Policy Constraints facing Agricultural Development, Environmental Conservation and Poverty Reduction in East Africa

Yatich Thomas1*, Joseph Mutua2, John Waithaka3, Ronald Kaggwa4, Catherine Mbaisi5, and Charles Lyamchai6


Abstract

Agriculture is often cited as the key cause of habitat loss. This is because East African economies are principally agriculture-based. Food demand heightened by efforts to meet food security goals are likely to influence the design and implementation of innovations like eco-agriculture that try to balance economic and ecological objectives. Obligations like meeting the Millennium Development Goals (MDGs) increases prospects of the adoption of such innovations. National economic planning blue prints (e.g. Vision Kenya’s 2030, Uganda’s Poverty Eradication Action Plan (PEAP), 2004 and Vision 2025 of Tanzania, 1999) and now the National Development Plan in the making treat agriculture as driving growth, industrialization and poverty reduction. In light of the ‘place’ of agriculture in national growth, it has also been the main agent of environmental degradation. The drive to meet national food security goals and export growth has been sectoral ignoring ecological objectives including biodiversity conservation. Conservation areas are shrinking as conflicts between smallholders some of whom have been displaced from other prime agricultural areas and conservationists are increasing. Land sizes and their productivity are declining as important habitats are threatened by land use conversion and growing populations. Critical ecological life support functions have been disrupted and are posing real threats to livelihood security. Continued adoptions of segregated management models which do not address the interests of smallholders and weaknesses associated with law enforcement and the limited incentives have enhanced biodiversity loss both within protected and agricultural landscape mosaics. Integrated approaches like eco-agriculture innovations, advance land use systems for enhancing agricultural productivity and production of environmental services leading to achievement of win-win solutions: restoration of degraded ecosystems and realization of social and economic goals. If innovations that balance ecological and economic objectives are to be mainstreamed in policies, plans and programmes and scaled out, researchers, planners and practitioners need to work within an enabling policy and legislative context so as to effectively promote adoption and impact by bridging science-policy interface. Policy provisions are poorly enforced and do not have in-built incentive mechanisms or reward systems for ecosystem protection and as a result multiple interests take toll on ecosystems and associated ecosystem services. The interface between multiple interests within policy contexts involving disconnects between practices and the ‘spirit’ of the laws indubitably makes agricultural development, environmental conservation and poverty reduction a challenge for East African economies. In this paper we examine the existing institutional ‘architecture’-disconnects and gaps between existing policies and legislation and their potential role in shaping ecoagriculture knowledge use, access and adoption/action. We identify opportunities, policy constraints and suggest approaches for mainstreaming ecoagriculture approaches. In this paper, questions that we try to address include: what policy opportunities and constraints will potentially influence the adoption of innovations such as ecoagriculture? How best can nascent innovations be introduced into a complex policy context? How can we avoid raising expectations and would-be backlashes?

-----


*Corresponding author: Tel.: +254-(0)20-7224195; fax: +254-(0)20-7224001; E-mail address: T.Yatich@cgiar.org
1. Introduction
Ecosystems' health translates into critically required ecosystem services. Ecosystems and associated ecosystems services have generally continued to deteriorate despite countless number of conservation initiatives. In some cases, conservation approaches are seen to have inherently contributed to the problem. Stringent environmental laws have instead punished, disempowered and provided disincentives to rural communities who in several ways modify provisioning, regulating, supporting and cultural services. Despite government's commitments to improve people's livelihoods, it has often been perceived to favour the private sector, investors more often foreign and large-scale irrigators: granting users' rights\(^1\) over forested ecosystems while restricting and prosecuting adjacent rural communities who have traditionally eeked their living from such ecosystems. These combined with other factors have perpetuated poverty, ecosystem degradation and inadequate investment in agricultural development. Recently there has been a paradigm shift from purely regulatory to a mix of regulatory and market-based approaches. This shift is premised on the potential of market-based approaches to induce baseline behavioral change for the achieving of the twin goals of poverty reduction and ecosystem conservation.

Despite Africa’s experience in community-based ecotourism initiatives that integrate wildlife with animal husbandry, the implications of the popular segregative approaches persists. These are further enhanced by stringent, exclusionary and contradictory regulations. Currently there is a growing interest from intermediarv organizations, African partners, including the private sector and parastatal firms\(^2\), in innovations like ecoagriculture because of its perceived potential to empower, provide incentives and regulate farmers’ land uses. Lessons and experiences from ongoing adoption of technologies are however not available to interested smallholder farmers and technology innovators. Many organizations\(^3\) at different scales have come forth to try and fill several gaps, but the policy and legislative ‘architecture’ seldom provide an enabling environment. Inter-organizational coordination of such mechanisms and broader stakeholder involvement is however lacking and seen as a key challenge. Modes of integration and how knowledge systems influence action at different levels or policy domains are dependent on the degree of policy enforcement, existing incentives, integration approaches and how multiple interests are balanced across and between policy domains and interest groups. Apart from the incipiency of innovations like ecoagriculture, policy constraints and different interests pursued by social groups, government, smallholders, private sector and civil society contribute to the declining agricultural productivity and deteriorating state of natural resources. Syntheses by Eco-agriculture Partners, Kenya’s and Uganda’s Ecoagriculture Working Groups have shown that it is possible to achieve both ecological and economic objectives through adoption of innovations like eco-agriculture.

