

Guidelines on Agriculture and Wetland Interactions (GAWI)

REPORT of GAWI MALAWI WORKSHOP

held at

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Lilongwe & Huddersfield

Cover Picture
Multiple Use wetland in Simlamba TA

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List of Acronyms

ADC	Area Development Committee
AEC	Area Executive Committee
AF	Agroforestry
CA	Conservation Agriculture
CURE	Coordination Union for Rehabilitation of the Environment
DEC	District Executive Committee
DESC	District Environmental Subcommittee
DPSIR	Drivers, Pressures, State changes, Impacts, Responses
ESS	Ecosystems Services
EAD	Environmental Affairs Department
FAO	Food and Agriculture Organization
FHH	Female Headed Household
GBI	Green Belt Initiative
GAWI	Guidelines for Agriculture and Wetland Interactions
MA	Millennium Ecosystem Assessment
MHH	Male Headed Household
NGO	Non-Governmental Organization
PES	Payment for Environmental Services
SWC	Soil and Water Conservation
TLC	Total Land Care
VDC	Village Development Committee
VNRMC	Village Natural Resource Management Committee

1.0 INTRODUCTION

1.1 Background

Wetland Action in its role as a subcontractor to the Wageningen University with support from the Dutch Ministry of Agriculture, Nature and Food Quality is supporting the Guidelines on Agriculture and Wetlands Interactions initiative in a second phase which seeks to strengthen the capacity of selected countries to formulate and implement sustainable natural resources management policies, with respect to wetlands, in their attainment of the UN Millennium Development Goals. This support in Malawi has entailed conducting the comprehensive GAWI-ESS-DPSIR analysis of the agriculture-wetland interactions in selected wetlands, culminating into the formulation of multiple response strategies, encompassing policy, natural resources management and governance responses towards the sustainable rebalancing of the ecosystem services utilization in these selected cases. The support also involves conducting a GAWI policy consultation workshop and producing a synthesis document containing the GAWI policy recommendation brief, a summary of the analysis case and an executive brief of the policy consultation workshop.

As part of this process, Wetland Action supported FAO Malawi to organise a two day stakeholder consultation workshop in Malawi at Kasungu Inn on 11th and 12th November 2010. At this meeting the findings of the GAWI-ESS-DPSIR analysis, and in particular the multiple response strategy, were presented and discussed with policy makers of relevant sectors. For the workshop, stakeholders were invited mainly from the central government, local government and the civil society organizations, more especially those involved and concerned with the wetland issues (Annex 1). This report presents the workshop proceedings and recommendations on the way forward for using the GAWI-ESS-DPSIR analysis in Malawi.

1.2 Workshop Process

Prior to the workshop, participants were visited to explain the GAWI process and also encourage them to attend the consultative workshop. An analysis paper focusing on the wetlands in the Simlemba Traditional Authority area was produced and circulated to all the participants before the workshop (Powerpoint version in Annex 4). During the workshop, the Simlemba analysis paper was presented and discussed, especially focusing on the response strategy. Participants made their comments on the accuracy of the GAWI analysis and the appropriateness of the multiple response strategy proposed, and developed recommendations on the value and way forward for this GAWI analysis in Malawi. Annex 2 is the programme that was followed during the workshop.

2.0 WORKSHOP OPENING ACTIVITIES

2.1 Official Opening Speeches

2.1.1 Opening Speech by the Director of Land Resources Conservation

The consultative round table workshop was officially opened by the Director of Land Resources Conservation Department, Mr John Mussa on behalf of the Principal Secretary of Agriculture and Food Security. In his opening speech he welcomed all the participants to the workshop which he said had come at the right time when the country was seriously debating on how to effectively implement the Green Belt Initiative which is targeting the wetlands. He mentioned that wetlands are fragile ecosystems and are easily prone to degradation, gulley erosion, siltation many other pressures. However, he noted that if effectively managed the wetland ecosystems services can contribute significantly to the economic growth of the country. He encouraged participants to make sure that the GAWI analysis is well understood and that the country can benefit from its use. He closed by thanking FAO for selecting Malawi to be one of the countries to benefit from the analysis. He closed his speech by encouraging participants to discuss and agree on actionable recommendations that will be taken forward by the various stakeholders. (See Annex 3 for full speech).

2.1.2 Opening Remarks by Prof Adrian Wood

In his welcoming speech, Prof Wood (consultant from Wetland Action) explained the background of the study and the involvement of Wetland Action in wetland activities in Malawi. In his speech, Prof Wood said that in recent years wetlands have attracted attention from many stakeholders, more especially farmers, who have sought to increase crop production and income by using these areas. Shortage of cultivable and fertile land upslope, degradation of upland fields, drought and other factors that have caused rain-fed crops to fail, have all encouraged the use of wetlands. Policies from the government and NGOs have also directed farmers towards an increased focus on wetlands. There are however concerns that wetlands are fragile ecosystems and that intensive use of these areas may lead to degradation and loss of their various ecosystem services. There is currently increased debate around the world about how to use wetlands in sustainable manner and how best to achieve a balance between their various ecosystem services in order to ensure overall sustainability in wetlands. He explained that the work in Simlemba dated back to 2005 when a wetland management element had been developed with communities as an addition to a livelihoods and food security project implemented by MALEZA with funding from Harvest Help (currently called FAIR). Hence, the analysis report to be discussed in the workshop mainly focuses on experience from five years of work through that Simlemba Project and subsequent pilot project activities by MALEZA, FAIR and Wetland Action. He concluded by again welcoming participants, thanking them for giving their time to attend the workshop and he encouraged them to contribute enthusiastically to the workshop.

2.2 Participants Introduction and Expectations

After the official opening, participants introduced themselves and also stated their expectations of the workshop. The expectations are summarised below.

