Policy Briefing Notes

These notes are produced in order to communicate findings from field research in Illubabor Zone to government, NGO and community level policy makers in Ethiopia. Each Policy Briefing Note (PBN) focuses upon a particular topic and draws upon information from a range of research activities undertaken through the three year Ethiopian Wetlands Research Programme. The overall emphasis of the research programme and the PBNs is the sustainable use of wetlands.

Summary

Wetlands are a very important aspect of the environmental resource base of Ethiopia. They produce a range of ecological and socio-economic benefits in their natural state which contribute to the well-being of rural communities and the environmental security of the country. However, wetlands are often seen as wastelands that have no value and are best converted by drainage to allow agriculture or grazing. Such conversion may create some new benefits - increased food production and grazing, but will generally cause the loss of many other benefits. Indeed in the end the net result of converting wetlands can be serious environmental degradation and loss of benefits to the community. The economic analysis of this process shows that wetlands are most valuable when used in a way that maintains their natural functions and to do that conversion must be limited.

Defining Wetlands:
The Importance of Water

Wetlands is a term which has been developed to describe a range of situations where land is affected by water. The following definition shows this predominant role of water.

"Wetlands are areas where water is the primary factor controlling the environment and the associated plant and animal life. They occur where the water table is at or near the surface of the land, or where the land is covered by shallow water."  

For an area to be a wetland, water does not have to be at the surface, but it has to be close enough to the surface and for long enough to allow anaerobic (airless) conditions to develop in the soil. Some wetlands may be permanently flooded, whilst others may have water close to the surface for only a few months in a year.

Characteristics of Wetlands:
Vegetation, Soils and Fauna

Because of the dominance of water, wetlands have special characteristics which tend to favour particular types of plants and soils. Depending on the degree of inundation, water-dependent and water-associated plants are found in wetlands and only there. In south-west Ethiopia typical wetland plants include: Cyperus latifolius, (cheffe), Cyperus brevifolius, Anagallis serpens and Fuirena stricta.

Wetland soils have anaerobic (airless) conditions because of the flooding. This slows down decomposition of organic matter. As a result these soils tend to be high in organic matter and of high fertility.

Wetlands provide a unique habitat which is used by many wild animals. In particular it is known that several bird species are mainly found in wetland areas. Two particular wetland adapted birds were found in the Illubabor wetlands: Roget’s rail (Rougetius rougetii) and Wattled Ibis (Bostrychia carunculata). Roget’s rail is currently classified as near threatened species.
Wetland Resources of Ethiopia

Although wetland resources of Ethiopia are not fully documented, it is known that they represent a significant micro-environment in many parts of the country. The FAO Land Use Map of 1984 identifies only two types of wetlands:

- **Swamps** – that are usually flooded areas with emergent vegetation of more than one metre above the water level;
- **Marshes** - that are wet areas (with water above or below ground) with short vegetation.

These two wetland types cover an estimated 1803 km$^2$ (0.16%) of the country’s surface.

In addition there are other important water dominated areas throughout the country which should be included in the wetland category. These include shallow lakes and the margins of the Rift Valley and other lakes, the floodplains of major rivers (e.g. the Baro-Akobo, the Omo and the Awash) and swamp forests. As a result, the total area of wetlands in Ethiopia may exceed one per cent of the country (11250 km$^2$). This may appear small but it is very important for the country's ecology and for many people who use these areas (See Sections below on Benefits).

In the wetter parts of the country wetlands are most common. For instance in Illubabor, the land use records from the Ministry of Agriculture show that 256 km$^2$ (1.6%) of the zone is covered by wetlands. Again, this only includes marshes and swamps and when floodplains, lakes, ponds and swamp forests are included this may reach five per cent of the zone (800 km$^2$).

Benefits and Hazards from Wetlands

Wetlands are often considered to be wastelands and of little use to anyone. They are thought of as nuisances and are associated with problems such as mosquitoes, diseases and floods. They are also regarded as obstacles to human development. As a result they are often converted, usually by drainage, and used for a variety of new uses such as cultivation, grazing or building, especially for industry in urban areas. However, in their natural state wetlands provide a range of ecological and socio-economic benefits. Most of these are lost when the wetlands are drained. This loss of benefits can have serious impacts upon the well-being of rural communities (see section below on Trading Benefits in Converted Wetlands).

Ecological Benefits from Natural Wetlands

Wetlands help maintain the functioning of ecological systems, especially the hydrological system, in many ways. The most important of these ecological benefits include:

- recharge of groundwater, with various implications including maintenance of springs;
- moderation of stream flow, reducing flooding and helping maintain dry season flows;
- water storage throughout the year;
- purification of water through the functioning of reed beds;
- filtration of water flow and sediment trapping.

Socio-economic Benefits from Natural Wetlands: Ecological Functions

These ecological functions also have various socio-economic impacts which contribute to the well-being of rural, and sometimes urban, households. These include maintenance of domestic water supply, protection of hydro-electric power supplies in the dry season, reduced ill health through water purification and protection of dams from siltation.

Socio-economic Benefits from Natural Wetlands: Products

Wetlands in their natural state provide a range of products for people. Some are always present but others will depend upon the nature of the wetland. These products include:

- domestic water from springs around the wetlands;
- water for clothes washing and cattle watering;
- reeds for thatching, crafts or floor covering;
- palm materials for craft activities;
- medicinal plants;
- grazing of cattle during the dry season, and
- fish.