1.1 Agriculture-environment-poverty nexus
Across East Africa most of the ecosystems that provide critical ecosystem services are stressed by combinations of climatic and anthropogenic pressures. Continued conversion and degradation of critical ecosystems have both direct and indirect effects on the ability of the rural poor to be adequately nourished, remain healthy, consume safe drinking water, and most importantly, earn a secure livelihood. Ecosystem associated services have also been constrained. The drivers of change of these processes are diverse but mainly include rapid population growth, urbanization, policy/legal responses and climatic variability and change. These exacerbate agricultural extensification, deforestation and overgrazing. Gaps in technology adoption, demand driven extension service models, weak and inappropriate governance and regulatory processes, insecure property rights, and

---

1 Timber Companies depleted commercial plantations providing impetus for the logging of indigenous trees
2 New source of financing for the operationalization of a payment scheme for environmental services
3 Many institutions including ICRAF, WWF, CARE, Katoomba Group Africa, IIED, World Bank, UNEP and ASARECA etc have different initiatives in this front.
biased policy processes etc further heighten different drivers of change. Existing policy constraints in the East African region instead promote intensification of agriculture to meet food self-sufficiency and income growth objectives, exclude the rural poor from the use of protected areas enhancing conversion of forested ecosystems and continued mining of soil resources. The vision behind these policies is one of a segregated landscape, with some areas used for intensive agriculture and other areas roped off for conservation purposes.

The East African highlands are under immense pressure from increased human populations, demands to meet food self-sufficiency, sectoral policy biases and decline of forest crop prices in the world market. Kenya’s largest upland forests occurring between 2000-3,500m on Mt. Kenya, Aberdare Range, Laikipia Escarpment and the Mau-Elgeyo-Cherangani mountain system (FAO, Forestry Department in UNEP, 2005) are threatened by increasing demands for timber, agricultural, grazing, human settlement and infrastructural land. In Tanzania the rate of forest loss is estimated at an alarming rate of 300,000 to 500,000 ha per annum (URT 2001, Tanzania National website). This has affected watershed, biodiversity and carbon sequestration services. The decline of coffee prices has been an impetus to deforestation and degradation of quality and quantity of watershed services in the highlands of Eastern Africa as local communities living at forest margins engage in alternative livelihood systems. Hydropower production plants, small and large irrigation schemes and downstream communities are threatened by reduced downstream flow, contamination and sedimentation of reservoirs.

Tanzania is experiencing pervasive water scarcity (UNEP, 2005) subsequently constraining hydropower production and other spiral effects on its economy. This is worsened by lack of appropriate technology to improve on water accessibility. Due to high population growth rate vegetative cover has reduced over the years leading to increased rate of run-off and precipitation. Tanzania is expected to fall into water scarcity by 2020 and stress by 2025 (Tanzania Research and Analysis Working Group 2002, FAO, 1995; United Nations, 1994; Stockholm Environment Institute, 1997) if the current land use/land cover and population dynamics continue unabated. Mujwahuzi (2002) indicated that the mean per capita water use in piped households has declined from 141.8 litres per day in 1966 to 80.2 litres per day in the mid-nineties. Un-piped rural households however saw an increase in mean per capita water use from 13.2 litres to 18.6 litres per day (Mujwahuzi, 2002). Mujwahuzi attributed these changes increased sediment loads in rivers due to increasing numbers of livestock that use the same source as humans, and human population increase (Mujwahuzi, 2002). These dynamics affect opportunities for smallholder irrigation and deterioration in supporting services (especially soil fertility) leading to decline in food provisioning services.

Uganda’s forest and wetland ecosystems are disappearing fast because of the need for agricultural land despite their important role of being sources of watershed and biodiversity services. Despite Uganda’s efforts to develop and implement a comprehensive wetlands policy and National Environment Management Act, the tide of ecosystem degradation has continued unabated. Uganda crop productivity has been in the declining trend despite its favourable climatic conditions and the existence of agricultural development policy frameworks such as the Plan for the Modernization of agriculture and the National Agricultural Advisory Programme (NAADS). Uganda’s high population growth rate (3.2%) implies an increasing demand for food which cannot be met under present conditions, including policy strategies for improved economic growth.

