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# Policies for sustainable land management in the highlands of Ethiopia

Summary of papers and proceedings of a seminar held at the International Livestock Research Institute, Addis Ababa, Ethiopia, 22–23 May 2000

# Community resource management: The case of grazing lands in Tigray, northern Ethiopia

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## Introduction

Communal grazing lands are important sources of livestock feed in developing countries. In the presence of sufficient demand for livestock and livestock products, unrestricted access to grazing lands would result in overexploitation of the resource. Community grazing land management is being recognised as a viable alternative to privatisation or state ownership and regulation to reduce the problem of grazing land degradation. However, there is a paucity of evidence regarding the nature and effectiveness of local level institutions and organisations for grazing land management in developing countries. This paper seeks to contribute to this gap in knowledge for the northern Ethiopia region of Tigray. The paper evaluates the nature and impact of community grazing land management and investigates the determinants and effectiveness of collective action for the management of grazing lands in the region.

The study area, Tigray, is in northern Ethiopia and covers an approximate area of about 80 thousand km<sup>2</sup>. More than 80% of the population depends on a mixed crop-livestock system, with oxen power supplying the only draft power for traction. According to the 1998 livestock census, the region has about 3.05 million cattle, 0.94 million sheep, 1.47 million goats, 0.42 million equines and 0.013 million camels. Feed shortage is the major constraint to livestock production in the region. Free and uncontrolled grazing is the dominant grazing system in the region. In most parts of the region grazing lands are severely degraded.

## Methods

Results are based on data collected during the 1998–99 cropping season by a survey of 50 *tabias* (the lowest administrative unit in Tigray usually consisting of 4–5 villages) and 100 villages in the highlands<sup>1</sup> of Tigray. A semi-structured questionnaire was administered in a group interview with community representatives at *tabia* and village levels. Data were collected on changes in agricultural and natural resource conditions between 1991 and 1998, and their causes and effects. Analysis of descriptive information and econometric analysis were conducted.

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1. Highlands are defined as those areas >1500 m above sea level.

Factors used to explain variations in collective action and its effectiveness in managing grazing lands include population and livestock densities, access to market, agricultural potential, area and age of the grazing land and presence of external organisations. Collective action to manage grazing lands and its effectiveness were measured in terms of whether a community had any grazing areas with use restrictions, whether communities established penalties for violations of use restrictions, whether there were any violations of use restrictions and whether violations were penalised when they occurred.

## Results and conclusions

Restricted grazing areas are common in Tigray. Every village has some type of grazing area and 74% of the surveyed villages had restricted grazing areas, with an average area of 24 ha/village. Most restricted grazing lands were not promoted by external organisations. Only about 17% of the restricted grazing areas were established after 1991, indicating that there is a long tradition of developing and enforcing use regulations of grazing lands in the region. Almost all restricted grazing areas were managed at the village level. The regional Bureau of Agriculture and Natural Resource Development (BoANRD) provided technical advice and material support. The most common contribution by village members in managing the grazing lands was a cash or in kind contribution for guard payment. Communities tended to use stricter penalties when violations of use restrictions were more frequent.

The relationship between population pressure and collective action to manage grazing lands appears to be mixed. While population pressure reduces violations of use restrictions of grazing lands up to an intermediate level of population density, supporting the hypothesis of an inverted U-shaped relationship between collective action and population density, intermediate population pressure tends to reduce the likelihood of development of use restrictions and the enforcement of penalties. Perhaps penalties are less needed at intermediate population density because collective action works better in such circumstances, reducing violations and the need for penalties. Market access tends to favour collective action for grazing land management while the presence of external organisations tend to retard it. These results suggest that community grazing land management can contribute to a more sustainable use of grazing lands and, under the right circumstances, the alleviation of feed shortage problems. Public intervention in grazing land management needs to be complementary to local efforts.