Transboundary Issues that require attention through the Kagera TAMP

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This provides a rapid review of relevant ongoing work in the region to address the transboundary issues that were identified for attention by Kagera TAMP (ref. Note for the First Kagera TAMP Regional Project Steering Committee Meeting on 29 November 2005 in Entebbe). It is intended that this review be updated and completed by the national project managers in each TAMP country.

1. Bush burning

In addition to harmonization of regulations across the river basin, action is needed to enhance control and management of wild fires through improved community awareness, knowledge of alternative uses (and potential value) of biomass from common grazing/ rangelands.

- In Rwanda where land is in short supply and all biomass is valued there is far less burning than across the border in Tanzania where savanna areas/ grasslands are regularly burned with devastating effects on the resource base (loss of vegetation cover and biodiversity, soil degradation, erosion and reduced ecosystem function e.g. hydrological regime, nutrient cycling, air pollution, carbon emissions.
- Conservation agriculture practices and zero grazing options provide the opportunity to promote fire control and management as locally available biomass becomes highly valued for soil cover and animal feed.
- Bush burning has been found to contribute substantially to nutrient inputs in Lake Victoria[1] in addition to land runoff. This scientific knowledge provides an impetus for action to control indiscriminate burning.

Case studies and projects that address bush burning in the region

The Namibia-Finland Forestry Programme (4 years) was initiated in April 1997. This Programme also encompasses Forest Fire Control as one of its components. It was preceded for one year by a Pilot Project on Forest Fire Control for East Caprivi. The goal was a **30 % Reduction in Fire Incidents in three Years**. The aim of this project was to transfer the responsibility of forest protection to the users and beneficiaries of the forests, i.e. local communities. The project embarked on two different approaches to the fire problem:

- To support public relations and extension activities for forest fire prevention within the Government and the training and mobilizing of local communities into fire management units.

[1] Nutrient input appears to originate mainly from atmospheric deposition and land runoff, together accounting for approximately 90% of phosphorous and 94% of nitrogen input into the lake. The increase in eutrophication is most probably due to an increase in nutrient input from these sources, as a result of increased human activities in the lake surroundings, such as land exploitation for agriculture and forest burning. Policies for sustainable development in the region, including restoration and preservation of the lake's ecosystem, should therefore be directed towards improved land-use practices and a control over land clearing and forest burning. Estimation of water pollution sources in Lake Victoria, East Africa: Application and elaboration of the rapid assessment methodology. Ref: Scheren P. A. G. M. (1) ; Zanting H. A. (2) ; Lemmens A. M. C. (2) (1) UNIDO, COTE D'IVOIRE (2) Faculty of Technology Management, Centre Technology for Sustainable Development, Eindhoven University of Technology, PAYS-BAS

- To run a massive Fire Campaign in schools and local organizations in the area, involving all stakeholders. This includes the production of written material, posters, bill boards, theatre plays, radio programmes and videos.

www.fire.uni-freiburg.de/iffn/country/na/na_1.htm

Alternatives to Slash-and-Burn (ASB) is a global consortium founded in 1994 as a system-wide programme of the Consultative Group on International Agricultural Research (CGIAR). ASB's origins lie with the UN Rio Environmental Conference of 1992. ASB's goal is to develop and test strategies for reducing environmental degradation and improving rural livelihoods along the forest margins of the tropics. Its objectives are the development of improved land-use systems and policy recommendations capable of alleviating the pressures on forest resources that are associated with slash-and-burn agricultural techniques. www.asb.cgiar.org

Kenya's National Agriculture and Livestock Extension Programme (NALEP): Improved fallow: Wild Sunflowers Enrich Fertility of African Farms

NALEP, with implementation support by the Swedish International Development Agency, are now touring the countryside setting up farmers' groups in areas where Tithonia is found. Also collaborating on the project are the Kenya Agricultural Research Institute (KARI), the Kenya Forestry Research Institute (FORRI) and the World Agroforestry Centre (ICRAF). As African countries grapple with dwindling crop yields and famine, some farmers in Eastern Africa have discovered a new way to replenish soil fertility and increase farm yields. Eunice Gichiku Kinyua, a 40 year old Kenya farmer, is among hundreds of farmers in rural Kenya who have discovered that the wild sunflower (*Tithonia diversifolia*) replenishes soil fertility and helps increase crop yields. The use of *Tithonia*, also known as Mexican sunflower, to replenish soil fertility and as a substitute for fertilizers in east African nations has been the focus of work of research institutions in the region and is the latest opportunity for extension officers.
www.ens-newswire.com/ens/feb2003/2003-02-18-01.asp