1. Overall expectations

a) GAWI

GAWI will not end up on the shelf, it should be used:

- Understanding how GAWI could be taken to smallholder farmers in Malawi
- Exploring the compatibility / utility of GAWI and the Green Belt Initiative in Malawi
- To be orientated about the GAWI analysis and guidelines to achieve sustainable management of wetlands

b) Millennium Ecosystem Assessment (MA) and Ecosystem Services (ESS)

- Understanding these studies / concepts and their relevance to Malawi

2. Sharing of experiences

- Sharing experiences of wetland management
- Learning how to engage stakeholders in wetland management
- Learning how ESS can be optimised in wetlands
- Sharing ideas and experience of wetlands with agriculture
- Learning how to motivate communities to sustainably manage wetlands considering other functions that may not be obvious.

3. To strengthen collaboration

- Agree how to collaborate on sustainable use of wetlands
- Start of coordination of wetland management
- Design conflict management strategy for different users of wetland resources
- Develop coordination mechanisms between stakeholders on sustainable management of wetlands.

4. To know more about the interventions in Simlemba

- Know more about planned interventions for Simlemba wetland management.

5. Others

- To have empirical evidence of dambo degradation due to irrigation
- To discuss the importance of wetlands
- To gain knowledge on valuation of wetlands

3.0 PRESENTATION OF THE MALAWI ANALYSIS REPORT

The analysis paper was presented in two parts in order to facilitate effective discussions. The first part focused on introducing the GAWI Initiative, the Malawi context, the dambos and stream valleys of the case study area and the DPSIR analysis. The last part focused on the proposed response strategy for the case study area. The two parts of the presentation are summarised below. (Powerpoint presentation of the paper is in Annex 4)

3.1 Summary of the GAWI Analysis Paper

Wetlands and agriculture

The paper started by pointing out that the nature of the relationship between agriculture and wetlands (seasonal & permanent) is becoming an issue of global concern. The agricultural demands on wetlands will continue to increase and will double by 2050. Wetlands are critical for climate change adaptation in many ways, especially for helping address food security and water storage. Therefore wetland areas have to be used wisely and productively.

Millennium Ecosystem Assessment (MA) and Ecosystem Services (ESS) concept

The MA (MA, 2005) identified five main groups of ecosystem services (ESS) in wetlands which are:

- **provisioning** - crop production, fish, grazing, domestic water, reeds, medicinal plants, etc
- **regulating** – flood control, water infiltration, groundwater recharge, micro climate maintenance, etc
- **biodiversity** – habitats for plants and animals
- **support** – soil formation, nutrient cycling, etc
- **cultural** – religious, recreational, tourism etc

One of the main points in the MA is that wetlands are fragile areas and have limited capacity to provide ESS when disturbed. Evidence from the MA shows that over-dependency and over-exploitation of one service – for instance intensive crop cultivation – may easily and suddenly lead to an undermining of a wetland ecosystem's capacity to provide other functions / ESS (e.g. water storage, flood regulation and water supply), as well as to sustain the wetland itself - ultimately leading to the collapse of its capacity to provide for intensive crop cultivation. Hence it is argued that an imbalance in ESS leads to reduced resilience of wetland ecosystems and their ability to function and cope with shocks, such as extreme weather events due to climate change.

GAWI study 2006-2008

The experience of agriculture in wetlands around the world was explored by a joint FAO/Ramsar initiative between 2006 and 2008. This work was undertaken in conjunction with International Water Management Institute (IWMI), Wageningen University (WUR), Wetland Action (WA) and Wetlands International (WI) . The study

used the MA's understanding of wetland ESS and applied the DPSIR (Drivers, Pressures, State changes, Impacts and Responses) analysis to try to explore the dynamics in almost 100 wetland sites across the world. From this analysis possible points for intervention were sought in order to move towards a more balanced set of ESS in wetlands (FAO, 2008) thereby improving sustainability and the ESS which can be obtained. Proposed interventions included:

- Redirecting drivers of change so that wetlands are not the only solution to food / cash needs;
- Diversifying wetland provisioning services away from agriculture, with more use of fish, natural plants and other ways of meeting livelihoods needs;
- Diversifying ESS used in wetlands and thereby generating other sources of income, especially through payment for environmental services (PES) for biodiversity protection or hydrological regulating services from these areas;
- Improving agriculture practices in wetlands to reduce state changes;
- Managing a wetland or a river basin with multiple wetlands as a system within which to maintain a mix of ESS.

From this study it has become clear that across the globe there is the need for a change in thinking about wetlands. This should involve a move from a situation of competition amongst stakeholders who seek to achieve mono-ESS use of wetlands, to one where stakeholders work together to achieve a mix of ESS in wetlands and mutually beneficial multiple benefits which are sustainable in the long term.

The GAWI three country studies

Building on the GAWI Report (FAO, 2008), it was decided to undertake a series of case studies in different countries to test if the methodology developed can help bring stakeholders together to engage in a mutually supportive and consensual way. Three specific wetland sites or types of sites have been chosen for study in three different countries, India, Malawi and Egypt. These studies have the following guidance:

- Principles used in the studies:
 - All sector demands on wetlands have equal claims, GAWI analysis does not presume to make decision re prioritisation.
 - Varying effectiveness of drivers must be recognised, e.g. those for provisioning ESS (which are strong) compared to those for regulating, support, cultural and biodiversity ESS (which are often weak).
- Responses sought should apply GAWI principles
 - Response should try to meet the plural demands of society & create a mix of ESS for meeting needs, as well as for sustainability reasons
 - No pre-defined outcome is presumed of ESS priorities in each part of a wetland or river basin; that depends on:
 - State & capacity of each wetland ecosystem,
 - Drivers and pressures on each wetland,
 - National and local priorities and choices

The Malawi context of the case study

The importance of wetlands for food security has long been recognised in Malawi, both traditionally by communities and also by the government. However, the food shortages of the early part of this century led to increased attention being given to these areas. This has seen several initiatives including the winter (dry season) farming subsidies to encourage wetland use, the introduction of the treadle pump, the development of a new draft irrigation policy and the new Green Belt initiative.

