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Trees are our backbone

Integrating environment
and local development in
Tigray Region of Ethiopia

Yohannes GebreMichael
Ann Waters-Bayer

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 **Irish Aid**
Department of Foreign Affairs
An Roinn Gnóthaí Eachtracha





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Acronyms

ADLI	Agricultural Development Led Industrialisation
BoANR	Bureau of Agricultural and Natural Resources
BoARD	Bureau of Agricultural and Rural Development
CBO	Community-based Organisation
CSO	Civil Society Organisation
DA	Development Agent
EDA	Environmental Development Authority
EIA	Environmental Impact Assessment
EPLAUA	Environmental Protection, Land Administration and Use Authority
FTC	Farmer Training Centre
IK	Indigenous Knowledge
ISWC	Indigenous Soil and Water Conservation
LEISA	Low-External-Input and Sustainable Agriculture
NGO	Non-Governmental Organisation
NRM	Natural Resource Management
PASDEP	Plan for Accelerated and Sustainable Development to End Poverty
PBS	Protection of Basic Services
PROLINNOVA	PROmoting Local INNOVAtion in ecologically-oriented agriculture and natural resource management
PSNP	Productive Safety Net Programme
REST	Relief Society of Tigray
SWC	Soil and Water Conservation
TRSP	Tigray Regional Support Programme

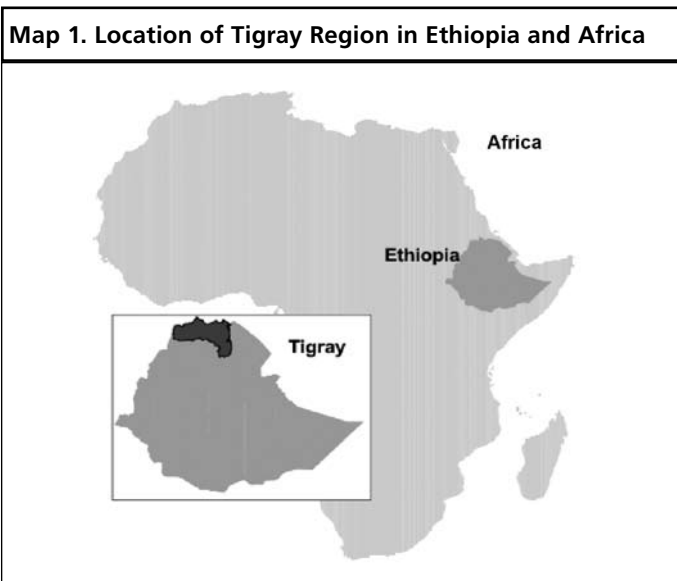
1. Introduction

1.1 Background

Environmental degradation and land scarcity in Tigray, the northernmost region of Ethiopia (see Map 1), is not a new issue. Already settled and ploughed several centuries before Christ, the decline of the Axumite kingdom in Tigray in 600AD has been attributed to soil degradation and the consequent inability of agricultural production to keep pace with the growing population (Hurni 1988). Today's population of about four million people in the region is even higher than it was then. How then have farmers continued to produce from the land while avoiding environmental degradation?

Most people regard land degradation as the central environmental issue in Tigray. Major government policies being applied to deal with this are shaped by government officials' concepts of "environment" and their perceptions of local landuse practices, which they generally consider to be destructive and backward. Policies are thus geared to resource protection through technical interventions backed by non-sustainable incentives (food or cash). These are at odds with local perceptions, priorities and practice.

For rural people in Tigray, the environment is intimately linked to their lives and livelihoods. Furthermore, many communities have developed their own institutions and methods of environmental management that enjoy great local legitimacy. The interventions by government and numerous ambitious bilateral and multilateral projects in the name of development and environmental protection have generally failed to recognise this. Instead, they have tried to introduce new organisational structures and regulations for resource protection, which they have not always been able to maintain



and enforce. By not seeking synergy between the concerns of the regional government and those of the local people, the efforts of both sides have been weakened and the shared dream of sustainable development seems ever further away. Government needs to build its policies on good examples of local practice, in which environmental concerns are central to sustainable and equitable development.

In this paper, we examine the policies and practices of the Ethiopian and Tigray Governments in response to environmental issues in the framework of development, and compare these with endogenous efforts to address these same issues. We highlight the differences in perception between the different stakeholders. When the Government tries to integrate environment and development, environment is perceived primarily as something to be protected, although these perceptions are gradually changing. In local perceptions, environment and development are inextricably intertwined. The issue of perception is important, as it influences the nature of dialogue between stakeholders. Divergent perceptions can lead to misunderstandings, miscommunication and disregard of the priorities and insights of key stakeholders, in this case, of those who live directly on and from the land. We take a closer look at some good local practices in environmental management, and extract lessons that could guide environmental policy and its application in Tigray Region.

1.2 Study methodology

This publication is based on a study (Yohannes & Waters-Bayer 2006) commissioned by Irish Aid to explore how environmental issues are being addressed through local development processes in the region. This was in preparation for renewing the agreement between Irish Aid and the Tigray Government for direct budget support under the Tigray Regional Support Programme (TRSP). The main objectives of the study were:

- 1) to document good local practice in environmental management that contributes to improved livelihoods and sustainable land use; and
- 2) to review aspects of participation, governance and capacity related to how environmental concerns are reflected in decision-making and development processes at regional, district (*woreda*) and subdistrict (*tabia*) levels.

We carried out the study in July–August 2006. A desk review of policy documents, strategy papers, external reviews and other papers was complemented by a one-week visit to Tigray Region. There, we visited governmental and non-governmental organisations to discuss how they deal with environmental issues in their development activities, their linkages with other institutions, and their views on best practices in successfully integrating environment and development. We built upon our prior knowledge of agriculture and natural resource management (NRM) in Tigray, where we had both made several other studies and reviews over the past decade. Based on recommendations of our interview partners and our own knowledge, we selected six field sites to visit in the Eastern and Central Zones of Tigray. These included cases where external (to local communities) agencies such as Irish Aid, FARM-Africa and the Relief Society of Tigray (REST) had supported development projects as well as cases of traditional resource management and local initiatives to deal with environmental issues.



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Local initiative in managing soil, stones and water to create land for crop production in Irob District of Eastern Tigray

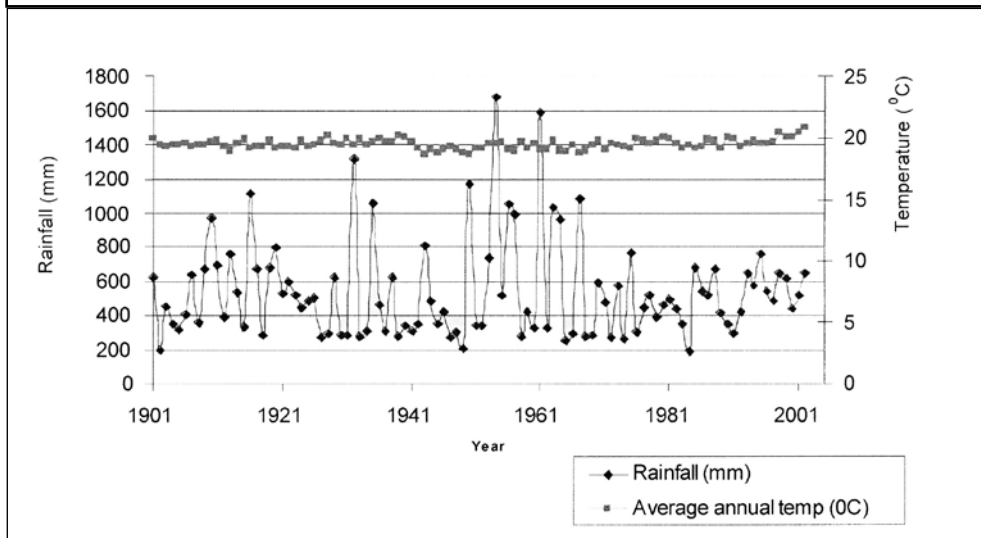
We spoke with individuals and small groups of men, women, elders, youth, children, DAs, local government administrators, and NGO and government staff at district and subdistrict levels. For the field visits, we made no prior arrangements, as we did not want to be presented with prepared success stories as facades, as so often happens during evaluation missions. In this case, we were not making an evaluation but rather an exploration of perceptions, issues, experiences and practices. We discussed with people we met more or less by chance while walking through the villages and watersheds, and small groups assembled through word-of-mouth after our arrival. In total, we spoke with about 90 people, about half of them in the field and half in Mekelle, the capital of Tigray Region.

We entered this review with a people-centred concept of the natural environment, regarding this as a term that refers to the air, water and land-based resources surrounding human beings. In looking at “environmental issues”, we focused on issues of degradation, conservation and sustainable use of natural resources. With the term “sustainable environmental management”, we refer not to the conservation of nature for its own sake but rather to how humans co-exist with other forms of nature, using natural resources in the present to maintain their functions for the benefit of future generations. The word “management” in this connection refers to action by human beings in response to influences coming from their natural surroundings and in order to have influence on their natural surroundings. This encompasses also the values, institutions and organisations that drive human activity. With the term “local”, we refer to the district level or below, most often to the level of the people living within a village area.

2. Major environmental issues in Tigray

Tigray Region lies in northern Ethiopia and has a rugged terrain, ranging between 400 to almost 4000 m above sea level. The climate is predominately semi-arid with irregular rainfall and frequent drought periods. More than 85% of the population lives in rural areas and depends primarily on cultivation, animal husbandry and gathering of wild foods.

Figure 1. Rainfall and temperature in Teghane, Atsbi Womberta District, Tigray Region, 1901-2001



Source. Assefa & van Keulen, 2005

2.1 Land degradation

In Tigray Region, Government and conventional projects perceive land degradation to consist of the following (compiled from different sources by Fitsum *et al* 2002):

- More than 50% of Tigray's highlands are severely degraded;
- About 46% of its cropland suffers severe soil erosion;
- Because the soils have low organic content and low moisture-holding capacity, rates of rainwater runoff are high;
- Soil nutrients are lost at a high rate on account of the burning of dung and crop residues.

To some extent, the land users refer to land degradation with similar concepts, talking about the loss of soil, the growth of rocky outcrops, the diminishing "power" (fertility) of the soil and their perception that the climate is drier than it used to be (greater moisture stress for plants).

2.2 Land scarcity

An issue closely linked with the environment is human population growth, which leads to greater pressure to use marginal land. The highest population density is in the highlands of Eastern Tigray, where the average household of five persons holds 0.5 ha. The midlands (especially the eastern escarpment going down to Afar Region) and the lowlands in Western Tigray are much less densely populated. Scientists, policymakers and landusers hold a similar perception about this: population growth is endangering the basis of rural community livelihood.

An ever-larger number of people seek to live from a finite area of land in the highlands, which people prefer for climatic and health reasons. The present holdings of arable land were allocated to families over 15 years ago, after Tigray was liberated from the military *Derg*¹ regime. Since then, further subdivision is not officially allowed. Some young married couples “silently” use some land allocated to their parents or enter into share-cropping arrangements with landholders. There is little opportunity to expand cultivation in the highlands, except where new land can be created, e.g. through collecting silt behind dams, rehabilitating gullies or reclaiming riverbank areas. The only large areas for expansion of cropping are in the western lowlands, where the Tigray Government is trying to resettle people in order to reduce population pressure in the highlands and – at least on paper – to promote equitable development with due consideration to environmental issues in the newly-settled areas. However, the Government has also allocated large areas of the lowlands to private investors for large-scale farming. To some extent, rural highlanders have themselves tried to relieve pressure on the land by migrating to other parts of Ethiopia at least seasonally. They are becoming aware that younger generations should have fewer children and/or some of the youth have to leave to the resettlement areas or to towns or to other countries.



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Villagers cooperate to rehabilitate severely eroded gully in Sero, central Tigray.

1. *Derg*: the “Coordinating Committee of the Armed Forces, Police and Territorial Army”, referring to the military officers who ruled Ethiopia from 1974 to 1991.

2.3 Water-borne diseases and pollution

In rural areas, the main sources of water for both humans and animals are springs, rivers, natural ponds (e.g. in beds of ephemeral rivers) and traditional shallow wells. These can also be sources of water-borne diseases. The modern water-harvesting techniques that governmental and NGO projects have introduced in recent years, primarily for irrigation in the lowlands, are subject to infestation by vectors of malaria and schistosomiasis. Urban water pollution also has an impact on the rural water sources through the rivers that flow through cities. No reliable data are available on the effect of the use of artificial fertilisers and pesticides on human and animal health, but many farmers complain about their fatal effect on honeybee colonies.

2.4 Fuel shortages

An acute problem in Tigray is the shortage of fuel. About 85% of energy used in the region comes from biomass. In rural areas, about two-thirds of this is wood, the remainder being dung and crop residues. In the cities, 50% of the energy comes from charcoal and 40% from wood. In the government's afforestation campaigns, protected areas are often planted with exotic species for fuel or fodder or simply for vegetation cover. Until recently, little consideration was given to the value of the local multipurpose species. Similarly, the extension services promote modern crop varieties meant to bring higher yields on the small plots of land, to replace the various land races² of cereal crops and even to replace one of the staple cereals, *teff* (*Eragrostis tef*).

2.5 Poor health services

In remote parts of Tigray, modern health services for humans and animals are not widespread, drugs are not easily available and the purchasing power of most local people is very low. They use mainly traditional medicinal plants for human and animal diseases and to combat pests. Other problems in Tigray Region that are linked in one way or another with the environment – in the sense that they constrain good land management – include poor social and physical infrastructure and the spread of HIV/AIDS.

2.6 Conflict and insecurity

A legacy that profoundly affects the environment is the long history of war and uncertainty experienced by the people of Tigray. The various political regimes they have known, the frequent redistribution of land before the current government came to power, and the recent war with Eritrea have had a cumulative effect not only on the environment but also on the confidence of rural people that it is worth investing in environmental management. This legacy and the massive external interventions, mainly by the Government and external aid agencies, that were meant to conserve natural resources and raise land productivity have devalued indigenous knowledge (IK) and weakened the traditional bonds between society and environment. In many cases, external support consisted in prescribing conservation work that the local people were expected to do in return for food aid. This brought short-term relief, but eroded the people's self-confidence in what they can do with their own creativity and resources to deal with environmental and production challenges. Those rural people who "benefited" from these projects now expect the Government, NGOs or foreign agencies to provide for them. This dependency on external support creates a huge challenge to local environmental governance.