ICRAF- RELMA - Regional Land Management Unit

In January 2004, RELMA was integrated into the World Agroforestry Centre (ICRAF).
RELMA's development goal is improved livelihoods among small-scale land users and enhanced food security for all households. Its objective is an increased outreach and quality of programmes, projects and institutions, which empower small-scale land users to improve food security and reduce poverty. It also addresses burning in promoting improved land management. www.relma.org

2. Livestock issues and wildlife management

There is a need for harmonization of laws and regulations among countries regarding livestock movements, trade and disease control. Guidance is needed on what is being done through existing transboundary programs (PACE; tsetse control…) and what additional action if any is required through TAMP. Links could be established with the **African Union – Inter-African Bureau for Animal Resources (AU-IBAR**) www.au-ibar.org). The project could also look at the impact of land use change, converting land in cattle corridors to, for example, ranches, sugarcane and other large scale farms) and its implications for dry season grazing.

There is a need for harmonization of policies and regulations for wildlife movement and hunting, and harvesting of wildlife species (animal and plant). For example, extend the Akagera national park in Rwanda across the border and river into Tanzania; management options and benefit sharing arrangements for communities living close to the parks and

reserves. It is proposed that Kagera TAMP address such issues through its sustainable land management plans.

Case studies and projects that address livestock and wildlife in the region

Diseases of Importance at the Wildlife/Livestock Interface in Kenya: A paper that briefly describes the wildlife/livestock interface in Kenya, with emphasis on important animal diseases. It suggests measures to enhance disease control and improve trade in wildlife, livestock, and their products. Wambwa - Wildlife-Lifestock Interface Kenya.pdf

South African Experiences of Access and Benefit–Sharing in Protected Areas
Annex 2 in: www.ias.unu.edu/binaries/UNUIAS_ProtectedAreasReport.pdf

Piloting Livestock and Wildlife Integration in Communal Lands Adjacent to Protected Areas in Africa (Tanzania) www.virtualcentre.org/en/res/tanzania.htm
Objective: A significant reduction in conflict over access to resources through the integration of pastoralism, cropping and wildlife conservation through effective policy and institutional change.
Project coordination: FAO, hosting the secretariat of LEAD (Livestock, Environment And Development) is the executing agency of the project, under a contractual arrangement with the World Bank. The FAO Representation in Tanzania can provide information on progress. Contact: lead@fao.org; fao-tz@fao.org

Animal Health for the Environment And Development (AHEAD) case study: Diseases of Importance at the Wildlife/Livestock Interface in Kenya
This paper briefly describes the wildlife/livestock interface in Kenya, with emphasis on the important animal diseases at this interface. It suggests measures to enhance disease control and improve trade in wildlife, livestock, and their products.
www.wcs-ahead.org/book/chapter03.pdf;
www.wcs-ahead.org/abstracts/ab_wambwa.html

Decision support system for the control of Trypanosomaisis in South-East Uganda; improving public health and livestock productivity through the cost-effective control of Trypanosomaisis in livestock
Objective: To enable policy makers, public institutions, communities and individual smallholder farmers to identify appropriate and cost-effective methods for the sustainable control of trypanosomosis in cattle of South-East Uganda, thereby improving the performance of smallholder livestock, and reducing the public health burden due to sleeping sickness.
Project coordination: DFID financed, Managing Institute: University of Edinburgh
Contact: Livestock Health Research Institute, Uganda, PO Box 96, Tororo, Uganda, Phone: (+256) 45 44356, Fax: (+256) 45 42135
www.research4development.info/projectsAndProgrammes.asp?ProjectID=2392

3. Water resources management – quality and quantity issues

The **Kagera River Basin Integrated Water Resources Management Project (IWRM)** and the **Efficient Water Use for Agricultural Production (EWUAP)** project, both under the Nile Equatorial Lakes Subsidiary Action Program (NELSAP), and the **Lake Victoria Environmental Management Project (LVEMP)** are addressing water allocations, information, resource management, improved water use efficiency. However there is a clear need for more capacity building on integrated approaches for land, water and biological resources planning and management. It is suggested that mechanisms for close coordination (information sharing, joint planning and PSC) and collaboration (joint

training, databases, etc) are required between the projects. Kagera TAMP could provide guidance on integrated management approaches at farm, communities and watershed levels leading to reduced soil erosion, sedimentation and pollution (e.g. horticulture and paddy) and effects on HEP.

