

**SOME KEY GEOGRAPHICAL RESEARCH AREAS RELEVANT TO  
DEVELOPMENT STRATEGIES WITH SPECIAL REFERENCE TO  
UGANDA: AN ENVIRONMENTAL PERSPECTIVE**

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**ABSTRACT**

The goals of this paper is to introduce the reader to the key geographical research areas relevant to development strategies in Uganda. Special emphasis has been put on key environmental issues which are topical today and these are presented in a manner which can seek the contribution of a geographer in the actual decisions concerning policy or practice with regard to environmental issues. It is being emphasised that the geographers are best placed to undertake researches towards the discovery of the man-environment relationship, seeks to make people understand the fundamental characteristics of natural resources and processes through which they can be utilised. A key consideration in this paper is to show what distinctive roles the geographer can play and has played in developing geographical inquiry and research in reconciling conflicting economic, political, ecological perception and as a resource analyst and ultimate utilisation of environmental resources.

**INTRODUCTION**

One of the most crucial public concerns in the world today is man's environment which constitutes and incorporates his home. Today there are a series of problems with geographical or spatial consequences emanating from man-land relationships. These are problems that have a bearing on man's very survival, namely, a warming globe, threats to the earth's ozone layer, deserts consuming agricultural land, floods destroying places of economic activity and residences, earthquakes, landslides, leaking chemical industries (the Bhopal pesticide factory in India) exploding nuclear reactors (the Chernobyl - Russia) etc.

Despite all efforts to create a better life for the whole human family, it has been very difficult to meet the bare minimum of satisfying fundamental human needs, and all hopes of creating a better life have been greatly frustrated. More people are hungry, sick, shelterless and illiterate (United Nations 1984). Environmental degradation and the rising pressures on resources are apparent in most developing countries. On top of such problems, is a rising population with similar demands and hopes, petty political hostilities, religions and tribal animosities and war. Environmental problems of today are not basically due to absolute physical shortages but of economic and social maldistribution and misuse. Uganda is a good example of a nation rich in natural resources, but whose political

atmosphere and poor leadership in the past have relegated the country to being one of the poorest in the world.

With the appearance of strong public interest in restoring the quality of the human environment and the planning of major national and international programmes directed towards this end, fears have been expressed of potential conflicts between the interests of those concerned primarily with the conservation of the environment and those concerned with economic development (Dasmann 1984). Properly interpreted, the goals of conservation and those of development must coincide if long-term well-being of society is to be met.

Geographers are best placed to undertake researches towards discovery of environment - man relationships, cause and effect, spatial implications and forwarding solutions to problems arising from man's utilisation of the environment (Ogendo, 1984). There is increasing need for geographers to undertake a critical reappraisal of their discipline, its methodology and its contribution to national development. Geographers are continually developing sophisticated research concepts, methodologies and skills to facilitate contribution towards the solution of major economic, social and political problems, especially those of a spatial nature. (Johnston, 1985). By their training, geographers acquire skills and methodologies which facilitate substantial and effective inquiry and contribution towards the solution of major economic development and environmental constraints already facing and are likely to face society. Geographers acquire skills such as field work techniques, landuse and resource assessment and remote sensing techniques, surveying and photogrammetry, photography and photo-interpretation, geographical cartography and quantitative analysis, etc.

Therefore, geographical inquiry and research have a big role to play in reconciling conflicting economic, political, and ecological perception and ultimate utilisation of environmental resources. Research in alternative possible land-uses of particular areas and their respective benefits and opportunity costs can best be done and assessed by geographers, and to provide constructive strategies for optimal land resource utilisation. Such research results can facilitate and provide background information and data to the regional planners, and decision makers who may be interested in knowing the economic feasibility, social desirability, political acceptability and environmental consequences of different land-uses, landuse methods, projects, plans and policies. Geographers, especially those of Uganda should utilise this potential in order to make their academic and professional impact felt.

It is within the above context that the paper tries to isolate what is considered by the author as some key geographical research areas relevant to development strategies in Uganda today, taking into account the current environmental crises arising from human's use of the land resources.

### **KEY GEOGRAPHICAL RESEARCH AREAS**

Given Uganda's experience, some geographical research areas are identified as needing special consideration and attention.

