

HEADWATER WETLANDS IN EASTERN AND SOUTHERN AFRICA

The Evolving Debate

A. WOOD

*Wetlands and Natural Resources Research Group
University of Huddersfield, United Kingdom*

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This review makes clear the need for the development of sustainable use regimes in wetlands to achieve a balance between environmental and socio-economic needs. However, the extreme perspectives of pure conservation and total development are still held by many actors. In addition, wetlands fall under the jurisdiction of different agencies which have varying perspectives on how these areas should be used, and are often in conflict with each other. In many countries, governments still do not have clear policies on wetlands and are torn between what they need to do to meet production and development goals and what they feel is required for responding to environmental concerns. Experience in Eastern and Southern Africa suggests that two key areas, in particular, require attention if headwater wetlands are to be managed in an ecologically sound and economically viable way. One of the key challenges is for the development of appropriate government policies which identify the need for a balanced approach to wetlands. Rather than taking one of the extreme positions on the continuum of views and imposing a blanket policy, it is necessary to recognise the diversity of wetlands. This means that some wetlands may need to be preserved in a pristine condition or with minimal transformation, but others may be suitable for careful transformation to a mix of uses and some may be transformed completely. To develop the land and water management regimes needed to achieve sustainable use will require using all of the resources available. This includes both the local knowledge and local institutions rooted in the communities, as well as more recent technologies from the extension services and research stations. Further, in line with decentralisation, which is occurring in many countries today, it will be necessary for local communities to be empowered and given appropriate responsibilities in relation to government agencies in the integrated management of watersheds. Only in such a way can economically attractive and ecologically efficient management of headwater wetlands be achieved.

1. Introduction

This overview of some of the major debates and issues in the management of wetlands in Eastern and Southern Africa draws on a variety of sources ranging from international debates [12, 23, 24, 31] through country studies [8, 22] to fieldwork from researchers [37] and NGOs [5]. The discussion refers to wetlands in general, but given the plateau and mountainous terrain in much of this region, many of the wetlands are headwater ones, either being on zero order streams or in the upper reaches of extensive river systems.

2. Different Views about Headwater Wetlands

A continuum of perspectives can be identified concerning wetlands in Eastern and Southern Africa. At the extremes of this are conflicting views of wetlands as an agro-development resource or as an environmental conservation asset.

The immediate development situation, namely poverty and food insecurity, drives the thinking with respect to the first of these perspectives. In this part of the world, where rural populations are still growing and land degradation is occurring, especially in highland areas, there is a search for new agricultural land. This is increased by commercial farming opportunities as markets grow, communications improve and as technologies develop. In this situation, wetlands, especially the smaller ones in low order streams, are becoming a new “agricultural frontier”, with both spontaneous and planned development taking place on them. In particular, for small-scale and subsistence farmers, wetlands can help address food insecurity because they can provide a supplementary harvest in the late dry season or early rains which is the “hungry season”. Trends towards this sort of use of wetlands are seen especially in countries where there are serious demographic pressures and declining upslope productivity, such as Rwanda, Uganda, Ethiopia, Kenya and Malawi, but this phenomenon is also more widespread [12, 34]. Estate development of wetlands has typically been in the larger wetlands lower down the river system, but increasingly commercial use of wetlands in the middle and upper parts of river systems is occurring as in Rwanda and Uganda.

At the other end of the continuum, the conservation view of wetlands is held by several international and domestic actors. It is strongly supported by the Ramsar Convention Bureau which, over the last five years, has been trying to ensure that all African countries become members of the convention and designate one or more wetlands as protected areas in order to fulfil the membership criteria. In such wetlands, wise use, primarily sustainable collecting of vegetation and fish, is the only use seen to be acceptable, with some involvement of local communities [30]. This view point is driven by the concern that the transformation of wetlands, for cultivation and other uses, will have irreversible negative environmental impacts – especially on biodiversity, migratory bird species and hydrological functioning (although the latter tends not to be recognised so much by conservationists). This has led to the development of wetland policies which focus on the conservation and preservation of all wetlands, as in Zambia [18], or the development of a national policy which seeks to reduce the use of wetlands and increase the number under conservation and wise use regimes, as in Uganda [16]. Other international agencies with similar views to the Ramsar Bureau include Birdlife International, the Worldwide Fund for Nature (WWF), and the World Conservation Union (IUCN). In some instances, the issue of development is beginning to be recognised by some of these agencies and their projects do include consideration of some limited developmental activities in parts of wetlands. In other cases, those concerned with conservation now emphasise the rehabilitation of degraded wetlands [15].

