

**Breaking the Vicious Cycle:
Managing the Water Resources of East and Southern Africa for
Poverty Reduction and Productivity Enhancement**

**Proposal and Workplan for the CGIAR Comprehensive Assessment of
Water and Agriculture**

30 April 2003

Collaborating institutions:

International Water Management Institute (IWMI)

World Agroforestry Centre (ICRAF)

International Food Policy Research Institute (IFPRI)

Sokoine University of Agriculture (Tanzania)

University of East Anglia (UK)

Maseno University (Kenya)

African Centre for Technology Studies (ACTS, Nairobi)

Co-sponsors:

Comprehensive Assessment of Water Management in Agriculture (CA)

Global Water Partnership (GWP)_(to be confirmed)

UK Department for International Development (DFID)

Objective: This project will bring together and synthesize information on the links between water resources, poverty and productivity in Africa. This synthesis will establish the “state-of-knowledge” and future research priorities.

Duration: May 2003 – May 2005

Key outputs:

- An international symposium on water resource management for poverty alleviation and productivity enhancement that reviews new results from the East and Southern African region in light of international experience in water rights and water resource governance (Sept 2004 in Dar es Salaam, Tanzania)
- An edited conference proceedings volume and synthesis papers
- Completed field study of the dynamics of property rights, water resource management and poverty in the Nyando river basin, Kenya
- Review of the dynamics of property rights, water resource management and poverty in the Lake Victoria Basin

Background

At the African Ministerial Conference on Water held in April 2002, David Grey and Claudia Sadoff of the World Bank described the vicious cycle of water resource management and poverty for the African continent as a whole. Africa has a legacy of international shared river basins, high evaporation and high hydrologic variability. That legacy increases the economic risks associated with investment in water management – risks that are magnified by the continent’s uncertain political climate. These economic and political risks increase the costs and reduce the expected returns of water resource management – higher costs that the impoverished people and governments of Africa can ill afford. The result is extremely low levels of investment in water resource management compared to all other regions of the world. This low level of investment in water resources in turn means millions of people are forced to rely on very low levels of low quality water and that potential water resources are not put to most productive use¹.

There is some evidence to suggest that the negative consequences of this vicious cycle are disproportionately distributed. Some poor groups of people may lose in 3 ways. First, they suffer from the lack of jobs and income that results from low water storage at the national level. Second, they do not have access to limited public water supplies and are able to purchase only very small quantities of expensive privately-supplied water. Third, they are left behind or may lose out from the limited developments that do allow some people or sectors to escape the vicious cycle.

A combination of policy reform, greater investment, better planning and more inclusive governance at multiple levels will be needed to turn the vicious cycles into virtuous cycles. Fortunately, many African governments are now recognizing their problems and are undertaking reforms to address those problems. In many cases these reforms are constrained by a lack of knowledge about the overall problems, the effects of water resource management on the poor, and the likely consequences of changes, which are often highly context-specific. This project seeks to partially fill this gap. The emphasis will be on East and Southern Africa where the collaborating institutions have been involved in a number of relevant studies over the last 4-5 years.

Purpose and objectives:

Beneficiaries:

Policy makers, governments and NGOs concerned with poverty alleviation of rural communities, through efficient management of water and land resources. Poor rural communities, whose livelihoods crucially depend on water and land resources in the study basins. National collaborators will benefit from capacity building through students’ research, workshops and dissemination of relevant research output and other information to feed into policy reform processes.

This project will be comprised of three inter-related components:

- 1) a study of the dynamics of property rights, water resource management and poverty in the Nyando river basin of Western Kenya;

¹ See David Grey and Claudia Sadoff, “Water Resources and Poverty in Africa: Breaking the Vicious Cycle. Paper presented at the Inaugural Meeting of the Africa Ministerial Conference on Water, Abuja, Nigeria, 30 April 2002.

2) a review of the macro-level context of water resource management, property rights and poverty in the Lake Victoria Basin in East Africa; and
3) an international symposium that will draw together and synthesize new research from components 1) and 2), field research recently conducted by the partners in Tanzania and South Africa, and international experience from other developing regions.