Case study of Simlemba Traditional Authority

The case study material presented in this analysis paper is drawn from Simlemba TA in Kasungu District, and especially from the Mthabua River (a tributary of the Dwangwa River), the Malawila stream and two dambos at Chiota and Katema (Wood, 2005; Thawe, 2008; Kotze, 2008). The river valleys originally had a mix of wetland vegetation, sedges and reeds and bulrushes, around permanent ponds, but also some upland/dryland vegetation, even trees in the drier areas. While the stream at Malawila flows all year, the Mthabua River, which may have flowed continuously in the past, currently has a very seasonal flow, while the dambos have no clear stream channel for the most part.

Community assessment of the ESS

Observation and community focus group discussions, as well as transects walks, had provided a range of information about the value of the wetlands to the communities. People involved in these activities repeatedly pointed out the value of these areas and the increased use which is made of them. Specific ESS identified were as follows:

- Provisioning – cropping, grazing, wild plant collection (reeds, thatching and medicinal plants), domestic water, etc
- Regulating – surface water storage, ground water recharge, micro-climate, sediment trapping, flood control, etc
- Biodiversity – habitats for birds, animals, insects, and diverse plants
- Cultural: aesthetic value - varied from person to person.
- Support: poorly identified, but seen as part of the cycling of soils and material through erosion and sedimentation.

DPSIR analysis of the four wetlands in Simlemba

The GAWI project has developed a dedicated analytical framework which combines the MA ecosystem services (ESS) framework with the Driver-Pressure-State change-Impact-Response (DPSIR) framework. This was applied to the seasonal wetlands in the Simlemba area with the following findings.

Drivers operating in Simlemba

- Seasonal food shortages due to poor rainfall and land degradation
- Population pressure linked to in-migration
- Local and wider markets for vegetables and green maize
- Government and NGO measures – winter farming and treadle pump subsidies

Pressures on Simlemba wetlands

- Dry season agriculture in wetlands

- Clearance of natural vegetation
- Soil disturbance
- Wells in the centre of the wetland / valley
- Reduced water infiltration in catchment so less dry season seepage into wetland
- Moisture loving plants – sugar cane & eucalyptus
- Grazing impacts on vegetation and soil compaction

State changes in Simlemba

- Overall balance of ESS
 - A bias developing towards agricultural provisioning, with reduction in regulating and biodiversity services.
- Imbalance of sub-types of ESS
 - Agricultural provisioning is reducing other provisioning services such as domestic water and reeds
- Overall land and water situation
 - wetlands becoming drier, gully formation, flood speeds higher
- Specific changes:
 - Loss of biodiversity, especially vegetation which slows floods and maintains wetland habitat
 - Soil compaction in grazing areas
 - Soil structure damage due to cultivation so increasing erosion risks
 - Gully formation in centre of wetlands due to increased runoff, wells, & less vegetation
 - Desiccation of the valley floor – lower water table at end of dry season
 - Sediment deposition at edges from uplands

Impacts in Simlemba

- Food security improved directly for producers and indirectly by sales
- All groups engage in wetland agriculture, especially poor female headed households and rich male headed households (for food security and income generation / profit accumulation respectively)
- Inequalities in access to land & water, and resources as demands increase and power relations in this competition become important
- Tensions within and between communities developing
- Dependence on wetlands increasingly, especially for some

Responses in Simlemba

- Community recognition of changes, so far only agreed response is to control Treadle Pump use at height of dry season
- Government concerns over erosion and use of organic manure are growing, but winter farming is supported without questions
- NGO discussion with communities on issues they had identified and NRM elements of projects developed
- District Development Committee engaged with NGO project on sustainable wetland use

Proposals to address DPSIR analysis Issues in Simlemba

In the light of this analysis of the Simlemba situation and the guidance from the GAWI work possible responses have been identified. Guiding ideas are:

- Need to change the way in which wetland ecosystems are exploited, from mono use (mono ESS) to multiple use (multi ESS)
- Benefits of this approach are increased sustainability and also increased range of societal socio-economic needs which can be met
- Wetlands to be seen as a whole system and river basin overview is needed to help identify which ESS should be prioritised where

Focus needed in the multiple response

- Maintain multiple ESS to avoid degradation & collapse of wetland ecosystem
- Reduce pressures from over-development of agriculture
- Maximise diversification of ESS and add value to “neglected” ESS to retain them
- Overall add value to wetlands so they are worth caring for

Key elements of the future state

- Reduced erosion & increased water storage are key elements & are linked
- Reduced erosion in catchment and increased water infiltration have key benefits which include:
 - Better yields in uplands – reduces driver to use wetlands for food security
 - Reduced sediment deposition in wetland
 - Improved water storage & regulation
 - Prolonged seepage into wetland during dry season recharge
- Wetland water storage considerable, 5m+ sediments, but gullies reduce storage
- Control of gulley formation in wetlands is critical as gulleys lower water table & reduce water storage
- Water is critical for maintaining ESS
- Building nature with more water due to ponds and dams helping keep wetlands wet and so helping provide more ESS with the diversification potential increased

Functional landscape approach (FLA)

- In order to address the above points, specific measures are needed which should be seen within a functional landscape approach, which can be applied either at a wetland and catchment level, or as a basin wide approach
- Catchment measures
 - Land husbandry measures, conservation agriculture (CA), soil and water conservation (SWC), and agro-forestry (AF) to improve infiltration and reduce erosion
 - Crop diversification to reduce need for wetland cultivation
 - Afforestation of non-farm land
 - Cordon of natural vegetation on lower slopes around wetlands

