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People and Culture: Evolving a Model for Water Resources Management and Sustainable Livelihood in Africa

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Editorial

The conference “Environmental Change and Migration: From Vulnerabilities to Capabilities” was the first of a new conference series on “Environmental Degradation, Conflict and Forced Migration”. It was organised by the European Science Foundation, the Bielefeld University and its Center for Interdisciplinary Research. The Center on Migration, Citizenship and Development (COMCAD), the Universities’ unit responsible for scientific content and quality of the conference, has launched a COMCAD Working Paper Series on “Environmental Degradation and Migration”. The new series intends to give conference participants the opportunity to share their research with an even broader audience.

The symposium focused on how environmental change impacts the nexus between vulnerabilities on the one hand and capabilities on the other hand, and how this relationship affects mobility patterns. Although the conference organizers chose to include all kinds of environmental change and types of migration, climate change figured prominently among the submissions to the conference. Therefore, the conference aimed to bring together the perspectives from climate change, vulnerability, and migration studies, and to draw conclusions about the political implications of the knowledge scientists currently have available. Toward that goal, the conference was structured along three pillars. The first concentrated on climate change and the vulnerability of certain regions and groups. It covered case studies as well as different approaches for making climate change projections and assessing the likelihood of vulnerability. The second pillar focused on empirical research on environmentally induced migration from a vulnerabilities perspective, but acknowledged the occasionally strong elements of capability within it. In this way, the aim was to learn about approaches and options to support existing capabilities. The third pillar was concerned with the opportunities and pitfalls of policy options in dealing with the future challenge of climate induced displacement, and with the analysis of dominant public discourses within the field.

The researchers invited represented a wide range of disciplines, including sociology, social anthropology, migration, conflict, gender and development studies, geography, political science, international law, and climate and environmental science. The conference was also well balanced in terms of geographic origin, gender, and academic status of the participants. The conference programme and full report can be found at www.esf.org/conferences/10328.

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Abstract

The rural base of many Africans implies that their livelihoods are directly supported by natural resources. The availability, access to and control of these resources are critical if these livelihoods are to be sustained. Sustainable livelihoods, however, also involve the relationship between people and nature, and, in most African societies culture and the environment are closely linked. Rivers and the attendant resources that they carry are more than water to the Africans. Almost half the African population suffers from one of six major water related diseases. In 2025, 50% of Africa's people are predicted to face water stress and scarcity. Freshwater fish provide 21% of protein intake in Africa. Only through integrated river basin management can governments and local people work together to provide the water needed to sustain both people and the environment. This paper identifies the role of culture in sustainable livelihood programmes in (Wamburi) Kenya and (Ijaws) Nigeria. The study shows that the community eco-cultural forum consists of council of elders, key resource-user groups (stakeholders), indigenous institutions and experts and representatives of facilitator (development) organisations in both countries. Results show that through culture, the communities are able to create, innovate and develop new knowledge, skills, and techniques within its own riverine environment. It was evident that local communities especially in Kenya are able to take charge of their natural resources by using their indigenous systems, knowledge, wisdom and skills.

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1. Introduction

Humans are components of ecosystems. Humans and their interactions have major effects on the structure and function of ecosystems. Tansley (1935) defined an ecosystem "as an ecological community, together with its environment, considered as a unit." Although there are numerous variations on this definition, the basic concepts remain unchanged. As Wang (2004) points out, there are various definitions of "ecosystem management". One definition which has gained widespread acceptance is that proposed by the Committee on the Scientific Basis for Ecosystem Management of the Ecological Society of America, which defines it as management based on "the best understanding of the ecological interactions and processes necessary to sustain ecosystem structure and function (Christensen et al. 1996). As Larkin (1996) observed, ecosystem management means different things to different people. He viewed the term "ecosystem management" as shorthand for more holistic approaches to resource management. From a fisheries management perspective, he described it as centred on multi-species interactions in the context of a variable physical and chemical environment. He viewed terms such as "ecosystem health" and "ecosystem integrity" as rhetorical devices, none of which can be readily translated into operational language for resource management. Larkin saw the essential components of ecosystem management as being sustainable yield maintenance, maintenance of biodiversity and protection from the effects of pollution and habitat degradation. Water resources management encompasses all the resources in the aquatic medium and means a lot to many African countries since their livelihood depends greatly on these resources. This paper identifies the role of culture in sustainable livelihood programme in (Wamburi) Kenya and (Ijaws) Nigeria. The study shows that the community eco-cultural forum consists of council of elders, key resource-user groups (stakeholders), indigenous Institutions and experts and representatives of facilitator (development) organisations in both countries.