2. The local (English) term used in Ethiopia and many other countries to refer to the traditional varieties of crop plants.

3. Institutional context related to environmental issues in Tigray

3.1 A strong policy framework

Many, if not all, of Ethiopia's existing policies, laws and government institutions provide an enabling framework for good environmental management. Ethiopia's rural development policy explicitly aims at improving land productivity through natural resource conservation and rehabilitation, with special attention to water resources. It encourages participation of local communities so that they benefit and are motivated to continue managing the rehabilitated resources. According to the Plan for Accelerated and Sustainable Development to End Poverty (PASDEP), all sectoral bureaux are expected to mainstream environmental issues.

Tigray Region has adopted Ethiopia's core policy for economic development – Agricultural Development Led Industrialisation (ADLI) – and added the descriptor "Conservation-based". It calls its approach to rural development "Integrated Participatory Watershed Management". The Regional Development Strategy is fully in line with the Ethiopian Sustainable Development and Poverty Reduction Programme and Food Security Strategy. The latter includes the country-wide Productive Safety Net Programme (PSNP), which is designed to protect chronically food-insecure households against depletion of their assets and to provide them with income while they rehabilitate the environment to build community assets.

The Tigray Government introduced land certification to increase farmers' security of access to land resources and thus their readiness to invest in them. In 1996–98, titles to almost all arable land in Tigray were registered in the name of the households to which the plots had been allocated over 15 years ago. The titles are recorded in the name of the household head, whether male or female. The certification policy allows inheritance by offspring and land rental to third parties. The process was exemplary, in that it involved the local community in registering and demarcating plot boundaries, using the local language (Tigrigna) and simple methods of measurement. This not only gave an opportunity to document rights of resource use but also led to better local understanding of the relationship between existing resources, human population pressure and future development possibilities. The involvement of elders in resolving some conflicts over use rights also increased local confidence in the land administration system (Mitiku *et al* 2005).

The Ethiopian Environmental Protection Agency was established in 1996 to coordinate national-level activities related to the environment. It helped set up bureaux at regional level to coordinate the sectors that hold environment-related mandates (agriculture, industry, tourism, energy, water, forestry, health, education, roads and other civil works) and to mainstream environmental issues into all sectors. In Tigray, the Environmental Protection, Land Administration and Use Authority (EPLAUA) was established in 2004 under the Natural Resources Department in the Bureau of Agriculture and Rural Development (BoARD) and has since become a semi-autono-

mous office. Land certification is one of its main activities and it has offices for land administration in all districts. All people we interviewed in government agencies and NGOs regarded the creation of the EPLAUA as an important step toward giving greater attention to environmental issues in Tigray.

The current policy (in Tigray as elsewhere in Ethiopia) of decentralising government administration to district level should strengthen local environmental governance. The decentralisation process reinforces the principles behind local-level integrated watershed management: bringing decision-making about local resources to the level of the users and linking them with higher levels that provide the institutional framework for their activities.

3.2 Contradictions and weaknesses in policy implementation

Although the overall policy framework is promising, there are nonetheless a number of critical issues and challenges for ensuring good environmental management actually takes place. Foremost among these is the very little attention to IK, endogenous development initiatives and local perceptions of integrating environment and development. There is a widespread assumption among policymakers that the local people are not aware of environmental issues, are reluctant to use modern technologies and are misusing the natural resources (and therefore need to be subjected to “awareness-raising”). Moreover, the Government faces challenges in implementing its policies, especially in how to reconcile the twin objectives of high productivity with sustainability. Contradictions arise, as is evident, for example, in the allocation of vast lowland areas to investors for large-scale “modern” farming, although the policy refers to equitable development. For both large-scale and small-scale farming, the implementation of ADLI focuses on the intensification of production through modern agricultural technologies, particularly irrigation. In the chronically food-deficit areas, the PSNP promotes check-dam construction, water harvesting and tree planting through payment of incentives in the form of food or cash. It links the environmental-rehabilitation activities with agricultural extension packages that involve external inputs and introduced livestock breeds, for which credit is provided to the rural households. Farmers often feel pressurised to accept the credit, even for investments in which they have little confidence.

The environmental safeguards written into the policies and laws are weakly enforced. The EPLAUA is still a fairly young institution, and is under-resourced in terms of facilities, funds and suitably qualified manpower. It has little political leverage to enforce environmental regulations, e.g. to oblige large-scale enterprises, including the investors in agriculture in the lowlands, to operate in an environmentally-friendly way.

Coordination among sectors with regard to environmental issues is poor. The EPLAUA is meant to facilitate collaboration but does not yet have the capacity to do so. As entry point for environmental mainstreaming in governmental agencies, it has asked each line bureau to assign a contact person to link with the EPLAUA and to form an “environmental network”. Most bureaux have named focal persons, but they are still waiting for explanations about what they are supposed to do.

Thus far, dealing with the environment has been considered the mandate of the BoARD, which by and large equates this with building and maintaining soil and water conservation (SWC) structures, planting trees and preventing the use of the natural resources (don't dig sand out of rivers, don't take stones out of quarries, don't let animals graze in enclosed areas). The concept of environment is thus largely confined to resource protection. This approach is based on a widely pervasive "storyline" believed by the Tigray Government and the major aid agencies that the use of natural resources destroys them. "Environment" is often regarded as something separate from and opposed to development, rather than being an integral part of it. This mainstream approach to dealing with environmental issues does not encompass sustainable development through well-managed use of the environmental resources.

Finally, there is little public access to information on environmental policies and on environmental impacts of government and private-sector interventions in the name of development. In Ethiopia and especially in Tigray Region, civil-society capacities to demand government attention to environmental concerns, including implementation of existing policies and laws, are very weak.



4. Initiatives to address environmental issues and their “success”

4.1 Externally introduced initiatives

Based on the above-mentioned mainstream approach, numerous initiatives were taken in the past or are underway by governmental and non-governmental organisations to address environmental issues in Tigray. The best known are those supported by international and bilateral aid projects, such as the World Food Programme, German Technical Cooperation (GTZ) and Irish Aid. Some of the technologies for NRM promoted through such projects and also directly by the Tigray Government, e.g. building checkdams and harvesting soil and water, are based on good ideas and intentions, but are imposed in a standardised way with very strict norms for achievement that often defeat their ultimate purpose.

An example of a highly acclaimed success by a bilateral project in integrating environment and development is the Gergera watershed in Atsbi Wenberta District of Eastern Tigray (see Box 1). However, our discussions with local people suggested that their capacities to continue the work had been negatively affected by 1) the dependency that was created by the project on external technology and inputs (gabion wire) and, more recently, 2) the dependency introduced by the PSNP, which takes local people to work on environmental rehabilitation in other watersheds instead of in their own area.

Box 1. Integrated watershed management in Gergera

The success story: Gergera watershed in Hayalom Subdistrict, Atsbi Wenberta District, Eastern Tigray (about 60 km from Mekelle) covers about 550 ha and has about 350 households (almost 2000 people). In the mid-90s, the hillsides were reportedly bare of vegetation and the grazing land in the valley bottom had silted up and was flood-prone. The people had to take their livestock to other areas for grazing. From their crop production, they could survive for only three months of the year. Otherwise, they depended on food aid or migration for seasonal work elsewhere. It was so difficult to scrape a living out of the local resources that they had even considered completely re-locating to a new settlement area.

Irish Aid brought in an expert from India to train the people in integrated watershed management and paid incentives for SWC in the form of food-for-work. From 1998 to 2000, it invested almost 1.9 million Ethiopian Birr (US\$ 215,000) in rehabilitation and development activities in Gergera: building checkdams with stones brought in by truck and gabion provided by the project, terracing hillsides, planting trees, enriching pastures, starting irrigated production of vegetables and introducing dairy cows and modern beehives. The community agreed to enclose common land, and developed bylaws for its protection. Since project handover in 2002, the community manages the enclosed land and pays five guards.

Impact assessment revealed that the vegetation cover increased, more water infiltrated into the soil, siltation was much reduced, natural springs developed and hand-dug wells could easily reach the higher water table. From the irrigated plots, the farmers could harvest cereals and vegetable 2–3 times a year. Crop yields rose. The community cut grass twice a year from the enclosures and divided it equally among all households, whether or not they had land and animals. Fodder was thus available close at hand, as was manure for use as fertiliser and fuel. Farmers formed beekeeping associations to sell honey. The area became known for its high production and good quality of milk and honey. Incomes rose and were more diverse. The average household was food-secure for seven instead of only three months. The number of

houses with corrugated iron roofs rose from two to over 300 houses, people wore better clothes, and they sent all their children to school. People remained in the locality rather than migrating.

Since 2002, there has been no government support for environmental rehabilitation, but credit services are available. Various people from the regional and district administration and from Mekelle University use the watershed to demonstrate successful land husbandry.

Our visit: The area has indeed a good vegetation cover, striking even in a season of unusually good rainfall when all Tigray appears green. According to local people (men), a major factor for success was the availability of gabion, whereas people in most other watersheds had to manage with only stones. But now, in Gergera, there are renewed signs of erosion, also around the gabion-reinforced walls; gully formation is still a problem; and floodwater threatens some homes. Parts of the upper catchment need “treatment” but the villagers say they cannot do the work because there is no payment for it. SWC work under the PSNP is not being done in Gergera, whose inhabitants are now expected to manage for themselves. Over 30% of the households (mainly the younger ones) in the tabia have no land. About half the households in the watershed qualify for payment through the PSNP but do the work in other watersheds. Our interviewees in Gergera expressed a need for gabion and were not keen on our suggestion that they try to get it on credit.

Two women interviewed separately from the men said the area used to be known for goats, and it was mainly women who kept them, but they had to sell their goats because there was nowhere for them to graze. Child herders said it would be better to leave more land open so they could move with the animals.

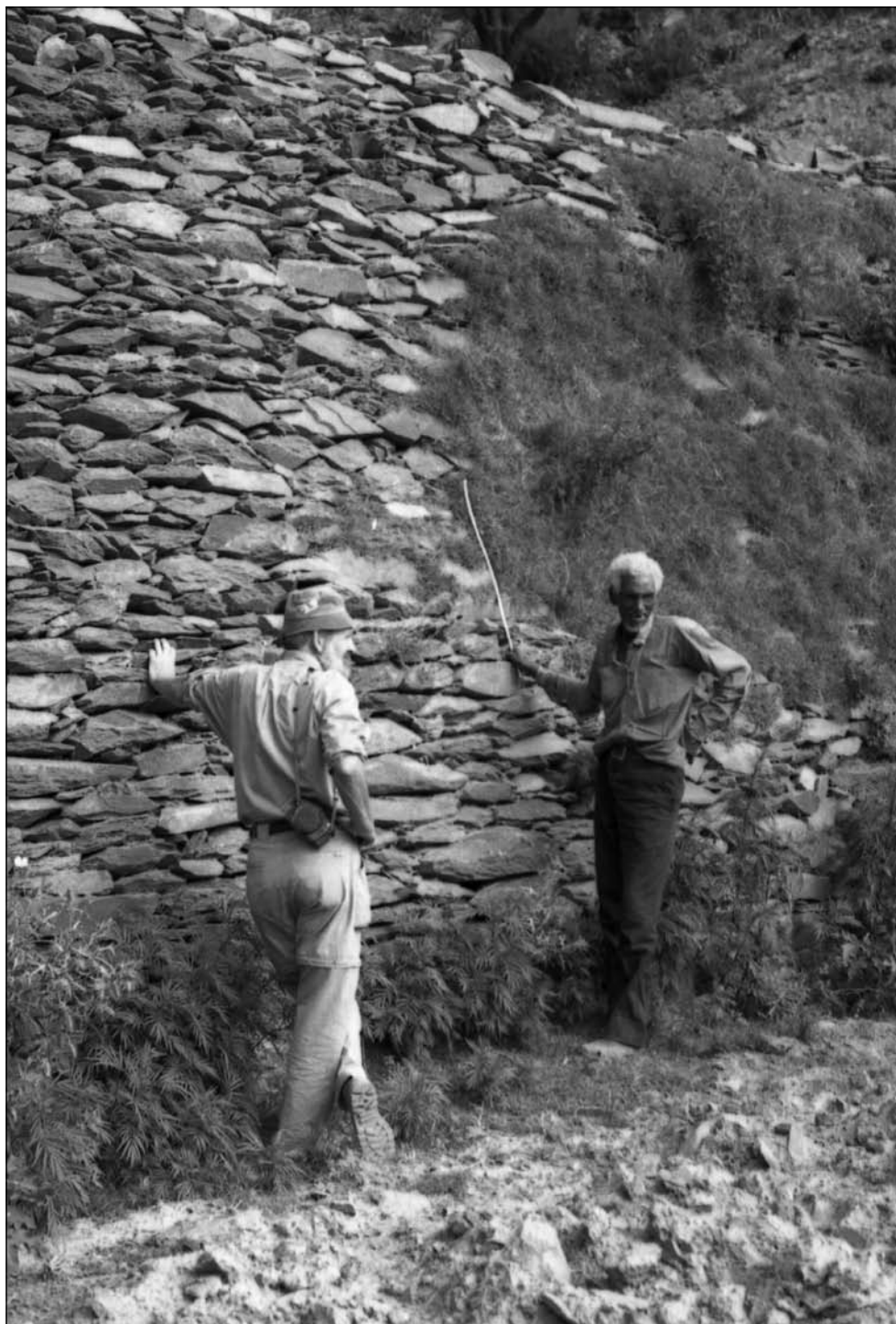
Some of the men said that there were too many large groups of visitors coming to see them, driving around in big vehicles, trampling the grass, disturbing the animals. As a result of such visits, bee colonies had flown away or died. Now the people were not as rich as before, they said. To be sure, we had not arranged beforehand to meet the “right” people in Gergera. We simply talked with people we found in the watershed – by no means a representative sample of the population. But these chance comments do make one think about what “success” is.