- Wetland measures – macro-level
 - Maintain natural vegetation in centre of wetland
 - Minimise areas where natural vegetation is removed.
 - Avoid wells being in centre of wetland
 - Maintain & enhance reed beds & ponds
 - Add provisioning services through fish ponds and micro dams – may help regulatory ESS as well as being a provisioning service
 - Develop Payment for Environmental Services for biodiversity and water storage functions
 - Control water extraction to maintain water table
- Wetland measures – micro-level
 - Avoid drainage – as this is the loss of scarce water, use raised beds
 - Minimise soil disturbance through minimum tillage
 - Maintain soil structure with organic matter to reduce erosion
- Measures proposed here need to be reviewed by community – must be economically attractive (returns v effort)
- Produce quality agricultural products in wetlands, and develop market linkages, value chains, so income increased, etc
- Value of wetlands increased which makes response efforts worthwhile for ensuring sustainability.

Other issues to be considered include

- Scaling-up functional landscape approach to planning and coordinating response across a valley system, rather than in a single village area
- Institutional issues of coordination, within a wetland, across a catchment and its wetland, along a stream valley & beyond
- Local level structures, such as Village Natural Resource Management Committees, which are linked to Headman through the Village Development Committee and linked to the District Council through the Area Development Committees which are at Traditional Authority level
- Capacity issues and bureaucracy within the governance structure need also to be considered seriously – better to use existing structures than to set up news ones.

The paper concluded with a number of questions which formed the main agenda for group discussion during the workshop. These and the outcomes of the group discussions are presented in the following sections.

3.2 Emerging Issues from the Group Discussions

3.2.1 Group discussions on the GAWI analysis paper

After the presentation participants went into groups to discuss the following questions relating to the GAWI-DPSIR analysis synthesis paper.

- Does this analysis seem to be accurate?
- What ESS does your area of responsibility cover which is relevant to Simlemba?
- With what other ESS do your ESS concerns overlap?
- What is the nature of ESS interactions with which you are familiar?
- What ESS do we have to give priority to in Malawi and how do we address the negative results on other ESS.

3.2.2 Plenary discussions

From the group discussions, participants made the following responses to the questions above.

All the groups said that the Simlemba analysis was very accurate and that it reflected the situation. However, it was noted that the report did not explore how the different stakeholders, especially government departments interact and their involvement more especially at district level.

This led to a review by participants, mostly government departments, of the ESS that are their areas of responsibility, and which are relevant to Simlemba. They also identified overlaps in responsibility between the various institutions

- **Provisioning:** Ministry of Irrigation and Water Development, Ministry of Agriculture and Food Security, Ministry of Natural Resources, Energy and Environment
- **Regulating:** Ministry of Irrigation and Water Development, Ministry of Agriculture and Food Security, Ministry of Natural Resources, Energy and Environment, Department of Disaster Preparedness, Ministry of Lands, Ministry of Local Government
- **Biodiversity:** Ministry of Tourism, Wildlife and Parks, Ministry of Natural Resources, Energy and Environment, Ministry of Agriculture and Food Security
- **Culture:** Ministry of Tourism, Wildlife and Parks, Ministry of Natural Resources, Ministry of Local Government

Below are the ESS participants indicated they are familiar with and which are relevant to the Simlemba situation:

Provisioning: Fishing, grazing, cropping, construction materials - such as reeds, medicinal plants were identified.

Regulating: It was indicated that this ESS is less understood by rural people and it may only be understood by technocrats in government departments, private sector and civil society organizations. However, it was pointed out that communities are familiar with the speed of flow of water in floods so could understand this concept if appropriate terminology is used.

Biodiversity: People are aware of the importance of biodiversity such as fauna and flora.

Support: Wetlands are important for nutrient cycling and carbon cycling but this ESS is very difficult for rural people to understand. Again it was pointed out that farmers

would understand the issue of high soil fertility in some wetlands, which is linked to nutrient cycling.

Cultural: Wetlands are used for various initiation ceremonies by some tribes in the country. They are also a tourism attraction but few local people appreciate the value of tourism with respect to wetland management

Priority ESS for Malawi: all participants agreed that the priority ESS in the country is provisioning, more especially wetland agriculture for food security. All government policies emphasise food security and poverty reduction. Participants all agreed that a strong emphasis on agriculture and food security will lead to negative impacts on other ESS in wetlands which could undermine the functioning of wetlands and even of wetland agriculture. Therefore there is a need to carry out the following measures:

- Promote crop diversification in uplands to improve yields and reduce the drivers to cultivate wetlands
- Intensification of yields per unit area both in uplands and wetlands (to increase production in uplands and to reduce the area disturbed in the wetlands)
- Provide alternative livelihoods to reduce demands on wetlands
- Promote industrial development to progress from agriculture and reduce demands on farmland
- Promote adaptive management of wetlands and catchments to improve their state
- Develop a wetland policy as per Uganda and Canada

3.3 Reflection on the Simlemba case study

3.3.1 Reflection on the relevance of the analysis at local and national levels

After reflecting on the analysis in general, participants went into second round of group discussions to reflect on the Simlemba analysis in relation to its relevance at local (case study area) and national levels, using the checklist of questions summarised below.

Reflection questions for Simlemba

- Are the proposed response measures relevant for Simlemba?
- Will they provide a way of accommodating and maintaining multiple ESS in these wetlands?
- What areas of concern have been neglected?
- What other response measures / alternative strategies can be proposed?
- What is the best configuration (pattern) of ESS within a river / stream basin in Simlemba

Reflection questions for national level analysis

- What are the strengths and weaknesses of different strategies and elements of the multiple response strategy for the case study and wider use?

