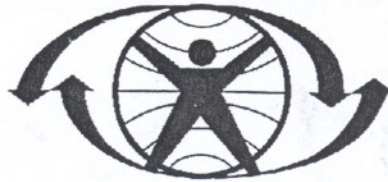


IHDP PROCEEDINGS NO. 4



IHDP

INTERNATIONAL HUMAN DIMENSIONS PROGRAMME ON
GLOBAL ENVIRONMENTAL CHANGE

Regional Workshop: Human Dimensions of Global Environmental Change Research in Africa

September 24-26, 1999
Oslo, Norway

Report edited by:
Ramine V. Shaw



ENRICH



7.8 NATIONAL CASE STUDY: UGANDA

Prepared by:

Dr. Abwoli Y. Banana

Faculty of Forestry and Nature Conservation

Makerere University

Kampala, Uganda

Email: banana.foresmuk@infocom.co.ug

1.1 Introduction

In the last decade, Uganda has experienced rapid population growth (3.6% per annum) and a fast expansion and growth of the economy (7.0% per annum). This positive trend in the economy needs to be sustained to alleviate poverty and hunger and to pave the way for increased productivity of rural communities and ensure sustainable living.

However, arising from the fast population growth are a host of environmental problems that are undermining efforts to enable the people of Uganda to attain a sustainable livelihood. Major environmental problems include, among others loss of agricultural productivity due to land degradation, loss of biodiversity due to the forest degradation and industrial pollution in urban centres.

1.2 Biodiversity management and Conservation

According to FAO estimates, forests and woodlands covered about 45% of Uganda's surface area in 1890. Today, the Uganda Forest Department estimates that the Tropical High Forest estate has been reduced to about 3% of Uganda's land area. Forests occur as gazetted areas (forest reserves), other protected areas (national parks) and as ungazetted public lands. Loss of large areas of forest cover has led to severe loss of biodiversity.

The Natural Forest Management and conservation project funded by the European Union and the National Biomass study funded by NORAD are geared towards conservation of Uganda's natural forests and quantifying the available biodiversity. The over-all goal of these two projects is to promote economic, environmentally sound and sustainable management and development of natural resources in Uganda, while simultaneously providing the knowledge, information, and data sets necessary to increase the resource base. Specific objectives include:

- the establishment of a firm framework for continuous monitoring of land cover/land use and woody biomass in Uganda.
- sustainable management of forest resources for social-economic benefits and biodiversity/environmental conservation.

Other initiatives in this theme include the Institutional support for the protection of East African Biodiversity project funded by UNDP/GEF. Under the first phase of the project the following were carried out:

- Biodiversity inventories
- Institutional support to Makerere University, Department of Forestry and the Institute of Environment and Natural Resources (MUIENR)
- Establishment of a National Biodiversity Data Bank at MUIENR

A second phase of this project, known as Innovative Cross-border approaches to the reduction of loss of biodiversity within selected sites in East Africa is now underway. One of its objectives is to put in place enabling environment that allows local sectoral and development agencies as well as local communities to promote the sustainable use of biodiversity resources. It also aims at examining the effect of cross border policies and institutions on biodiversity.

1.3 Land degradation and restoration

Uganda's present land use pattern disregards actual potential, carrying capacity or other limitations of land resources. Without care and attention, there is a real danger that the country's environment will suffer irreversible damage in the near future.

Land issues which researchers are addressing include the fragility of ecosystems, tenure and land-use patterns. Land degradation and restoration, specifically the decline of land productivity in the fragile ecosystems of the densely populated and intensively cultivated highlands of Uganda is a key research area under this theme. The highlands of South-western and Eastern Uganda have high agricultural potential because of the good climate, adequate rainfall and high productivity. However, these areas are densely populated. Consequently, there is a high rate of degradation due to population pressure. The problems and constraints, which these highlands face, include:

- i. decreasing soil fertility
- ii. land fragmentation
- iii. decreasing number of trees and forest resources.

Research on land degradation and restoration takes a landscape approach to integrate agroforestry, forages, cash crops, soil fertility improvement technologies and soil erosion control studies. Other research areas include documentation of farmers' traditional knowledge of microenvironments, diversification and intensification of vegetation on farmlands so as to reduce soil erosion and sedimentation rates in catchment areas. The United Nations University people, land management and environmental change (UNU/PLEC) and The African Highlands Initiative (AHI) projects are addressing the above issues. These research programmes aim at collaborating with farmers and local communities in identifying appropriate land-conservation strategies that are environmentally, socially and financially sustainable.

By integrating locally developed knowledge of soil, climate, biological resources and other physical factors with scientific assessments of their quality in relation to crop production, a set of sustainable agricultural technologies can be devised so that crop diversity and management diversity are maintained.