Sources: Igbokwe & Adede (2001) and field visit

In the past decade, the Tigray Government and development projects have given particular attention to scaling up systems of “area enclosure” (excluding grazing and other forms of resource use from common land) and zero grazing in the name of environmental protection. Concern about land degradation has led to a focus on technical issues, giving less attention to the values and institutions that motivate good environmental management at the grassroots. The planners of these projects seem to have misunderstood or ignored some important principles of traditional management of livestock and land resources:

- **The grassroots-democracy decision-making** and election of accountable leaders are replaced by fairly standardised regulations that seem to be suggested mainly by DAs and subdistrict leaders, who come into office because they are literate (a criterion for appointment) rather than because they understand environmental and development issues.
- **The tradition of self-reliance in environmental management** is undermined by the use of incentives, such as providing food or cash for community members’ work in enriching the enclosures by planting trees.
- **The flexibility of grazing**, allowing animals to select their own food, is replaced by confining and feeding the animals. There is no scientific evidence that totally excluding grazing on a pasture area makes better use of resources than does seasonal





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Irob farmer in Eastern Tigray explaining to visitors his system of harvesting soil and water, using a local grass as “gabion” wire

grazing. Indeed there is evidence to the contrary!³ Animals who harvest the grass themselves can select a better quality diet than in a cut-and-carry system and also return nutrients to the soil through their manure. A good stand of vegetation may mean that it is not being used as productively as it could be if it were grazed (or cut) more often, yet still in a sustainable way. Zero grazing is promoted as a labour-saving technology, with the argument that children are no longer needed to herd, but it is not clear to what extent labour is being transferred to other family members, e.g. the women, to carry feed and water to the animals.

- **The use of locally-adapted livestock breeds** is discouraged by introducing so-called “improved” breeds. Promotion of zero-grazing in the highlands goes together with promoting the keeping of only a small number of higher-producing Ethiopian breeds from the lowlands (e.g. Begeit) or exotic dairy breeds. The Begeit cattle are used to movement and find it difficult to cope with being confined in stalls. (As one woman told us when talking about zero grazing: “If I put my child in a room and never let it go out, even if I fed it well, it would become sick.”) Moreover, the risks of keeping exotic breeds are high in smallholder farms with relatively little access to veterinary care and good-quality feed.
- **The multi-functionality of livestock** is overlooked. For smallholders, animals provide not only milk, meat and traction, but also manure, savings and security. Moreover, in traditional grazing systems, different species of animals are kept not only for their multi-functionality but also to reduce risks and to make use of niches in the vegetation, thus favouring biodiversity.

Box 2. Allocation of communal land to youth

Some subdistricts are experimenting with allocating young families without arable land the right to use small pieces of common land, e.g. on hillsides and in gullies, primarily for income-generation related to grasses and woody species, e.g. keeping stall-kept animals, beekeeping and fruit-growing. According to the BoARD, if the youth take good care of this land and put it to productive use, their use rights will be registered. The argument for allocation of communal land to youth is made in ecological terms: common land is regarded as open-access, leading to overuse and the “tragedy of the commons”. Young families given rights to non-arable land will protect it because it will be their source of livelihood.

However, there is another side to this coin: privatisation of rights to use common land reduces the access of other (also poor) farmers to resources that they had been using to diversify their sources of livelihood, particularly to fodder for their livestock. The youth are landless, to be sure, but the landholders are also not rich (as already mentioned, the average landholding in Eastern Tigray is only 0.5 ha; an average family of five persons cannot produce enough from this for year-round sustenance). Helping the landless poor by giving them exclusive use rights to pieces of formerly common land contributes to making the landholders poorer, as they then have less access to common natural resources. As one farmer said: “It makes us all equally poor.”

Seeking land-based sources of income for a large proportion of the youth will tie them to sites and sources of livelihood that may keep them in poverty. A better alternative may be to put more effort into helping them build up alternative sources of income not linked directly to land resources.

Sources: Ahferom District Agricultural Office and field visits

3. Under-utilisation of grazing can result in bushy encroachment and the colonisation of unpalatable species (Kinyamario & Imbamba, 1992; Naveh & Kutiel, 1990).



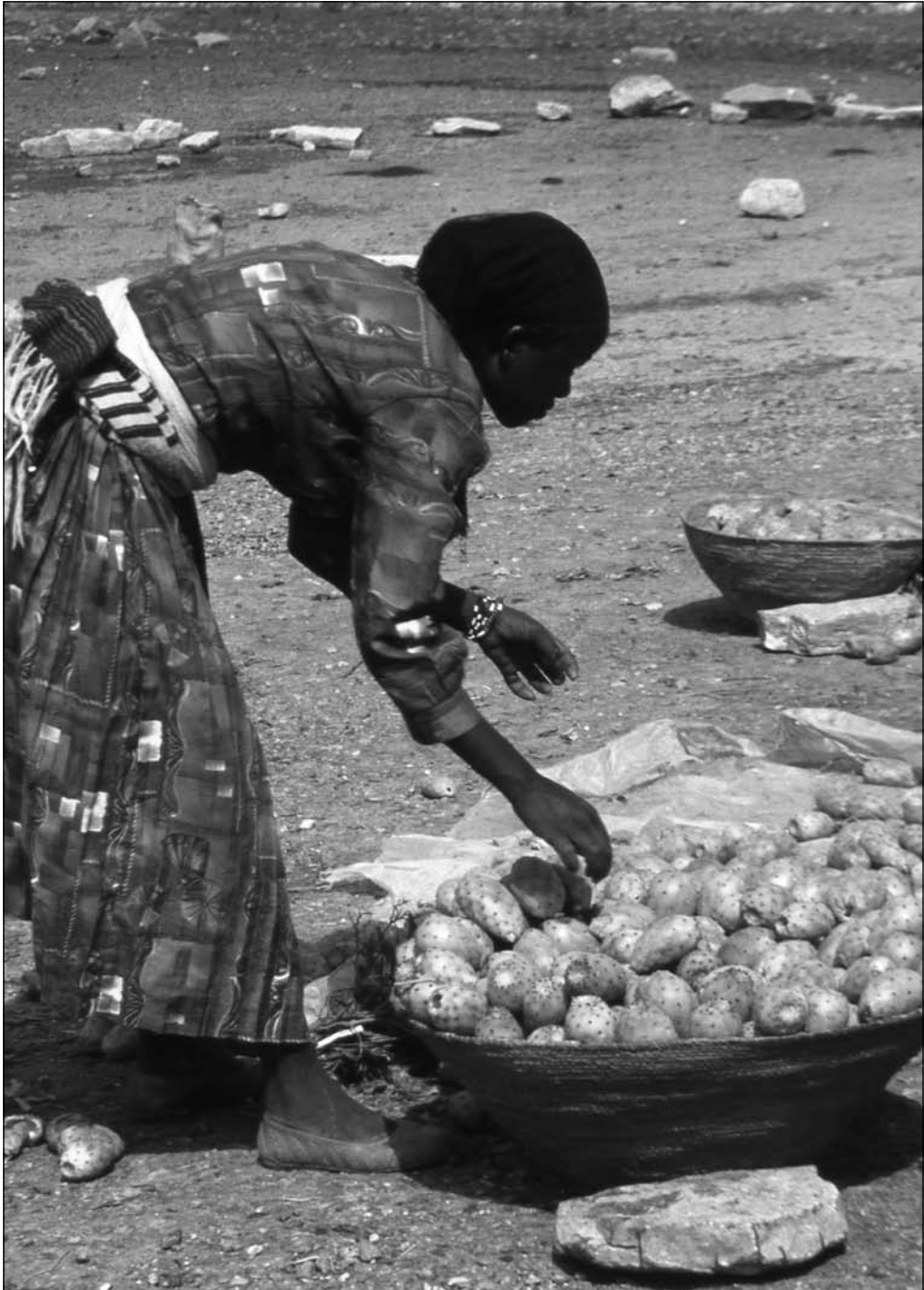
Another intervention in the use of communal land is allocating it to youth (see Box 2). This is based on the assumption that land allocated to individuals will be better cared for. However, further subdivision of the commons could lead to still deeper environmental and social crisis.

