

Case Study 2 - The Role of Alternative Livelihoods in Conservation : Lessons Learned from the Maringa-Lopori-Wamba Landscape

Jef Dupain, Florence Bwebwe, Joanna Elliott, Kaddu Sebunya, David Williams, Janet Nackoney



Introduction

The African Wildlife Foundation has been working for more than five years with government, NGO and community partners to implement a programme of conservation and development activities in the Maringa Lopori Wamba (MLW) Landscape located in northern Democratic Republic of Congo (DRC) (see Figure 1).

The goal is to leverage the collective resources and expertise of partners from international and national institutions to support the DRC Government in its efforts to complete and implement a landscape-wide sustainable resource management programme, including a participatory land-use planning and zoning process. It aims to decrease the destruction of habitat and loss of biodiversity as well as to reduce levels of poverty and increase the wellbeing of local communities through improved governance of natural re-

sources, strengthening local institutional and civil societies, and support for alternative livelihoods.

A primary on-going challenge is the need to encourage and enable appropriate and sustainable development opportunities for communities living in the landscape; to make certain that they have the opportunities to lift themselves out of poverty without jeopardizing conservation goals. We have developed a programme to do this while maintaining close monitoring of the resulting benefits and costs to biodiversity. This is evident in the characteristics and roles of MLW Consortium partners.

The MLW core Consortium comprises the following institutions: the African Wildlife Foundation (AWF) leading on landscape planning, biodiversity conservation and conservation enterprises; the World Agroforestry Centre (ICRAF) promoting innovations in land-use practices to create alter-