AHI focuses on natural resource management (NRM) to solve critical issues concerning soil productivity and land-use efficiency, doing this through inter-institutional research and development. It operates under the umbrella of the Association for Strengthening Agricultural Research in East and Central Africa (ASARECA) and also forms the East African component of the Global Mountain Initiative (GMI). Some of the major strategies for these projects include to:

- i. diversity and intensify vegetation and its use on farmlands,
- ii. evaluate and develop methods to conserve and improve the management of soil and water,
- iii. improve the integration of livestock into agro-ecosystems in relation to nutrient cycling and feeding systems management, and
- iv. strengthen policy research and positively influence dialogue at local levels in conjunction with natural resource management issues.

Other initiatives on this theme include research in agroforestry practices. The practice of integrating trees and crops or livestock on a given piece of land is an important strategy in halting the decline of land productivity in the fragile ecosystems of the Ugandan highlands. The main pressures leading to the focus on agroforestry are the high rates of population increase with its consequent demand for farm and grazing land coupled with fuelwood and building poles scarcity in many parts of the country. The Agro-Forestry Research Network for Africa (AFRENA) carries out research with major objectives of developing appropriate agroforestry technologies for land-use systems especially in the highly populated highland areas of South western Uganda. The achievements so far include:

- i. identification of upper storey trees for the production of poles and smaller timber,
- ii. identification of trees/shrubs that are effective in stabilising and controlling soil erosion, water run-off and nitrogen fixing, and
- iii. identification of trees/shrubs that provide fodder, fuelwood and stakes for climbing beans.

On the other hand, the African Network for Agroforestry Education (ANAFE) in collaboration with ICRAF aims at promoting the institutionalisation of Agroforestry in education programmes in universities and technical colleges in the region. Capacity-building is essential for developing, disseminating and implementing of Agroforestry practices suitable for small holder farmers. The following mechanisms guide ANAFE activities:

- i. Linking member institutions through thematic workshop and review of curricula
- ii. Linking agroforestry training with research through collaboration with AFRENA programmes
- iii. Linking with extension services and non-governmental organisations (NGOs) in real world experience

Other research projects under this theme include research in soils and soil fertility management conducted at Kawanda Agricultural Research Institute of the National *Agricultural Organisation (NARO)*. The research focus include management and recycling of crop residues to improve and sustain soil productivity, soil fertility management in selected cropping system, soil and water management in wetlands, use of fertiliser and biological nutrient sources and establishing land resource inventories and a natural soil reference database. The Rockefeller Foundation, IDRC, ODA and the European Union financially support these research programmes.

1.4 Freshwater lakes and wetlands conservation and management

Sustainability of freshwater resources in Uganda is a critical issue. For example, the total area of wetlands in Uganda is estimated at 30,000 km², and almost all of this is taken up by an intricate system of relatively narrow interconnected wetland sections that together constitute the major drainage systems in the country.

The over-all aim of the Lake Victoria Environmental Management Project is to restore a healthy, varied ecosystem which is inherently stable and which can support in a sustainable way, the many human activities in the lake itself and in the catchment areas. Development pressures in the catchment area of the lake are increasing because of natural population growth and migration from poorer and less fertile rural areas. The specific objectives of this project research are:

- i. to maximise the sustainable benefits of the riparian communities by carefully using resources within the basin to generate food, employment, income, supply of safe water and sustain a disease-free environment;
- ii. conserve biodiversity and genetic resources for the benefit of the riparian communities and global community; and
- iii. to harmonise national and regional management programmes in order to reverse environmental degradation in the Lake Victoria basin.

The research areas covered in this project include fisheries research, water hyacinth, water quality and ecosystem management, industrial and municipal waste management, land use and wetland management and policy and institutional frameworks.

In the 1980s the pressure on wetlands, in both rural and urban areas increased because these areas were free or cheap for infrastructure development. However, wetlands in Uganda are extremely important ecosystems, from the socio-economic, ecological and hydrological points of view.

Research on wetlands strives at reaching a situation where wetlands are properly understood, appreciated and utilised at all levels of society, while sustaining or enhancing all their beneficial functions. Research is required in order to make informed decisions about wetland management options to ensure their wise use (optimising and distributing the socio-economic benefits of wetlands equitably to as many people as possible without compromising the integrity of wetland hydrology or ecology).