Interest in specific watershed services varies from one country to another, with seasonal water supply variations, deteriorating water quality, and flood risk of concern in many locations. Upland forests, agricultural and wetland ecosystems are critical sources of water for: (i) distant urban and industrial populations; (ii) electricity production utility companies, (iii) downstream populations that rely on river water for home consumption, livestock consumption, and irrigated agriculture; (iv) downstream populations that are vulnerable to floods; and (v) downstream ecosystems like wetlands and lakes.
whose goods and services in turn support a variety of human populations, including farmers. While the water and electricity needs of urban populations, industries, and large-scale irrigation have provided the impetus for significant new investments in water supply and hydropower infrastructure, these needs have not generated corresponding investments in conservation of the ecosystems that maintain and regulate the quality and quantity of those water sources. For instance in Uganda’s Budget of 2006/07 US$ 495 million was earmarked for HEP and Thermal Power generation in addition to differing loan repayments by electricity generation, transmission and distribution companies amounting to US$ 16.5 million per year to address the country’s energy scarcity in the wake of declining water levels of Lake Victoria following a drought that reduced electricity generation capacity at the Kiira and Nalubala hydropower stations from 180MW to 135MW⁴. On the contrary, no corresponding resources were allocated for protecting the watersheds and catchments on which the lake depends. Further still, in the current financial year 2008/09, only allocated 0.58% of the total national budget was allocated to environment, wetlands, meteorology and forestry. The water sub-sector that gets a bigger vote uses it to invest in water supply infrastructure with almost no investment in watershed protection as if water comes from pipes. Nor has adequate attention been paid to the welfare of downstream populations or the health of downstream ecosystems when upland ecosystems are transformed by commercial development, agriculture or forestry. Indeed, many of the watershed areas that are most critical for water supply are also areas of high human population density and high human impact on the environment. Reduced downstream flow of clean water, particularly in the dry season, has resulted in more frequent intra-and inter-community conflicts between downstream resource users over water and pasture, especially in water deficient regions. The failure of public water parastatals/utilities and the private sector more so those dependent on water as an input or as a final product to recognize and reward the land users adjacent to critical watersheds for their important roles in protecting them have encouraged ecosystem degradation and the loss of their associated services. This has sustained the pursuit of private, short-term interests/benefits by upstream farmers and the private sector/or parastatal firms bearing the huge cost of de-silt ing water reservoirs and water treatment. Sasumua Reservoir which provides 20 percent of Nairobi’s water demand is currently threatened by land use/land cover changes in the catchment. The reservoir’s intakes are clogged while the water flowing into the dam is contaminated with pollutants. Preliminary studies (Nkonya at al., 2005) indicated that the Nairobi City Water and Sewerage Company (NCWSC)⁵ spend approximately 10million shillings (approx US$ 140,000) a year to de-silt the reservoir’s clogged water intakes and water treatment. Kampala city discharges raw wastewater including municipal sewage effluent into the Nakivubo wetland via the Nakivubo channel, which ends up into Lake Victoria at the inner Murchison bay. At the same time, the bulk of Kampala’s water supply is drawn from the same bay.⁶ The Nakivubo wetland is providing water purification functions has been estimated at US$ 1.7 million annually⁷. Also at commercial prices for water in rural areas, the role that wetlands play in water supply has been estimated at US$ 25 million per year⁸. Farmer communities adjacent to reservoirs neither obtain high quality drinking water nor electricity from existing reservoirs. Smallholders are neither recognized nor compensated for the important services their lands generate or benefit from technology transfer for improved food provisioning ecosystem service. Often because of lack of policy incentives, smallholders threaten the state of ecosystem/environmental services which otherwise benefit society (Pagiola and Plattais, 2002).

Intensive agricultural activities at the watershed scale have negatively affected lake and wetland ecosystems which provide important resources to lowland communities. In Lake Victoria Basin, for

---

⁴ Uganda. Ministry of Finance, Planning and Economic Development, Budget Speech, Financial Year 2006/07. The current exchange rate of 1US=$2000/= (Uganda Shilling) has been assumed.
⁵ NCWSC is a subsidiary company that is owned by Nairobi City Council but is run as an independent entity
⁸ Ibid
example, the negative impact of the ecosystem services that has been lost is the Nitrogen (N) and Phosphorous (P) enrichment of the lake from the failure of management systems to retain and recycle native nutrients in the landscape. Intact ecosystems keep nutrients on the landscape where they are needed for biomass production, but over time and due to land use change and bad practices, these nutrients have been flowing laterally to water bodies where they cause harm. Lake Victoria has over the years flipped from an oligotrophic system dominated by dionflagellates to a highly productive eutrophic system dominated by blue green algae (WRI, 2002). This shift has had negative effects on the 30 million people who rely on the lake ecosystem. The Yala swamp, a designated International Bird Area (IBA) is under pressure from agriculture and other surrounding land uses.