These are:-

- i) Policy-oriented research
- ii) Comprehensive inventorying of existing land-uses and resource potential of different areas
- iii) Identification of land and resources of conflicting utilities with a hope to streamline and coordinate land-uses whether parallel, complementary, composite, monopoly, supplementary, etc.
- iv) Discovery of methods of sustaining productivity in order to eliminate/reduce wastage and to improve landuse methods of already occupied

- land.
- v) Identification and mitigation of environmental hazards, both natural and man made.

These proposals are expanded on and discussed one by one using examples from the Uganda experience.

## **POLICY-ORIENTED RESEARCH**

It is now widely accepted by most Ugandans from all walks of life that the quality of the Ugandan environment is deteriorating and that the destruction of the environment is mainly a result of attempted development efforts without a proper policy and proper planning. Sometimes, policies are set and development plans drawn, but in most cases these have remained on paper, and development has been left to take its own natural course.

Uganda is well known for its rich natural resource potential more especially for agricultural and agro-based industrial development. Despite the potential, environmental hazards and challenges are already with us, namely:

- diminishing crop yields
- frequent drought spells
- indiscriminate clearance of forests
- indiscriminate swamp reclamation
- land slides due to deforestation of mountainous areas,
- water scarcity
- tsetse fly re-infestation of formally eradicated areas,
- overgrazed rangelands and depopulation of national parks and game reserves due to indiscriminate poaching.

It is quite obvious, and we can generalise that most of these hazards are attributable to unsatisfactory land use policies and unfollowed-up land management programme by the relevant authorities. The key geographical research areas that have been singled out for discussion are some of the most serious land use problems. The proposed need for intensification of policy oriented research hinges on the pressing need for efforts to halt the occurrence or re-occurrence of the earlier on enumerated hazards and environmental challenges.

Economic development planning involves a complex process of policy formulation and geographers need to get actively involved in the process. Geography, as an integrating discipline, should be capable of co-ordinating development planning strategies especially those of a spatial and regional nature. The research should seek for the most compromising solution to environmental problems of, and arising from development efforts.

The role of the geographer should be to probe into:

- i) Emerging environmental problems for which there is no policy or where the existing ones are obsolete
- ii) The viability and desirability of proposed or on-going development programmes, especially those related to land-use.
- iii) The possible alternatives to such projects or programmes, or land-uses
- iv) The consequences/problems/implications emanating from the programmes or land-uses in terms of their political, economic, and social viability and overall effects on the environment.
- v) Strategies and policies that intend to seek solutions to specific environmental

- vi) problems identified, and  
Policy effects, possibly leading to new or modified ones.

### **INVENTORYING OF EXISTING LAND-USES AND RESOURCE POTENTIAL OF DIFFERENT AREAS**

Geography is concerned with the study of earth features, whether natural, or man-made, not simply as phenomena, but as resources; as a means of support. (Paterson 1974). Therefore, geographers should be concerned with the usefulness of the earth's features to man, with the amount of support they can afford him and with the measures which he may take to bring them to use. Some places are endowed with human resources, others are endowed with physical ones while yet others are endowed with technological know-how. In order to get the best out of the resource potential, there is need to make a thorough inventory of existing resources potential, and the extent such potential has been tapped.

Most developing countries are developing at a very slow pace, and in some instances they are retreating, partly because of lack of vital knowledge and information about their resource potentials. For example, in Uganda, the last comprehensive agricultural landuse census was carried out in 1961. (McMaster, 1962). Otherwise since then the country's agricultural plans have been speculative, just based on estimates and projections. Thus, Uganda does not know the exact amount of its food reserves, the land under cultivation and other land-uses. All that we know is that Uganda has a lot of food and that there is plenty of land and that the subsistence sector is strong. How plentiful are the food reserves; how plentiful is the land; and how strong is the strong subsistence sector; nobody can give a precise answer. The Author is not blaming anybody, perhaps she/he should blame her/himself, because she/he is a geographer.

Geographers at Makerere and in Uganda in general have not been very active in the areas of research. Lack of research activity has always been attributed to the general political atmosphere that was not conducive to research work. However, now the way is open. Let us hope that the Geographers in Uganda will perform the research roles expected of them in the country's efforts to rebuild itself.