1.5 Climate change research in Uganda

Global changes in climate are expected to have major impacts on health, socio-economic developments and the environment. Uganda's rangelands and the dryland areas are particularly prone to severe climate variability. However, there is very little research activity under this theme in the country. In Uganda, aspects of climate that are of particular concern are the amount, incidence and duration of rainfall. In some years, rainfall is below normal leading to drought, while in others it is above normal, leading to floods, landslides, soil erosion and silting of dams and reservoirs. Uganda's response to climate variability include:

- i. The National study on Drought and Desertification;

- ii. Capacity building in the Department of Meteorology to improve the early warning capability of the country;
- iii. Implementation of the United Nations Framework Convention on Climate Change (UNFCCC); and
- iv. Carrying out the Uganda climate change country study (funded by USA) through vulnerability assessments in agriculture, forestry, and water resources sectors and identification of mitigation and adaptation options to respond to climate change.

Another important initiative under this theme is the establishment of carbon forests in Uganda. Massive deforestation and general biomass removal for provision of fuelwood is wide spread, reducing natural carbon dioxide sinks and increasing GHG emissions. In addition, widespread bush burning and the slash-and-burn agricultural practices used in rural areas contribute to carbon dioxide emissions seasonally.

In order to reduce GHG emissions globally, carbon forests in Mt. Elgon and Kibale National Parks have been planted using indigenous tree species. These are formally degraded forest areas. This project was initiated in 1994 and is expected to run for at least 15 years. It is a joint venture between the FACE FOUNDATION of the Netherlands and the Uganda Wildlife Authority and is funded by the Dutch Electricity Company. Carbon sink studies have been undertaken in both project areas of Elgon and Kibale to determine the amount of carbon fixed in relation to the baseline scenario. The project intends to restore degraded forest ecosystems thereby enhancing biodiversity and carbon dioxide sequestration.

1.6 Major partners involved in Human Dimensions Research

The following are the major partners, both national and international involved in Human Dimensions research activities in Uganda.

Organisation	Project Name	Funding Body	Funds	Collaborating Institutions
Forestry Department, Ministry of Water, Lands and Environment	Natural Forest management and conservation	World Bank, European Development Fund		
Forestry Department, Ministry of Water, Lands and Environment	The National Biomass Study	NORAD		Norwegian Forest Society
Ministry of Water, Lands and Environment	National Wetlands Programme	IUCN, Royal Netherlands government, Uganda Government		
Ministry of Water, Lands and Environment	Lake Victoria Environment Management Project	GEF, IDA Uganda Government	\$77.7 m	Kenya Government, Tanzania Government, Uganda Government
Organisation	Project Name	Funding Body	Funds	Collaborating Institution
Makerere Institute of Environment and Natural Resources	Wildlife Genetics Project	DANIDA	-	Zoological Institute University of Copenhagen
Ministry of Water, Lands and Environment – Meteorology Department	National Communications response to UNFCCC Project	GEF Uganda government	\$93,430	Department of Energy, Forestry, National Agricultural research organisation. National Environment Management Authority
Makerere Institute of Environment and Natural Resources	Conservation of Biological Diversity in Uganda	MacArthur Foundation		Museum and National Herbarium at Makerere

National Agricultural Research Organisation	Improving rural livelihoods in North and N.E. Uganda through innovative systems of client-led Agricultural technology generation	Department of International Development		National and Local Government agencies, NGOs, CBOs.
Organisation	Project Name	Funding Body	Funds	Linkages
National Environment Management Authority	Environment Management capacity building project	World Bank NORAD, USAID, DANIDA	\$350,000	
Makerere University	People, land management, Environment change	GEF, UNEP		United Nations University Kenya, Tanzania
Faculty of Forestry, Makerere University	Budongo Forest Project	NORAD	\$300,000	Oxford University, Local Communities
CARE	African Highlands Initiative	ASARECA		ASARECA, Global Mountain Initiative
African network for Agroforestry Education (ANAPE)	Agroforestry Education	SIDA		ICRAF
Forestry Research Institute (FORI)	Agroforestry	Uganda Government ICRAF World Bank / IDA, USAID		ICRAF, Local NGOs Makerere University
Fisheries Research Institute (FIRI)	Limnology and water Environment	IDRC, EU, NSF, UNESCO IDA, GEF		International and regional fisheries research institutes - Local NGOs

Organisation	Project Name	Funding Body	Funds	Linkages
ICRAF	Agroforestry research to conserve biodiversity in Forest buffer zones	USAID		Makerere University
Faculty of Forestry; Makerere University	Monitoring the impact of institutional arrangements and incentives on forest resources	Ford Foundation	\$150,000	International Forest resource and institutions (IFRI), Indiana University FAO
Faculty of Forestry; Makerere University	Degradation processes in open Forest lands in Sub-Saharan Africa	EU	\$50,000	University of Leeds, Catholic University of Louvain – Belgium, Agric. University of Norway, University of Daker. Sokoine University
Uganda Wildlife Authority (UWA)	Carbon Forests - Mt. Elgon and Kibale Reforestation Project	Dutch Electric Company		IUCN
Organisation	Project Name	Funding Agency	Funds	Linkages
National Environment Management Authority	The East African Cross-border Biodiversity Management Initiative	GEF		Tanzania Kenya NGO
UWA	Conservation of critical biomass, ecosystems and selected species in Eastern Africa	WWF		Kenya Tanzania Madagascar