Projects on water resources management in the region

Development of an improved method for soil and water conservation planning at catchment scale in the East African Highlands (SWCP) www.alterra.nl
Project coordination: Programme on Water for Food and Ecosystems (Wageningen University)
Contacts:
African Highlands Initiative (AHI) secretariat, hosted by ICRAF, ahi@cgiar.org
Kenya Agricultural Research Institute (KARI), Embu
Tanzania Agricultural Research Institute (ARI) - Mlingano, Tanga
The Netherlands Mr. Rik van den Bosch, Alterra - Green World Research, Centre for Water and Climate Studies, PO Box 47, 6700 AB Wageningen, The Netherlands,
Tel +31 (0)317 474479, rik.vandenbosch@wur.nl

The African Highlands Initiative (AHI) is an ecoregional program of the Consultative Group for International Agricultural Research (CGIAR) and a network of the Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA) hosted by ICRAF. Its aim is to improve livelihoods and reverse natural resource degradation in the densely settled highlands of eastern and central Africa. AHI is a consortium of eastern African and international research organizations that work with local communities, local governments and development partners in Ethiopia, Kenya, Tanzania, Uganda and Rwanda. www.africanhighlands.org

4. Soil erosion, sedimentation and impacts on wetlands and flood control

It is proposed that a major role of Kagera TAMP is to improve land management practices (cropping, livestock, etc) through for example, conservation agriculture, agroforestry, zero grazing, fodder and rangeland management and above all integrated ecosystem approaches. This should lead to greatly reduced runoff, soil erosion, sedimentation of wetlands, rivers and inland waters and increased productivity and improved ecosystem function (notably the hydrological regime, nutrient cycling, carbon emissions).

Case studies and ongoing projects on soil erosion and runoff management in the region

Lake Victoria Research (VicRes) Initiative, Wetland Research in the Lake Victoria Basin, Kenya Part Analysis and Synthesis Report by Dr. Nathan Gichuki, Inter-University Council for East Africa
The wetlands of Lake Victoria play an important role in the livelihood and subsistence economy of local communities. They are sources of fresh water, fish, medicinal plants, and vegetable species. They also support subsistence agriculture, as well as mining of sand and soil, which are used to make marketable products. Wetland vegetation, especially papyrus, grasses and water hyacinth provide materials for making mats, baskets, furniture and other marketable products (M'mayi and Katua 2001). These economic activities contribute to poverty alleviation and job creation in rural areas.
www.iucea.org/General_Public/socio_economic_aspects.php

Integrated Soil Productivity Initiative through Research & Education (INSPIRE)
The INSPIRE Consortium was formed in September 1999 to create & strengthen linkages among research, government & non-governmental organisations (NGOs) extension

systems in their endeavour to address the problem of declining soil fertility & crop productivity in Eastern Uganda. The Consortium's goal is to empower farmers to overcome food insecurity & poverty by enabling them to improve the fertility of their soils & improve crop yields.
FAO has collaborated actively with INSPIRE on piloting FFS on land and water management and on their integration into the National Agricultural Advisory Services (NAADS) in Uganda. Such FFS have also been piloted in NW Tanzania including Conservation Agriculture and soil biological management/soil biodiversity in collaboration with the CA-SARD project (Sustainable Agriculture and Rural Development in Bukoba and Arusha and also in Kenya), the Improved Land management network for the Lake Victoria basin and with agricultural research institutes ARI Maruku in Bukoba, and ARI Ukiriguru in Mwanza in Tanzania.
Contacts:
INSPIRE Consortium Secretariat, Programme Coordinator, Africa 2000 Network Tororo, P.O. Box 787, Tel: 045-45163 or 077-501949, Email: a2n@africa2000network.org, District Agricultural Officer, Tororo, Tel: 077-843911, Email: johnwakinya@yahoo.com
Project Coordinator, CIAT, P.O. Box 6247, Kampala, Tel: 041-566415 or 077-640915, Email: p.kankwatsa@cgiar.org
CA-SARD www.fao.org/SARD/en/sard/754/2322/2317/index.html

As noted under the section on Water resources management – quality and quantity issues, also relevant here are the following activities: "**Development of an improved method for soil and water conservation planning at catchment scale in the East African Highlands (SWCP)"** and the **"The African Highlands Initiative (AHI)"** (see above).