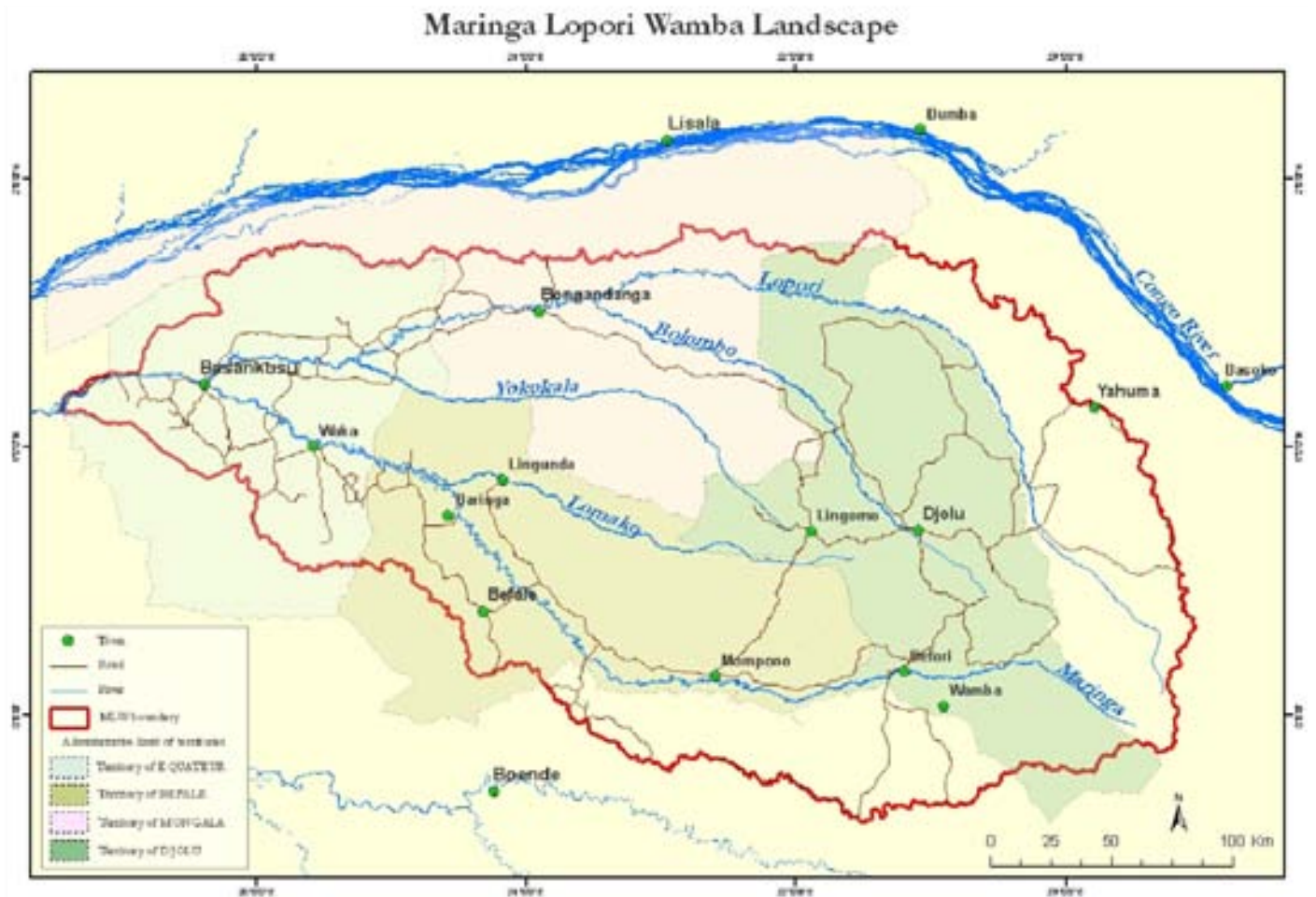


Figure 1. The Maringa Lopori Wamba Landscape

native and additional sources of livelihoods, including the domestication of high-value and threatened tree species and non-timber forest products (NTFP) enterprise development; the WorldFish Center (WF) providing expertise in sustainable fisheries management; the Netherlands development organization Stichting Nederlandse Vrijwilligers (SNV) taking the lead on multi-stakeholder consultation and civil society strengthening; and the Regional NGO Réseau des Femmes Africaines pour le Développement Durable (REFADD) focusing on gender issues throughout the landscape planning process. The University of Maryland (UMD) and Université Catholique de Louvain (UCL) contribute to spatial analysis and modelling for land-use planning. In addition, the Consortium has a pool of external technical support, for example the United States Forest Service (USFS) contributes to land-use planning.

The MLW Landscape programme has been des-

igned using the AWF Heartland Conservation Process (HCP). HCP starts with stakeholder scoping and baseline data collection that will allow participatory identification and analysis of critical threats to both conservation and the sustainability of local livelihoods, and opportunities to mitigate these threats. HCP enables the translation of the needs of the local human population and local biodiversity into an agreed-upon Land-Use Plan (LUP), the implementation of which will render the landscape ecologically, socially and economically viable. These last two aspects, “socially and economically viable”, led AWF and the MLW Consortium to modify USAID-CARPE’s strategic objective “reduce habitat destruction and loss of biodiversity through a better local, national and regional governance of natural resources” by adding “aiming to reduce poverty”. “Livelihood” strengthening is considered as important a goal as conservation in the MLW programme. Considerable attention is paid to methodologies for identifying viable alternative livelihood activities. For example, through the HCP process, we iden-

tified inadequate agricultural policy and lack of market access as direct causes of increased slash-and-burn agriculture and increased dependence on commercial hunting. Industrial forestry, traditional logging and subsistence hunting were also identified as additional threats to both conservation and local livelihoods (AWF, 2005). It was during this step in HCP that the need to focus on agricultural livelihoods for conservation became evident.

In the following sections we explore how support for alternative livelihoods work in MLW has been agreed upon and implemented and discuss some concrete examples.

Overview of the intervention zone

The Landscape Land-Use Planning (LLUP) Strategy focuses on the entire MLW Landscape. As such, the MLW livelihoods programme considers the entire Landscape as its intervention zone.