An emerging middle view seeks to achieve the sustainable use of wetlands for the long-term benefit of the communities, addressing development issues, such as food security, whilst minimising the environmental changes and impacts [35, 36]. This includes a variety of perspectives starting with the Mondi Wetland Project in South Africa which focuses on wise uses and only limited agriculture with crops suited to flooded conditions – such as taro (yams) (*Colocasia esculent*) in order to maintain the hydrological regime [26]. In Uganda, the national wetlands programme, as well as seeking to reverse the excessive transformation of wetlands which has occurred, also supports wetland planning to achieve more “balanced” land use within wetlands and seeks to rehabilitate those which are degraded. In Ethiopia, a local NGO, dairying for the domestic market, tea estates for export, and the provision of land for small-scale market oriented production of vegetables and rice has been encouraged since the 1970s [9, 21].

Food shortages have also driven governments to focus on wetlands with specific policies aimed at increased production from these areas to

compensate for poor upland harvests. For example, since 1985 one of the regional governments in Ethiopia has regularly established Wetland Task Forces in the wetter parts of the country in years of poor national harvests to try to increase food production [38]. Malawi has also developed a policy of encouraging dry season irrigation in seasonally flooded or moist dambos as part of a response to the 2001/2002 famine, while Zambia's national irrigation policy has a similar focus [14, 19].

2.1. DONOR AND MULTILATERAL AGENCY SUPPORT

International donors have often supported national efforts to transform wetlands and make “fuller” use of these areas. During the 1970s development assistance from the Netherlands supported the drainage and development for agriculture of the Kisi wetlands in western Kenya, a project which was of limited success due to problems with acid sulphide soils [13, 28]. A more sensitive approach to wetlands may be developed by the Nile Basin Initiative, the biggest programme of donor supported development in Eastern and Southern Africa. In seeking to ensure the efficient use of this river system, wetland management is one of the elements which has been recognised to need attention. So far the Initiative has tended to focus on the issues related to the Sudd and the other large mid-stream wetlands, but it does include projects on the management of catchments and this will include headwater wetlands.

Other multilateral agencies involved with wetland development initiatives over the last decade have included FAO and the International Water Management Institute (IWMI). One of FAO's initiatives has sought to link countries in Eastern and Southern Africa in its efforts to achieve the sustainable agricultural development of wetlands [12, 23]. FAO's emphasis is upon sustainable land use management for improved food security, in line with its emphasis on agricultural production. A more recent initiative has come from the International Water Management Institute (IWMI), one of the CGIAR research centres, which established an Africa office in the late 1990s in Pretoria. Due to IWMI's original concerns with rice management in Asia, its emphasis is upon the efficient use of water [20].

2.2. COMMUNITIES – THE MAIN ACTORS

While government and international agencies are formulating policies concerning wetlands, communities are themselves developing their own ways of using these areas in response to the changing demographic and

commercial situations. In many cases, it appears that it is the richer members of communities who are appropriating the formerly communal or open access wetlands, as market opportunities encourage their use [9, 3, 39, 33]. In other cases it appears that it is more the poorer households who are using wetland margins with limited technology to diversify their survival strategies either through subsistence production or through semi-commercial production for local markets [27, 32]. Such spontaneous development of wetlands is rarely supported by government technical assistance and the use regimes have to be developed by trial and error drawing on indigenous knowledge systems where these exist [10].

3. The Need for Sustainable Management of Headwater Wetlands

This expanding use of wetlands raises many challenges due to the frequently fragile nature of these areas and their potential for degradation as cropping and grazing develop. In particular, there are concerns that as wetland use intensifies, degradation will occur, curtailing the role of the wetlands in the hydrological system so that stream flows become more variable and the range of benefits the wetlands produce for communities is reduced. In extreme cases, “terminal” uses, such as the planting of eucalyptus and mining for sand extraction and brick making, may occur in wetlands completely altering the characteristics of these areas [37].

