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Dambo resource use in Zimbabwe

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INTRODUCTION

Most environmental resources in rural Africa have multiple uses and need to be seen in this context when planning any development programmes. Dambos are an example of such a multipurpose resource. Alan Windram, at the 1985 WEDC Conference (ref. 9) described dambos and their use in Zimbabwe for agricultural purposes. Dambos are treeless headwater depressions with groundwater close to the surface. They comprise 1.28 million hectares in Zimbabwe, with 263,000 hectares in the communal areas (ref. 7). They are also widely distributed throughout sub-Saharan Africa (ref. 1).

Dambos provide land and water resources for three main purposes in the Zimbabwe's communal areas: domestic water supply, livestock grazing and garden cultivation - each of which provides economic and social benefits to rural households. Little is known about the role of garden cultivation in the livelihood of individual households. Our research shows that this form of cultivation forms part of an integrated agricultural system with dry farming on the interfluvies. Families with gardens grow enough vegetables to feed themselves throughout the year. Many families also grow rice and maize as staple crops in the garden, with a harvest in January, which is usually the "hungry season" when nutritional levels are at their lowest (ref. 3). Dambo farming therefore complements dryland agriculture, the main harvest from which is in April. Even families without gardens can benefit in areas with dambos since they often have access to crops from their neighbours' gardens.

In some areas, gardens are the sole source of family income, providing \$100 to \$3,000 per year from the sale of vegetables. Irrigation technology used is simple -- watering cans and buckets, oil drums and hosepipes, and, in a few cases, diesel pumps.

In Zimbabwe there are government-imposed regulations restricting the use of dambos as a land and water resource. In the communal areas where people do not hold

title to land, there are also local rules and traditions affecting dambo use. These are partly affected by the national policy but also greatly influenced by local needs and the historical use of dambos. In this paper the local management of dambos is discussed and compared with national policy. National legislation, which is of colonial origin, is compared with present government policy. A case study approach is then used to describe indigenous management, drawing upon information from one dambo which has been studied in detail for the past two years. Brief comparison is also made with dambos studied in other areas. These same case studies are then used to illustrate how the implementation of government policy affects and is affected by indigenous management systems.

NATIONAL MANAGEMENT

Legislation

There are two pieces of legislation which affect dambo use: The National Resources (Protection) Regulation of 1975 (commonly known as the Streambank Protection Regulation) and the Water Act of 1976.

The Streambank Protection Regulation originally enacted in 1952, prohibits cultivation within 30 metres of a stream, and on "wetland", which includes dambos. This legislation was introduced due to fears of environmental degradation which was widespread in Southern Africa during colonial times. Beinart (ref. 2) refers to discussions as early as 1913 over degradation of dambos by settler farmers. Later, this degradation was blamed on peasant farmers. Wilson (ref. 8) contends that this type of legislation was enacted as a means of controlling peasants and reducing competition for agricultural markets. Whatever the reasons for the legislation, Wilson and Thiesen (ref. 6) have both shown how detrimental this legislation was to the welfare of peasant households.

The Water Act originating in the 1930's, defines various uses of water and how these uses are regulated (ref. 4). "Primary use" is for "drinking, washing, cooking and

stock watering". Usually, official permission is not needed for primary use of water. Permission is needed for "secondary use", which includes irrigation. There are also restrictions on the use of "public water", which includes water in dambos. These restrictions were imposed due to concern that use of water in dambos would affect downstream flow, and therefore, water supply in the catchment. Reduced flow from the catchment might, in turn, reduce the water supply available in the river basin as a whole, thus affecting domestic and irrigation supplies in other areas.

National Policy on Dambos

National interpretation of these two pieces of legislation varies depending on the ministries involved.