The MLW Landscape spans about 74,000 km². It has an elevation gradient of less than 300 m. The Landscape covers the four administrative territories of Basankusu, Bongandanga, Djolu and Befale which fall within DRC's Equateur Province. It is a relatively intact landscape defined by the Maringa and Lopori river systems. Forests cover over 90 percent of the Landscape. About one quarter of these forests are swamp and floodplain forests (or forested wetlands), reflecting the landscape's low relief and high rainfall (>1900 mm annually). Rural complexes, i.e., human-dominated areas – mostly farms and plantations – comprise less than 7 percent of the landscape (Dupain et al., 2008).

Recent spatial modelling on human distribution suggests that human density is 8 persons/km² (Kibambe, 2007) with densities of 7, 7, 10 and 9 persons/km² in the territories of Befale, Djolu, Basankusu and Bongandanga respectively. The total human population in the MLW Landscape is now estimated at 587,000 (Dupain et al., 2008).

Ethnic groups living in the landscape are mainly Mongo people and their relatives of the Mon-

gando ethnic group. The Ngombe ethnic group is mainly present in the north, on the axis of Bongandanga-Basankusu. Small groups of pygmies are scattered in the northern part of the landscape and a concentration of Kitiwalists (Jehovah's Witnesses) reside mainly between the headwater areas of the Lomako and Yokokala rivers. The Kitiwalists retreated into the forest years ago and essentially do not accept any jurisdiction from the DRC government (Nduire, 2008).

Most of these people depend on wild resources to meet their basic needs, including food, fuel, medicines and building materials. This area of DRC was severely impacted during the six years of civil war and instability from 1997–2002 and remains one of the poorest and least developed regions in the country. Dependent on wild resources, these populations have indicated a strong desire to be included as partners in the development of improved natural resource management and alternative livelihoods in their landscape.

The principal towns in the landscape are Basankusu, Djolu, Bongandanga and Befale (see Figure 1). Their total population is estimated at 41,000–135,000. Many cities surrounding the landscape such as Lisala, Bumba and Boende influence economic activities within the MLW Landscape. Road infrastructure between these towns and cities is very poor and the only feasible means of motorized land transport is motorbike. Throughout the landscape, villages are located along roads, with agriculture concentrated in the peripheries of these centres of human habitation. We refer to these human dominated areas as "rural complexes". An estimated 56,000 ha of forest (about 0.9 percent of the landscape's total forest area) was converted between 1990–2000, due primarily to the expansion of slash-and-burn agricultural activities. Over half of the observed conversion occurred within 2 km of a road. Today, the agricultural activities practised in the Landscape are primarily for subsistence, with less opportunity for cash crops given lack of access to markets. Cassava, maize and peanuts are the main agricultural products. Because of the war and poor access to markets, the formerly active industrial plantations of palm oil, rubber and cof-

fee have mostly been abandoned.

Bushmeat market data indicate that local people depend highly on bushmeat hunting, consumption and trade. A one-year study of bushmeat availability at the market in Basankusu showed that more than 30 percent of the 12,000 carcasses recorded for sale originated from the Lomako area (Dupain and Van Elsacker, 1998). This confirms that the Lomako Yokokala Faunal Reserve was an important source of bushmeat for both commercial and nutritional purposes.

In economic terms, bushmeat has a significantly better value/weight ratio compared to agricultural crops and it is easily preserved at low cost. Bushmeat is therefore advantageous for transport and commercialization given the poor state of infrastructure and difficult access to markets. It offers the best return for labour input.

Methods and results

AWF ensures that consideration of livelihood alternatives are integrated into the HCP. The establishment of an initial baseline socio-economic profile of the landscape ensures that livelihood concerns are understood and acknowledged. At the site-intervention level, livelihood concerns are build into project planning, design, implementation and monitoring.

The HCP ensures appropriate participation of and consultation with communities and their institutions, including local NGOs, throughout both the design and implementation stages of projects that offer alternative livelihoods. A clear understanding of the social and economic status of local human populations and the dynamics of human use of natural resources are essential at each stage. This understanding enables AWF and its local partners to address directly key livelihood concerns through project activities. For example:

- sustainable agricultural practices and increased producer value added, including improved access to markets;
- community management or co-management of key local resources including forest resources and fisheries;

- development and/or restoration of former (pre-civil war) labour-intensive small farmer cash crop activities (rubber, oil palm) in partnership with the private sector;
- appropriate alternative enterprise development such as ecotourism.

The very basis of our approach is participation of and ownership by the local communities of the LLUP process. Prior to any real activity on the ground, the MLW Consortium went through a series of meetings with local communities to discuss LLUP. These meetings confirmed that the main challenge facing the MLW LLUP programme is serving both the needs of local people and conserving biodiversity. These goals are often conflicting in areas such as the MLW Landscape where people rely heavily on local ecosystems for their livelihoods and wellbeing and where little weight is given to questions of “sustainable” use. During most of these initial meetings, the representatives of local communities asked us about the projects and livelihood activities we were going to support. Our response was that this was not up to us to decide and that no prior decision had been taken. We informed the communities that we were in a consultative phase of a participatory interactive approach. We seek interactive participation, which means that people are invited to participate in joint analysis, which, in turn, leads to action plans and the formation of new local institutions or the strengthening of existing ones. We explained that, while some a priori ideas might exist, final decisions depend on a participatory assessment of needs and opportunities and collaborative decision making with the beneficiaries, who are the local communities and government. We explained that our mandate was to make our expertise available to help better manage the natural resources in order to meet ecological, social and economic needs.

We considered various methodologies for collecting the required information that would help us to evaluate livelihood concerns linked to conservation objectives.

We used socio-economic and biological surveys as the main method for data collection. The results of the surveys were discussed during the “Threats and Opportunities Analysis” workshop

(AWF, 2005) In this way, local communities were actively and fully involved in decision making on priority activities.

Examples of the initiatives undertaken so far in support of alternative livelihoods are described in the following sections.

The boat project

Analysis of socio-economic data collected by the MLW Consortium revealed that the observed trend of households migrating out of their natal villages into more remote forest blocks was driven by a lack of access to markets for agricultural crops. Two decades ago, local communities typically made a living from selling both cash and subsistence crops to urban markets. Due to the collapse of infrastructure and the disappearance of boats linking remote agricultural areas with important urban markets such as Basankusu, Mbandaka and Kinshasa, crops such as coffee, maize, rice and cassava could only reach these markets on small pirogues with high transport risks. As a consequence, people turned increasingly to bushmeat hunting and trade which offers a much better return for labour input. The forest areas surrounding most villages are, as a result, being progressively depleted of bushmeat. For more than two decades now, families have been leaving their villages to settle in remote forests with much higher densities of bushmeat, but where they can still cultivate subsistence crops.

As a result of the “Threats and Opportunities Analysis” workshop, AWF agreed to invest in a specific market-opening initiative. While AWF had initially planned for potential investments in coffee and cocoa plantations, the participatory analysis indicated that support for the shipment of agricultural crops to urban markets could be a first step in trying to reverse the trend where people of leaving their natal villages and settling in remote forests for bushmeat hunting and subsistence slash-and-burn agriculture (Belani and Dupain, 2005).

AWF provided pre-financing, therefore absorbing the financial risks of the owner of a large boat which transported agricultural crops along the

Maringa River (September 2005–January 2006). More than 130 tonnes of merchandise was shipped upstream with about 180 clients involved. On the return trip, 530 tonnes of agricultural crops – 430 tonnes of maize, 39 tonnes of coffee, 34 tonnes of cassava, but also caterpillars, oil, cocoa, mushrooms and other NTFPs – were shipped to the capital from as far as Befori, which is the furthest upstream port of the Maringa River, in the MLW Landscape, 1,500 km from Kinshasa. This trip effectively facilitated market access for agricultural crops grown in the poor remote villages of the MLW Landscape (Belani, 2006). As a consequence of this intervention, MLW Consortium partners observed that numerous families returned to their villages to reactivate agricultural activities given the renewed hope of commercial opportunities. The arrival of the first boat since the war, re-opening access to the markets, was strongly applauded locally, provincially and nationally.