2. What is culture?

Culture is an evolving and dynamic relationship between a society and an environment. It provides a key to both explaining environmental conflicts and resolving them. In his article, Richard Griggs enumerates and explains the cultural dimensions of environmental decision-making and outlines how co-management schemes, decentralised decision-making, and a recognition of group rights can reduce environmental conflict and help to achieve a sustainable relationship between societies and the environment. Griggs (2010) shows that (i) The very purpose of culture is to harmonise the activities of a population with the particular opportunities and constraints presented by their environment; (ii) Empowering local people to develop cultures appropriate to where they live, and co-management schemes between local

and national actors, could both improve environments and reduce conflict; (iii) Cultural conflict accounts for 80% of Africa's genocides and wars. It is thus vital to include culture in this analysis of environmental conflict; (iv) Cultures produce local knowledge; (v) any fully integrated environmental management system must take cultural impacts into account and (vi) Cultural diversity is an environmental stimulus that educates and entertains people. Furthermore, maintaining diverse cultural landscapes is a precondition for the biological diversity required for sustainable systems and should therefore be a principle of environmental decision-making.

3. Water Resources management and sustainable livelihood in Africa

Water resources can be broadly grouped into two categories - freshwater and marine water resources respectively. Freshwater resources consist of rivers and their plains, streams, lakes, wetlands and underground water reservoirs. Rainfall can also be grouped under freshwater resources – although man has no influence over its availability. On the other hand, marine water resources include lagoons, seas and the oceans. Sustainable welfare of man and indeed, all living things on earth depend on the wise and safe use of water (Orubu, 2006). Water has become highly politicized because it is a trans-boundary resource that is almost always appropriated at a level that does not coincide with its ecosystem limits. This creates management issues and politicization over water rights, distribution, and pricing among the various states through which a river traverses. As multidimensional as water may be (given its myriad uses), not all water issues are transnational. Livelihoods and life itself depend on the volume and quality of available water, making water scarcity and water securities a concern of every country. All nations seek to maximize their claim over the water traversing their territories. While shared water may be transboundary in its reach and implications, its appropriation as a sovereign resource is not.

What makes water a complex issue? First, a variety of agricultural, industrial, and domestic users compete for it. Different regions such as rural and urban areas may similarly dispute its distribution. Second, surface water supplies such as transnational rivers and lakes are typically considered a common pool resource, that is to say, potential beneficiaries cannot readily be excluded from using it. Such resources are often overexploited because individual consumers cannot easily be made to pay for using the resource or prevented from enjoying it. But variations exist among water types that complicate how the resource is economically defined.

4. Sustainable livelihood programme in (Wamburi) Kenya and (Ijaws) Nigeria

In many African countries, as elsewhere, the demand for water has been on the increase in recent years (Sharma et al., 1996). This has been due to a number of factors. The critical factors include phenomenal increase in population; rising agricultural demand, urbanisation and associated water stress, as well as frequent droughts in the arid and semi-arid regions of the continent, where drought- induced water scarcities have brought social shocks on incipient fragile economies. The designing of an appropriate framework for the optimal exploitation, management and utilisation of Africa's water resources must of necessity be a fundamental policy imperative for the 21st century, in line with the 7th Millennium Development Goal. Generally, as human interventions intensify through the effect of rapid population growth, poverty and poor land use practices, water ecosystems such as rivers can be fundamentally altered in terms of increased deforestation, soil erosion and runoff, as well as possible modification, in the long-run, of microclimates. The loss of vegetation for instance may contribute to loss of soil and water quality, impede river flows and increase sedimentation processes. It is within this context that the management of water resources should be ideally set within a broader framework of land use and the level of economic activities, with man and sustainable human development as the primary factors of concern.