In the past, there has been some joint research programmes going on where members of the geography department were actively involved:

- i) The Ministry of Agriculture, Institute of Statistics and Applied Economics and the Geography Department carried out an agricultural census which was sponsored by the FAO of the United Nations. They tried to make an inventory of the agricultural resources in the country in terms of land under cultivation, the land carrying capacity, and the crops being grown. The ultimate results it was hoped, would be used to lay a firm foundation for comprehensive land use policy in the country.
- ii) Another project that was carried out was the study of land tenure systems in Uganda as they affect landuse and productivity. This was after realising the problems arising from different systems of landownership and how these affect production and productivity of the land. Again it was hoped that the results would be used to lay firm foundation for proposals of a land tenure policy that would facilitate in the implementation of policies for maximum utilisation of the land resources. The project was under the Makerere Institute of Social Research. Participating departments included Geography, History, Political Science and Agricultural Economics.
- iii) Technological change and the Agrarian question was another project in the Makerere

Institute of Social Research where members of the Geography Department participated. The project was probing into the effects of technological innovation on different aspects of society in Uganda. Participating departments were the Faculty of Engineering, Political Science, Economics and Geography.

- iv) The Ministry of Health together with the Institute of Statistics and Applied Economics and the Geography Department carried out a demographic health survey for the whole country. This was intended to probe into various aspects of the human resources of the country with regard to demographic variables.

All the projects sound good and impressive. Unfortunately, the geographers cannot be proud of these endeavours because although they participated in one way or another, the babies are actually not theirs. There is therefore, still great need for geographers in Uganda and Makerere University in particular to come in vigorously with research proposals in the key research areas listed.

### **LAND RESOURCES OF CONFLICTING UTILITIES**

In Uganda, there is need to research into identified land and resources of conflicting utilities, with a hope to streamline and co-ordinate land use and advise on the best ways of utilising such land; whether parallel, competitive, complementary, composite, monopoly, or supplementary. Methods should be devised for the best advantage. Areas of conflicting utilities that are identified for discussion here are:

- i) Wildlife Conservation versus pastoralism and ranching
- ii) Forest Conservation versus agricultural land extension and the wood industry
- iii) Swamp reclamation for agricultural extension, the building and construction industry versus water resource conservation
- iv) Water falls, hydro-electricity versus tourism.

Problems arising from conflicting land uses would not have arisen if there was sufficient follow up of the expected use of the land resources in question. There seems to be a basic weakness in the current or even past ad hoc nature of land and resource utilisation in the country. These problems have been recognised by all concerned and the major problem now is to try and reconcile the conflicting groups.

The conflict between policies devised in a national context and their application in certain specific localities where they are obviously inappropriate, are issues which the professional geographer is well qualified to handle. Many policies fail to achieve their objectives because the structure of the government is such that the relevant policies are erroneously considered sectorally by ministries, thereby conflicting with other sectorally derived policies when they are implemented.

Thus, while the Ministry of Agriculture would see it as wasteful to leave land redundant under forests, woodlands and other national parks, the Ministry of Tourism and Wildlife will see it as a source of foreign exchange. However, the ordinary peasant does not perceive the value of foreign exchange. So to him, tourism is irrelevant and therefore, national parks, game reserves, and forests are seen as wasted land.

#### ***Wildlife Conservation Versus Pastoralism and Ranching***

Uganda has four national parks, with associated game reserves. Conflicts have developed with regard to alternative possible land-uses of these conserved areas. Peasant farmers and pastoralists are encroaching on these conserved areas. To them, this seems to be wasted land because they do not get obvious or direct benefits from the land. To the peasant cultivator and pastoralists, this is regarded

as wasted land.