- Can a consensus on the proposed multiple response strategy be achieved or are different alternative options proposed for the communities to consider?
- What areas can be addressed locally and what need higher level action – policies, legislation, coordination?

Discussion on how to facilitate and promote these types of response strategies across the country as a whole

- What policy and policy actions are needed to support the maintenance of multiple ESS in wetlands?
- What can be done to manage / control those drivers which are causing the imbalance in ESS – especially the over-development of agriculture?
- What measures can be applied to encourage drivers which will support the maintenance or development of neglected ESS and so maintain a balance of the full range of ESS in wetlands?
- What technical innovations can reduce the negative impacts of agricultural development in wetlands, help maintain other ESS, and achieve an overall balance of ESS in a wetland or a river and wetland system?

3.3.2 Plenary discussions

After the group discussions, participants made the following agreements in relation to the questions raised above.

Local level- Simlemba

Relevance of the proposed response measures for Simlemba

It was agreed that the proposed measures for the case study are relevant but there is need to widen the multiple use of the wetlands. For example, as well as promoting cropping in the wetlands, controlled grazing, fishing on micro dams and others income generating activities should be developed.

Accommodating and maintaining multiple ESS in the wetlands

In order to promote sustainable management of the wetlands, there is need to promote value addition to all the provisioning services found in the wetlands. With respect to farming this would involve proper selection of crops used in the wetland as well as promoting improved craft activities and developing value chains. Payment for Environmental Services (PES) needs to be explored as ways of generating income for the maintenance of regulatory and biodiversity ESS.

Areas neglected in the wetland analysis

The analysis did not articulate issues of capacity building of the various government stakeholders and players working in the catchment. The full range of stakeholders must be consulted from the beginning of the study. Also, the analysis did not include practical examples of payment for ecosystem services.

Proposed response measures / alternative strategies for Simlemba

There is a need for more community sensitization and community mobilisation to ensure that people understand and appreciate the value of maintaining multiple ESS. In addition to public awareness, there is a need for capacity building and institutional

strengthening of the local level institutions that are responsible for the management of the wetlands such as Village Natural Resource Management Committees, Beach Village Committees (on the lakeshore), local leaders and others.

Configuration of ESS within a river / stream basin in Simlemba

There is need for proper land use planning in the wetlands following the functional landscape approach. Maintaining or planting natural vegetation in the centre and peripheral of wetlands is important, as well as avoiding digging wells in the middle of the wetland which may turn into gulleys during heavy rainfall / floods. The overall pattern of ESS use, as reflected in the land use pattern in a wetland or stream valley, must be the result of negotiation within a community or amongst several communities. This will need a major process of awareness raising, and community capacity building.

National level

Application of the ESS / DPSIR analysis and response development process

The ESS/DPSIR analysis can be applied at a larger scale and even nationwide. However, there is need to test its applicability for other sizes of the wetlands. For example this analysis should be applied for wetlands such as Lake Chilwa and others – such as rivers with irrigation schemes, to check the value of the multiple response strategy that can be developed.

Policies, actions, and governance measures required

It was agreed that to effectively use the GAWI-DPSIR analysis in the country, there is need to develop, review and harmonise the following policies, ensuring that the GAWI perspective is incorporated into these:

- Land use policy,
- Irrigation management policy,
- Crop development policy,
- Water resources policy,
- Wildlife policy,
- Wetland regulations proposed under the Environmental Management Act,
- Decentralised Environmental Manual, currently being revised by the Ministry of Development Planning and Cooperation and the Ministry of Local Government.

Policy actions

- Support the development of the regulations on wetlands
- Support the revision of the Decentralised Environmental Manual
- Clarify institutional arrangements,
- Harmonisation of policy,
- Strength governance by promoting education and public awareness

Controlling drivers which are too strong and causing imbalance in ESS

It was generally agreed that in order to control drivers which are too strong and causing imbalances in ESS there is need to improve productivity of rainfed agriculture, introduce other alternative sources income for farmers e.g. bee keeping,

and promote value addition of produce / products through value chain development. This will enable the smallholder farmers generate more income for their households without having to use wetlands so much.

Supporting ESS which are too weak

A number of strategies were agreed including the following:

- Promote sensitisation on the value of weakly demanded ESS, such as regulating, biodiversity, cultural and support services.
- Introduce interventions that are promoting weak ESS, such as payment for environmental services such as water storage (regulating services) to support hydro power production, and the development of bio-diversity conservation payments, as per the Danish Hunters agreement in Lake Chilwa.
- Strengthen the capacity of the institutional structures supporting wetland management at all levels, especially at the community level.
- Explore how to enhance the enforcement of the laws and by-laws, or create economic incentives in support of these.

Technical measures to reduce the negative state changes caused by agriculture

With proper land use planning, the participants said that the negative state changes caused by agriculture could be minimised. This can only be achieved if the land use policy and legislation are in place and enforced by government as well as being encouraged by incentives within land management innovations based on market forces / value chains and technical fine tuning so that good land husbandry / use is economically attractive. It should be stressed that rather than imposing good land management through legislation, it should be encouraged because it is economically attractive and provides good returns to farmers.

4.0 SUMMARY OF KEY ISSUES FROM THE WORKSHOP

4.1 GAWI's ESS-DPSIR Concept, Its Value and Applicability

4.1.1 Value and applicability

The ESS and DPSIR concepts as used by GAWI are highly relevant for Malawi. Indeed the country is already using them. For example the Ministry of Natural Resources, Energy and Environment, through the Environmental Affairs Department (EAD), is using the DPSIR analysis model in the development process of the National State of the Environment Report (NSOER) of 2010. These concepts can be used even at the village level if explained with reference to the local situation – regulating and support services were seen as most difficult, but regulating services can be seen in flood and water flow speeds, while support services are seen in the fertile soil in wetlands.