There is now an increasing realization that the formal knowledge base alone is not adequate to address community participatory natural resource management issues, rather this knowledge should be linked with traditional knowledge and societal perceptions which must also be related to the formal knowledge base of the given system.

5. UHAI, a model for sustainable livelihood

UHAI in Kiswahili means livelihood. It is the name given to a "model" designed to empower people to manage their natural resources sustainably and to enhance their livelihood through dynamic people's forums. The approach was developed in the early 1990s by KENGO (Kenya Energy and Environmental Organisation) as an alternative to failing conventional development. The UHAI model has been established in 15 Kenyan communities both in rural and urban settings and has proved to be an effective approach to regenerating the natural environment and to controlling desertification (Muhai, 2009).

The UHAI model argues that a people's culture must be at the centre of development efforts. It recognises that authentic development springs from the collective visions, experiences, decisions and practical actions of the community. It seeks to empower local communities to take charge of their natural resources by using their indigenous systems, knowledge, wisdom and skills. Of major note are the principles behind the model. These are: (a) the supremacy

of nature, all elements and beings must therefore recognize and respect it as a sacred endowment that should be conserved and sustained; (b) the importance of people's cultural heritage. The cultural diversity and uniqueness of each ethnic nationality is the most valuable endowment of people throughout the African continent; (c) the place of eldership and sagehood: Elders and sages are the keepers and custodians of knowledge, wisdom and the ethical dignity of human societies in Africa. Their wise council and vision should form the principal basis of moral guidance, local governance and stewardship of the society as well as the natural resource base; (d) the relevance of Negotiation: Any being that is primarily dependant on a particular resource for survival shall not be deprived of this livelihood. Man must, therefore, not only negotiate with man, but also with other creatures by studying, understanding and fully appreciating their source of livelihood. By providing these principles, the UHA model makes it possible to develop a framework that can restore respect for the values of natural resources and local culture. Having organised themselves in the Wamburi Eco-cultural Community Forum the community acquired an identity. Operating as a forum, it identified training in soil and water conservation, agro forestry, natural resources management and wood energy conservation as urgent priorities. They selected key individuals for training and asked KENGO to provide it. During training, participatory exercises in resources mapping, strengthening group solidarity, and analysing strengths and opportunities were carried out.

6. Modalities of the forum

The community eco-cultural forum consists of a council of elders, key resource-user groups (stakeholders), indigenous institutions and experts and representatives of facilitator (development) organisations. The community eco-cultural forum takes on such activities as:

- a. Identifying and deliberating on issues, conflicts, opportunities and prospects relating to the utilisation, conservation and management of local eco-cultural resources.
- b. Defining, developing and evolving local solutions to the problems and conflicts that has been identified drawing on indigenous traditional knowledge as well as appropriate modern management systems and policies.
- c. Mobilising communities to undertake appropriate actions for the management of eco-cultural resources that can enhance their livelihood.
- d. Safeguarding the people's rights and access to resources in their struggle and search for nature conservation and a dignified livelihood.
- e. Monitoring the use and abuse of natural resources and advocating appropriate policies and actions

- f. and Researching and documenting past and present indigenous knowledge, skills, and technologies in natural resource management.

7. Results from the Wamburi catchment area of Kenya

Impressive results have been established in the community to date. By 1996, the physical and human environment of the Wamburi catchment area had undergone a transformation. Members were heavily involved in food production, tree planting and the adoption of energy saving stoves. Most of the households had planted more than 200 trees, riverbeds had been rehabilitated after the construction of concrete tie-ridges that held sand and retain water over the dry period. The water stored behind the earth dam was now able to support an enlarged tree nursery (150,000 seedlings). In general there was more water available for domestic use and for livestock. Twenty percent of the households in the area have bio-intensive kitchen gardens and are self-sufficient in wood-fuel. Zero grazing is now a common farming practice. Wamburi eco-cultural community forum is a source of strength to farmers in the area. Its members include professionals, retired chiefs, and working civil servants. Eighty percent of the membership is female. This explains why there is so much diversity in the food available in the community.