East Africa’s agricultural landscapes are also reservoirs of the continent’s renowned biodiversity and landscape beauty: For example, although the forest coffee systems in the highlands of southwest Ethiopia provide in situ conservation for the world’s genetic stock of Arabica coffee, the forest coffee systems are under threat from land use change, resettlement policies and land requirements for other uses, while extraction for timber and woodfuel are destroying the remaining forest ecosystems in biodiversity hotspots in Tanzania, Kenya, Uganda, and Guinea. Previous studies of “ecoagriculture” have shown that inclusion of livelihood priorities and local agro-forestry knowledge and other forms of agricultural technical innovations can promote on-farm biodiversity conservation: the evidence also suggests that degradation of biodiversity is the norm in the absence of clear incentives for farmers to maintain or enhance biodiversity (Sara Scherr and Jeffrey McNeely, 2003; 2007).

2. Overview of trends shaping the Institutional and policy contexts

New institutional and policy trends within the region are likely to shape the pursuit of win-win approaches. These trends include re-alignment of public water management institutions leading to formation of decentralized institutions like Water Users Associations, implementation of water taxes, devolution of water resource management authority, privatization of water services and some backlash. These will potentially control allocation, regulation and conservation of water resources for agricultural development. New generational laws on water, forestry and environment that synergise one another but with costs as well have emerged. These shifts in the locus of regulation have led to declining public regulation, increasing civic regulation and standards as well as increasing industry and business self-regulation. Forward-looking economic blue prints like Vision 2030 or Uganda’s revised Poverty Eradication Action Plan/National Development Plan have implications on agricultural development, environmental conservation and poverty reduction. Do these provide an enabling environment for innovations such as eco-agriculture? Experts may argue either way, but agree that the current policy context has both pitfalls and opportunities for pluralistic innovations such as: i) national environment management authorities develop interest in economic and flexible market-based instruments; ii) ‘negotiated’ compliance with regulations emerge; iii) businesses consistently get interested in cleaner technologies; iv) farmers/businesses and government see environment as a profit centre; and iv) lower environmental impact technologies are adopted.

A new possibility to balance economic and environmental goals include the use of carbon offset payments to finance tree planting and restoration of degraded agricultural and forest lands. Across Africa there are at least 20 such projects in place (Rohit and Swallow, 2007), projects that have received finance through the World Bank carbon funds, the various funding windows of the GEF, and voluntary payments by private companies willing to offset part of their greenhouse gas emission commitments through investments that have the co-benefits of contributing to sustainable development in Africa. There is an expectation that more such projects will be undertaken in the future, as more finance becomes available through the Clean Development Mechanism and suitable methodologies get approved and tested. There are valid concerns, however, that the carbon sequestration benefit will come at the cost of excessive water use, release of invasive alien species,
and the property rights of poor and marginalized members of society. These will have implications for agriculture, environment and poverty reduction.

Strategies pursued by productive sectors are antagonistic and contradictory. A suite of previous adopted integrative approaches (e.g. the shamba system, ICDPs) resulted in ‘one-sided’ and degrading outcomes. Existing policy and legislative frameworks related to agriculture and biodiversity are not synergized, connected and coordinated. The multi-functionality of agriculture and its linkage to biodiversity conservation have been ignored in the past. Within the current agricultural and biodiversity related policies and legislation, there are inherent opportunities for the integration and pursuit of ecoagriculture\(^9\) practices—currently their adoption is ad hoc and by coincidence or chance. The regulatory context across East Africa is inhibitive to the adoption of ecoagriculture practices. Incentives and disincentives have varied impacts. Common instruments across the three countries that impact on agricultural development, environment conservation and poverty reduction include tax incentives to encourage good environmental behaviour, user fees to ensure that those who use environmental resources pay the proper value for the utilization of the resource; and tax disincentives to deter bad environmental behaviour that leads to the depletion of environmental resources or that cause pollution. However, the effectiveness and impacts of these economic incentives and disincentives have not been adequately assessed. Emerging evidence indicates that they more focused towards revenue generation than serving environmental and poverty reduction goals.

Some policies and legal regimes are inconsistent, sources of perverse impacts (result in disincentives for eco-agriculture) and do not promote inter-sectoral or multi-sectoral collaboration. Given the opportunities provided by the ongoing policy debates and the evidence base that has been built over the years, it will be possible to facilitate multi-stakeholder collaborative processes for the recognition and integration of ecoagriculture practices within agricultural landscapes.