However, there is a need for one or more further case studies to help confirm the value of the use of these concepts in the analysis and the development of action plans. Lake Chilwa was proposed as a possible case study, but a stream with irrigation development along it might also be useful. Further, the Chia Lagoon, where Total Land Care (TLC) works, might also provide a case. It was noted that there is a need for the GAWI method to give more consideration to future scenarios – such as subsidy reductions, and how current actions and policies being applied may impact in the future.

4.1.2 Simlemba analysis and proposed multiple response mechanism.

The analysis in the case study was generally seen as accurate. Some minor additions to the analysis were proposed, and a few additions suggested to add to the proposed interventions. Three of the proposed additional interventions were intensification of land use in the catchment, diversification of livelihoods and greater involvement of all government agencies from the start. In general there was limited criticism of the analysis and the multiple response mechanism, and comments were more a case of adding on other points or ideas within the basic framework.

A consensus on the analysis and ideas was achieved and there were no opposing proposals made for the response scenario. As mentioned above, there were only some additional points to add but no major restructuring of the nature of the response proposals was made. Bottlenecks in implementation were not fully discussed, but it is clear that MALEZA needs to engage with all relevant government agencies and also to engage more with District Executive Committee where these stakeholders can be coordinated.

Subsequent discussions made it clear that the Area Development Coordination Committee at the TA level is where this work on the Simlemba wetlands needs to be based once enough resources are available to ensure coverage of complete stream valleys – wetlands and catchments, in the TA.

4.2 Priority ESS in Malawi

It was generally agreed that because the country is agro-based and has limited foreign exchange the priority ESS in wetlands must be provisioning, especially for agriculture and food security. While it is obvious that agriculture and food security are national development priorities, they must not be achieved in ways which lead to the collapse of ESS in wetlands and elsewhere, as that will create further and more difficult problems. The government has developed a Green Belt Initiative (GBI) which targets the wetlands through promotion of irrigation activities. The introduction of the GAWI ESS-DPSIR framework at this point in time provides an important method which can help inform the debate on the Green Belt Initiative. Indeed, with careful planning and lobbying, the ESS-DPSIR framework should be able to contribute to and influence the implementation of the GBI, reducing costs and making the wetlands involved more sustainable and less prone to degradation and damage.

4.3 ESS Interactions

The participants believed that it is possible to change ESS interactions from negative to positive or to reduce negative interactions through a number of measures. Those identified were the following:

- Land use planning to support multiple ESS in wetlands
- Value additions on wetland products to add value to these areas and encourage their careful use and management
- Exploring by government of Payment for ESS (PES) to support a mix of ESS in wetlands. It should be noted that PES is already in laws of Malawi, such as the Environmental Management Act, 1994.

Reducing pressures in ESS interactions may be achieved by

- Promotion of alternative livelihoods
- Diversification of livelihood enterprises.

4.4 Policy Situation, Actions and Interactions

The Malawi Constitutions as an overarching policy framework provides for sustainable environmental and natural resource management. All policies are modelled on the constitution. Despite having a conducive policy framework, there still exist some policy conflicts, especially in their implementation process. For example the implementation process of the draft Irrigation Policy, directly affects the implementation of other policies which have land use aspects, like the policies of Parks and Wildlife, Forestry, Water Resources and others which advocate for the protection and management of extensive buffer zones along the rivers and streams.

It was agreed that there is need for policy dialogue amongst the various government departments and also harmonization of the various policies. The government realises this and has initiated a process of mainstreaming environmental and natural resource management into its executive decision making and budgeting processes in

order to ensure that environment, natural resources management, including wetland management, are given the attention they deserve. It was agreed that to effectively use the GAWI-ESS-DPSIR analysis in the country, there is a need to develop, review and harmonise the following policy areas:

- Land use,
- Irrigation management,
- Crop development,
- Water resources, and
- Wildlife and protected areas.

In particular, two areas for immediate action were identified:

- Wetland regulations under the Environmental Management Act
- Decentralised Environmental Manual, currently being revised by the Ministry of Development Planning and Cooperation and the Ministry of Local Government.

Other policy actions proposed were:

- Clarification of institutional arrangements for wetland management and coordination of activities in these areas,
- Harmonisation of the policies mentioned above which have implications for wetlands,
- Strengthen governance by promoting education and public awareness, and
- Strengthen security of land tenure, more especially for women and other disadvantaged groups

4.5 Institutional Arrangements and Coordination

Local level and District level

Wetlands cut across villages and even districts and therefore the institutional arrangements for coordination need to be thought through carefully. Through the decentralization process, the local district council is the key to the overall coordination of any development or wetland management activity in any district. The district has the District Executive Committee (DEC) which is the technical arm of the District Development Committee. The DEC comprise heads of technical departments of the local district council and has a District Environmental Subcommittee (DESC) which coordinates all environmental and natural resource management related issues at district level and is therefore important for wetland management.

At Traditional Authority level, the decentralised structure has the Area Development Committee (ADC) which comprises all the group village headpersons in one traditional authority. The advisory arm to the ADC is the Area Executive Committee (AEC) which comprises extension workers from NGOs, government departments.

At village level, the lowest institutional structure for environmental management is the Village Natural Resource Management Committee (VNRMC) which reports to the Village Development Committee (VDC), while the VDC reports to the ADC.

Therefore for coordination purposes the mentioned structures are key to sustainable wetland management. Due to the nature of wetlands, the ADC is well placed at the local level, supported by the VDC and VNRMC, to coordinate the activities in the wetlands.

National level

National coordination of all environmental and natural resource management issues is the mandate of the Environmental Affairs Department (EAD) in the Ministry of Natural Resources, Energy and Environment. The department is not an implementing institution but has the powers to assign responsibilities of implementation of particular issues to a related ministry or department. For example, the issues of wetland management could easily be assigned to the Department of Land Resources Conservation or the Department of Parks and Wildlife – the latter being the department linked to the RAMSAR Convention in Malawi. The Department of Parks and Wildlife works very closely with the many players involved in wetland actions.

During the workshop, it was generally agreed that the EAD is the lead institutions on wetland issues and should strengthen its coordination ability on wetland issues in the country. Other agencies have specific interests in water, land resources, agriculture and wildlife and so need some overall coordination and independent arbitary body with which to work.

4.7 Areas Requiring Attention

The workshop identified the following areas requiring attention for sustainable wetland management using the GAWI ESS-DPSIR analysis framework:

- There is need for capacity building at both local and national levels on the ESS-DPSIR analysis
- There is need for harmonisation of sector policies related to wetland management, especially in the Wetland Regulations and the Decentralised Environmental Manual
- There is need for strong inter-sectoral coordination at both local and national level amongst the various stakeholders
- Private sector organizations play a significant role and therefore they need to be brought into the wetland management equation, especially those involved with treadle pumps and irrigation technologies.
- There is a need to develop land use policy and legislation, as well as a specific wetlands management policy with its regulations.
- There are already a number of initiatives that the ESS-DPSIR analysis process can link into the country, such the Green Belt Initiative, the Upper, Middle and Lower Shire Catchment Management Initiatives, but awareness raising about the GAWI approach is needed.
- To achieve all the above actions, financial resource will be required and therefore there is need to develop a proposal for a programme of work and appropriate funding.

4.8 Ways Forward

Several steps were proposed as ways forward after the meeting as follows:

- Raise awareness of the GAWI ESS-DPSIR analysis method with the various stakeholders who have been involved in the process, through the circulation of a briefing note, documentation of more case studies undertaken, and use of various media routes.
- Scale-up and progress pilot implementation of the multiple response strategy in Simlemba, whilst ensuring the involvement of all stakeholders at the district and TA level so that this becomes a demonstration model for the district as a whole.
- Support policy development and coordination to reduce conflicting elements with respect to wetlands and support the formulation of regulations and technical measures which will help achieve the multiple ESS scenario in wetlands and river valley systems.
- Explore two specific areas of potential support with Environmental Affairs Department (EAD) and Planning and Development Cooperation (PDC) concerning the appropriateness of GAWI support to integrate the ESS-DPSIR approach into two specific on-going initiatives – the Wetland Regulations (lead by EAD and LRCD) and the decentralised Environmental Management Manual (lead by PDC).
- Clarify coordination of wetland management within the government agencies, with a view to Environmental Affairs Department leading, while other implementing partners, such as Irrigation and Water, Parks and Wildlife, and Agriculture will be active collaborators.
- Explore how development policy development overall can be progressed so that the drivers of over-development of agriculture in wetlands can be controlled.

5.0 WORKSHOP EVALUATION AND CLOSURE

5.1 Workshop Evaluation

Participants were very satisfied with the workshop process. They liked the presentation and the facilitation process as well as the group discussions which facilitated their understanding of the DPSIR analysis. An average rate of 4/5 (out of a maximum of 5) was recorded for the workshop process indicating that participants were highly satisfied. The workshop met the participant's expectations.

They were not really satisfied with the logistical arrangements more especially the allowance rate used. This rate was low compared to those of other development partners. Payment on day one was also proposed to avoid difficulties for participants who funded their evening meals from the per diem.

Participants suggested that there is need to organise a similar workshop involving many stakeholders and including a field exercise to ensure that the analytical framework used in the study is fully understood. Participants also felt that replication of the study in other larger wetland situations will help many stakeholders appreciate its applicability and value.

5.2 Workshop Closure

On behalf of the Director of Land Resources, Mr Mkwinda thanked participants for attending the workshop and making useful contributions. He thanked FAO for providing financial resources for the workshop, Wetland Action for undertaking and presenting the GAWI ESS-DPSIR analysis, and the GAWI Initiative for choosing Malawi as one of the case study areas. He encouraged Wetland Action to consider extending the study to other bigger wetlands in the country.

In his closing remarks Prof. Wood thanked all the participants for their active participation. He indicated that the proceedings of the workshop will be documented and circulated to all the participants and that appropriate areas of follow-up will be explored.

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Annex 1

a) Participants for GAWI Workshop, Malawi, 11-12th November, 2010

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Adrian Wood	Wetland Action & Huddersfield University, UK	Director, Emeritus Professor	a.p.wood@hud.ac.uk

b) Invitees unable to Attend GAWI Workshop

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Annex 2. Programme for the GAWI Malawi Workshop

Timing	Activity	Person Responsible
Day 1		
08.30 – 10.00	Welcome Remarks Official Opening Introductions of individuals Expectations of roundtable	Robert Kafakoma GOM representative All participants All participants
10.00 – 10.30	Coffee Break	
10.30 – 12.15	Presentation of Analysis Paper of Case Study Area, Parts 1 to 4 1. Introduction to GAWI 2. Malawi Context 3. Dambos & Stream Valleys in Simlemba 4. DESS-DPSIR Analysis Questions and discussion about the present wetland situation and GAWI analysis of this	Adrian Wood Facilitated discussion - Robert Kafakoma
12.15 - 13.30	Lunch	
13.30 – 15.00	Presentation of Multiple Response Strategy Proposal for the Case Study Area, Parts 5 &6 5. Proposed Response 6. Conclusions Questions about the response strategy proposed, alternative strategies / elements and identification of issues to address.	Adrian Wood Facilitated discussion – Robert Kafakoma
15.00- 15.30	Tea Break	