1.7 Plans underway for future human dimensions research activities

National activities

The UNDP and GEF are funding a project entitled "Enabling Uganda to Prepare its First National Communication in Response to its Commitments to the UNFCCC". The communication will consist of background information about Uganda, inventory of greenhouse gas emissions and removals by source and sector, and policies and measures to mitigate the adverse effects of climate change.

In addition to the preparation of the initial national communication, the project is expected to enhance general public awareness and knowledge on climate change and related issues in Uganda, and to strengthen the dialogue, information exchange and co-operation among all the relevant stakeholders including government, non-governmental organisations, academic and private sectors.

The Albertine Rift Conservation Society (ARCOS) intends to promote the conservation of the remaining biodiversity in the Albertine Rift region and particularly the Albertine Rift Montane forests. A regional priority-setting workshop on promoting community-based conservation and regional information exchange in support of Albertine Rift montane forests was held in July 1999.

SIDA/SAREC bilateral research on the Lake Victoria Basin and associated water resources in Uganda will commence in October 2000. This is a multi-disciplinary research project being funded by SIDA/SAREC. Initially the faculties of Agriculture, Technology, Medicine and Social Sciences of Makerere University will participate. Other faculties will be brought on board in the second and third phase. The Faculty of Agriculture will focus on urban and peri-urban waste utilisation in crop/livestock production systems in Lake Victoria. The over-all goal of the project is to conserve (reduce or minimise degradation of) Lake Victoria's water resources and its catchment area through sustainable land-use practices.

International activities

The Department for International Development (DFID) is the British government department involved in activities which promote development and the reduction of poverty. In Uganda, the development strategy of DFID is to contribute to sustainable improvements in the livelihoods of poor people in Uganda by providing improved sustainable productive opportunities and access to essential resources. DFID is planning to fund several projects aimed at combatting poverty and the degradation of the environment. For example, the National Agricultural Research Organisation (NARO) is starting a five-year project based at the Serere Agriculture and Animal Production Research Institute (SAARI) and funded by DFID. The purpose of the project is increased use of poverty-reducing rural technologies within a wide spectrum of rural households.

Appendix: Research Initiative on Population and Migration in Southern Africa¹

Prepared By:

Dr. Thabo Sabela

Department of Political Science

University of Zululand

Kwadlangezwa, South Africa

Email: tsabela@pan.uzulu.ac.za

BACKGROUND

The Global Security Fellows Initiative (GSFI) is a pioneering joint enterprise by the University of Cambridge Global Security Programme and the Pew Charitable Trusts of Philadelphia, USA. Global Security Fellows Initiative is fully and solely funded by the Pew Charitable Trusts of Philadelphia. The Pew Trusts, a national and international philanthropy, support non-profit activities in the areas of conservation and the environment, culture, education, health and human services, public policy and religion. Through their grant-making, Pew seeks to encourage individual development and personal achievement, cross-disciplinary problem-solving, and innovative, practical approaches to meet the changing needs of society. GSFI therefore, seeks to identify and understand global security problems, and to bring practical, future-oriented solutions to bear on them. Two regions in transition were selected for this enterprise: Central and Eastern Europe, and Southern Africa.

The first two teams of GSFI researchers came from Central and Eastern Europe and they have concentrated specifically on trans-boundary issues concerning the physical environment as well as ethnic and sectarian conflict. The two teams selected from Southern Africa have focused on issues of population and migration and economic dislocation and transformation across Southern Africa. It was envisaged in 1994 that our research should extend at least ten years. That is, it was expected that the policies and agendas each team created would take about a decade to be implemented. It was further expected that the European teams would meet and work with the Southern African teams. Creating a regional and then trans-regional information and electronic network was a central goal of the GSFI programme.

The names of eight members of our focus area team are: A stipend of US\$20,000 was paid to each researcher.

Mr. Israel Chokuwenga (From Zimbabwe)

He identified refugee camps scattered throughout Southern Africa, the number of children in them, the impact of trauma on those children, the psycho-social rehabilitation programmes available to them and the effects of such programmes.

Dr. Graham Herbert (From South Africa)

He explored the health implications of the migrant labour system in Southern Africa and ways of re-casting the Chamber of Mines recruitment agency Teba. He asks: