

## Review of Food Security Strategies and their Link with Conservation in AWF Selected Landscapes in Southern and Central Africa

By: Jimmiel Mandima\*

### INTRODUCTION

Across all of the 'African Heartlands'—the vast expansive landscapes that African Wildlife Foundation implements its conservation programs, local communities depend on multiple sources for livelihoods, and subsistence crop production and livestock husbandry are pivotal.



School based vegetable gardening in Kazungula, Zambia. Photo Joss Swennenhuis.

These uses though, have the potential to erode and conflict with conservation goals in these same landscapes that are anchored around Protected Areas and Forests that are rich in wildlife and other wilderness resources that serve as unique habitats for emblematic species. In order to reconcile the seemingly conflicting anthropogenic food security activities and conservation agenda, AWF works to develop land use plans that create zones for different uses, in the process promoting the

diversification of the rural economy through use of appropriate technologies in order to enhance sustainable food security strategies.

With financial support from USAID through the Africa Biodiversity Collaborative Group (ABCG) AWF commissioned expert in-depth analyses in two of its transboundary landscapes

in southern Africa—Kazungula and Zambezi Heartlands, and in Central Africa—Maranga-Lopori-Wamba Heartland in the DRC. The analyses looked in detail into current and alternative food security strategies in the selected landscapes as part of the ABCG's agenda to build knowledge on diversification of food security strategies, the role of agricultural landscapes in climate change mitigation and adaptation, and the linkages to conservation.

### KEY FINDINGS AND RECOMMENDATIONS

Small-scale rainfed agriculture is, and will for the foreseeable future, remain the mainstay of food security strategies for the rural population in the Heartlands. In southern Africa, maize (corn) is the dominant crop, in spite of the fact the Heartland areas lie in an agro-ecological zone which is at best marginally suitable for maize. As such, maize yields are low and erratic, and one can

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Jimmiel is an aquatic ecologist by training and holds a M.Sc. in Applied Zoology from the University of Kuopio, Finland. His knowledge informs adaptive management decisions with regard to regulating entry into the fishery, designating allowable fishing zones, thus facilitating sustainable use of the resource, resulting in improved entrepreneurial developments in these countries.

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Find the full report of this summary in the Climate Change Adaptation section online at: <http://www.abcg.org/>



Chiawa fish farm members preparing new fish pond. Photo: Joss Swennenhuis.

conclude that this main food security strategy is neither very viable nor sustainable in the light of climate change. Households don't have access to the inputs required to intensify their production and maintain soil fertility, so they are forced to continuously open up new fields. This continuous expansion of land, further fuelled by an annual population growth of around 3% and limited migration to urban areas, is the main cause of degradation of forest resources in the Heartlands, as well as of the continuous increase in human-wildlife conflicts.

In the DRC, from a historical point of view most of the people living in the MLW area derived their income from agricultural activities, mainly through the cultivation of coffee, cocoa and rubber. Unfortunately, the war and poor governance have caused the total collapse of the regional infrastructure leaving the local population without means of access to markets in order to sell their products. The plantations were abandoned and the vast majority of formal economic activities in the region have collapsed. Today, the industrial trade in agricultural products destined to urban centers is broken. However, from a household food security perspective, cassava



Pilot commercial goat production in Siavonga, Zambia. Photo: Joss Swennenhuis

remains the main crop produced as staple in the area as reported by 100% of the communities surveyed. The cassava is generally grown together with maize and courgettes, which are becoming commercially important in the area. There is

however, still a prevalent dire food security situation caused by more than a decade of large-scale socio-political crises and civil wars which the DRC has faced. The local people generally live off the fields produce (food crops), bushmeat hunting (rats, monkeys, antelopes, bears), small livestock, gathering (mushrooms, caterpillars, wild food plants, honey, etc.) and fishing in the Maringa, Lopori and Wamba rivers. This is ironic for a country that is endowed with unique biodiversity and largely intact forest habitats.

The greatest potential for conservation and food security impact is through promoting more sustainable and intensive agricultural practices that would increase yields per hectare and maintain or increase soil fertility levels. For success, interventions should be long term and holistic (looking at all aspects of the farming system and the value chain), avoid dependency on subsidized inputs, and promote synergies with climate miti-



Horticulture in Kazungula. Photo: Joss Swennenhuis.

gation and related financing options. To maximize conservation benefits, the interventions should take place within the context of an explicit land use framework and conservation agreements.

In order to reduce overexploitation of the fisheries resources, AWF's current pilot aquaculture project that complements the promotion of sustainable fisheries management in the Zambezi River is has great potential and should be scaled up and replicated in other appropriate sites. Inadequate harmonization of transboundary fisheries management will remain a challenge that requires continued efforts on the part of AWF and others, and ongoing engagement by AWF of the Kavango-Zambezi trans-frontier conservation area Secretariat to promote attention for fisheries resources instead of the current biodiversity focus almost exclusively on wildlife needs to continue.

Furthermore, the widespread, destructive and largely illegal charcoal production is a very challenging threat to conservation. The opportunity costs are high, and the demand for charcoal is constantly growing with increased urbanization, while the capacity of the governments to regulate the charcoal trade is weak. Recommended options to explore include the



Charcoal ready for the urban market: Photo: AWF.

promotion of more sustainable charcoal production models, planting woodlots for charcoal and explicitly targeting current charcoal producers as beneficiaries for interventions in alternative livelihoods e.g. aquaculture and horticulture.

Human-wildlife conflicts will continue to exist in the Heartlands, but can be reduced through support for food security diversification that includes fish farming and horticulture activities that can be secured by investments in elephant-proof fencing. Additionally, fish farming and horticulture are good approaches that increase the resilience of households against climate change. Rainfed agriculture will become more resilient with the adoption of conservation agriculture techniques and crop diversification that includes drought tolerant crops like cassava and flood tolerant crops like the NERICA variety of rice. Options for climate mitigation finance within rainfed agriculture are expected to increase, in particular through promotion of sustainable land management practices that include agro-forestry.



Mwandi Community Fish Farm, Kazungula, Zimbabwe. Photo: Joss Swennenhuis.

It is noted that AWF's approach of promoting nature based community enterprises has potential for significant food security impact in the medium to long term as the success depends on a difficult-to-guarantee change in attitude of the local people towards coexistence with wildlife. However, as such enterprises deliver on benefits and create attitude and behavioral changes, the resultant conservation leverage would be substantial.

### NEXT STEPS

Based on the overall finding from the analysis, ABCG members will

- Invest in more analysis of the scope for and viability of identified non-traditional alternative food security options to include fish farming and livestock production so as to spread the risk from climate change shocks.
- Promote Conservation Agriculture in partnership with strategic agricultural NGOs guided by long term holistic approaches that insist on Conservation Agreements and conformity to detailed zoning to ensure a sustainable and viable balance between biodiversity conservation and food production.

## AFRICA BIODIVERSITY COLLABORATIVE GROUP

To read the full report and learn more about ABCG, please visit:  
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