Component A: Safeguarding the rights of the poor to critical water, land and tree resources in the Nyando River basin in Western Kenya

Lead institutions: ICRAF, Maseno University, IFPRI

Component leader: Brent Swallow (ICRAF)

Other team members: Leah Onyango (Maseno University), Ruth Meinzen-Dick (IFPRI)

A1. Poverty, property rights and water resources in the Nyando River basin²

The Nyando River basin in Western Kenya covers an area of approximately 3500 km² and is home to about 750,000 people. The Nyando river has its headwaters in the Tinderet and Mau forests and drains into Lake Victoria, the second largest freshwater lake in the world. The Nyando carries very high levels of sediment, nitrogen, phosphorus and other pollutants into Lake Victoria, contributing disproportionately to the eutrophication of Lake Victoria and hence the degradation of the lake ecology and economy. The people who live in the Nyando basin are generally poor, with levels of absolute poverty ranging from 45-80% across the locations that make up the basin. HIV / AIDS levels range from below 10% to over 30% across the basin. Land degradation is very high in some areas, with massive gullies and large areas of sheet erosion.

Land use and property rights vary across the basin. The upper part of the basin is comprised of gazetted forests, commercial tea production, and small-scale agriculture on steep hillsides that were de-gazetted as forests during the last 20 years. Mid-altitude areas are a mixture of small-holder farms (with tea, coffee, bananas, sweet potatoes, maize, dairy) and large-scale commercial farms (mostly sugar cane). The flood-prone lake shore area is mostly used for subsistence maize production, sugar cane production and some irrigated rice production, with clear differences in land use between long-settled areas and resettlement areas. The irrigated areas are owned by smallholder farmers and the moribund National Irrigation Board. Many of the NIB areas have been abandoned due to the high levels of silt and lack of system maintenance, while smallscale irrigation using treadle pumps is increasing.

Since 1999, the Kenya Ministry of Water Resources, ICRAF, the Kenya Ministry of Agriculture and Livestock Development and a number of other collaborators have been focusing research attention on the Nyando Basin. The Ministry of Water Resources has quantified the relative contribution of the Nyando to the nitrogen and phosphorus inflows into Lake Victoria and the spread of the pollutants around Lake Victoria. ICRAF and its partners have assessed the extent of the land degradation

² Much of this background information is gleaned from the annual reports of the ICRAF project on “improved land management in the Lake Victoria Basin.”

problems in the Nyando basin, the historical profile of land degradation, land use conversion and river sedimentation, and the causal links between land use, land use change and sedimentation of the river system. A number of technical options and management principles have been suggested for use by farmers and planners. In November 2002, ICRAF, the Ministeries of Water Resources and Agriculture, and the National Environment Management Authority of Kenya co-hosted a meeting at which a broad group of stakeholders met to review the evidence and to agree on the elements of an action plan. A variety of government ministries, local authorities, non-governmental organizations, and research organizations affirmed their interest in being involved in a cross-cutting programme to reverse environmental and agricultural decline in the basin. The outputs of this project will be of direct benefits to those efforts.

A2. Methodology

Property rights will be assessed from the perspective of legal pluralism following Meinzen-Dick and Bakker (2000).³ The legal pluralism approach does not only look at property rights as deriving from statutory law, but recognizes the co-existence of many different legal frameworks, including customary and religious law, local norms, and even project regulations. All of these frameworks can be the basis of claims to rights over land, water, and trees. Thus, access to and control over resources is the outcome of the interplay between these different types of claims, the negotiation processes that take place, and the relative bargaining power of different claimants. Acknowledging legal pluralism not only leads to a more accurate understanding of property rights as they exist, but can provide insights on how to strengthen the rights of poor households, women, or other disadvantaged groups. Statutory legal reforms alone will not change property rights, but studies of this kind can identify ways to operationalize state law with regard to functional local rules and regulations that address the needs, in particular, of the rural poor. On the other hand, if in local water tenure all male and female members of a community have at least some say in resource water management and local leaders (chiefs, local government) are at least to some degree accountable to all members, vesting formal collective resource entitlements in community groups makes sense, provided these accountability arrangements are built upon and reinforced.

Special attention will be given to the endogenous and inter-dependent nature of water, land and tree rights. De facto property rights in a river basin will be determined through a complex interplay of national level laws and regulations, which can be regarded as exogenous to the river basin, and local-level dynamic processes which must be regarded as endogenous. Agriculturalists often claim presumptive or formal rights to water through their formal rights to land adjacent to or over certain water resources. In addition, recent studies have shown an inter-dependency of land and tree rights in several locations in Africa, while studies highlighting inter-linkages with water rights still remain limited.

Rights to water will be related to poverty dynamics of households and communities through combination with a protocol for assessing pathways in and out of poverty. This protocol will build upon the protocol developed by Anirudh Krishna (2003) of

³ See Meinzen-Dick, Ruth S. and Margaretha Bakker. 2001. Water Rights and Multiple Water Uses: Issues and Examples from Kirindi Oya, Sri Lanka. *Irrigation and Drainage Systems* 15 (2): 129-148.