4.2 Endogenous (“home-grown”) initiatives

Until fairly recently, endogenous integration of environment and development was seldom recognised. Indeed, most outsiders – also formally educated Ethiopians – assumed that traditional practices were responsible for environmental degradation. They regarded IK as backward and static. Few people noticed the dynamics of local knowledge: how the local people were observing changes in their environment and were experimenting and innovating in efforts to adapt to the changing conditions. In the late 1990s, however, the Indigenous Soil and Water Conservation (ISWC) programme in Tigray drew attention to these dynamics, and ISWC partners – particularly in Mekelle University and BoARD – documented numerous cases of farmer innovation and endogenous development in ecologically sustainable ways (e.g. in Reij & Waters-Bayer 2001). They showed how rural communities regard the environment as an integral part of their lives and livelihoods: the natural resources form their “backbone” (see Box 4). Local innovations include locally-developed systems of managing water flows, capturing soil and water to create micro-environments for highly-productive farming, conserving and managing biodiversity, using local plants to repel termites from tree seedlings, sustainable forest management, developing new local institutions for managing grazing, and making improvements in beekeeping (BoANR 1997; Boven & Morohashi 2002; Hailu *et al* 2006; ILEIA 2000, 2006; Mitiku *et al* 2000).

During our field visits, we encountered several examples in which decision-making and action at the local level are driven by concerns of managing natural resources for human well-being for present and future generations. These endogenous development processes have depended on strong local institutions, foremost being faith-based institutions. The examples of sustainable use of forests and maintenance of biodiversity are associated with areas where the influence of the Orthodox Church has been particularly strong, e.g. around monasteries. The faith-based institutions are closely linked with other socio-cultural institutions such as labour-sharing, mutual aid and traditional safety nets. The local successes recorded in managing common resources (see examples given in Boxes 3 and 4) appear to be due to the benefits that accrue to all or most community members and the existence of locally-developed bylaws respected by the community.

These highly evolved institutions and methods of environmental management by local communities have been weakened because of a long history of war, political uncertainty and government intervention, yet they still exist to a greater or lesser extent and they enjoy great local legitimacy. By ignoring these values and practices in environmental management, government policy and practice risks further undermining them and thus failing to protect the environment and to support sustainable and equitable development. The government needs to build its policies on local practices and values in which environmental concerns are central to development.



Woman selling beles from prickly pear cactus, a plant introduced about 140 years ago and completely integrated by local people into their food-security and environmental-management system in drier parts of Tigray. Here, the plant is used for multiple purposes, including erosion control, and is regarded as a “lifesaver” for feeding both people and livestock in the pre-harvest season

Box 3. The indigenous Irob institution for managing the Sengade pasture

Among the Irob people – a minority group of Irobigna-speaking agropastoralists in northern Tigray on the border to Eritrea – there are close links between traditional democratic institutions and management of natural resources. Clan membership is a key factor in regulating and accessing grazing areas. As one example: several decades ago, the Boknaito clan of the Irob drew up oral rules to govern the care and use of the grazing area called Sengade, and established structures to enforce them. These rules were written down in the early 1970s. Until today, two subdistricts – Alitena and Weratle – have rights to graze their livestock in Sengade. The area is closed to grazing from mid-June to mid-October, during the rainy season, so that the grass can bulk up and the ground is not trampled and compacted. The rainwater can then infiltrate better into the soil. During the pasture-opening ceremony each October, the pasture is blessed by priests from the Church (most of the Boknaito are Catholic). This ceremony has significant moral power in motivating people to adhere to the agreed rules.

The Sengade pasture, estimated at about 600 ha, is divided into five sections, each with a guard nominated by the clan leaders and coordinated by a judge elected by all families using the pasture. The guards are paid in kind: they are allowed to graze six head of cattle each during the time of pasture closure. Fines are charged for any unauthorised animals found in the pasture during this period. The amount is made public and invested in something decided by the users of the pasture. It is forbidden to cut and carry away any grass from the pasture area, even during the grazing season. One may, however, use the pasture during the closed season for beekeeping. The best Irob honey reportedly comes from this area. The Boknaito Irob are proud that their management of the Sengade pasture has stood the test of time. They value the economic benefits (well-fed cattle and good honey that provide both food and income) as well as the spiritual satisfaction: “they consider it a glorious part of their history of consciousness and civility”.

Source: Mengistu (2003).

Box 4. Local efforts to uphold a long tradition of sustainable forest management in Sewne

Sewne in Saesi Tsaedaemba District of Eastern Tigray is the site of a monastery that has stood for several centuries on the steep escarpment leading down from the Tigray highlands to the lowlands of Afar Region. We were told that 700 monks used to live in the forest, which was so dense that they could not see each other. They used to call out “sewne” (“are you a human being?”) to find each other. The motivation to protect the forest resources and to use them in a sustainable way comes from the cultural and spiritual values deeply engrained in the people who live close to this monastery. They spoke of when Ras (Governor) Mengesha built a road through the Sewne area during Emperor Haile Selassie’s time. The people of Sewne prohibited the Governor from taking wood out of the forest; he had to leave it on the spot. Ras Mengesha praised the people for protecting their forest in this way; this gave them encouragement to continue.

The community developed oral rules and regulations even before the written *Serit* bylaws. Nobody may cut live plants for fuel or construction. Dead and dried wood may be collected, but no one may generate income though selling fuel or charcoal. Animals are allowed to graze in the forest; beekeeping is likewise allowed. When asked how they had managed to conserve the forest while neighbouring areas had become almost bare, the elders said: “We know the value of trees; they are our backbone. We have our own rules and regulations. We have the lessons and culture of the monastery. We have learnt lessons from the surroundings: how other areas are degrading, how women find no fuel to cook, how people are migrating, how people are facing crisis. Walwalo used to have plants, now it has only rocks. If we do not take care, that will be our fate, too.”

However, the elders spoke of the shift to agropastoralism as human population increased. They worked hard to make cropping possible on the steep slopes by creating dams to trap water and soil. They even carried soil from non-arable spots to add to the soil behind the dams. There appears to have been link-

ages with the neighbouring Irob, who are well known for such techniques (Asfaha & Waters-Bayer 2001), through trade routes to Asmara in Eritrea. The Sewne elders try to teach the youth about the value of the vegetation, but those who want to stay in the area demand rights to use the resources. Firewood is sometimes cut illegally. In response, the community meets frequently to add more rules and regulations and/or to raise the penalties for transgression.

In the past, this area around one of the oldest monasteries in Tigray had a more dense forest and supplied wood for construction of churches at other sites. Today, for an outsider, it still appears dense and evergreen, but the local people see that much has changed and is changing. The elders fear that the youth may not uphold their proud tradition and they regard their forest as endangered. "For you, this vegetation is wonderful, but for us it is nothing compared to what it was before. If this goes on, we will not survive."