Nevertheless, the project was only partially successful. Logistical constraints and incongruent governmental priorities (e.g., seizure of a barge for transport of soldiers during the integration of different army factions) were major handicaps, as was the lack of capacity to ship all the available crops that communities had made ready. With the promise of a boat coming to transport crops, peasants converted areas producing crops for local markets into maize production for transport to the capital. This caused surplus production and as a result, a large quantity of crops that was not sold.

However, given that the boat project is the result of responding to local demand, it is possible to identify some major achievements. First, local communities began to see that LLUP might be a solid strategy to harmonize conservation and poverty reduction. Second, thanks to appropriation of the project by the local communities, these communities did not blame the MLW Consortium for the difficulties but instead engaged in constructive discussions on how to strengthen the design of the next phase. Third, due to the overproduction of maize, the farmers themselves identified the need to spread risk. For example, in Djolu, the communities transformed a number of maize fields into non-maize crops that have a local market. Diversification of crop production

leads to a spreading of risk by providing greater flexibility in responding to fluctuations in access to urban markets and by increasing local food security. A final achievement is the increased local understanding of the landscape concept as inclusive for all stakeholders. This project was not at all limited to people living, for example, in the periphery of a protected area or to people living in a hotspot of biodiversity. The boat project was open to all those who were able to cultivate crops along the Maringa rivers.

Supporting agricultural livelihoods through small grants

From widespread consultation it became clear that lack of equipment and lack of access to high-quality germplasm were major causes of decreased productivity of subsistence and cash crops in the MLW Landscape. We invited local community NGOs to develop proposals that would support the strengthening of agricultural activities. Five local NGOs submitted a joint proposal, developed with support from AWF, to the CARPE Small Grants Program for a total of US\$30,000. Each NGO functioned as a platform to reach a set of local associations. AWF employed MLW Consortium Focal Points to accompany the NGOs and associations on the ground during the execution of the programme including support for accountability and reporting. Through these five local NGOs, the Small Grants Program reached 31 associations, with a total of 1,765 people (1,241 men and 524 women) working on 740 ha of agricultural land and producing almost 3,000 tonnes per annum of produce, mostly maize and cassava.

In a second phase, the local NGOs insisted on working independently of supervision by the MLW Consortium. A number of local NGOs requested a complete change in the policy of approving and attributing budgets. A recent evaluation of the programme indicated differences in accountability and performance between the phases and between the beneficiaries. Again, while this open and flexible approach is vulnerable to failures, it is built upon participation and thus obliges local communities to be actively involved in decision making. At the time of writing this case study,

local communities and NGOs have invited AWF and the MLW Consortium partners to increase supervision and guidance again. The fact that these NGOs now recognize their organizational, management and operational weaknesses, and are requesting further capacity building to ensure better performance, can be considered a major accomplishment.

Land-use planning and development of spatially explicit land-use planning models

One major component of our work in MLW entails development of spatially explicit models using a Geographic Information System (GIS) to help identify and delineate macro-zones for landscape land-use planning. Support for livelihood activities in the MLW Landscape is directly linked to conservation objectives. In the case of support for agriculture and access to the market, the aim of LLUP activities is to reduce uncontrolled slash-and-burn agriculture, and increase respect for conservation legislation, particularly in terms of stopping the hunting of protected species. To address slash-and-burn agriculture, we are working with communities to generate micro-zoning plans that determine where to develop agricultural activities. Community-scale micro-zone plans are guided by landscape-scale macro-zoning plans undertaken in the MLW LLUP spatial modelling effort.

CARPE refers to three types of macro-zones: Community-Based Natural Resource Management (CBNRM) areas, Protected Areas (PA) and Extractive Resource Zones (ERZ). In Chapter 1, we advocate differentiating between permanent forest CBNRM areas and non-permanent forest CBNRM areas. The latter refers to land that can be converted to rural complexes (human-dominated areas – mostly farms and plantations). For our modelling efforts, we suggested that about 12 percent of the landscape be set aside as rural complex.

We need to consider that farmers' rights to agricultural land are equal to the needs and rights associated with communal management of forest

resources. This approach avoids the so-called “arborealization” or “not seeing the farmers for the trees” (Walken, 2008).