2.1 A synthesis of policy/Legislative opportunities and constraints

Innovations such as ecoagriculture are seen as providing opportunities for achieving the twin goals of poverty reduction and environmental conservation. This is because previous interventions\(^{10}\) have either failed or experienced low adoption rates or were abandoned after adoption. The failure of governments and partners to engender the interests of the poor and downstream communities could be the source of the problem. Existing institutions and governance systems have been seen as punitive, disempowering and sources of disincentives to farmers whose activities shape useful environmental services. Across East Africa local communities have borne both the social, cultural and economic costs of prohibitive policy and legislative regimes. In East Africa communities have foregone land to conservation (In Moroto and Kasese Districts in Uganda, approximately 47 percent of the total land area is conservation land), human-wildlife conflicts, and conservation have aggravated poverty by causing deprivation (Kaggwa, 2008). For example Kenya’s compulsory land acquisition regime and Tanzania’s privatization of natural resources such as forests (e.g. Longuo Forest in Amani, Tanga) disrupts communities’ socio-cultural cohesion and creates mistrust. This affects uptake of extension advisory services and technology adoption. Land acquisition, reservoir construction and operation in the long-run will have roped the community off their land and worsen their welfare conditions by the value of the acquired land and associated resources. Ecoagricultural practices in for example, Kenya’s Ndakaini agricultural landscape has evolved as communities organize initiatives around the Ndakaini Dam.

\(^9\) In a brief by Ecoagriculture partners, Ecoagriculture is defined as “landscape management that explicitly conserves biodiversity and ecosystem services while also sustainably producing crops, livestock, fish and forests, and enhancing rural livelihoods”

\(^{10}\) Direct government control, ‘demonstration’ and regulatory approaches and subsidies etc
In Uganda, there are ongoing dispossession and displacement of the poor smallholders from their land especially in the central region through the emerging land market, a phenomenon that is causing poverty and worsening human vulnerability. Indeed findings from the Village Census (2001), revealed that the size of land held by the poor is diminishing, land is increasingly concentrated in the hands of the few and that the middle and poorest categories have seen land ownership decrease significantly since 1993.\textsuperscript{11} Yet recent evidence indicates that a more equitable distribution of land is more likely to increase productivity, since small farms are more productive per unit of land than larger farms. Thus, while the emergence of the land market is a welcome development, its failures ought to be recognised and appropriate corrective actions taken.

East African countries have formulated and implemented policies and legislations that offer opportunities for the mainstreaming of innovations that not only increase productivity but conserve biodiversity. The new water, land and forestry legislations recognize the importance of forested ecosystems in providing ecosystem services and the role of the participation of local communities. Beginnings of synergies between new environmental laws in Kenya and across East Africa provide windows of opportunity for policy reform, design and implementation of new innovations. In Kenya, for instance, the synergies (at instrument and process levels) between the Water Act, 2002; Forest Act, 2005 and the Environment Management and Coordination Act, 1999 provides an enabling environment for the design and adoption of reward mechanisms. Provisions and institutional structures established by these statutes provide opportunities for the adoption and implementation of reward mechanisms. For instance the Tanzania’s new National Land Policy was designed to be more rewarding by considering proper land tenure system, encourage optimal and judicious use of the land, guide land allocations, prevent land degradation, resolve conflicts, and facilitates efforts to obtain ecological balance. Land tenure is a crucial issue for sustainable utilization of land resources. It is conceivable that land tenure security and the resources therein, influence the level of investments for land conservation. Michael and Dwight (1998) and Eswaran et al (2001) reported that in many developing countries, absence of land tenure discourages conservation investments. Kauzeni et al (1998) found that many Tanzanians prefer private ownership of resources after experiencing some problems with communal activities under the Ujamaa (communal) system. Private ownership seems to encourage proper resource management because land owners have a direct “stake” on their land. Communal resource use, on the other hand, implies an "open access" system, which could lower total land productivity because individual farmers/users do not seem to care for something that is not rightfully their own property. Hence, even if the NLP maintains the dual system, it advocates private land ownership with major emphasis on rights to all producer groups, so that individuals can legally transact land-related businesses and more importantly conserve it (Lyamchai et al 2007).

The Kenya’s Forest Act, 2005 recognize forests as important but unsustainably used natural resource in Kenya. Over the years Kenya’s economic surveys indicate that the forest sector has been contributing 1.1 percent of the GDP. This does not reflect the true value of forest resources in Kenya because the informal trade on forest products\textsuperscript{12} and non timber products are often ignored. The new Forest Policies and Acts in East Africa have the potential to unlock opportunities for forest resources to contribute to economic development and poverty alleviation because they adopt a holistic view. They embrace participatory forest management approaches, forest concession allocations, easements and benefit sharing\textsuperscript{13} among the different forest stakeholders including the local communities. For instance, the Kenyan Forest Act, 2005 provides for farm forestry which will take pressures off existing forests. This ensures that ecosystem services associated with forested ecosystems continue to be provided.