Table 1. Different Areas with Conflicting Utilities

Official Design	Conflicting Utility
Queen Elizabeth National Park	Lake Katwe Salt Industry Cultivation encroachment Poaching
Marchison Falls National Park and Karuma Game Reserve	Hydro-electricity generation Poaching
Kyabura Game Reserve	Cultivation
Kigezi Game Reserve	Cultivation
Lake Mburo National Park	Pastoralism, Ranching
Kidepo Valley National Park	Pastoralism
Mabira Forest Reserve	Cultivation, Charcoal Burning
Kibale Forest Reserve	Timber Harvesting
Wetland Conservation	House Construction

Lake Mburo National Park was formally a game reserve which was later in the 1980s designated a gazetted national park by the Minister of Tourism and Wildlife. When Lake Mburo was still a game reserve, neighbouring areas of East Ankole Ranching Scheme and some pastoralists in the area were using the land for grazing purposes. However, the pastoralists and ranchers were regarded as encroachers on a gazetted national park. Many people were evicted and displaced. Those of Rwandese origin were told to pack up and go back to Rwanda. Many of their cattle were stolen in the process of displacement. This created a social and political problem. This would not have happened had the authorities taken more care and concern about the social consequences of such a move of turning an already settled area into a national park.

#### ***Forest Conservation versus Agricultural Extension***

In Uganda, as elsewhere in Africa, man has tried to expand land under cultivation in order to satisfy the food and other agricultural products requirements. However, increased acreage has been at the expense of clearance of forests and reclamation of swamps. Due to extension of agricultural land, areas of natural forest and government forest reserves have declined significantly. (Hamilton 1984). Today, the Uganda landscape consists of scattered tree species and a few government owned forests. These forests have been destroyed largely by many agents such as agricultural extension, fuel wood and charcoal burning and commercial timber logging. There has been indiscriminate clearance

of natural forests without any planned conservation methods such as afforestation, reforestation or agro-forestry. The forest cover has been reduced from a possible 10 million hectares, 45% of land area by 1900 to less than 1 million hectares in 1968, ie. to 6.3%. (Aluma, 1987). In reality, intact forests were estimated to cover less than 3% by 1986. An analysis of satellite pictures (June 1987) indicated that Ugandan forests have been reduced to only 40% of that in 1964, that is from 1,693,833 hectares to 677,533 hectares. (Turyatunga 1987). Lowland forests like Mabira are heavily encroached while many other reserves have been completely cleared and settled. Water catchment forests like those of Mt. Elgon and Ruwenzori and Maramagambo and Kibale are being threatened with total clearance.

This phenomena has come about mainly because the authorities concerned did not follow up or emphasise or enforce the laws on the books concerning forest reserve regulations. Although the Ministries of Agriculture and Forestry, Environment Protection, Energy and Tourism and Wildlife then passed a decree evicting all encroachers, the damage is already done, there is a hanging social problem of resettling the evicted encroachers. Politicians of the time, in order to buy favours from the public, made arbitrary orders contravening and contradicting the laws.

These illustrations should be a good example as well as a lesson to planners and decision makers as well as administrators about the virtue and value of proper planned environmental use and management. This is a big challenge to the geographers. It is necessary to do comprehensive research in these areas so as to advise government on the best ways of handling the problems at hand. The environment is already destroyed. A class of landless people is already created. Social and political unrest are apparent. What next?

#### ***The Wetlands Areas of conflicting Utility***

Uganda's wetlands also need special attention. They account for about 6% of the land area of Uganda. They include river valleys, swamps, marshes and bog. These are areas where the water table comes to the surface and have vegetation types that are adopted to wet conditions such as papyrus, palm trees, and sage. Sometimes, they have fish in them.

The wetlands in Uganda have been discovered as a significant resource and have been badly attacked.

- i) They are major sources of rural and peri-urban domestic water supply in form of springs, protected and non-protected wells and dams.
- ii) They have become major irrigation farming areas
- iii) They are used as dry season grazing areas
- iv) They are used for urban sewerage disposal
- v) They are sources of building materials such as clay and sand for making bricks and papyrus as roofing material.

The Ministry of Agriculture is encouraging cultivation in these wetlands while the Ministry of Natural Resources is advocating for protection and conservation of these wetlands. On the other hand, the Ministry of Housing and Physical Planning encouraging the construction industry to invest in the use of local materials for house construction. Thus brick making is a booming industry in the country and nearly all our wetlands are excavated for sand and clay. Forests are cut to provide firewood for baking the bricks. Papyrus swamps have been also cleared for either cultivation or for providing roofing materials.