The Natural Resources Board is most concerned with the Streambank Protection Regulation. In the 1970's, the NRB became more lenient in enforcing this legislation. This was due to the fact that maize was successfully grown during the recent drought, without environmental damage. Work by Thiesen, which showed that cattle did more damage to the dambos than cultivation, was also instrumental in changing the views of NRB officials. Thus, only that part of the regulation which refers to streambank cultivation was enforced, while cultivation on dambos was permitted beyond the 30 metre line. NRB policy is now one of education in proper conservation measures, rather than widespread enforcement of legislation. This education is the responsibility of the Ministry of Agriculture. However, despite NRB policy, some Land Inspectorate Officers (part of the NRB) continue to enforce the regulation. In Gutu, for example, since Independence some people have been prohibited from using their gardens.

NRB literature encourages the use of dambos for domestic water use, but permission to dig a well should be obtained from both the Ministry of Agriculture and the Ministry of Water Development. This is not enforced. NRB officials are not, at present, concerned about excessive use of water for garden irrigation. However, as garden cultivation increases, they recognize that further legal clarification of these issues may be needed.

Agritex (the agricultural extension service), is responsible for giving technical advice to the Natural Resources

Board on environmental matters. The definition of wetland in the Streambank Protection Regulation was written by Agritex. However, the NRB makes the final decision on any regulations passed referring to environmental resources. In terms of soil classification, dambo soils are referred to as Class V, which means they are only suitable for grazing. While Agritex field officers generally recognize the importance of dambo gardens to the welfare of rural households, middle and upper-level officials remain more concerned over the environmental hazards. Thus, although field officers continue to allocate new gardens more than 30 metres from the watercourse, they are not well-trained in safe and effective cultivation of dambos. They are also unsure whether they should be giving extension advice on gardens.

In terms of the Water Act, Agritex feels that as long as only handpumps and watering cans are used for watering garden crops, this is "primary use" of water, not "secondary use". Therefore permission is not needed. However, this interpretation adds to the official perception that garden watering is "domestic water use" rather than irrigation. Garden cultivation is therefore ignored in irrigation policy.

The Agricultural Finance Corporation (AFC) which gives loans to farmers for agricultural inputs, does not give loans to farmers for gardens. This is not a result of legislation, but due to the fact that vegetables are the cash crops on gardens. The AFC argues that since vegetable prices are not government-regulated, it cannot be sure that farmers will repay their loans. Also, vegetables are more perishable than staple crops such as maize and rice. This sometimes results in crops spoiling before they reach the market. However, some farmers make large profits from their gardens, at much less risk than those farmers depending on the rains for growing maize. After the recent drought, most of the loans given to farmers for dryfield crops had to be written off.

The Ministry of Water Development (MWD) is most concerned with dambo use as it relates to the Water Act. As with Agritex, they see dambo cultivation as primary use of water. They do not therefore consider permission to be necessary for irrigation of gardens. Officials are, however, concerned about the effects of garden watering on the water supply of the catchment. This concern persists despite

the lack of evidence to prove that dambo cultivation in communal areas has a detrimental affect on stream flow.

The Ministries of Health and Community Development are encouraging group and individual gardens as a means of increasing family income and improving health. These gardens are often located on dambos.

National Land Use Policy

In some areas of Zimbabwe, the government has enacted "villagization" programmes. These involve moving households closer together, providing basic services such as water and electricity, and allocating land specifically for cultivation and grazing. In Gutu these programmes will include provision for wetland cultivation, as long as gardens are located more than 30 metres from the streambank.

LOCAL MANAGEMENT

Chizengeni Dambo

This dambo is located in Chiota Communal Area, some 80 kilometres southeast of Harare. The total area of the dambo is about 80 hectares, with approximately 30 hectares under cultivation. There are 27 gardens, ranging from 0.5 to 4 hectares. The remaining area is used for cattle grazing. Twenty-nine families live around the edge of the dambo, forming a total population of 180. These families cultivate dryland plots and gardens. Half of the families obtain their drinking water from wells on the dambo. The remainder use protected wells at their own or a neighbour's home.

Agricultural land in Chizengeni, as in all communal areas, is allocated by a Village Chairman, in consultation with the local Agritex officer. Local people are generally aware of the 30 meter rule, but do not think it is illegal to cultivate on other parts of the dambo. Male heads of household are given permission to use the land, but do not hold title to it. Only three families in the village do not have access to gardens; these are young couples whose requests for a garden have not yet been met. Widows are permitted to have gardens inherited from their husbands. Wells for irrigation are inside the gardens and can only be used with permission of the "owner" of the garden.