5. Health issues related to water quality

In addressing integrated resources management the Kagera TAMP should facilitate consideration of human health and wellbeing issues. For example, poor water quality as a result of high levels of suspended solids, which exacerbates bacteria and water borne diseases (dysentery, typhoid, cholera, bilharzia, malaria), is most easily addressed through improved wetland function.

Case studies and on-going projects/programmes on water related diseases

WHO – Participatory Hygiene and Sanitation Transformation (PHAST) step-by-step guide: A participatory approach for the control of diarrhoeal diseases
The PHAST approach helps people to feel more confident about themselves and their ability to take action and make improvements in their communities. Feelings of empowerment and personal growth are as important as the physical changes, such as cleaning up the environment or building latrines. The guide has seven steps. The first five help take the community group through the process of developing a plan to prevent diarrhoeal diseases by improving water supply, hygiene behaviours and sanitation. The sixth and seventh steps involve monitoring and evaluation.
www.who.int/water_sanitation_health/hygiene/envsan/phastep/en/

Convention on Wetlands (Ramsar, Iran, 1971) – RAMSAR www.ramsar.org
The Convention on Wetlands is an intergovernmental treaty which provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources. It was adopted in the Iranian city of Ramsar in 1971 and came into force in 1975, and it is the only global environmental treaty that deals with a particular ecosystem. The Convention's member countries cover all geographic regions of the planet. All the four countries from the Kagera TAMP are have signed this

Convention on Wetlands and have identified wetlands for recognition for RAMSAR status and support in protection and management.
Contact: Ramsar Secretariat, Rue Mauverney 28, CH-1196 Gland, Switzerland, Tel. +41 22 999 0170, fax +41 22 999 0169, E-mail: ramsar@ramsar.org
Tanzania has 4 sites and is newly designating sites in the Kagera basin Contact: Ministry of wildlife and tourism
Uganda added 9 wetlands to the List of Wetlands of International Importance designated under the Ramsar Convention in September 2006, bringing the national total to 11 sites covering a total of 354,803 ha. These include Lake Mburo-Nakivali, and Sango Bay-Musambwa Island, in the Kagera basin.
Burundi and Rwanda have each one designated sites, Burundi is a member of Ramsar since 2002 and Rwanda only recently in April 2006

6. Water hyacinth

Water hyacinth control is a major issue in upstream tributaries of the Kagera river, with its associated problems of asphyxiation and effects on aquatic life, fish stocks and water quality as well as impeding transport. It has been agreed that the LVEMP will maintain responsibility for water hyacinth control, including the upstream areas in Rwanda and Burundi, which are sources of the water hyacinth affecting also downstream areas. (NELSAP will no longer handle this issue to avoid duplication).

Case studies on water hyacinth

Biological Control of Water Hyacinth in the Kagera River Headwaters of Rwanda: A Review Through 2001 www.cleanlake.com/rwanda_bio_paper.htm
Contacts: P. Agaba and T. G. Moorhouse, Clean Lakes, Inc. – Uganda, Nile International Conference Center, Room 235, P.O. Box 7057, Kampala, Uganda. aquatics@imul.com
T. Asiimwe, Institut des Sciences Agronomique du Rwanda (ISAR), P.O. Box 138, Butare, Rwanda. E-mail: astheodore@yahoo.ca
T. J. McNabb, Clean Lakes, Inc. P.O. Box 3186, Martinez, CA 94553. E-mail: info@cleanlakes.com, or tmcnabb@aqautics.com.

Water Hyacinth in Africa and the Middle East: A Survey of Problems and Solutions (with support of IDRC) www.idrc.ca/en/ev-9427-201-1-DO_TOPIC.html
Contacts in the region:
Tanzania

- Ministry of Agriculture and Livestock Development
- Plant Protection Division (biological control)

Uganda

- Ministry of Agriculture, Animal Industry and Fisheries, Fisheries Department (coordination of national water-hyacinth control)
- National Agricultural Research Organisation
- Fisheries Research Institute (ecology and socioeconomic-impact studies)
- Namulonge Research Institute (biological control; collaboration with International Institute for Tropical Agriculture (IITA)–Gesellschaft für Technische Zusammenarbeit (GTZ), Commonwealth Science Council, and Commonwealth Scientific and Industrial Organization)
- National Environmental Authority
- Environmental-impact assessment
- Nongovernmental organizations, such as Aquatics Unlimited