All these activities, though advocated by different ministries are not planned and are unco-ordinated and the land is left at the mercy of the commercially minded individuals who cannot think of environmental consequences of their activities. This is another area where geographers can research into to seek for the most compromising solution to the apparent environmental degradation problem,

and advise the authorities concerned accordingly.

### **Waterfalls and Hydroelectricity Versus Tourism**

Other than the Owen Falls Dam, Jinja, which generates hydro-electric power for the country, plans are underway to construct another power generating plant at the Murchison Falls (Kabalega) located within the Murchison Falls National Park and also to build another one close to Owen Falls Dam. Earlier in 1972, a proposal to locate the power generation plant at Murchison Falls was rejected by the then present government of the country after considerable discussion and appeals from leading wildlife conservationists (Langlands, 1971). Then attention was directed to the Karuma Falls again at the edge of the same national park. An agreement between the Uganda government and the Yugoslav firm Energo Project, was commissioned to build the Karuma Falls Dam. Again the project aborted for political reasons. In 1988, the same project was being considered and discussion went along way within the Ministry of Energy then and the prospective firm that was to construct the dam. However, the decision received much opposition from the Ministry of Environmental Protection and the Ministry of Tourism. To them this was not a necessary project because after all, the Owen Falls at Jinja is not even operating at full capacity. Reconciliation is again necessary here.

### **SUSTAINING PRODUCTIVITY AND MITIGATION OF HAZARDS**

The relationship between man and his operational environment is symbolic whereby man is affected by the environment and yet he also has gained the capacity to modify the environment. The relationship essentially depends on the kind of production as well as life styles that have been chosen by a society to satisfy the needs of its members. Life styles and such related questions as the organisation of social life or individual and collective participation in decision-making are all attributes of development, which are underlaid by value systems whose interpretation and application can involve different impacts on the environment. It is these differing life styles that either lead to degradation of the environment or appreciation of the need for rational use of it and for conservation.

The already outlined environmental hazards and conflicting land-uses have been mainly attributed to unsatisfactory land-use policies and unfollowed up land management programmes. The illustrations given should provide good examples and should be good lessons to planners, administrators and decision-makers as to the virtue and value of proper planned and co-ordinated environmental management for sustained productivity. For example, in the course of time and mainly due to negligence, lack of follow-up programmes and indifference on the part of administrators and planners, the tsetse fly has re-infested the formally eradicated areas of Iganga, Jinja, Kaliro, Arua, Masindi and Hoima districts.

It is now an accepted fact that the environmental quality in Uganda is deteriorating and that there is continued destruction of environmental resources both consciously and unconsciously. For many immediate and practical, economic and social reasons, resource conservation methods and mitigation of hazards are clearly very necessary elements in the economic development policy. There is need for development without destruction.

The scientific planning for resource conservation and management and mitigation of hazards require proper statistical information concerning the quantity, quality, spatial and temporal variations of the resources in question. Data is also needed on the rate at which the resources are being utilised, whether renewable or unrenovable. Such data can only become available through the operation of properly designed networks to gather them over a long period of time. Geographers are well placed to do this.

## CONCLUSION

The paper has briefly outlined the relevance of the geographer to national policy formulation through necessary research endeavour in Uganda. It singled out five major areas of concern, namely:

- i) The need for policy-oriented research
- ii) Inventorying of existing resources and their utilisation
- iii) Identification of land and resources of conflicting utilities.
- iv) Discovery of methods of sustaining productivity without damaging the environment and
- v) Identification and mitigation of environmental hazards.

The ultimate aim of the research endeavours would be to provide required policy-oriented quantitative and qualitative data to planners and administrators with a view to providing a framework for reconciling conflicting economic, political and ecological perception of the environment and ultimate utilisation of resources by society. Research in alternative possible land uses of particular sensitive areas and their respective benefits and opportunity costs would provide guidelines for constructive strategies towards optimal land resource utilisation and conservation, sustained development and mitigation of hazards. There is need for an overall land-use policy to co-ordinate conflicting land-uses and landuse policies of different ministries, departments, institutions and individuals. This can only be done if an inventory of resources available and the rate at which they are being used and depleted is made available through research efforts. Conservation measures would then be taken whenever seen necessary and appropriate. Geographers in Uganda are thus facing many challenges.

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