Sources: BoANR 1997; Amanuel Hadera, pers. comm. and field visit

4.3 Differing perspectives on success

In the discussions of the cases of relative success in integrating environment and development, the major stakeholders – people from local communities, NGOs and governmental organisations – differed to some degree in their perspectives on what constitutes "success". Table 1 shows the indicators of "success" and the factors attributing to it, as perceived by community members (elders, leaders, women and youth) and by the staff of government agencies and NGOs at regional, district and subdistrict level. Community members placed more emphasis on economic diversification, reduced out-migration, social values related to natural resources, equity of benefits among community members and the importance of community bylaws. Government agencies regarded the adoption of introduced technologies for environmental conservation and external inputs for agricultural development as signs of success and regarded their own extension efforts and incentives as major factors leading to it.

It can be seen in the table that some perceptions are similar. Moreover, during our field visits, we saw signs that perceptions are gradually changing. For example, the BoARD has started to recognise local innovation in agriculture and NRM. Having seen how the blanket promotion of standardised technologies has not been appropriate for resource-poor farmers, particularly in the drier areas, the Head of Extension is now considering how the extension packages could be "decentralised" and made more site-specific. At least some people in the BoARD are starting to shift from a transfer-of-finished-technologies approach to a more flexible approach of encouraging DAs and farmers to test new technologies and adapt them to local conditions. The Farmer Training Centres that were recently established in most subdistricts in Tigray are meant to be entry points for this more site-specific approach to agricultural development and NRM by the local people.

Similarly, there are signs of changing perceptions in the education system. There used to be a big divide between modern education and training – transmitted through schools and extension services – and traditional education, transmitted through elders and experience. Formal schooling tended to alienate children from their natural environment and did not encourage them to give value to the local environmental knowledge in their families and communities. More recently, the establishment of environmental clubs in schools is contributing – albeit thus far to only a small degree – to re-orienting formal teaching in some rural towns.



Table 1. Perceptions of different stakeholders on the success of integrating environmental concerns into the development process in Tigray Region

Indicators of and factors for success	Stakeholders		
	Community	NGOs	Government
Indicators of success: - Improved community livelihood - More diversified production - Less dependence on food aid - Less vulnerability to drought - Less out-migration on account of drought and famine - Rehabilitation of natural resources - Farmers' acceptance of external inputs - Reduced rate of school dropouts on account of poverty	* * * *	* * * * *	* * * * * * *
Factors for success: - Community values regarding natural resources - Equity of benefits (those with and without land) - Prevalence of community bylaws - Strong community leadership - Local lessons drawn from recognition of land degradation - Community commitment to development - Access to information - Government extension support and incentives	* * * * *	 * * * * *	 * * * * *

5. Lessons learnt and paths that could be followed

Based on our observations and discussions of development activities undertaken by government projects and NGOs, on the one hand, and endogenous development by environmentally-conscious rural communities, on the other, we have drawn the following lessons and identified the following areas on which future efforts to integrate environment and development in Tigray should focus.

5.1 Seek conceptual clarity

The Tigrigna-speaking people use different terms for the word “environment”, with different connotations. The term “*tefetrawi*” means “natural resources”, whereas the term “*kababawi*” means “surroundings”. The latter term corresponds more closely with the perspectives of rural people, who regard the environment as everything around them. It encompasses both natural and human (social and cultural) resources and includes the local values and institutions in all their dynamics. Deeper exploration of the concept of “environment” as used by different stakeholders at different levels in Tigray would aid communication so that a wider vision and mutual understanding could be reached. This would also help in the design of appropriate policies.

Likewise, the concept of “local” needs to be explored jointly, so that stakeholders have a clearer view of the linkages between what is happening in the immediate locality and what is happening beyond this: how the activities of people elsewhere affect one’s own environment and how one’s own activities affect the environment of others, e.g. through grazing, woodcutting, pollution of air and water, upstream and downstream linkages etc. Area enclosure in one locality may be obliging villagers to take their animals to other areas for grazing or to seek fuel, thatch grass and other natural materials. Seeing one’s own locality as a component within a larger system, and the mutual influence with other components of the system, contributes to a more holistic view of environmental management and governance. The government policymakers could also benefit from this way of looking at the environment.

5.2 Build capacity in governmental and non-governmental organisations

The EPLAUA could play an important networking role with regard to integrating environment and development, but it needs not only more environmental technical know-how and analytical capacities but also communication and facilitation skills so that it is better able to coordinate stakeholders in addressing environmental issues. Indeed, throughout all government institutions in Tigray, there seems to be weak technical and policy capacity to analyse environmental issues. Effective mainstreaming of environment would therefore require capacity building not only in the EPLAUA but also in the relevant sectoral bureaux.



Systematic, focused capacity building on environmental issues should include the following:

- **Training and mentoring in mainstreaming environmental issues:** In terms of the wording of documents, “environment” could be regarded as mainstreamed, but environmentally-oriented thinking is still not being applied consistently within the day-to-day activities of the projects and institutions. Both governmental and non-governmental organisations in Tigray are trying to devise strategies and apply methodologies to mainstream environment, but find it difficult to put into operation the words that are in the documents. The focal persons for Environment in the sector offices need practice-oriented training that goes beyond generalities about the environment. They need to be guided in thinking through how to address environmental issues in the specific work of their institutions.
- **Horizontal and vertical information sharing:** Workshops should be held for sharing experiences *across sectors* in environmental management for sustainable development – both successes and failures; they should not be confined to presenting papers but should focus rather on analysing the key technical and institutional issues involved. Other workshops should bring together the perspectives of actors *from different levels* and allow local people to voice their concerns and to express their views to the “uppers”; especially here, participatory workshop methods need to be applied to stimulate genuine discussion to which people from the different levels have a chance to contribute.
- **Environmental Impact Assessment (EIA) training and coaching** is needed so that government and NGO staff can assess the impacts of their own work. Interest in this was expressed by several of our discussion partners in Tigray, but they lacked the confidence to apply EIA even if they had received training in this – therefore the need also for coaching.
- **Raising awareness about environmental issues among high-level policymakers**, especially those pushing for rapid investment in industry and large-scale commercial farming. The need for awareness-raising is much greater at this level than among the landusers.

5.3 Set framework conditions for local-level enforcement of environmental protection

Many policies and laws regarding environmental protection have been drawn up, but they are not being enforced effectively, The EPLAUA should focus on setting the framework conditions for monitoring and protecting the environment, in a way that allows local-level decision-making about technology and management options as well as local-level enforcement of environmental protection within that framework. In doing so, the EPLAUA and all other external agents should recognise the local values that rural communities attach to the natural resources on which they depend, and should encourage and build upon the local people’s own culture-specific and site-specific ways of monitoring and protecting yet also using these resources.

5.4 Enhance local learning about environment and development

Capacities to deal with the continuing challenges in environment and development could be strengthened by supporting the efforts underway in Tigray to promote participatory research as an approach to extension in agriculture and NRM. This boils down to strengthening local capacities to adapt to changing conditions – the essence of sustainability. The BoARD has already started recognising local innovations (e.g. by giving awards), organising cross-visits, encouraging DAs to integrate good local ideas into micro-watershed development, and organising workshops and exhibitions where the various actors in innovation can interact. Together with other governmental institutions and a few NGOs in Tigray as part of a programme called PROLINNOVA⁴ – Ethiopia, it is facilitating participatory innovation activities to explore locally developed ways to use natural resources productively and sustainably. Other partners that could be brought into this collaboration at the local level are elementary and secondary schools, which would intensify their efforts to integrate scientific and local knowledge systems.