Biological Control Initiatives against Water Hyacinth in South Africa: Constraining Factors, Success and New Courses of Action by M.P. Hill and T. Olckers

www.aciar.gov.au/web.nsf/att/JFRN-6BN8Z6/$file/pr102chapter04.pdf
Contacts: Weeds Division, ARC–Plant Protection Research, Institute, Private Bag X 134, Pretoria 0001, South Africa, Email: Rietmh@plant2.agric.za and ARC–Plant Protection Research Institute (PPRI), Private Bag X 6006, Hilton 3245, South Africa. Email: ntto@natal1.agric.za

7. River bank management

Regulations are in place in all countries however the protected area varies for example from 10m for rivers and 50m for lakes in Rwanda to 100m for rivers in Uganda. This creates conflicts and problems of enforcement where the river coincides with the border. Kagera TAMP could help improve bye-laws and obtain community suggestions for improved management.

There are not many reports on improving byelaws for riverbank management. But in general it is agreed that the enforcement of existing byelaws has to be encouraged. If one of the countries decides to revise its byelaws for river bank management the project should encourage the policy makers to involve the local communities from the beginning of a byelaw making process.

8. Impact of refugees on community based management approaches

Refugee movements influence sustainability and investment in land resources management, as well as threats to security, e.g. Burigi-Akagera boundary areas and Lake Mburo National park.

No specific information on this topic is ready available, however, in the national Poverty Reduction Strategy Papers (PRSP) many challenges are acknowledged, such as pressure on environment (because refugees use water and forest resources), need of social services such as health and educations (which requires new hospitals and schools as well as professional workers), spread of HIV/AIDS and insecurity, which the refugees feel as well as their poor living conditions.

The Fact Sheet on Refugee Youth and Poverty Reduction notes that the mentioned problems can be solved through the local districts' programs with support of the refugee communities and the international partners. The PRSP recommend international partners supporting the refugees to coordinate the efforts with the local authorities. www.un.org/esa/socdev/unyin/documents/TPT21.pdf

9. Charcoal making and trading

To satisfy charcoal needs in certain areas, wood is being harvested and burnt for charcoal and in some case traded across the country borders e.g. Tanzania-Rwanda and Tanzania–Uganda. The TAMP could assess the extent of this issue and propose solutions through sustainable community plans and cross-border consultation.

There is no specific literature on the cross-border issues of charcoal making and trade, although there is a lot of literature about the amount of charcoal and wood is use in these countries and possible alternative energy sources or improved charcoal making techniques. A major problem constraining adoption of alternative energy sources, even by urban centres, is the high prices; electricity remains costly and not affordable by many households nor by small industries due to the severe energy shortages in the region.
Here is one example of relevant literature from Uganda:
rael.berkeley.edu/files/2005/Kammen-Lew-Charcoal-2005.pdf

10. Crop pests and diseases

Movement of crop products is leading to spread of diseases. In the project document the major ones cited include: leaf pests such as caterpillars, army worm; banana weevils and nematodes, *Sigatoka* and Panama (*Fusarium* wilt), coffee rust, cassava mosaic virus, mealy bug and green mite. It is suggested that TAMP facilitate the identification and exchange of disease resistant varieties and participatory breeding and propagation approaches among communities in the basin.

Case studies and ongoing programmes on IPM and crop protection

There is a lot of literature on participatory plant breeding, integrated pest management and the use of farmer field schools (FFS) for empowering farmers in pest and disease control and management.

Expansion of Farmers Field Schools Programme in Eastern and Southern Africa
This project is funded by the International Fund for Agricultural Development (IFAD) and executed by FAO (AGPP/RAF). The purposes of the Programme are to:

- Promote the institutionalization and scaling up of the farmer field school (FFS) approach through the building of local capacity for FFS-service provision and facilitation, the development of self-financing mechanisms for the FFSs and the linking of the Programme to other relevant initiatives in the countries;
- Broaden the scope of the FFSs and build the skills and methodologies necessary to enable the promote the institutionalization FFSs to respond to farmer demand relative to issues such as marketing, financial services and HIV/AIDS; and
- Promote and support the emergent movement of FFS networks and strengthen their capacity to undertake key activities on behalf of their members.

One of its components is the promotion of integrated production and pest management (IPPM) of banana, cotton and mosaic virus resistant cassava production through FFS.

As an example for **Participatory Plant Breeding**:
"Decentralized Participatory Plant Breeding" by Salvatore Ceccarelli www.icarda.org/Farmer_Participation/PDF/Papers/8IBGS00S.pdf