Research Application Summary

Changes in farming practices in the Lake Kivu Basin

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Abstract

Provinces of eastern D.R. Congo are going through a period of political instability which has impacted negatively on the way smallholder farmers manage natural resources. This has contributed to increased degradation of Lake Kivu water and its productivity. The Lake supports a range of pelagic fish species that provides currently animal proteins to people within the basin. Its instability will therefore contribute to increased poverty, food insecurity and will exacerbate more conflicts over resources. This study aimed at determining changes in farming practices in the Lake Kivu basin in the last twenty years. A total of 200 households were interviewed using a semi-structured questionnaire. Preliminary results show that crop cultivation remained the major farming activity in Lake Kivu Basin; while livestock rearing, fishing and small businesses activities had significantly declined after the war. Other causes of the decline in livestock rearing included pest and diseases and the increased level of poverty in the region.

Résumé

Les provinces de l'Est de la République Démocratique du Congo traversent une période d'instabilité politique avec un impact négatif sur la gestion des ressources naturelles par les paysans. Ceci a contribué à l'accroissement de la dégradation des eaux du Lac Kivu et leur productivité. Le Lac supporte un spectre des poissons pélagiques qui fournissent présentement des protéines animales à la population au sein du basin. L'instabilité du Lac contribuera alors a l'augmentation de la pauvreté, l'insécurité alimentaire et exacerbera l'émergence des conflits autour des ressources. Cette étude visait à déterminer les changements dans les pratiques agricoles dans le bassin du Lac Kivu dans les 20 dernières années. Ainsi un total de 200 ménages ont été interviewées au moyen d'un questionnaire d'enquête semi-structure. Les résultats préliminaires montrent qu'après la guerre l'agriculture est demeurée l'activité principale dans le bassin du Lac Kivu; les activités d'élevage, de pêche et les petits business ont baissé considérablement. Les autres causes de ce déclin inclus les pestes et les maladies, les vols, augmentation du niveau de la pauvreté dans la région.

Background

The Democratic Republic of the Congo (DRC) and particularly South Kivu province; is endowed with rich and unique natural resources. But the majority of its people are among the poorest and food insecure in the world. This has reinforced the cycle of poverty-poor management-degradation of natural resources in the region. The region has experienced in the past decade of political instability, refugee migration and civil war, large-scale land clearance to satisfy energy demand, construction and timber harvesting from neighbouring countries and from within, and most especially for agricultural purpose (Majaliwa *et al.*, 2009); exacerbating therefore soil erosion and pollution related loadings into the fresh surface waters especially in Lake Kivu(Jorgensen *et al.*, 2004), affecting soil and Lake water's productivity, and hence the livelihood of the people in the Basin.

Literature Summary

Sub-Saharan Africa is essentially a continent of small holder farmers and its environment is very sensitive to changes. The majority of the farms in sub-Saharan Africa is under intercropping or mixed cropping as a strategy for adjusting to different soil and water regimes. In some environments animals and crops are integrated based on the premise that by-products from the two systems can be used to improve farm productivity. Livestock also provide a ready means of acquiring cash and support the use of inputs in crop production which in turn generates higher levels of output from both crop and livestock (Brumby, 1986). However, soil fertility improvements depend on the amount and quality of inputs used to amend the soil and the level of agriculture intensification (McIntire *et al,* 1992). Benefits to integrated crop-livestock systems also imply use of exogenous technical changes including improved seeds, inorganic fertiliser, proper water and nutrient management in order to raise overall productivity (McIntire *et al,* 1992; Williams *et al,* 1994).

The integration of livestock and crop systems in eastern D.R Congo has never been a smooth process due to the independence of the two systems and the conflicts between crop cultivators and livestock keepers (Majaliwa, 2012). This has been aggravated by inadequate land tenure, poor governance and recurrent conflicts and civil war in the country. It is also important to note that soil degradation due to poor management is reported to have reached catastrophic proportions on agricultural lands in the wider East and Central Africa and particularly eastern D. R Congo and Rwanda (Majaliwa *et al.*, 2009; Tenywa *et al.*, 2010).

Study Description

This study is being conducted in the River Lwiro micro-catchment within Lake Kivu Basin. The River Lwiro is located on the eastern flank of Lake Kivu between latitudes 2°15' and 2°30' S and longitudes 28°45' and 28°85' E. Its headwaters are in the Kahuzi-Biega National Park mountain region; at an altitude of 2000 m. Changes in the Farming practices were characterised using semi-structured questionnaire and group discussion. A total of 200 household heads were randomly selected in the Lake Kivu basin and interviewed. Focus group discussions were also conducted. In addition, 10% of the interviewed households will be subjected to household analysis. All the socio economic data will be entered in and analysed using the Statistical Package for Social Scientists version 17.