Innovative ways of sharing information about local experiences in environmental management and expressing local viewpoints about environmental issues should be explored, such as:

- Developing learning-support tools, i.e. visual and practical ways to make clear the links between the locality and the wider system and the interdependency of system components.
- Community-led documentation (e.g. participatory video or radio) by communities that are managing their natural resources well and that record their achievements and concerns in their own terms.
- Awards for DAs who record and share feedback from farmers about new technologies intended to improve agriculture and natural resource use.
- Setting up electronic data-banks of good local practice related to environment and development.
- Citizens' juries to discuss "hot" issues related to environmental management and governance.



Local initiative in managing soil, stones and water to create land for crop production in Irob District of Eastern Tigray

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4. www.prolinnova.net

Such mechanisms could be tested for their effectiveness in bringing human-centred environmental issues more clearly into focus in development work.

5.5 Conduct research to accompany action

The policies and many of the technologies that the Government and NGOs have introduced in the name of environmental management and development in Tigray have not been well supported by scientific research. There is a need for development-oriented research that accompanies pilot activities, followed by scaling up of successful pilots, rather than launching mass campaigns with uniform technologies (e.g. water-harvesting ponds, planting exotic tree species) that have not been tested in the diversity of ecosystems in Tigray.

Other technical issues that require participatory research so that policymakers and resource users can make better decisions include: different ways of using area enclosures and their implications; potential of indigenous forage species; positive and negative impacts of dams and ponds on soil and crop productivity; labour inputs and changes in division of labour for introduced technologies such as cut-and-carry feeding and making compost; impacts of allocating communal land to youth groups; and impacts of external agricultural inputs on the environment. Research is also needed into the extent that economic growth in Tigray is being achieved at cost to the environment.

5.6 Designate funds to address environment in the framework of budget support

Irish Aid asked us to look at how the environment is being integrated within the framework of the general budget support that it gives to the Tigray Government. General budget support as a tool to deliver aid fits well into the equity concerns of the Government, according to which all districts should have the same opportunities for development. As environment is a crosscutting issue, in theory the support going to all line bureaux through the general budget support could contribute to region-wide (instead of only area- or project-based) attention to the environment, as long as the regional planners give priority to this issue. The same principle would apply to mainstreaming of environment into the new multi-lateral Protection of Basic Services project into which the Tigray Regional Support Project of Irish Aid is being merged. However, in practice, it appears that the planners' interests in rapid development and promoting large-scale capital investment are taking priority over interests in long-term sustainability. If environmental issues are to be mainstreamed into regional development processes, Irish Aid will need either 1) to make available additional funds focused on environmental mainstreaming that are complementary to the block grant to the Tigray Government, or 2) to earmark part of the block grant for this purpose.

Different aid instruments can complement each other. An ODI study on addressing environmental objectives (ODI 2006) stated that general budget support is "likely to be insufficient to address the specific challenges posed by the environment". It points to possible synergies between budget support and other aid modalities, e.g. technical

assistance, and the need for sector-specific earmarking and working outside the government for effective environmental mainstreaming.

Funds designated for the environment could be used for systematic training and learning activities on environmental issues, so as to ensure that the block grant and other investments in Tigray Region indeed contribute to integrating environment and development. They could help build the capacities of regional policymakers, decision-makers in line bureaux, research and advisory services, and local-level partners in development (NGOs, community-based organisations, rural people) so that agreed environmental guidelines can be translated into practice. Part of the funds should contribute to strengthening the EPLAUA, so that it can implement its mandated tasks (e.g. linking and coordinating the work of government offices and NGOs in Tigray) and some of the recommendations (e.g. setting framework conditions for local-level environmental protection).

5.7 Strengthen local organisation and voice

As government administration is being decentralised and the Regional Government is making block funds available to the districts, there should theoretically be more opportunity for local people to express their concerns and needs. However, control over funds can also increase the power of district government officials over local people. As countervailing forces, it would be necessary to strengthen local organisations that are independent of the strict hierarchy that has been established by the Government from regional right down to the five-household level.⁵

One promising entry point to strengthening governance at local and eventually at higher levels is to build the organisational capacities of resource-management and development committees that are accountable to the communities, such as watershed committees, revolving fund committees, water point management committees etc. Strengthening local capacities in leadership, management and participatory decision-making through such local committees would increase their confidence to demand their rights to manage their own development in a site-specific way, instead of according to the still relatively inflexible system promoted by the Government. Up to now, external agencies working with local organisations in Tigray have facilitated formation of such local organisations in order to implement an activity promoted by the external agency, such as managing a revolving credit fund. In most cases, however, they have not encouraged the members of the local organisations to combine forces to influence local-level decisions about environmental management or other policy matters. In other words, they have given little attention to those aspects of organisational development that strengthen citizens' voice.

Strong community-based organisations (CBOs) that can access information and can make local voices heard not only locally but also at higher levels are vital for good environmental governance. The CBOs need to be linked with sources of information on

5. The Tigray Government has long established a line of command from the regional level through the zones, districts and subdistricts down to units of five households. This is primarily in order to ensure proper implementation of the annual SWC campaigns, to which each household is obliged to contribute a certain number of unpaid days.



issues of environment and development, and their capacity to seek information themselves needs to be strengthened. There are already some activities underway in Tigray to explore the possibilities of community-managed “learning funds” so that local people can access information – also by visiting other areas – and can determine what new ideas they would like to try out and how they would like to do so. The funds also allow them to seek external support as they deem necessary (Yohannes 2006). Such local-learning groups could be linked with the Farmer Training Centres recently established throughout Tigray, as in other regions of Ethiopia.

5.8 Work with and through Ethiopian civil society

Good environmental policy depends on an active civil society capable of scrutinising policy and its implementation at local, regional and national levels. Civil society organisations (CSOs) can make sure that environment is on the policy agenda. Working with them can lead to citizens’ demands for greater accountability of government in dealing with environmental issues. Local-level engagement with civil society can be used effectively to inform policy at regional and national levels.

For historical and political reasons, NGOs in Tigray are few and generally weak. However, civil society is broader than registered NGOs, and strengthening CSOs does not necessarily mean bringing people together to form new organisations. There are already many indigenous institutions, such as faith-based, mutual-help, labour-exchange and savings-and-credit groups, as well as “modern” organisations such as environmental and HIV/AIDS clubs, parent-teacher associations, cooperatives and membership associations to finance local development activities. Strengthening CSOs would include helping the Women’s and Youth Associations in Tigray become more independent so that they are not seen primarily as vehicles of the political party to reach down from the regional to the village level.

In the present political environment in Ethiopia, there are good reasons for special project support to civil society as local partners in development (NGOs, CBOs) with a view to strengthening the mechanisms of democratic policy dialogue. This support could not be given through a government agency. It would require a piloting project that tests and shows how support to civil society can make government policy, services and other forms of implementation more responsive to public demands. This is completely in line with the fourth component of the new Protection of Basic Services (PBS) project launched in 2006 by the World Bank and other major donors in Ethiopia: *promoting social accountability* of decentralised service delivery, including agricultural, water, education and health services. This component is to be managed by an NGO supported by a multi-donor Trust Fund. Irish Aid and other donor agencies should consider integrating its support to civil society related to environmental issues into this fourth component of the PBS.

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