as hydropower projects (e.g. Manantali between Mali, Senegal and Mauritania); gas projects (e.g. Mozambique – South Africa gas pipeline, and the West African Gas Pipeline between Nigeria, Benin, Togo and Ghana); and oil projects (e.g. Chad-Cameroon oil pipeline).

66. With regard to improving electricity access in rural areas, experiences of rural electrification in many countries have shown the need for involving distributed generation (electricity produced near the place of use or close to the load to be served) through local mini-grids and solar PV home systems with private participation. South Africa, with its concession-based solar PV-based rural electrification and its off-grid and grid-based basic electricity services (50 kWh/month free of charge for grid-connected households), is worthy of emulation.

### **Recommendations**

67. Africa is endowed with fairly abundant energy resources, but for various reasons these resources have not been harnessed to meet electricity and other modern energy services required for sustainable development and poverty alleviation. Therefore, there is need for African countries to adopt policy measures and make commitments for harnessing their energy resources to ensure the availability of the modern services necessary to meet the MDGs and put the continent on the path of sustainable development and poverty reduction.

68. In order for African governments to succeed in harnessing the continent's energy resources for sustainable development, there is need to reconsider the institutional, policy, legal and regulatory framework which has been governing the energy sector by, among other things:

- Formulating/revising the national energy policy to provide for improved energy governance;
- Providing a legal basis for private participation such as independent power producers (IPPs);
- Addressing energy poverty by devising policies and implementing programmes aimed at facilitating access to modern energy services, including the establishing of a rural electrification agency and well-resourced rural electrification fund;
- Taking an active role to help create market opportunities for the widespread adoption of distributed generation technologies through tax incentives and credits, low interest loans and guarantees, as well as public benefit funds for rural electrification;
- Facilitating implementation of hydropower, oil and gas projects that require inter-country cooperation and regional energy integration; and
- Operationalizing the newly created sub-regional power pools, particularly with regard to joint hydropower projects, cross-border power transmission lines and gas pipelines

69. Due to highly uneven distribution of Africa's energy resources and the small size of its energy markets, there is need for regional cooperation and integration in harnessing the

continent's energy resources. In this regard, regional economic communities (RECs) and regional power pools have an important role to play. These could include:

- Building mutual trust and confidence among neighboring countries to participate in joint energy projects such as large hydropower, inter-country transmission lines, and cross-border oil and gas pipelines;
- Adopting a regional energy protocol providing for a secure business environment to help dispel, or at least reduce, perception of risk associated with attracting private investment in Africa;
- Establishing a regional energy regulatory body to promote regional energy market and manage the interests of investors and stakeholders.; and
- Operationalizing the new sub-regional power pools through implementation of energy integration projects.

### **Concluding Remarks**

70. Despite growing recognition of the importance of environmental criteria, many investment decisions are taken primarily on grounds of economics, and, specifically, returns to investment. If natural resource considerations are to be allotted their rightful importance, they will have to be discussed in money terms.

71. Improvements in land resource management can only come about if preceded by awareness of the problems, and recognition of the need for action. At the international level, there is a strong measure of agreement on priorities, including poverty reduction, avoidance of land degradation, research, and popular participation in decision making. But at the national level, effective land resource policies will depend on good governance and the absence of civil conflicts.

72. Appropriate attention must also be paid to the development of the rural sector, and a better appreciation of the impacts of land resources. This calls for a framework based on a set of national land resource policies, including improved survey and evaluation, efforts to combat land degradation, the effective linking of research with extension, a national land use plan taking in account the backward and forward sectoral linkages as well as social and cultural dimensions, and monitoring of the national heritage of land resources. This will require strengthening of institutions, with improvements in education and training.

73. The goal of land use planning and management of land resources is to make optimal and informed choices on the future uses of land. This can be achieved through interactions and negotiations between planners, stakeholders and decision-makers at national, provincial and local levels. It will be on the basis of efficient, comprehensive data gathering and processing in an appropriate storage and retrieval system, through a network of nodal institutions. The smooth flow of the resulting evaluation of the data will be output in an understandable, user-friendly format. The plan will enable all stakeholders to co-decide on the sustainable, equitable and economic use of the land and follow it through to successful implementation.

74. In summary, land use planning is the key to efficient development of natural resources through allocation of land and water to those functions that provide the greatest sustainable benefits to local and national living standards. With poverty reduction as the major objective in international development, planners must work with the active participation of all stakeholders, to promote integrated natural resource management whilst building the capacity of local land - management institutions. In particular, land use planning processes must encourage the active involvement of local communities whose livelihoods depend on natural resources.

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