\textsuperscript{12} charcoal, firewood, medicinal herbs and ecosystems services associated with forests
\textsuperscript{13} Through giving of incentives
On the other hand some or part of the existing policy/legal regimes also constraints the achievement of both developmental and environmental conservation goals. Policy constraints can be termed as attitudinal, historical, structural, process-based, political, and ideological. Over the years natural resource use within the three East African countries have been shaped by policies formulated during different eras of development. Exclusionary and extractive policies and legislations formulated during the colonial period were carried over and perfected during the post-independence period. The conservation regimes then were characterized by conservation against the people, rather than conservation with and for the people. These led to agricultural extensification in the former white highlands. Soil and water conservation measures were discarded because they were considered colonial. A new breed of African elites took over former white highlands; financing provided by the British government for the purchase of land owned by white settlers did not translate into equitable land distribution. Smallholders, people who formerly worked in settler farms with facilitation from government formed land buying companies, acquired settler farms and subdivided amongst themselves. Today due to population increase, these have further been subdivided into uneconomic land units. Huge chunks of land however are still lying idle. Attempts are being made to explore possibilities of utilizing idle land (e.g. the Kenya’s land policy) while in Uganda, a land tax over idle land has been proposed to stimulate productive use of land. Political interests and historical implications of policy and legal regimes have shaped the attitudes of smallholders. Policy formulation is sector-based and rarely considers happenings in other sectors. This leads to duplication of effort, overlaps and waste of meager resources. It also leads to inconsistencies between different provisions and limited exploitation of intra and inter-sectoral linkages and synergies. There are also disconnects between what the law provides and practice because of poor enforcement of the law stemming among other factors from the lack of political will to enforce the laws. For instance Kenya’s strategy for the revitalization of agriculture advocates for a demand-driven approach to provision of extension services, but does not considers inadequacies within the governance system like inability of farmers to facilitate extension officers, corruption, and farmers’ poor culture/interest in extension services. Indeed the demand driven agricultural extension service delivery model being pursued in Uganda as well under the National Agricultural Advisory Services (NAADS), is based on the assumption that the farmers will demand extension services, which is not necessarily true. Farmers have to be first exposed to these services to know them and their potentials and then empowered to demand them. And in the case of environmental sustainability extension service delivery a supply driven extension service delivery approach needs to be pushed given the market failures and distortions including the absence or underdeveloped markets for environment/ecosystems services.

Structural related constraints include inadequate implementation capacity, absences of appropriate institutional structures, conflicting and overlapping institutional mandates, lack of financial resources, lack of synergies between and among different devolved and decentralized structures addressing different policy domains. This type of constraint can be attributed to the lack thereof or failure to adopt appropriate integration and mainstreaming approaches. Sectoral planning continues to promote gaps and inconsistencies. However, there are new initiatives aimed at reducing constraints associated with sectoral planning which include those of the different councils of national environmental management authorities and Kenya’s coordinating Interministerial coordinating unit for agriculture-based ministries. While in Uganda the sector-wide approach to planning and budgeting brings on board different stakeholders including; central line ministries, agencies and departments, the Civil Society Organizations (CSOs), the Private sector and the Development partners.

3. Dealing with Policy/Legislative gaps, inconsistencies and disconnects
In order to address some of the policy constraints in East Africa and promote the adoption of innovations like eco-agriculture, there is need for a dynamic and strategic formulation strategy. Such a structure will appropriately provide for (where it is lacking) and address inadequacies associated
with sector-based planning, explore different approaches for integration and mainstreaming, 
decentralization and devolution.

3.1 Strategic Policy Development

In the three East African countries there is lack of strategic policy formulation to deal with emerging 
threats of climate change and food crises. Existing policies and laws are sectoral, some outdated and 
duplicative in nature. Despite these weaknesses, it is worth noting that policy domains steer 
government interventions, influence markets and market transactions, concern the immediate needs 
and decisions of consumers, and have important impact on the behaviour of interested and affected 
groups within each policy domain.

Prittwitz et al. (1994) observed that different policy domains derive feedbacks depending on whether 
they are first, second or third category policies. Prittwitz categorized policies into those: i) 
establishing an institutional framework (first category); ii) establishing socio-economic production 
and cultural integration (second category) and iii) promoting development and security for 
subsistence (third category). These categories have different feedbacks within different policy 
domains. The first category for example, has strong forward linkages with most other policy 
domains. Second category policies have strong backward links to the institutional framework as well 
as important forward links to the sector and cross-sector policy programmes of the third category. 
When a vertical policy approach is pursued as it is in East Africa, linkages between different policy 
domains are likely to promote waste of resources, duplication of efforts as well as operating as 
autonomous entities within the governance system (Yatich, 2007). Addressing, promoting and 
balancing feedbacks across the different domains is crucial from a planning perspective. Integration 
and mainstreaming of different innovations including eco-agriculture in the face of differing mandates 
of the different sectors as well as power relations that shape feedback mechanisms among the 
different sectors is a challenge.