15.30 – 17.00	Consultative refinement of response strategy for Simlemba and wider use of such strategies	Facilitated discussion – Robert Kafakoma
	- with alternative strategies proposed and progress towards a consensus or review of strengths and weaknesses of different strategies for Simlemba and more widely	
19.00	Dinner	
Day 2		
08.30-10.30	Discussion on how to facilitate and promote these types of response strategies across the country as a whole.	Facilitated discussion – Robert Kafakoma
10.30 -11.00	Coffee Break	
11.00 - 12.00	Value of the ESS/DPSIR framework as a way to analyse wetland situations in general in Malawi and develop a way in which wetland stakeholders can come together and cooperate to ensure the maintenance of the multiple ESS in wetlands and so ensure sustainable provision of these services?	Facilitated discussion – Robert Kafakoma
12.00 -1230	Next steps?	12.00 -1230
	How can we act in those areas suffering from the negative scenario of wetland degradation and increased risks.	Facilitated discussion – Robert Kafakoma
	How to move from single provisioning ESS dominating wetlands, to a positive scenario of increased resilience in wetlands and sustainable use through the development of value from, and use of, the multiple ESS in these areas.	Facilitated discussion – Robert Kafakoma
12.30- 12.45	Evaluation of the workshop	
12.45-13.00	Closing Remarks	Symon Mkwinda Adrian Wood

Annex 3. Opening Speech by the Director of Land Resources Conservation Department

Dear Participants,

I am delighted to open this roundtable meeting on agriculture and wetland interactions because this is a critical issue for Malawi today. And it will become increasingly important in the future.

I am very happy to see that FAO has chosen Malawi as one of three countries around the world in which to pilot its work on developing Guidelines on Agriculture and Wetland Interactions. This new methodology, which FAO has been developing with the Ramsar Convention, seeks to explore how wetlands – both permanent and seasonal ones, can be used sustainably. It seeks to identify how the ecosystem services in these areas can be optimised for the benefit of wetland using communities and society as a whole. I hope we can find out through this meeting what this methodology has to offer to each one of us and the country as a whole.

For Malawi with its predominantly rural population, land and water are vital. These resources have to be managed well if the objectives of the Malawi Growth and Development Strategy are to be achieved, and especially rural poverty reduced, economic growth enhanced, and adaptive measures developed to help address climate change.

Wetlands are unique areas where land and water come together in a very productive way. They are especially attractive to people for farming, but also to nature with habitats and favourable environments provided for diverse species of plants and animals. Wetlands also provided other key services, especially the storage of water, which will become increasingly important with climate change, and the regulation of floods which may also increase in the future.

However, we know that wetlands are fragile and can be easily damaged, especially by erosion, leading to the loss of their ability to provide many of their ecosystem services. In particular, gully erosion in wetlands is a growing phenomenon which reduces the water they store, and thereby disrupts the functioning of these areas. Hence the resource base of our country is being diminished.

The work of FAO and the Ramsar Convention in their global study to develop guidelines on agriculture and wetland interactions, has brought together a range of perspectives and ideas. In particular it has built on the ecologically-oriented Millennium Ecosystem Assessment as well as the agriculturally-, and water-, oriented Comprehensive Assessment of Water Management in Agriculture. Further it has drawn on the Drivers, Pressures, State Change, Impacts and Responses model which has been developed for situational analyses and which was used originally in economic development. This is a commendable initiative because it shows how valuable it is to bring together different disciplines, methodologies and perspectives. (And that is what this roundtable is doing.)

Perhaps the most important part of the GAWI initiative is the way it emphasises the need for the different stakeholders to work together, rather than to compete, in order to ensure that the maximum benefits are obtained in a sustainable way from wetlands. I hope that over these two days you can follow that advice and move towards a consensus with respect to sustaining the multiple benefits and ecosystem services which wetlands can offer to individuals, households and our nation.

Technically, the most important guidance which GAWI has produced to date comes from the Millennium Ecosystem Assessment. This stresses that over-development of one ecosystem service in a wetland can reduce the value and effectiveness of the other ecosystem services, and in the end can undermine the functioning of the wetland completely. However, conversely it points out that sustainability of ecosystem services in wetlands can be achieved and maintained when a balance is maintained amongst the various ecosystem services that these areas provide.

This raises many questions such as

- how to maintain this balance, especially when there are very strong drivers which are encouraging the distortion of this balance and the over-development of one particular ecosystem service?
- how to generate economic benefits from some ecosystem services which, to date, are not sources of income and livelihood benefits, and through these new economic benefits help ensure these services are kept?
- how to manage pressures on wetland resources so that these can be used sustainably with minimum negative environmental changes and socio-economic problems?

You will be exploring these and other questions with reference to the case study area in Simlemba Traditional Authority and also more widely in Malawi. You will be looking at topics such as:

- the state and capacity of wetlands to provide multiple ecosystem services and functions,
- the multiple demands for, and benefits derived by people and society, from these ecosystem services,
- ways to stimulate diversification of ecosystem services in wetlands – especially provisioning services through agriculture, water regulation services and biodiversity conservation, and
- areas for action including:
 - o policies and policy actions,
 - o governance and community institutional issues, and
 - o technical aspects of resource management.

I hope that these discussions will stimulate a common purpose amongst all participants towards achieving multiple ecosystem service use regimes in wetlands in this country, and that this will sustain and optimise benefits for our people and the country as a whole.

I challenge you, the participants in this round table meeting, to explore and evaluate the ideas presented in this GAWI work and to identify their relevance for Malawi.

I hope that you will do this as a team, working together for the good of the country, its people, their development, and the environment.

The sustainable use of wetlands is essential for our country's future. We must enhance their value and we must not lose them because we neglect the lessons from around the world about how best to manage these areas.

With that challenge I declare this workshop open.

ANNEX 4. POWERPOINT VERSION OF PRESENTATION

See attached pdf file