

Holistic Environmental Management in a Communal Grazing Scheme

From isolation to consolidation

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About the Grazing Area

The Chikukwa communal area is located on the southeastern border of Zimbabwe with Mozambique and on the northern end of the Chimanimani range of mountains. The communal area has approximately 700 households, deriving livelihoods from diverse agricultural activities practiced on deep, mainly clay, soils. The area is found in agro-ecological region 1, receiving between 1,200 mm and 1,500 mm of rainfall per annum. Temperatures are relatively low, ranging from 15°–25°C. It is one of the prime agricultural zones of Zimbabwe, but under siege from environmental degradation as a result of soil erosion, steep slopes, and inappropriate farming practices. The vegetation is characterized by open grasslands and scattered woodlands of various indigenous and exotic species.

The Chikukwa people were allocated Jantia Farm in 2003 by the government as a grazing area for their cattle. This was done to solve grazing problems emanating from a shortage of grazing land. Jantia farm is 1,120 ha in extent, much of which is hilly and broken hills with a number of streams starting from the hills. Over 100 ha are for homesteads and cropping, leaving 881 ha of grazing land. Jantia can hold between 300–400 livestock units (LU). One livestock unit is equivalent to 500 kg live weight. The Chikukwa grazing committee planned 6 paddocks in Jantia farm ranging from

88–194 ha. Each paddock has one or more water points for cattle.

Why a Holistic Grazing Scheme?

- Encourage sustainable agricultural practices.
- Improve animal condition and livestock growth rates.
- Reduce straying of animals and thefts.
- Increase labor availability for agricultural and other social activities.
- Have an adequate supply of meat and milk.
- Promote the economic and social interests of members.
- Investment in social skills through community exchange of information.

The Grazing Scheme Planning Process

Community members were the hub in planning the grazing scheme with the assistance of government extension services and other stakeholders. A participatory mapping exercise of the Jantia grazing scheme was carried out. All participants took part in the Jantia grazing map, identifying and filling in all features such as rivers, wells, and springs. They considered the topography, vegetation density, veld types, and the availability and distribution of water. The carrying capacity of Jantia is set at 200 LU. The stocking rate is set at 1 LU per 5 ha of grazing area.

Consultations with various stakeholders were done and revealed the following:

- The concept of a planned grazing scheme was well received by all stakeholders.

This article has been peer reviewed.

- The Chikukwa people agreed that only those settled on the scheme could graze their livestock instead of having all neighboring households grazing their livestock which could result in overgrazing.
- In order for the scheme to be viable, there is a need to set up a training fund for the community for initial and continuous training on livestock management and business principles in livestock production.
- A constitution for the grazing scheme bylaws and management plan for the grazing scheme was drawn up.
- The stakeholders agreed that the scheme should also have other functions in the future, such as honey production and goat production among other things.

Grazing Management System

A rotational grazing system was agreed upon as a management system to follow. Participants demonstrated their understanding of the rotational grazing system by drawing grazing management charts, a paddock management record, varying the period of stay, and calculating the rest period of each paddock. The grazing periods are varied depending on size of paddock, veld type, and season of the year. The recommended period of grazing in any one paddock is 5–7 days during early summer. As grass growth improves and sufficient quantity of forage become available the grazing period is increased to 14–21 days from late summer to the dry season.¹ However, varying the time of grazing in any one paddock is flexible, being guided by common sense, experience, and close observation of the condition of the veld.²

Implementation of Grazing Scheme

Grazing Committees

Six grazing committees were established for the Jantia grazing scheme. These are executive, veld management, animal health, finance, security, and disciplinary. Each committee is characterized by a chairman and vice-chairman, secretary, treasurer, and committee members. This arrangement is depicted below. The committees work together by holding monthly meetings and consult with other stakeholders on issues pertaining to the grazing scheme. Members of the respective committees are selected through a voting process at Annual General Meetings. A member serves up to 2 terms of 2 years per term.

Functions of the Management Committees

Executive Committee

Coordinates the activities of the 5 subcommittees in consultation with the local leadership.

Veld Management Committee

This committee is involved in the implementation of the grazing scheme that includes fencing and fence repairs, grazing management system implementation, and control of the number of animals coming into scheme. The committee is

also responsible for organizing and mobilizing the community to plant pastures, to fortify the veld, and to carry out repair work on the fences.

Security Committee

This committee looks at the condition of the fences and this is usually done once a week. They also monitor unauthorized hunting, cutting down of trees, and apprehend offenders. The committee is also responsible for the employment of 2 security guards who check on the security of livestock and equipment in the grazing scheme. The security guards are to report all cases of theft to the Chief, Headman, Kraal head, and the police.

Animal Health Committee

This committee has been entrusted to maintain the dip tank, assist the dip attendant in dipping of cattle, check and treat sick animals, and also purchase drugs and chemicals with the money collected from members of the scheme. It is also responsible for ensuring that 5 households per time collect animals for dipping and change cattle from paddock to another paddock.

Finance Committee

The Finance committee is responsible for collecting monies from members. They are also involved in the payment of casual labor, who works on the scheme, and other running costs affecting the operations of the grazing scheme. The committee was tasked to open a bank account with 3 signatories where all funds received will be deposited.

Disciplinary Committee

This committee is involved in assessing the gravity of cases brought by the security committee. There are some cases on which they can pass judgment and others that are referred to the chief or the police.

Membership

Members of the community who joined the scheme paid an initial subscription fee irrespective of whether one owns livestock or not. The money is used to hire contract labor for maintenance of the fences in the scheme. The current membership of the scheme is 84 with 63 of them owning cattle.