Duke University and refined for application in Kenya by Krishna, Patti Kristjanson and Andrew Odero.⁴

A3. Workplan

This component of the project will be led by ICRAF and will be implemented by ICRAF (Brent Swallow), Maseno University (Leah Onyango) and IFPRI (Ruth Meinzen-Dick).

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1. Assemble information on key issues related to property rights, land and water use, water supply and water harvesting, and poverty in the Nyando basin from published and unpublished studies, the Ministry of Lands, the Constitutional Review Commission proceedings, press reports, district and provincial environment committees, and other key informants.
2. Describe and map hydronomic / property / poverty domains in the Nyando basin.
3. Workshop of the project team to agree upon research design, methods and instruments.
4. Select 8-10 study sites (sub-locations) to represent the range of conditions existing in the Nyando basin
5. Implement a protocol to assess village and household dynamics of poverty, property and water resources in the basin. The protocol will be revised to follow up issues of resource use, property rights and governance in more detail. The protocol will be applied in the selected study sites, with community-level data collection and household level questionnaires applied to 20-40 households per site.
6. Issue a preliminary report on the basis of the village-level studies.

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7. Process the information and data collected. Undertake descriptive and statistical analysis of the data. Prepare several draft papers.
8. Present results at a meeting of stakeholders in the Nyando basin, including the District and Provincial Environment Committees. Papers prepared by ACTS on the national-level results will be presented at the same meeting.
9. Revise papers and submit at least 2 submissions for CAPRI working papers.
10. Prepare a policy brief and present a briefing at the Ministry of Lands.
11. Present results at regional meeting.

⁴ Krishna, Anirudh (2003) 'Escaping Poverty and Becoming Poor: Who Gains, Who Loses, and Why? Accounting for Stability and Change in 35 North Indian Villages', Working Paper, Sanford Institute of Public Policy, Duke University, Durham, NC.

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12. Complete PhD thesis of Leah Onyango.

13. Complete project reports, CA publications, book chapters for Symposium proceedings and journal articles.

A4. Outputs

- A characterization of the hydronomic zones of the Nyando basin, with geographic overlays of patterns of resource degradation, poverty levels and population densities.
- An assessment of the primary economic and policy factors shaping the dynamics of use of land, water and tree resources in the Nyando basin.
- A participatory analysis of the dynamics of poverty, property rights and water resource management in about 8-10 purposively selected villages in the basin.
- Identification of the groups most vulnerable to changes in the basin, priorities for water resource development, and need for changes in property rights policies.
- PhD thesis of Leah Onyango

Component B. Review of the dynamics of property rights, water resource management and poverty in the Lake Victoria Basin

Lead Institutions: African Centre for Technology Studies (ACTS, Nairobi)
Component Leader: Evans Kituyi

B1. Dynamics of property rights, poverty and water resource management in the Lake Victoria Basin

In many ways the Lake Victoria basin typifies the vicious cycles of under-investment, high risk, extreme poverty and environmental degradation described by Grey and Sadoff (2002). The basin is comprised of 5 countries (Rwanda, Burundi, Uganda, Tanzania and Kenya), with 3 of those countries sharing the riparian area. Lake Victoria is an upper catchment of the much larger White Nile basin, which stretches from the outlet at Jinja, Uganda to Sudan, where it joins with the Blue Nile, and through Egypt to the Mediterranean Sea. Bilateral and multilateral negotiations about the use of the water resources in the basin have often been strained, with negative knock-on effects for cooperation in other spheres of mutual interest. The Lake Victoria Development Programme of the East African Community and the Nile Basin Initiative have been put in place to support greater information sharing, joint development, and cooperative management of the Lake Victoria and Nile basins. ACTS is working with the East African Community to support common approaches to Environmental Impact Assessment in the Lake Victoria Basin and beyond.

