

Strength, weaknesses,
opportunities and threat for
watershed management and
environmental protection in
Rwanda

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Methodology

- Reading of background documents
- Interview with ongoing projects staff members

Local administration

- Number of staff members too low, sometimes not adequately qualified
 - Umutara: one forester for 60,000 people, one vet for 23,000 cows
 - Staff insufficient to enforce deferment of newly planted forest
- Reform of administrative boundaries
 - Reduction of the number of staff, but better level of education
 - Implementation of the decentralisation may move from district to sector level

Local administration

- Coordination not always ensured:

Example: Caritas was running food stores in order to reduce price variation between harvest and the end of the lean season. Harvests were purchased at a price higher than the market one and resold with a small profit.

The district extended the experience, but requested the harvests to be given and stored without payment. As a consequence they were sold on the black market, for lower price than before

- Coordination need to be enhanced and districts supported

Local administration

- Decentralisation funding
 - Donors put funds into a Community Development Fund
 - Community Development Plans are done on a participatory way
 - District Development Plans are elaborated, listing project by priorities
 - The Community Development Fund funds the activities

Legal Framework

- Natural resources conservation
 - Prohibit agricultural activities 50 m from the lakeshores and 10 m from river banks
 - Implemented notably by the PAFOR and PDL-HIMO projects
 - Need to support farmers by the revalorisation of upper land
 - Wood cutting forbidden
 - DED set up District Forest Management Plans. They had to be approved before maintenance was carried out.
 - Money raised by selling wood cut during maintenance was suppose to aliment the District Forest Management Funds
 - Not approved yet. The forest are not maintained, the funds are empty. The risk of fires is increased

Legal Framework

- MINAGRI policy on zero-grazing, fencing of private grassland and privatisation of communal grassland

Associations and local capabilities

- Capabilities and number of competent associations limited
 - Only 9 identified in the Bugesera-Mirenge region
- 4 reasons identified
 - Poor training in term of management and innovation
 - Low level of information on the market prices fluctuation
 - Poor access to credit
 - Gifts and incentives approaches creates dependency.

Associations and local capabilities

- Situation is worse in the degazetted part of the Akagera Park. Social fabric is limited and individualism.
- Manpower is limited since pastoralists are not used to heavy work
- Awareness on need for environmental protect is poor, but slowly growing, due to the current situation (fertility loss, erratic rainfall, lack of firewood)
 - Example: LWF could increase awareness in Kibungo by organising field visit into the most degraded part of Bugesera

Conflicts between pastoralists and agriculturists

- Herds are eating agriculturists crops
- Particularly the case near valley dams
- The only solution mentioned is fines given to herders

Conflicts between pastoralists and Reforestation projects

- Pastoralist fear a loss of production due to reforestation of grassland
- There is no awareness on the long term impact of tree in term of production and soil conservation
- There was cases of forest burnt
- Herds eat young trees as they graze or water.
- Need for participatory identification of sites, herders sensitisation and proper deferment of sites

Other problem associated with livestock

- Overgrazing : Load estimated at 3 head per ha, load capacity of 0.33 head per ha
- Poor productivity : 95% of the cows are ankole, producing 150 l/year
- Quota on meat selling encourage high livestock population
- Underdevelopment of the milk collecting and treatment sector
- Water shortage – construction of valley dams
 - Soil degradation on their surroundings and disease transmission due to excessive promiscuity

Solutions identified for livestock management

- Privatisation of rangeland leads to a better management
 - But will cause a problem for large herds owner who should have access to maximum 20 ha of land
- Liberalisation of meat selling market
- Reduction of livestock population and introduction of improved breeds
- Development of individual rainwater harvesting system. Cost 500 USD for 150 m³ storage
- Promotion of small livestock (poultry, goats)

Solutions identified for livestock management

- Zero grazing policy helps integrating livestock to agriculture
 - Already happening on the areas with more agriculturists
 - 0.1 ha of forage crop can feed a cow (PDRCIU project)
 - 500 leucaena or calliandra integrated into 1 ha of farm leads to a increased production from 10 to 12 l/day on improved breed
 - Beans and groundnut haulms and banana leaves given to goat
 - Use of manure on farmers fields

Integration livestock agriculture and agroforestry

- Agriculture, livestock and agroforestry integration would provide the following advantages:
 - Reduction in soil losses
 - Increase in soil fertility
 - Increase in milk productivity
 - Production of lacking wood
- Scientific studies in Gashora district showed that 1000 cassia spectabilis shrubs per ha increases the yield of beans by 4 and of sorghum by 2
- Leucaene at the same density provides 70 percent of the fuelwood required by a family of 5 and provide nearly as much nutrients as 10 T/ha/year (except for potassium)
- 250 grevillea per ha provide enough wood for a family of 6 people

Integration livestock agriculture and agroforestry – case study

- A DED project set up a system based on
 - erosion control ditches, creating progressive terraces, planted with pennisetum
 - composting systems collecting household organic waste, harvest waste and manure.
 - Building of a stable
 - Subsidies were given at 50% and a goat was given on a rotative credit basis
 - the manure were mixed with the household organic residues and left to compost, then applied on the beans, sorghum and maize fields
 - Yield was multiplied by 4 (farmers interview)

Water conservation and organic matter recycling – case study

- Caritas promoted contour planting on small ridges and localised application of organic matter.
 - Techniques were demonstrated on plots of 100 squares metres.
 - The yields increases varied between 1.4 for sorghum and 1.6 for beans in all parts of Bugesera.
 - The adaptation rate are low, at around 4% of the targeted population.
 - The main criticism from the local population was that the techniques augmented their workload. This is relevant for the seedling.
 - Weeding is however easier since the crops are planted in line.

Ecosystems products and income generating activities

- Lots of plants are used in traditional medicine
 - There was a centre in Kibungo who treated 8,000 persons per year
- Eleven ornamental species of flowers have been identified in the TAMP project area.
- Clay is extracted for pottery making, straw for roof making and reeds for basketry
- Travertine, a kind of limestone is present in the North West of Rwanda and can be used instead of chalk for pH rectification.
- Beekeeping is existent. It is used for human consumption and making sorghum and banana beer. There is a good potential for exportation

Ecosystems products and income generating activities

- Avocado, fruits, mango, guava, papaya, Japanese fruits are consumed locally. Tea, coffee and passion fruits juice are exported.
- Possessing a small woodlot gives access to credit
- There is a huge potential for the development of ecotourism and tourism related products near the park (dance, horns, skins, catering,...).
- There is a potential for the production of pineapple juice and sunflower seeds.

Some recommendation for project design

- Development project need to be participatory and involve the beneficiaries from the beginning. Identification of activities, sites and techniques need to be done directly with every group of the local population. Predefined methods do not work
- Local population reduces the risks to a minimum and look for short term return. Participation and adoption of new techniques will need to provide a short term return, optimise the use of land and of manpower, while bring an increase in production or income. When it cannot be done, incentives need to be given to compensate the short turn increase workload. Ex of eucalyptus
- Livestock, agriculture and agroforestry integration represent a good mean for doing so, particularly where pressure over land is high.