In our effort to avoid “utopian scenarios”, we used a decision-support software package called Marxan to focus on livelihoods as a major component of our conservation programme. Marxan is typically used to explore reserve design scenarios considering a suite of spatially explicit information on species’ habitats and related threats. In collaboration with UMD, UCL, South Dakota State University and the US Forest Service we used Marxan to identify priority “human habitat” or non-permanent forest CBNRM areas, taking into account conservation constraints (e.g., Bonobo habitat, large primary forest blocks). Figure 2 shows existing rural complexes in the MLW Landscape and identifies potential priority expansion areas for future population needs.

Our goal is to encourage movement from incompatible rural complexes – small, remote or located inside conservation priority areas – into more conservation-friendly and socio-economically sound prioritized areas. A principal challenge will be the elimination of rural complex development

in remote forests. Each dot of rural complex in remote forests reflects not only the conversion of land best suited for wildlife habitat into agricultural fields, but also an increase in hunting pressure for a radius of 10–15 km, a trend we consider highly threatening for biodiversity.

To further consolidate rural complex distribution into more suitable configurations, we eliminated areas of existing rural complex smaller than a certain size and those distant from roads or located inside proposed conservation areas for input into our model. We then built a spatially explicit model using the Marxan software, using these and other developed parameters based on projected population growth and expected hectares needed for agriculture per person. We also incorporated conservation-specific parameters into the model, such as the locations of protected areas, locations of intact forest blocks and areas important for wildlife connectivity. Figure 3 shows one output of the Marxan-driven modelling effort which delineates the areas for proposed distribution of rural complexes in grey. The area of proposed rural complexes is 10,372 km², and fits our assumptions about expected agricultural