In order to address these challenges, strategic policy development should focus on:

i) Cross-sectoral policies and laws

What happens in the agricultural sector affects other agriculture related sectors like forestry, 
etalands, water, fisheries, livestock, energy, trade and wildlife? Framing eco-agriculture integration in 
the context of cross-sectoral policy domains will not only promote uptake, but provide a platform for 
addressing some of the policy constraints. A cross-sectoral policy framework provides opportunities 
for reducing potential negative effects of one policy domain on the others and promotes spinoffs. 
This ensures that what happens in each sector is informed by what is happening in other sectors and 
lessons and experiences is shared across different policy domains. Cross-sectoral planning as 
opposed to sectoral planning facilitates proper allocation of meager resources, sharing of lessons and 
experiences, identification and replication of best bets across sectors. However, advocating for cross-
sectoral policy formulation and implementation frameworks is complicated by different mandates of 
policy domains, power relations, conflicts and rivalries between different sectors and perceived level 
of influence between and among different policy domains. It will take time for the advantages of 
cross-sectoral policy frameworks to be achieved because experiences from past reviews of the policy 
and legal regimes in the three countries have been long, tedious, bureaucratic and jingoistic.

ii) Decentralization and devolution

There is a growing move towards decentralization of government powers in developing countries. 
Decentralization finds expression in numerous policy and legal instruments. In the three countries, 
the tendency is to move away from more or less exclusive state competencies to stronger 
management responsibilities and property rights in local governments and communities. 
Unfortunately provisions in law for decentralization are often not implemented hence disconnects 
between what the laws say (‘the spirit of the law’) and the common practice. In Mali for example, the
Forestry Code of 1996 advocates for sustainable access, use and management of native tree species by communities to achieve social, economic, cultural and ecological objectives. In contrast, the government uses permits and license to control access, use and management of native tree species (Yatich et al. 2008). Such a scenario is replicated across East Africa and is likely to disincentivize farmers. It is worsened by land resource tenure, which is vested in the state. In Uganda for instance, environmental management has been devolved to lower levels of government. However, the implementation of decentralized environment management faces a challenge of limited capacities and resources in the districts. It is no wonder that many of the decentralized functions have not been carried out.

iii) Nested and subsidiarity principles relative to the policy context and eco-agriculture adoption

Multi-layered governance systems are complicated by feedback mechanism between different levels. Ellinor Ostrom (1990) cited by Marshall (2007) observed that collective action problems faced by larger groups are decomposable into smaller problems that can be handled by subunits of the larger group. Such smaller groups can be nested as part of larger inclusive organizational units. Smaller groups, argues Marshall (2007) become part of an inclusive system without giving up their autonomy. Multi-layered governance systems pursued by the three countries provide opportunities and disincentives for nesting eco-agriculture within the existing policy context. Multi-layered governance systems with links with ‘informal’ institutional frameworks at different levels will also act as platforms for building consensus and buy-in for the adoption of eco-agriculture and other innovations. Such platforms are expected to be smaller than different layers of governance. Within a larger complex system, nested units can function and capitalize on benefits of the multi-layered system. Nesting allows for decentralized decision making (Ostrom et al., 1999), enhanced access to local knowledge, increased likelihood of informal infrastructural arrangements that exclude untrustworthy individuals, enables feedback on the performance of rules to be captured in a disaggregated manner, allows rules to be devised that are better adapted to each situation/problem, lowers enforcement costs by strengthening local perceptions of the legitimacy of rules; and lastly creates situations where ‘multiple units are experimenting with rules simultaneously thereby reducing the probability of failure for an entire region. In addition, nesting is polycentric, as it comprises multiple decision-making centres that retain considerable autonomy from one another, but encourages collaboration among different centres. On the other hand, Young (2002) identified two problems with nested systems: assigning governance tasks across the different levels and dealing with cross-level interactions or ‘vertical interplay’ arising from any assignment. These weaknesses can be addressed by the ‘principle of subsidiarity’ which argues that any particular task should be decentralized to the lowest level of governance with the capacity to implement satisfactorily (Marshall, 2007).