With such threats, there is a growing need to explore how to prevent wetland degradation and achieve sustainable use, or how to rehabilitate wetlands so that their various ecological functions and economic benefits can be recovered. Some experience of this is beginning to be found at different sites through Eastern and Southern Africa. For instance, the Uganda Wetland Programme has been working with communities to help them reconsider the state of their wetlands and at Kumi has helped the community return to a less intensive and more diverse pattern of wetland use, than has been the case in recent years. This holds the potential for greater sustainability and more social equity (Bakema, et al, in press). In Ethiopia, studies have shown that sustainable use of wetlands for a range of uses is possible based on the local knowledge of communities who have developed a sensitive understanding of these areas over generations. This includes well-vegetated and carefully managed catchments, control of the water table to prevent over-drainage, mixed land use in the wetland with areas of natural vegetation, and replication of the natural flooding with the wetland hydrology altered for the minimum period necessary [1]. The Mondi Wetland Project in South Africa is also showing large- and

small-scale farmers the importance of wetlands and trying to encourage better land use with a limited range of activities [26].

There are examples of the need for wetland rehabilitation in many areas throughout the two regions considered here in order to try to improve the livelihoods of people whose wetland have been destroyed. For instance, in the highlands of northern Ethiopia desertification has been increased due to the removal of wetlands by eucalyptus planting [40], while in western Kenya on the foot slopes of Mount Elgon wetland removal for cultivation has led to increased flash flooding [13]. Similar flooding problems, with serious impacts on infrastructure, are found in Malawi as a result of dambo degradation, while in Rwanda there has been serious destruction of the wetlands in the Rugezi area where settlement of displaced persons has damaged both catchments and wetlands.

Re-instating wetlands into the landscape can be an important part of a wider process of environmental recovery, to recreate a more efficient and productive resource base. This can improve domestic water supplies by returning the ground water table to higher levels so ensuring the regularity of stream flow and reduce flooding and its attendant damage to infrastructure. However, wetland re-instatement needs to be supported by catchment rehabilitation, and that will require a holistic approach to both land use management and rural livelihoods development. A holistic approach is also needed with knowledge systems and institutions, drawing on the most appropriate aspects of indigenous and government systems.

While wetland recovery should have positive impacts, negative changes may occur. This is especially likely if malaria and bilharzia are present as these can become health hazards. Consequently, careful management of wetlands and human interaction with them is needed in rehabilitation measures, as well as when seeking to achieve sustainable use [29].

4. Some Concluding Challenges in Headwater Wetland Management

The above discussion makes clear the need for the development of sustainable use regimes in wetlands to achieve a balance between environmental and socio-economic needs. However, the extreme perspectives of pure conservation and total development are still held by many actors. In addition, wetlands fall under the jurisdiction of different agencies which have varying perspectives on how these areas should be used, and are often in conflict with each other. Indeed, in many countries, governments still do not have clear policies on wetlands and are torn

between what they need to do to meet production and development goals and what they feel is required for responding to environmental concerns.

Experience in Eastern and Southern Africa suggests that two key areas, in particular, require attention if headwater wetlands are to be managed in an ecologically sound and economically viable way. One of the key challenges is for the development of appropriate government policies which identify the need for a balanced approach to wetlands. Rather than taking one of the extreme positions on the continuum of views and imposing a blanket policy, it is necessary to recognise the diversity of wetlands. This means that some wetlands may need to be preserved in a pristine condition or with minimal transformation, but others may be suitable for careful transformation to a mix of uses and some may be transformed completely [11, 3].

The other major challenge is to develop appropriate technologies for sustainable wetland management, especially for community use. This process must include recognition of the need for a holistic landscape approach, with catchment management considered as an integral part of the land and water management regime which affects wetlands. To develop the land and water management regimes needed to achieve sustainable use will require using all of the resources available. This includes both the local knowledge and local institutions rooted in the communities, as well as more recent technologies from the extension services and research stations. Further, in line with decentralisation, which is occurring in many countries today, it will be necessary for local communities to be empowered and given appropriate responsibilities in relation to government agencies in the integrated management of these areas [3, 37]. Only in such a way can economically attractive and ecologically efficient management of headwater wetlands be achieved.

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