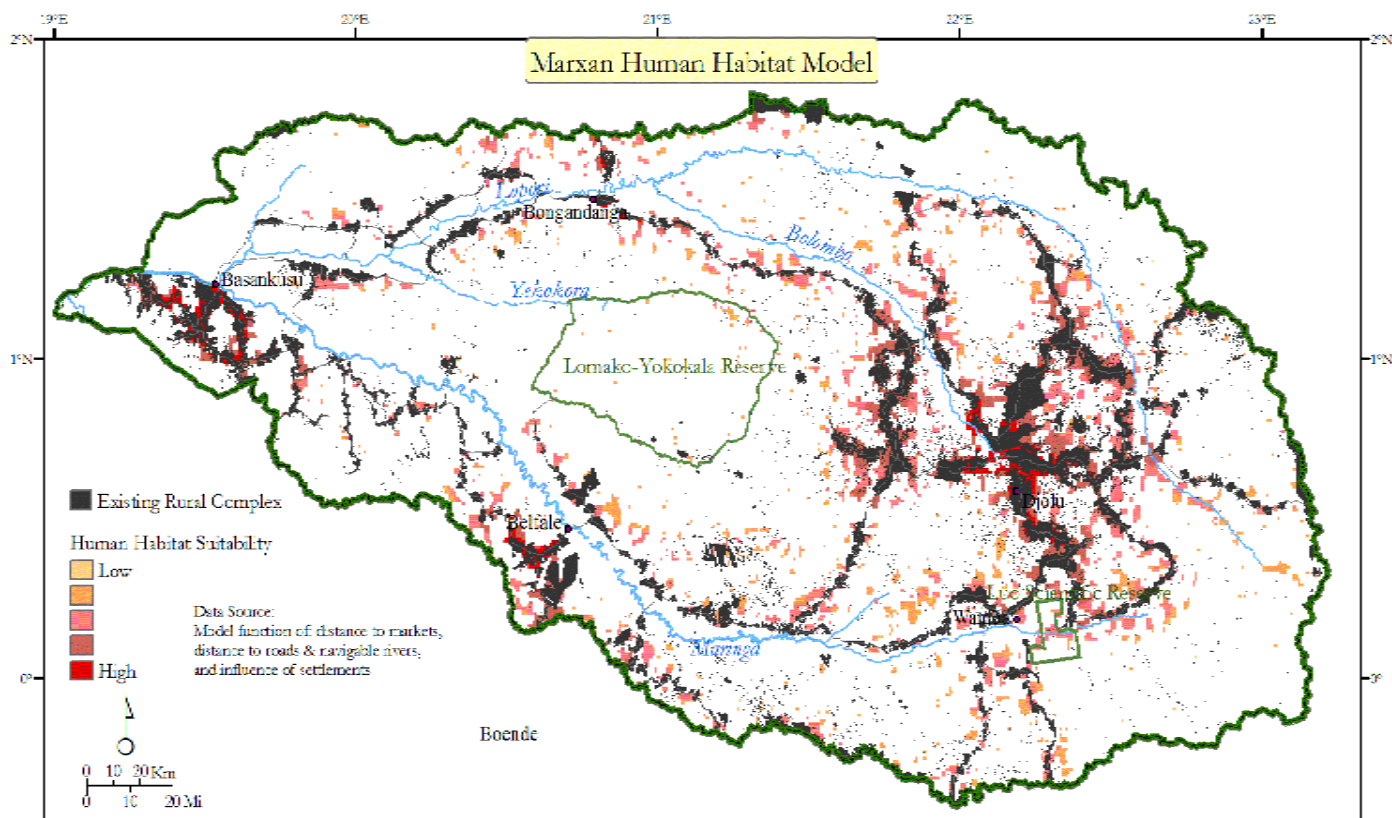


Figure 2. Existing rural complexes and potential expansion areas in the MLW Landscape



Figure 3. One output of the Marxan modelling which delineates proposed rural complexes areas in grey

needs according to future population growth. This mapping process helps focus the support for livelihood activities spatially, in full consideration of conservation objectives.

Simultaneously through this process, we are gathering input for revision and modifications which might be required for the proposed macro-zones. Adaptive management is key. Good landscape management requires acceptance that the ecological, economic and social dynamics are fluctuating in both space and time (Gordon and Maginnis, 2008).

Participative design and management of new faunal reserve

The creation of the Faunal Reserve of Lomako Yokokala (RFLY) and the design of its management approach should become a good model for a protected area with a people-centred approach to conservation in DRC. The potential creation of

the reserve was identified during the “Threats and Opportunities Analysis” workshop (AWF, 2005). AWF facilitated the creation of the RFLY by ICCN. RFLY was gazetted as a Faunal Reserve in June 2006 after almost two years of participatory data collection and negotiations.

During the gazetting process, the proposed reserve was always considered for planning purposes as part of a larger area including the periphery inhabited and used by the communities who are the traditional “owners” of this forest. ICCN agreed that the local population would not only be involved in the execution of the management plan, but also in its development. This required extensive and interactive participation. For example, during the last CoCoSi meeting (Meeting of the Committee for Coordination of the Site, held in September 2008), ICCN, AWF and other MLW partners and more than 40 representatives of local communities and local and provincial authorities discussed first elements of this management plan. This approach is new to ICCN and is strengthening ICCN’s perception of the importance of the participation of local communities in

PA decision making.

In RFLY, the core strategy is to ensure that the reserve will create more benefits for local communities as a protected area with tourism revenue generated by international visitors than as a source for commercial bushmeat hunting. Today, our conservation and development programme in RFLY and its surrounding areas combines conservation and tourism revenue-generating activities in the reserve and livelihood development activities providing alternatives to the bushmeat trade in the periphery. A local management committee will decide how to use revenue from the reserve entry fees to support alternative livelihood activities in the periphery. During the recent CoCoSi, the first symbolic amount of US\$780 was given to representatives of this committee. The MLW Consortium, and in particular REFADD, ICRAF and WF, continues to work with the local communities to identify alternatives to bushmeat hunting and the best mechanisms for implementing these activities.