Wells for Domestic Water Supply can be dug on the dambo anywhere outside the gardens without permission. They are

generally shared between 2-3 families and are dug on the dambo margins close to the homes. Clothes washing normally involves using water from irrigation wells in the gardens, not domestic water supplies.

Cattle obtain water from irrigation wells on the edge of gardens or from the river. They are kept away from domestic wells. Herding is organized in groups during the rainy season in order to protect dryfield crops and save labour. In the dry season, when only gardens are cultivated, cattle are not herded, although they must be kept in the kraals at night. Good fencing is therefore needed to protect garden crops. Households with inadequate fencing either do not cultivate their gardens during the dry season, or ensure a family member is always in the garden to keep the cattle away.

Dambos in Other Areas

These indigenous practices relating to access to dambo land in Chiota are found also in Zwimba and Gutu Communal Areas. Zwimba is in the same agro-ecological region as Chiota, and is a similar distance from Harare. Gutu is in a more marginal agro-ecological region some 300 kilometres from Harare. In Zwimba, 90 percent of those surveyed have gardens which are much smaller than those in Chizengeni due to the need for more elaborate fencing to keep out the goats. In Gutu, people have a similar problem with goats. However, a greater constraint on garden cultivation is access to a plot since the Land Inspectorate is much stricter in enforcing the Streambank Protection Regulation. Thus, only 52 percent of those surveyed have gardens.

DISCUSSION

Effects of National Policy on Local Management

It is apparent that the national approach to dambo cultivation in Zimbabwe is divided. Policies of the NRB, Agritex and MWD towards cultivation are not well-defined. Officials in these institutions are primarily concerned with the effects of dambo cultivation on both land and water resources, notably soil erosion, water loss in the immediate dambo catchment and in the overall river basin. In contrast, the Ministries of Health and Community Development, in their concern to improve the nutritional and economic status of farming households, support group gardens on dambos.

This ambiguous government policy results in conflicting messages to communal farmers, making successful dambo cultivation more difficult. Since dambos tend to be ignored in policymaking, they are also left out when budgets and development plans are formulated. Farmers have no access to credit for dambo gardens and little extension advice. Research on cropping patterns and pumping technology is minimal. Furthermore, families in some areas are severely restricted from using gardens. With the exception of a few experimental grazing schemes, there is no government control over grazing on dambos.

Local Conflicts

Government policy on land and water use creates constraints to dambo cultivation in all communal areas in Zimbabwe. However, one additional constraint not addressed by government has been identified by local people. This relates to a perceived conflict over access to land for gardens and cattle grazing. The severity of this conflict varies between dambo areas. While in Zwimba and Gutu it was not reported to be a problem, in Chizengeni no further allocation of dambo gardens is planned due to the need for grazing land. This decision has been made by the Village Chairman in consultation with local farmers.

CONCLUSION

Two major policy issues emerge from the above discussions: the first relating to priorities, the second to government intervention.

Clearly, problems and priorities relating to dambo use are different at local and national levels. National policymakers are concerned with the effects of dambo use on land and water resources at local and regional levels. By contrast, communal farmers are primarily concerned with the local effects of dambo use as a land resource. Thus, government concerns and those of communal farmers only coincide over local problems with use of dambo land. Yet even here there is a difference in priorities. The government is most concerned with land degradation in the form of sheet and gully erosion on dambos. Communal farmers do not ignore the problems of land degradation, but their more immediate priority is the conflict over land for grazing and cultivation.

In the communal areas, the management systems for controlling dambo use are well-established and effective. Policymakers need to understand local

priorities in order to work effectively with these indigenous systems. Generalizations about communal areas need to be avoided. The study of local practices and constraints should be as area-specific as time and financial resources allow. Government will then be better able to assist with the safe and beneficial use of dambos.

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