Additional Benefits in Converted Wetlands

When wetlands are converted, usually by drainage, some additional benefits may be obtained. These can include:

- an early cereal harvest, which can help improve food security by providing food during the “hungry season”;

Figure 2 - The key characteristics of a natural wetland.
• cash crops such as vegetables, or sugar cane which can be sold, and
• wet season grazing when the upland fields are all under cultivation.

‘Trading’ Benefits in Converted Wetlands

Although wetlands can provide these additional benefits when they are converted, many of the original benefits from the natural wetland may be reduced or even permanently lost if the whole wetland is drained. Some of the benefits which may be lost include:

• spring water supplies,
• cleaned stream water,
• flood control,
• sediment trapping,
• reeds for thatching,
• palm products,
• medicinal plants, and
• dry season grazing.

Figure 2 - Key characteristics of a drained wetland.

The hydrological system can be seriously altered by the drainage of wetlands, with higher levels of floods and reduced baseflows during the dry season. Hence there is a trade-off of benefits when wetlands are converted by draining.

Limited Benefits from Converted Wetlands: Degradation and Wider Impacts

The agricultural benefits from drained wetlands are often difficult to sustain. Wetland soils may loose their fertility after drainage because of oxidation, acidification and other processes which take place once the anaerobic conditions are removed. Soil compaction may also occur as a result of trampling by grazing livestock. This damages the soil structure and can reduce water storage and rainfall infiltration. In this way wetlands can become degraded and some or all of the additional benefits may be lost.

Also, as the ecological functions are disrupted by draining wetlands, many people can be affected. Local people may no longer find water in their springs, while people a long distance downstream may be seriously affected by worsened floods and increased fluctuations in streamflows, or lack of water for the generation of electricity. In addition people who are using the upslope areas around drained wetlands will find the water table is lowered and may experience poorer crop yields, for instance with their coffee or bananas.

This combination of changes, which undermines the ecological functioning of wetlands and their ability to support agriculture, means that wetland conversion by drainage may in the medium term lead to few benefits being available from wetlands. In that situation wetlands end up as rough grazing, with perhaps some eucalyptus plantations and brick making taking place within them. These latter two land uses can be seen as terminal for wetlands as they destroy their hydrological and ecological functioning.

Beneficiaries of Wetlands: Socio-Economic and Gender Dimensions

The range of benefits provided by wetlands contributes to the well-being of many people. In some rural areas all households will get water and reeds from their nearby wetland. However, not all households will benefit equally from wetlands, whether natural or converted. For instance, not all people make craft goods with wetland products, and only a few persons have the knowledge to collect medicinal plants. When wetlands are drained, use of the new benefits is often restricted as not all households have the labour, oxen and skills with which to cultivate wetlands.

Hence there are three major questions which need to be asked about wetland use and conversion:

a) Who are the people who benefit from wetlands locally?
b) Who are the people who benefit from wetlands downstream?
c) Who will be affected by any changes made in the way wetlands are used, such as drainage?
d) How are the benefits and problems of wetland use and change distributed between men and women.

It has to be pointed out that as wetlands are drained only some groups gain. It is usually the better-off who have the resources with which to cultivate these areas, while people with cattle, who are also relatively rich, benefit as wetlands become more useful for grazing. In contrast the larger sections of society may lose out if other benefits, such as water supply, reeds and medicinal plants, are destroyed and are not available from alternative nearby sources. In particular women may finds their workload greatly increased when springs dry up due to wetland drainage and they have to walk further to obtain safe water supplies.

It should also be noted that other people outside the immediate wetland using community can be affected by wetland drainage. These include downstream communities who find the stream or river flow altered with increased flooding and lower dry season flows.
People farming the slopes surrounding wetlands can also be affected by the lowered water table which can affect their crops.

### Lessons for Policy

The key implications from this paper for policy makers and planners alike are that:

- wetlands are an asset whose values in their natural state should be recognised and valued;
- wetland benefits come from both their ecological functions and the socio-economic value of these and products they produce;
- the various socio-economic groups benefit differently from wetlands depending on whether the wetlands are in their natural state or converted by drainage;
- women may be particularly disadvantaged by wetland drainage;
- conversion of wetlands by complete drainage reduces the overall range of benefits produced by wetlands and involves a trade-off of benefits, with some gains and some losses;
- maintaining new agricultural benefits from wetlands following drainage is usually difficult to achieve and sustain;
- as a result wetlands are often degraded in terms of their hydrological, pedological and biodiversity characteristics by conversion and end up as rough grazing.

#### Three Slogans

1. Recognise the true value of wetlands to the nation and its people. It is costly to replace their functions and products from other sources.

2. Use wetlands wisely to maintain their benefits for people and the environment.

3. If you have to convert wetlands, do it carefully & leave some unchanged.

### References and Bibliography


   Afework Hailu (1998) *An overview of wetland use in Illubabor Zone, Southwest Ethiopia*. EWRP, Mettu and Huddersfield


   Tegegne Sishaw, (1998c) *Agriculture and land use in and around the wetlands of Wangene and Bake-Chora Peasant Associations, Illubabor Zone*. Masters Thesis in Geography, Addis Ababa University.

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