

<b>EWRP</b>	<b>Policy Briefing Notes</b>	<b>Issue 4</b>	<b>Wetlands and Food Security in South-west Ethiopia</b>
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### Summary

Food insecurity is increasing in Illubabor and Jimma zones of south-west Ethiopia despite the favourable environmental conditions<sup>1</sup>. The annual ‘hungry season’, of three or four months before the main harvest in October, has been getting more severe and the region has to import food from other parts of the country. Wetlands can play a key role in reducing food insecurity when they are drained for cultivation. However in draining wetlands various ecological systems may be disrupted which makes it difficult to sustain wetland agriculture over extensive wetland areas and for prolonged periods. Managed carefully, with limited intensity of use, wetlands can be used periodically to contribute to food security. Used intensively they will usually be degraded and their potential to contribute to food security will be undermined. With a growing population and increased climatic unpredictability, poor harvests from the uplands will be more common. In this situation it is important that the wetlands are protected from degradation and are available as a contributor to food security in years of harvest failure.

### Food Security in South-west Ethiopia

People in the highlands of south-west Ethiopia, are generally food secure because they have access ‘to sufficient food for an active healthy life’<sup>2</sup>. However, as a whole the south-west highlands have increasingly become a food deficit region in terms of local production not meeting local needs. As a result, food security is only achieved by imports from other regions. These ‘imports’ are financed by income generated by coffee sales.

The concentration by this region on its comparative advantage in coffee production is nationally important, as coffee is the country’s major source of foreign exchange. However, it makes the region dependent on food surpluses in other parts of the country and the ability to purchase such food. This dependence increases food insecurity.



Figure 1 - Dry season maize production in valley bottom wetlands reduces farmers’ vulnerability to food shortages.

Food insecurity in the Jimma and Illubabor zones takes two forms. **Chronic food insecurity** is suffered by the poorest rural households of the region. They always

lack the means either to produce their own food or to buy enough<sup>3, 4</sup>. **Transitory food insecurity** strikes different areas in different years due to a variety of causes. Its impact in the rural community is quite distinct: the poorest are worst hit, while those with the greatest assets are least affected.

#### Box 1 - Food Insecurity in Illubabor

Farmers in Illubabor have traditionally practised a mixed farming system involving the production of a variety of subsistence food crops, including maize, sorghum, teff, beans, root crops, vegetables and tree crops (like bananas). Growing this variety of crops reduced the risk of crop failure and used the variability in their fields to best effect. Although the crops did not always produce sufficient food, the situation could be managed with the income generated from coffee sales.

Since the 1970s, coffee berry disease (CBD) has reduced the reliability of the coffee harvest and this has reduced farmers’ ability to buy in food. This situation has been made worse by increased dependence on maize production with its higher yield variability compared to traditional crops such as sorghum and root crops.

Irregular rainfall patterns in 1998 and 1999 caused poor harvests of maize and coffee respectively. This impacted on the rural population resulting in 50,000 farmers needing food aid in the zone in 1999 whilst those requesting assistance in 2000 was expected to be higher<sup>3</sup>.

The causes of food insecurity in this part of the country, which benefits from an average annual rainfall of circa 1700mm, are often not immediately apparent. Historically, climatic variations - particularly the failure or irregular timing of rains and storm (hail) damage was a major cause. This is still important today, but more recently other problems have compounded farmers’ vulnerability. These include:

- High yielding maize varieties, which are not suited for long storage in a humid environment like locally derived and adapted maize varieties, and so require farmers to buy in food later in the year.
- Concentrating on a single crop - maize - reduces the traditional multi-crop, risk-spreading practices of farmers in this area.
- Wildlife protection laws, introduced in the late 1990s, have led to increased pest damage. Farmers estimate loss of 30 % of their wetland crops and up to 100 % loss in some cases<sup>6</sup>.
- Expansion of coffee production (to the benefit of local and national economies) has become the main focus of many farmers' attention and subsistence food production has been neglected in some cases.
- The spread of coffee berry disease has reduced the reliability of the coffee-based income.
- Insecurity due to land-tenure policies has discouraged farmer investment in land development<sup>7</sup>.

To cope with food shortages, farming households resort to selling assets (such as livestock or pre-harvested coffee) and alternative income generation (daily wage labour in the small urban centres, craft production and sale, sale of raw materials from forests and wetlands). They also undertake dry season food production on valley bottom wetlands through drainage and cultivation.