8. Fisherfolks and fish resource production among the Ijaws of Ondo state, Nigeria

Methodology

A model information network that provided data on existing cultural methods, fish production techniques and methodologies was established with the aim of networking all the fishers in the administrative area. Information on marketing and fish distribution were disseminated through network centres created at the houses of the chairmen (leader and spokesman) of the Fishermen Cooperative in 12 randomly selected settlements. The information needs of the various members of each cooperative were provided and presented through (a) the traditional audiovisual media which included TV sets with DVD/VCD players, TV scripts and video presentations developed on specific subject areas; and (b) the print media which involved the distribution of pamphlets, newsprints, posters, newspapers, books and magazines via the local dialects (Ikale, Ilaje and Egberi). The study was carried out in the coastal wetland area of Ondo state, Nigeria. The area is largely a concentration of the mangrove and freshwater swamps. There are over 76 settlements along the coastal fringe of this study area, whose major occupation include artisanal fishing, farming and hunting. The entire area is poorly drained particularly during the rainy months when the creeks and rivers overflow their banks. This area produces over 90% of the locally consumed fish food in the state. The estimated

amount of fish produced here is given as over 12.5 metric tonnes per year. The population of the active fisher folks across the study area has been put at 450,000. Information for the benefits of stakeholders centred on fish harvesting, fish processing and preservation, fish marketing, application of new or improved knowledge, market and marketing research were provided for all the twelve selected centres. Coop members were made to have access to this information every day of the week for the whole six months of the study. During each monthly meeting of the coop a structured questionnaire was distributed to every member. The questionnaire was designed in such a way as to investigate and reveal the effectiveness of local culture and the contents of the packages and the fisher folk's perception of the key variables of the contents.

9. Results from Ijaw fisher folks in Ondo state, Nigeria

The study revealed that the importance of culture in the management of the water resources cannot be under-estimated. It also showed that if these fisher folks are organized into Cooperative groups and contact organizations, their production level could be doubled in quantity through effective application of indigenous local/cultural knowledge. Fishermen cooperatives have great roles to play in building local skills and knowledge. These include:

(a) collective access to loans, grants and donor assistance; (b) collective bargaining power in case of disputes; (c) collective access to extension materials and subject matter specialists etc.

The initiative proved that listening groups, either through radio or via TV provided for active participation of all stakeholders. 100% of respondents declared the relevance of information provided on fish harvesting and preservation, 95% on fish smoking and 86% on fish marketing. The interest of fisher folks in the four major fisheries activities is clearly shown, where over a total of 71.8% respondents have an adoption score higher than 80%. After each meeting, results of the attitudes of fisher folks showed 100% for fish smoking, 90% for fish preservation and 88% for fish harvesting. While the relevance score of marketing channels was 89%, the adoption score was lower (79%), this may be probably due to the lack of knowledge (62%) on the channels proposed. This shows that failure or willingness to adopt an innovation is a complex function of many factors.

10. Conclusion

Inland fisheries in Africa are largely non-industrial (artisanal) in nature, including the sub-sectors of catching, processing, transportation, trade and gear manufacture, which are quite distinct occupations. In parts of Africa, fishing is a part-time activity for rural people who also tend to farm, keep animals and engage in other economic activities. Fishing is often well-

integrated within the overall pattern of work for rural households and communities, with well-established patterns of input and time allocation. Many inland fisheries are also a part of local culture and tradition, and based on local knowledge of fish resources and migrations, the use of a variety of different fishing technologies to suit particular fishing opportunities and seasonal changes in flood regimes, for example (Akegbejo-Samsons, 1995). Fisher folks and other participants in the management of small-scale fisheries in developing countries apparently face a critical dilemma. The concern to alleviate poverty among people with current or potential access to fish stocks and our response to the apparent crisis in world fisheries are severely limited. Poverty alleviation is now high on the agendas of most developing-country fishery management agencies and their partners in donor and multilateral institutions. Sustaining livelihoods of the poor in fishing-dependent communities by enabling or enhancing their access to fishing opportunities is prominent in contemporary fisheries development thinking.

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