4. Integration and mainstreaming of eco-agriculture Innovation

Emergence of eco-agriculture is two-pronged: research and adoption. In order to promote the adoption of eco-agriculture innovations, understanding the state of agricultural landscape mosaics was seen as the first step. Learning lessons and experiences from ongoing eco-agriculture innovations means serving two domains: knowledge and action domains. This is evidenced by the bringing together of advocacy and research institutions. It therefore means like synergies between the research and action domains are critical. Yatich et al. (2008) provides a framework for mainstreaming and integrating any innovation or emerging issue into the existing policy domain at different levels and such an integration/mainstreaming interface with knowledge and action domains (Meine, 2008). Such integration cannot be without understanding the existing institutional ‘architecture’. Yatich et al. (2007) analysed different modes of integration/mainstreaming depending on the strengths of the different stakeholders. Integration modes were classified as government-led, NGO-led, National Government Agency-Led and Coalition-led. There are several government-level initiatives, which can provide pathways or a ‘home’ for eco-agriculture. NGOs or a coalition of government and NGOs can appropriately provide platforms for promoting the adoption of eco-agriculture innovations.
Understanding the advantages and disadvantages of each of these modes and the entry points would be useful in taking the right decision with regards to the home of ecoagriculture in each of the three East Africa countries (table 1).

Table 1: Strengths and weaknesses of different typologies of modes of integration

<table>
<thead>
<tr>
<th>Mode</th>
<th>Strengths</th>
<th>Weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Government-led model</td>
<td>- It is local; - Close to the community; - Permanent institution; - Has clear mandate; - Can provide or leverage funding; - Has vertical linkages; - Easier to push/sell it through government structures/institutions</td>
<td>- Can be affected by regime change and associated priorities; - Can be affected by government bureaucracies; - Often limited funding; - Low-level technical expertise</td>
</tr>
<tr>
<td>NGO-led model</td>
<td>- Has a broad network; - Good community-based experience; - Committed; - Can easily build local trust; and - Has more horizontal linkages; - Not subjected to negative political influence/manipulation</td>
<td>- Uncertain funding and local presence; - Project time-bounded; and - Perceived limited technical expertise; - May find it hard to influence government systems/machinery</td>
</tr>
<tr>
<td>National Government Agency (especially dealing with extension and research)</td>
<td>- Has mandate; - Wider scope; - Has the right machinery; - Has more vertical and horizontal linkages with other sectors; and</td>
<td>- Has top-down oriented approach; - Unsustainable funding; - Leadership changes; - Transitory interventions; - Involves political considerations; and - Highly bureaucratic</td>
</tr>
</tbody>
</table>

Source: Yatich et al. (2007)

5. Conclusions and food for thought
Policy and institutional context across East Africa are diverse and influenced by historical, structural, ideological and policy formulation process-based factors. These further potentially shape the adoption of eco-agriculture innovations. Eco-agricultural innovations have evolved under conventional agriculture but for economic reasons or due to emergence of new markets for agricultural produce. The evolution of eco-agriculture in different agricultural landscape mosaics have been limited by uncontrolled production where farmers adopt opportunistic productivity approaches, lack of market and transport infrastructure and lack of government support. This does not mean that eco-agriculture innovations cannot take place despite lack of a ‘home’ within the policy and institutional architecture. Extension officers have often recognized eco-agriculture innovations as improving levels of productivity and promote lesson learning and action. Political will and formal recognition of eco-agriculture is however important if we are to have massive adoption of eco-agricultural innovations. Strategic policy and institutional reforms that provide for the adoption of innovations like eco-agriculture are urgent. This includes promoting cross-sectoral planning, participatory approaches and embracing more nuanced approaches of integration and mainstreaming. Despite of both long and short-term benefits of eco-agriculture, there is high potential of would-be backwash including raising expectations leading to loss of interests of smallholders if their desires and expectations are made. Eco-agriculture innovations provide opportunities for landscape and agricultural planning, sustainable use of natural resources and provide opportunities for achieving policy and legislative objectives at a strategic level. Eco-agriculture among other innovations provides tools and approaches for implementing some policy and legislative provisions. Can eco-agriculture integration and mainstreaming be done appropriately? It is possible to appropriately integrate or
mainstream eco-agriculture innovations into existing policy and institutional ‘architecture’ if the appropriate approaches are adopted. Often they have been integrated among other innovations but this has resulted in invasiveness, lack of markets, overproduction, and lack of standards. It is therefore important for innovators to think about how to strategically influence existing policies to promote integration? How can innovators link eco-agriculture research to action by advocacy institutions? Can eco-agriculture innovations provide the tools for the implementation of some of the policy and legislative approaches in East Africa?
References


Kaggwa Ronald. 2008. Policy Perspectives of Payment for Environmental Services in Uganda. A presentation to the PRESA International Advisory Committee meeting held in April 28-29, 2008 in Imperial Beach Hotel, Entebbe, Uganda


Ostrom, E. 1999 Coping with tragedies of the commons, Annual Review of Political Science, 2:493- 535


ICRAFP