Table 1. Number of cattle owners by village

Name of village	Number of cattle owners
Jantia	27
Kwaedza	21
Mabasa	12
Mukwee	3
Total	63

The breakdown by village and number of cattle owned is shown in Table 1. Currently there are about 331 cattle in the scheme with stockholders owning between 2 and 24 animals per household. The breakdown of animals in Jantia grazing scheme is shown in Table 2.

Fencing

The implementation process started in 2004 with the fencing materials being provided by key stakeholders. Labor to construct the perimeter fence was provided by members of the grazing scheme. So far the community has fenced 8 km of the perimeter and 4 km of internal fence with 11.8 km of the perimeter and 13.69 km of internal still to be fenced.

Members also fenced off some springs that are within the grazing area to protect water works from pollution. Livestock corridors have been fenced from the villages into the grazing scheme.



Figure 1. Veld in fair to good condition.

Veld Condition

The grass species diversity indicates a greater proportion of the desirable rangeland grasses which should be maintained. The forage production, ground cover, and plant density are good which help to reduce the erosivity of runoff water. There is no noticeable incidence of soil erosion or capping. Very isolated cases of termites were observed because of rela-

tively low temperatures and a high water table. The veld was assessed to be in a fair to good condition (Fig. 1).

Cattle Condition

The cattle grazing in the scheme were in good body condition. The major disease incidences according to the grazing committee members are sweating sickness, red water, diarrhea, and black leg. Farmers use both traditional and conventional medicine in treating some of the diseases. The grazing scheme has a functional plunge dip system jointly managed by the veterinary department and the animal health committee. One of the members in the veld management committee has 27 years of experience as a stockman and assists his colleagues in disease control and calving problems. According to the experiences of the grazing committee, the scheme experiences low reproductive rates of about 40%, high preweaning mortality, and low growth rates of 3–4 years to maturity. The low reproductive rates are associated with poor-quality bulls available in the area, low-quality nutrition of animals during the dry season, and diseases, especially tick-borne.³ Generally there are few goats in the area, which are grazed by tethering.

Benefits of Grazing Scheme to the Community

Social

The social benefits include reduced conflicts among community members and within families, and reduced crop destruction by straying animals, resulting in less stock theft. There is also enhanced social cohesion as families now spend quality time together and the community is involved in all stages of project planning and management.

Economic

Maize crop yields have since increased from an average of 1 to 3 tons per ha due to more labor being available for agricultural activities. Improved cattle conditions are due to quality veld condition and have resulted in increased milk and manure output. On average, milk production was about 400 ml per day/cow and is now 1,000 ml per day/cow. Farmers are now resorting to the use of organic manure as opposed to inorganic fertilizers, which are expensive and unavailable.

Table 2. Classes of livestock in Jantia grazing scheme

Livestock class	Number	Estimated LU equivalent	LU	Percentage of total (%)
Oxen	95	0.6	57	28
Bulls	36	0.6	21.6	11
Cows	96	0.5	48	29
Calves	45	0.18	8.1	14
Heifers	59	0.36	21.24	18
Total	331		155.94	100

There is also early tillage of land that boosts crop output. The restriction of cattle in the grazing scheme has also resulted in fewer cattle injuries. There is now improved cattle management through the establishment of the animal health committee that promotes early detection of diseases and control, leading to reduced cattle losses. The community has started a bee production project within the grazing scheme. This gives a positive spillover effect through cross-pollination into nearby fields, and also honey sold locally raises incomes for participant households.

Environmental

There is improved conservation of trees and other forms of biodiversity through the monitoring and implementation of agreed upon bylaws by the veld management and the security committees. There is less soil erosion as noted from increased ground cover and improved water conservation of some springs that are now protected to conserve water. In addition, there is reduced siltation of rivers, wells, and other water points. The aesthetic value of the land has thus improved due to the good veld management.

Institutional

The support of the traditional leaders and the police to the scheme is through the enforcement of bylaws. There has been enhanced collaboration between the Chikukwa community and local nongovernmental organizations (NGOs). Collaboration has been achieved through facilitating the planning of the grazing scheme, training, stakeholder consultation meetings, purchase of fencing materials for the perimeter fence, and organization and funding exchange visits. Government departments offer technical advice in the demarcation of paddocks and paddock layout plans. The veterinary department advised on the types of pastures to be planted, rehabilitation of the dip tank, training of farmers in animal health, mobilization of funds for training of farmers, and supplementation of cattle feeds with crop residues such as maize stover, beans, and pea residues.

Food Security

The community is experiencing enhanced food security through sustainable crop production and diversification, thereby reducing production risk. Farmers often experience excess production to their home needs and sell within the local community and nearby markets.

Major Lessons Learned From Jantia Holistic Grazing Scheme

- Controlled grazing schemes are more suitable for communities that have organized residential and cropping areas.
- The community in the grazing area showed willingness to contribute to building their cattle herd both in numbers and quality.
- The community demonstrated resourcefulness with minimal external assistance to improve their environment.
- The holistic grazing scheme has a coordinated community management approach to natural resources. This has helped bring about community ownership of resources.

Key recommendations made are:

- For successful implementation of a community grazing scheme there must be total involvement of the community and wide consultation of the relevant stakeholders.
- There is a need for an effective finance resource mobilization mechanism by the community, persistent focus, and commitment to the values of the grazing scheme.
- There is a need for product patenting so that the community enjoys royalties associated with their knowledge.
- There is a need for Participatory Action Research focusing on the local needs, and knowledge products should be packaged and disseminated in local languages to assist wider community acceptance.

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