As a result of this approach, we have received requests from other communities asking us for a similar approach in their region. The basic invitation is typically: *“we have rich biodiversity in our forest, and we would like you to come and explain how we can get support for livelihood and development activities in return for the protection of our forest”*. Today, the HCP process is ongoing with the people living south-east of the Luo Scientific Reserve, in support to the Centre for Research and Ecology and Forestry and in collaboration with the Wamba Committee for Bonobo Research (Kyoto University). Work with other communities is now being planned.

Lessons learned

Importance of the Public Participation Strategy right from the beginning

We believe that it is not the support for alternative livelihood activities per se that has been of primary importance, but rather the Public Participation Strategy (PPS) in the design and development of land-use planning. It is important to have the best PPS from the start of the pro-

gramme. The MLW Consortium aims for interactive participation in order to ensure:

- honest public participation, seriously considering the issues raised by the representatives of the local communities;
- correct identification of livelihoods and diversification needs, as for example the identification of market access as a priority over the reinvigoration of cash crops;
- ownership of the livelihood interventions by the communities, with a commitment to learn and strengthen these interventions;
- the overall sustainability of the project, by connecting needs to livelihood interventions to the sustainable management of natural resources.

Most important is the integration of livelihood interventions into the conservation programme, resolving how to give responsibility to local communities and how to strengthen their capacity to deal with the complex settings in which ecological and economic needs might be in conflict.

Importance of making the links between livelihoods and conservation explicit

Local communities naturally tend to focus on livelihood concerns without an explicit link to conservation objectives. In the MLW Landscape, we continuously stress the fact that every activity supported by the Heartland programme to increase livelihoods must be tied to conservation objectives. In the initial phase of the MLW programme, as a result of the outcome of the “Threats and Opportunities Analysis” workshop, we agreed to put a strong focus on supporting livelihoods. However, our support was given contingent upon the ability to link development to conservation. Today, those same communities are well advanced in discussions on how to link both objectives more closely. In particular, communities that received support for agriculture are welcoming the idea of micro-zoning and identifying the areas for agricultural development as well as areas of forest that should not undergo conversion.

Allow for failure

Aiming for a “people-centred approach” means openness to human failure. We have created opportunities for local NGOs and local communities to try out their own ideas with increasing independence, for example through accessing the CARPE Small Grants Program. AWF has played a flexible role in this process to allow local NGOs to assess their own capacity and spread their wings, but also to come back to MLW Consortium members for support when it is needed. Learning by doing involves risking failure, but is a far better process than outsiders substituting for local institutions. Encouraging local NGOs to grow their own capacity goes hand in hand with an adaptive management approach, which allows for error, evaluations and corrective measures.

References

- AWF, 2005. Rapport d’atelier de planification de site de conservation pour le landscape Maringa/Lopori/Wamba: analyse des opportunités et des menaces avec les parties prenantes, 2–4 décembre 2004, AWF.
- Belani, 2006. Report on the boat project, Report for USAID/CARPE. AWF.
- Belani and Dupain, J. 2005. Les potentialités agricoles et les aspirations des populations pour la relance de l’agriculture. Rapport de l’enquête mesomacrosocioeconomique. AWF.
- Dupain, J., Nackoney, J., Williams, D., Bokelo, D. and Bwebwe, F. 2008. The Integrated Land Use Management Plan, MOV 1.1.B. Report for USAID/CARPE.
- Dupain, J. and Van Elsacker, L. 1998. “The Importance of Bushmeat in the Bonobo Distribution Area, Democratic Republic of Congo”. Conference Proceedings, Primate Society of Great Britain. *Primate Eye* 65: 15–16.
- Gordon, J. and Maginnis, S. 2008. “Accepting change: conserving biodiversity in productive landscapes”. *Arborvitae* 37 : 15.
- Kibambe, 2007. Modélisation spatiale multisectorielle des dynamiques territoriales: étude de cas à l’échelle régionale dans la RDC. DEA, Univ. Cath. Louv.
- Nduire, 2008. Les populations de Maringa Lopori Wamba, accès aux ressources naturelles et les conflits fonciers: cas de la zone K7/K2. Rapport AWF.
- Walker, A. 2008. “The ‘hidden’ farmers in Thailand’s forests”. *Arborvitae* 37: 7.