### The Role of Wetlands in Food Security

Due to the presence of water during the dry season, combined with their natural fertility and irrigation potential, wetlands have been utilised by farmers the world over. Their importance for food security has also been widely documented<sup>8</sup>.

Wetlands in the south-west highlands of Ethiopia have long been seen by the region's farmers as a resource to be converted to subsistence production in times of food shortage. Oral histories place the initial practices in the early 20<sup>th</sup> Century. Today, farmers of the region cultivate wetlands during the dry season when they have experienced poor upslope harvests in the preceding season. In the Oromia parts of the south-west, the main subsistence crop grown in the wetlands is maize. In contrast, as a result of different food preferences, in SNNPR parts of the south-west, taro (*Colocasia esculenta*) is frequently cultivated.

Since wetlands act as a dry season food 'reserve' within the farming system, the total area converted to cultivation shows wide annual variations. This practice of occasional wetland conversion, either for a whole wetland or for individual plots, has provided farmers with high crop yields from wetlands but has also allowed regeneration of natural conditions during interim periods<sup>9,10</sup>. This not only helps maintain soil fertility but is important for the community at large. Research has shown that wetland cultivation is

commonly practised by only certain socio-economic groups and other sections of the rural population loose access to wetland resources at this time (PBN 1,2 & 3).

Wetlands are also important grazing resources in the dry season – providing fodder at a time when upland supplies are scarce. Livestock form an important part of the farming system in the Oromia part of the south-west and this indirect contribution of wetlands to food security is of great benefit to stock owners who account for over 50% of the rural households.

### Box 2 - Wetlands and Food Security in Illubabor

The first substantiated use of wetlands for food security followed the 1906 famine in Illubabor. At that time, *Dejazmach* Gename, the Governor, ordered the landowners to have their tenants plough and cultivate the valley bottom wetlands. Coupled with this was the fact that market-oriented coffee production started in the zone at about that time. This reportedly increased afforestation rates and created a shortage of upslope land for cereals. Famines in 1950, 1961-63 and 1985 all encouraged wetland cultivation.

In Illubabor 70% of farmers have cultivated wetlands at least once<sup>4</sup>. However, for most farmers this remains an occasional activity, with only 10% of farmers currently cultivating wetlands on an annual basis to bridge the food 'gap' between May and July<sup>9</sup>.

Nowadays, maize accounts for 80 % of cultivated wetland area in Illubabor, the remainder being used for vegetables, sugar cane or *teff*. This maize is primarily eaten fresh and not stored. The vegetables and other crops are mostly grown for sale. Wetland crops are mainly grown during the agriculturally slack season in the uplands, i.e. between the harvest in October-December and sowing in May - June.

In Illubabor the wetland area cultivated between 1988 and 1998 varied from 7% of the total wetland area in Chora Wereda in 1989 to as high as 75 % in Alge Wereda in 1998. This variation reflects the annual variability in rural food security as well as local land use competition. The ten year zonal average for wetland cultivation in Illubabor is 23 % of the total wetland area<sup>9</sup>.

### Food Policies and The Threat to Wetlands

Occasional wetland cultivation in times of food stress does not, on its own, appear to cause a threat to the valley-bottom wetlands (See PBN 3). However, due to current policies advocating food security through local production, government agencies are urging farmers to cultivate more wetlands and for longer periods. This more extensive and permanent wetland maize cultivation poses a threat not only to the availability of alternative products from wetlands but also to the ecological functions of wetlands and the socio-economic well-being of the communities who depend on them. It may also threaten long-term agricultural production.

### Box 3 - Wetlands & Strategies for Food Security

Wetlands are used to secure food directly through dry season subsistence cultivation or indirectly through income generation from cash crops, the production of clay pottery, reed and palm mats, baskets and beehives, and the sale of collected items such as reeds. The way in which the local wetland users employ these food-securing methods varies.

A) The relatively poorer members of the rural community suffer from chronic food insecurity since they have small areas of land and few farming assets. They sell reeds collected from the wetlands for ceremonial use and make craft products. This wetland-based income contributes to food security by allowing the poor to purchase food. The poor may also share-crop wetland plots to which they gain access and oxen from richer households and so produce their own food.