Conditions vary considerably across the basin. Human and livestock population densities are highest in the western highlands of Kenya (as high as 850 persons / km² in Vihiga District) and are lowest in the semi-arid rangelands of Tanzania. Poverty levels are high throughout the basin – high and fairly stable in Tanzania, high and

Component C: International Symposium on Reforming Water Management for Productivity Enhancement and Poverty Eradication in Sub-Saharan Africa

**Submitted by IWMI; organized by Sokoine University of Agriculture, IWMI, University of East Anglia, IFPRI, ICRAF; supported by DFID and GWP
7-9 September 2004, in Dar es Salaam, Tanzania**

Background

Both in Sub-Saharan Africa and elsewhere, institutional reform in the water sector and new water rights systems to implement Integrated Water Resources Management within basin boundaries in order to increase water productivity have evolved considerably over the past decade. However, these water reforms have paid little attention as yet to the specific nature of Africa's economic water scarcity: water resources are available, but the economic means are lacking to invest in developing water resources to improve water productivity, predictability and reliability, mitigate droughts and protect against floods. Therefore, a goal of water reform that is more important in Sub-Saharan Africa than elsewhere is to stimulate investments in affordable infrastructure from local to basin level for the rural majority of small-scale farmers, besides increasing needs for hydropower, the urban population, and other uses. Various conditions of Sub-Saharan countries also warrant specific responses to render water reform effective. These conditions include physical features (variable and unpredictable climate, geo-physiography), socio-economic characteristics (the predominance of agriculture as engine of economic growth and poverty eradication), and legal-institutional contexts (local communal water tenure arrangements, under-resourced governmental line- and administrative agencies, strong donor presence, and many transboundary basins).

A critical evaluation of ongoing water reform in Sub-Saharan Africa in the light of these specific conditions and primary goals is vital to render future policy, law formulation and institutional design and implementation more effective.

Aim and Outputs

The aims of the international symposium 'Reforming Water Management in Agrarian Societies in Sub-Saharan Africa' are to:

- Take stock of ongoing policy, legal, and institutional water reform in Sub-Saharan Africa, through presentations of research findings of projects sponsored by DFID and the Comprehensive Assessment for Water for Food and Environment, and resource persons
- Evaluate recent experiences in the light of the key water-related physical, socio-economic and technical issues in the region, and compare with best practices elsewhere identified by IFPRI
- Identify generic lessons on the best practices and main obstacles in water reform in Sub-Saharan Africa
- Identify research gaps and formulate a future research agenda.
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Outputs include a published book with selected papers and symposium conclusions, as well as a number of research papers available on the world wide web via collaborating organisations' websites.

Program

The program for 3 days consists of three major components:

- a. Commissioned Papers by seven (single or co-authoring) key African researchers (through WaterNet, SWMnet, SACCAR LWMRP, universities etc), policy makers (Africa Water Task Force; African Ministerial Council on Water Management), and development and financing initiatives and institutions (NEPAD; African Development Bank; Nile Basin Initiative; and other donors)
- b. Presentations of findings of completed research, including:
 - Raising Irrigation Productivity and Releasing Water for Intersectoral Needs (RIPARWIN), a DFID supported project implemented by Sokoine University of Agriculture (SUA), University of East Anglia (UEA), and International Water Management Institute (IWMI).
 - Improving the Management of Rainwater Harvesting Systems – a cluster of DFID - NRSP supported projects implemented by SUA and University of Nottingham
 - Productivity of Water in Agriculture and Interacting Systems (PWAIS), a Comprehensive Assessment supported project implemented by SUA, UEA, and Mekelle University and ICRISAT
 - IWMI – DWAF South Africa: Comprehensive Assessment supported action-research on redressing inequities through water law in the Olifants and Mhlatuze Basins
 - ACTS: Dynamics of water resource management, property rights and poverty in the Lake Victoria Basin
 - ICRAF: (1) linkages between water management and poverty in upper catchments and implications for water reform; and (2) Comprehensive Assessment supported research by ICRAF and ACTS on the dynamics of poverty and property rights to land and water from local to national and basin level in Kenya
 - GWP – IWMI: best IWRM practices in Manyame Basin, Zimbabwe; and
 - SEARNET activities supported by RELMA and GWP.
- c. Parallel sessions for authors responding to selective call for papers.
 - Some 10 – 20 oral presentations
 - Several poster presentations

Venue and Dates

The three-day symposium takes place from 7-9 September 2004, in Dar-es-Salaam, Tanzania (tentatively Golden Tulip Hotel). An optional field visit of 3.5 days to the Upper Ruaha Basin (650 km from Dar-es-Salaam on the Tanzania – Zambia Highway) will be organized immediately after the symposium, from 10-12 September. Costs for the field visit will be borne by participants.

More than 100 participants are expected.

Organizing committee

Local: SUA, University of Dar-es-Salaam, Ministry of Water and Livestock Development, and Ministry of Agriculture and Food Security

International: SUA, IFPRI, IWMI, University of East Anglia, University of Dar-es-Salaam, GWP, ICRAF