

## 14 RAINWATER HARVESTING FOR SURVIVAL AND DEVELOPMENT, UGANDA

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### Summary

In the history of Uganda, the pastoral community of the Bahima was based on annual migrations that were driven by the seasonal availability of grass and water and the prevalence of cattle diseases. The movement caused a lot of conflicts between the Bahima and the neighbouring communities, but also among themselves. The conflict was over access to the limited water supplies and pasture. This way of life was even made harder by the establishment of Government Ranches in the early 1960s covering over 77 km<sup>2</sup>, the establishment of the Ankole Ranching Scheme (ARS) between 1963 and 1975 covering a total area of 640 km<sup>2</sup>, gazettement of Lake Mburo National Park, thus squeezing the pastoralisation into smaller and smaller areas.

The break-down of law and order in the second half of the 1970s led to the collapse of the ARS and the deterioration of law enforcement regarding the game reserve. As a result, pastoralists started re-encroaching on the two areas illegally. In fact, the traditional owners of the land had become landless squatters. Following a change of Government in 1986, officials allowed former residents to go back to the gazetted areas, which the pastoralists did in 1987, destroying the headquarters and killing wildlife they came across. Subsequent to these events, the park has been reduced in size from 650 km<sup>2</sup> to 260 km<sup>2</sup> by a series of degazettements.

The Integrated Pastoral Development Project (IPDP) Mbarara, aims at enabling 1,000 settler families to sustainably satisfy their basic needs from their own resources within 6 years. The Mbarara Local Government (MLG) and the *Gesellschaft for Technische Zusammenarbeit* (GTZ) are in charge of the project implementation from the Ugandan and German sides respectively. The ultimate objective for the implementation of an integrated water development programme during the 3 phases of the project, is to have settled communities with sufficient water for both production (livestock) and domestic use. The project area in question is Nyabushozi. Nyabushozi is one of the four counties of Mbarara District in south-western Uganda and covers an area of 2,930 km<sup>2</sup>. This paper presents a case study in which a community has transformed itself, using provision of water as an "activator". It has also been proved that integrated water supplies are more sustainable and can be good "starters" for development.

### 14.1 Introduction

Nyabushozi is situated in south-western Uganda and covers an area of 2,930 km<sup>2</sup>. The area is within the Lake Victoria catchment, in the rain-shadow of the Kabula hills. Precipitation is bimodal with rains in March to May and September to November, ranging between 750 and 875 mm annually. Lake Mburo and Lake Kachera, in the south and south-west of the county respectively, provide the only reliable permanent sources of water in the semi-arid environment. During a census in 2002 the population of Nyabushozi county has been estimated at 105,845 people. A random sample of 361 households revealed an average household size of 9.8 persons, compared to the national average of 7.6. Mbarara district is a centre of cattle production accounting for close to one fifth of the national cattle herd of 3.9 million. About one third of the population derives its main income from cattle.

Traditional inhabitants of Nyabushozi county are semi-nomadic Bahima pastoralists and sedentary Bairu cultivators who together form the people of the Banyankole. The pastoral system of the Bahima was based on annual migrations that were driven by seasonal availability of grass and water, and the prevalence of cattle diseases. Even though the Bahima's average income per capita was slightly above the national average of US\$200, they lived a miserable life and had almost given up anything to do with development.

Establishment of a joint project supported by both Ugandan and German Governments was a timely venture. The project was designed to assist the "squatters" go through a transition from living a semi-nomadic life to a sedentary one. In this paper therefore it has been shown that provision of safe water for both domestic use and livestock can have lasting effects. It has also been demonstrated that having

resources does not automatically lead to development. Development needs an integrated approach, involvement of all stake-holders, and does not take place overnight.

## 14.2 Project planning methodology

Experiences, with self-help and extension approaches world-wide, show that one of the basic pre-conditions for a successful extension work is that self help and extension efforts are geared towards the needs of the target groups and based on self-help efforts as much as possible. This implies close cooperation between extension staff and the target group, as priority needs can only be identified during effective communication with the target groups. Participation of the target group during identification, planning and implementation of their priority projects or extension support needs, has therefore become a principle for self-help and extension efforts worldwide. In the case of Bahima settlers, it is on top of this, necessary to pay particular attention to women, as they lose their major income when settling, due to socio-economic reasons. Those are the reasons why a gender-sensitive, participatory self-help and extension approach was planned from the early planning stages. A well adapted step-by-step approach has been used to progressively enhance the technical know-how of selected contact farmers. It was made clear from the beginning that extension efforts should aim at supporting the settlers in a way that additional extension services will not be necessary any more after 2003 (the likely end of the project). This is because it is aimed at strengthening the self-help capacity of the communities, so that they are able to participate actively in future developmental programmes. Support is limited by what the target group cannot afford or what they do not know (principle of subsidiarity). Therefore the following principles were followed:

- Material support for self-help project is limited to initial investments which do not need regular replacement.
- Maintenance of investments has to be done exclusively by the target group.
- Advice on plant production and animal husbandry and health is geared towards enabling farmers to grow their preferred plants/treat their animals by themselves after 2003.

Community self-help and extension projects can only be successful at target group level, if their support activities are closely geared towards the needs as perceived by the target groups. Therefore the first step always has to be an assessment of the target group's needs, before any measures can start. It is important that the target group knows the approximate frame for support i.e. the range of support is completely outside the project's reach. The second step with the community aims at deciding about the priority to be tackled first and developing ideas about timing of implementation and support needed from outside. Both meetings are arranged by a multidisciplinary group of project officials, representing specialists for communal water and sanitation facilities, women and self-help projects, plant production, forestry, animal husbandry and health.

Table 1 shows the costs of some valley tanks excavated in 1998/99.

**Table 1 Particulars of valley tanks implemented by GTZ-IPDP**

Location	Capacity (m <sup>3</sup> )	No. of families	No. of cattle	Cost (Ug. Shs)	
				Community contribution	Project contribution
S. 7	10,000	48	1,200	2,500,000=	5,500,000=
S. 13	7,700	14	800	3,000,000=	6,000,000=
S. 16	12,000	36	1,800	3,500,000=	6,500,000=
S. 18	12,000	25	1,400	4,000,000=	7,000,000=
S. 17	7,000	23	900	3,000,000=	6,000,000=
S. 14	11,600	17	1,800	3,500,000=	6,000,000=
S. 26	9,000	24	1,100	3,200,000=	6,500,000=
S. 37	8,000	30	850	3,250,000=	7,500,000=
S. 23	10,000	26	1,100	3,550,000=	7,250,000=

Note: The exchange rate as of November 2001, was 1 US\$ = 1,700 Ug. Shs.

## 14.3 Outcome of needs assessment

In about 90% of all cases, water has always emerged on top of their priority needs. Being a nomadic community, development of water activities must include water for livestock and domestic use.

The design of the valley tanks (which is the most appropriate technology for the area) must cater for daily consumption by both animals and people. The design must also include auxiliary structures to protect the water, delivery systems and watering systems for the animals.

The following criteria have been used for designing the valley tanks:

- 40 l of water per head of cattle per day
- 23 l of water per person per day
- Storage for 3 months (the longest dry period in a year)
- 30% of water to be lost due to evaporation and seepage.
- Annual population growth rate of 3% per annum.
- Design period is 20 years.

The design of the tank also incorporates a spillway, which drains off excess water when the tank is full. There is also a provision for a silt trap and a fence to prevent animals from having direct access to the water, which would otherwise cause silting. Access to the water is by use of a rower pump, which is used to fill the cattle troughs and the collection box from which people can collect water for domestic use. Even though water from a valley tank may not meet the quality guidelines as stipulated by WHO, it provides the first step in the safe water chain (availing the water). It can however be improved by boiling and its contamination avoided by maintaining the fence and silt trap and continuous use of the pump while drawing the water.

Attempts to settle communities in similar environments (Sembabule and Kiboga) had failed because water provision had been designed to meet only domestic needs. Pastoralists will consider meeting the needs of their animals even before considering their own. This is the secret behind this integrated pastoral development project. Water at valley tanks has been used to water animals, domestic use and to water tree nurseries (which are used to establish woodlots). Better and reliable water supply means healthier animals, less time spent on wandering and therefore better income. Better income and settled community (who are enlightened) leads to a sustainable programme.

The potential for community based self-help activities such as water development has become a function of social cohesion among the families that are living in a particular ranch. Some of the achievements the project has made are outlined below:

- 14 valley tanks are completed to secure water supply for livestock and household purposes.
- 16 feeder roads have been rehabilitated and 2 new ones have been constructed in the area to improve access to the settlement scheme as well as to external trading centers and markets; the total length of these roads is about 60 km.
- One school building is currently under construction.
- Casting of latrine platforms for use in individual households has started to improve on the sanitation standards.
- There is already a high adoption rate of plant production among the settlers; the number of "adaptors" copying from one contact farmer usually ranges between 5 and 10 neighbouring settlers.
- There is an increase in self-reliance on food production within the target group. More and more settlers are getting involved in cropping and are spending less on food purchases, especially on food items like bananas, beans and maize.
- 10 contact farmers have planted wood lots.
- 13 contact farmers have planted agro-forestry trees.
- 11 have planted live fences.
- A total of 7 tree nurseries have been established.
- 13 women's groups have been formed of which 6 are very active, 3 are slow and 4 are defunct.
- No systematic follow up and monitoring of the income generation from various activities is carried out, however there are indications of increased income in most active groups.
- A high level of cost sharing has been achieved with the beneficiaries of the infrastructure programme.

In summary over 70% of the settlers have been involved in at least two activities other than cattle rearing. About 50% (about 500 ) of the families now have enough food supply from their own gardens and have a surplus from which to earn an additional income. About 80% of the originally settled people have remained in the area and get income from mixed farming, which we regard as sufficient by Uganda standards. All these developments have been sparked off by the 14 valley tanks constructed in the area,

with capacities ranging from 6,000 m<sup>3</sup> to 12,000 m<sup>3</sup>. On average, each of these tanks serves about 20 families and 1,000 head of cattle.

#### **14.4 Conclusions**

In this paper, it has been proved that construction of a drinking water supply brings security in the form of regular supply of water and diminished danger of sickness. However, the reduction of risk on the ecological side requires a more complex, or even new form of organization of water and often new technology.

A water revolution involves a system of governance/regulation of the ownership, appropriation, distribution, management, protection, utilization and conservation of the principal source of life for every living form in the earth's ecosystem.

It is high time that we learned to control pumping, storage, production, use, conservation and protection of water on a basis of democracy and solidarity and at every level of the organization of society. "Good governance" in relation to water cannot be achieved except through democracy. To create the conditions for everyone to exercise their fundamental right of access to drinking water – which is a right of life - is a matter of citizenship.

To ensure a lasting water supply for the population, it is important that all users develop a cultural identification with the water project and one which will enable them to cope with the newly emerging social-cultural risks. This will increase the security for all the water users.