B) The relatively better off members of the rural communities have assets such as cattle, coffee land, grazing and often wetland plots. They usually have iron sheets for roofing so do not require wetland reeds for thatching. They also do not need wetlands for food production as they have sufficient resources to secure food through other means.

C) Between these two groups lie those who have some land and livestock assets. In years of food shortage they are able to muster the available resources to cultivate crops and guard them against pests.

In communities where relatively long-term cultivation of wetlands has been occurring, a detailed body of local, or indigenous, knowledge (IK) has evolved and this ensures sustainable agricultural production (See PBN 6). This IK is usually site specific. As a result, communities that are expected to newly develop wetland cultivation in response to external pressures, often lack the skills and experience to do so in a sustainable manner.

One consensus in IK concerns the practice of double-cropping. This is seen as particularly detrimental to wetlands as it requires the removal of natural conditions for 10 months (September to July). This may compromise the role of wetlands as producers of food security in years of poor harvest by leading to wetland degradation. In contrast, single cropping activities disrupt wetlands for only four to six months and are generally much less destructive, especially if the normal flooding regime is maintained.

It is important for policies to consider that wetland crop production is only one of a number of strategies used by particular farming households when the main crops fail. Wetland cultivation is an option open to some, but not all, rural farming households (due to land, labour and other asset constraints, as well as access restrictions). Promotion of wetland cultivation may thus disenfranchise those people who use the wetland for purposes other than cultivation and in so doing may actually increase food insecurity in some sectors of the rural community.



Figure 2 - Wetland cultivation can provide good crop yields for the first few years (above), but over time, continuous cultivation may lead to declining yields and loss of wetland ecosystems (below).



### Box 4 - Impact of Continuous Wetland Cultivation

#### Ecology

- Destroys the natural habitats for wetland flora and fauna.
- Degrades vulnerable soil organic matter which is stored under waterlogged conditions.
- Reduces the water holding and filtration functions of the wetland.
- Lowers water tables.

#### Socio-economy

- Removes access of poor to natural product harvesting and access of all to roof thatching reeds.
- Removes dry season grazing resources.
- Reduces the availability of drinking water and increases workloads for women.
- Loss of medicinal plants.

### Box 5 - Future Food Production in Wetlands

The contribution of valley bottom wetlands to food production in south-western Ethiopia should be recognised to be both limited and significant.

Valley bottom wetlands represent some 2% of the land area of Illubabor, but 97% of Kebeles have some wetland resources within their boundary<sup>9</sup>. On average, some 23% of the zone's wetlands have been cultivated over the last 10 years and during 1999 30% of farmers were cultivating wetlands<sup>4</sup>.

If the remaining 70% of farmers also cultivated wetlands, and considering that population growth in the zone is between 2.5% and 3% per annum, all wetlands in the zone would be cultivated within ten years.

This would then mean that no wetlands were accessible to future generations and no natural products for subsistence or sale were available.

This suggests that the role of wetlands in relieving the chronic food deficit in the zone or as a resource for expanding subsistence production in line with population growth is limited.

However, their contribution to food security through food production and income generation is significant with these areas providing up to perhaps 10% of the total income of farmers in some areas. Their traditional role in providing income or food in the 'hungry season' before the main harvest and in helping communities cope with major harvest failures – especially when the usual sources of food security (such as coffee income) are absent or insufficient – are well established and have the potential for limited but careful development.

### Lessons for Policy

As Ethiopia seeks to meet the food needs of a growing population under conditions of increasing climatic variability, wetlands will play an increasingly important role in contributing to food security. However, in order for the wetland ecosystem to be used to its fullest, and in a sustainable manner, careful consideration must be given by policy makers to the total range of benefits wetlands provide, their various ways of contributing to food security and the impact that agricultural development has on these. In this respect policy needs to consider all the stakeholders in wetlands and that not only those who benefit from agriculture.

Wetlands have historically been important for food production in south-west Ethiopia, especially in years of poor upland harvests and this role remains important. Their continued role as a 'food security safety valve' for the local population should be considered in relation to their future development. In particular care must be taken to ensure that over-intensive agricultural use of wetlands does not degrade them and undermine their potential to contribute to food security at times of greatest need.

Policy towards wetlands should consider local needs and acknowledge the local management practices that have enabled some wetlands to be sustained by farmers over the years. This should ensure that local level management, building on indigenous knowledge, is supported, rather than over-ridden, by higher level directives.

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