Results

Figures 1-3 show respectively, current farming practices in L. Kivu Basin, Relative change in farming practices in L. Kivu Basin and Other contributing causes to change in farming practices:

- The majority of households in L. Kivu Basin believe that the farming practices have changes compared to the situation before the war.
- Half of the households are practicing mixed cropping/ intercropping without fallowing
- Some of them were practicing agro-forestry, monoculture, and use compost. Some of the households have fragmented their land and buy seeds,

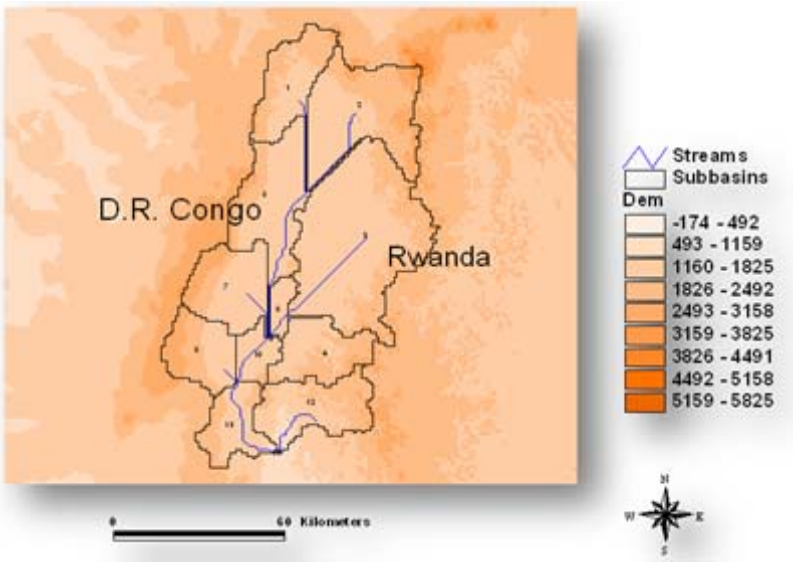

Figure 1. Lake Kivu Basin.

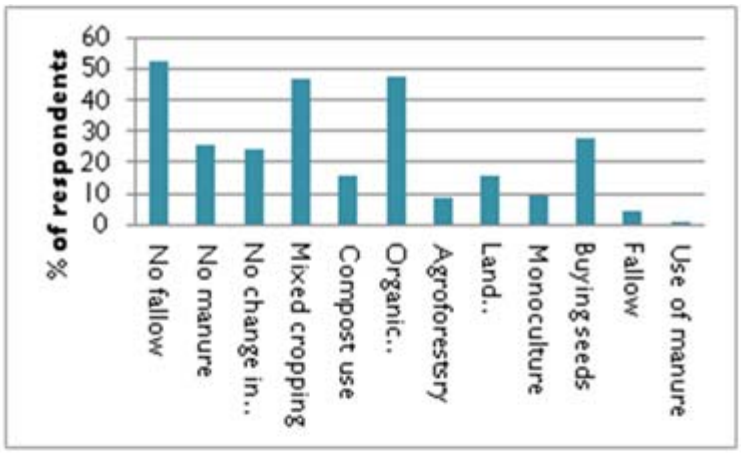

Figure 2: Current farming practices in L. Kivu Basin

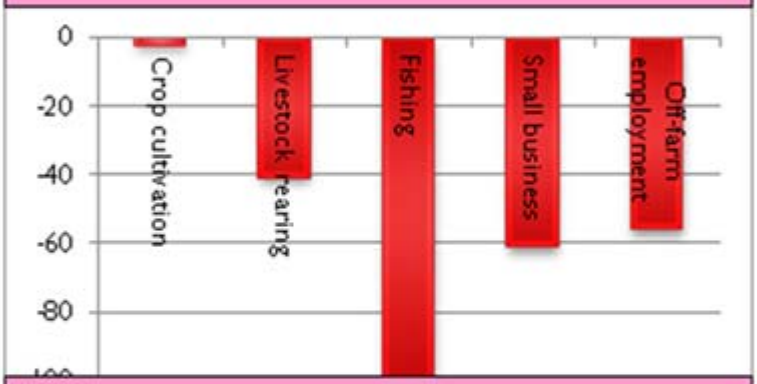

Figure 3: Relative change in farming practices in L. Kivu Basin

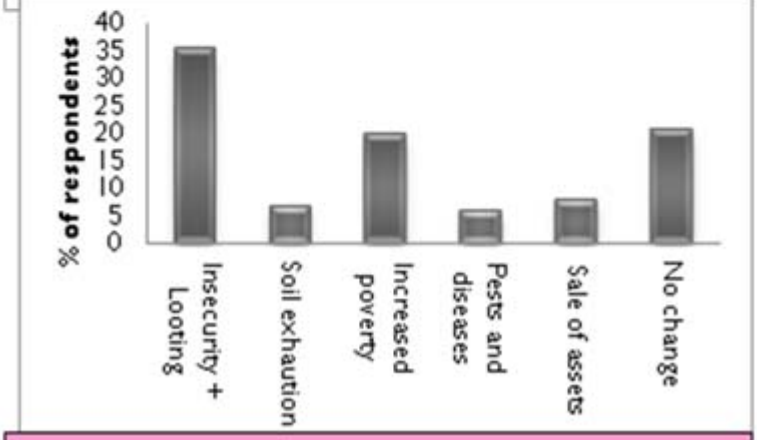

Figure 4: Other contributing causes to change in farming practices

- After the war, crop cultivation remained the major farming activity in L. Kivu Basin, but livestock rearing, fishing and small businesses has declined.
- Beside recurrent conflicts (civil war) in eastern D.R. Congo and associated insecurity and looting, other causes of changes in farming practices were increased incidence of pests and diseases, increased soil depletion, and increased poverty
- About a fifth of the households did not change their farming practices.

Recommendation

There is a need to a) Characterise the change in livelihood and the contribution of war in the lake Kivu Basin; b) Identify best management practices for improved agriculture productivity and soil erosion control, and c) identify erosion hotspot and assess sediment delivery into Lake Kivu under different management conditions.

Acknowledgement

This study is being financed by RUFORUM under grant RU 2011GRG05.

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