PLANT RESEARCH INTERNATIONAL
WAGENINGEN UR

Towards a sustainable future of the western shoreline of Lake Ziway

Participatory land use plan development workshop, Ziway, December 1-4, 2008

Huib Hengsdijk, Annemarie Groot, Jasmina van Driel, Kidanemariam Jembere, Joost van Uum & Pieter Boone

Horn of Africa Regional Environment Centre and Network
DLG Service for Land and Water Management
Report 234

WAGENINGEN UR
For quality of life

Towards a sustainable future of the western shoreline of Lake Ziway

Participatory land use plan development workshop, Ziway, December 1-4, 2008

Huib Hengsdijk[1], Annemarie Groot[2], Jasmina van Driel[3], Kidanemariam Jembere[4], Joost van Uum[5] & Pieter Boone[5]

[1] Plant Research International, Wageningen University and Research center
[2] Alterra, Wageningen University and Research center
[3] Horn of Africa Regional Environment Centre
[4] Ethiopia Country Water Partnership
[5] DLG Government service for land and water management

Plant Research International B.V., Wageningen
February 2009 Report 234

Copies of this report can be ordered from the (first) author. The costs are € 50 per copy (including handling and administration costs), for which an invoice will be included.

Plant Research International B.V.

Address : Droevendaalsesteeg 1, Wageningen, The Netherlands
: P.O. Box 16, 6700 AA Wageningen, The Netherlands
Tel. : +31 317 48 60 01
Fax : +31 317 41 80 94
E-mail : info.pri@wur.nl
Internet : www.pri.wur.nl

Table of contents

		page
Acknowledgments		1
List of abbreviations		3
1.	Introduction	5
	1.1 Background and justification of workshop	5
2.	Approach and methodology	9
	2.1 Land use planning approach	9
	2.1.1 Genuine participation of stakeholders	9
	2.1.2 Multi-stakeholder dialogue	10
	2.1.3 Multi-functional and multi-disciplinary	10
	2.2 Study area	10
	2.3 Major activities	11
3.	Workshop results	13
	3.1 Kick-off workshop	13
	3.2 Current land use map and major plans	13
	3.3 Strengths of current land use, and opportunities and risks for future land use	15
	3.4 Land use planning criteria	18
	3.5 Future land use plans	19
	3.6 Follow-up activities	22
	3.7 Closing session of workshop	27
	3.8 Workshop outputs	28
4.	Workshop evaluation	29
	4.1 Evaluation by participants	29
	4.2 Process	30
	4.3 Organization	31
	4.4 Workshop results	31
5.	Conclusions	33
References		35
Appendix I. List of participants		2 pp.
Appendix II. Workshop program		1 p.
Appendix III. Key note address of Prof. Mesfin Abebe		3 pp.

Acknowledgments

In December 2008, Wageningen University and Research Center, DLG-Government service for land and water management, and the Horn of Africa Regional Environment Centre organized the four-days workshop 'Towards a sustainable future of the western shoreline of Lake Ziway: Participatory land use plan development' in Ziway, Ethiopia. The workshop was carried out within the framework of the project 'Ecosystems for water, food and economic development in the Ethiopian Central Rift Valley', which is sponsored by the Dutch Ministry of Agriculture, Nature and Food quality, and the project 'Improving livelihoods and resource management in the Central Rift Valley of Ethiopia' which is sponsored within the DGIS-WUR partnership program 'Competing claims for natural resources'. We thank both sponsors for their financial contributions to the organization of the workshop. Special thanks go to Janny Poley, Regional First secretary and specialist Environment, Water and Energy of the Royal Netherlands Embassy, and Geert Westenbrink, Agricultural Council at the Royal Netherlands Embassy in Ethiopia for their support during the preparation and implementation of the workshop.

List of abbreviations

AAU	Addis Ababa University
BoARD	Bureau of Agriculture and Rural Development
CRV	Central Rift Valley
CRV-WG	Central Rift Valley Working Group
CSO	Civil Society Organization
DLG	Government Service for land and water management
DGIS	Dutch Ministry of Development Cooperation
ECWP	Ethiopia Country Water Partnership
EPA	Environmental Protection Agency
EWNHS	Ethiopia Wildlife and National History Society
HoA-REC/N	Horn of Africa- Regional Environment Center/Network
IDE	International Development Enterprise
JICA	Japan International Cooperation Agency
MoWR	Ministry of Water Resources
SEDA	Selam Environmental Development Association
SNV	Netherlands Development Organization
WUR	Wageningen University and Research Center

1. Introduction

This is the report of the workshop 'Towards a sustainable future of the western shoreline of Lake Ziway: Participatory land use plan development', which was held in Ziway, Ethiopia from the 1st until the 4th of December, 2008. The workshop brought together staff members from different levels of Government Administration (federal, regional, district and municipality) and Government sectors (Agriculture and rural development, Water, Culture and Tourism, Investments), Civil Society Organizations (CSOs), and participants from the private sector (Appendix I). The overall aim of the workshop was to contribute to a more sustainable and integrated land and water management system/approach of the western shoreline of Lake Ziway through the participatory development of a concrete spatial plan. Starting point for the workshop was how to stimulate the socio-economic development along Lake Ziway without further degrading and depleting the dwindling natural resource base.

The workshop lasted four days and included an afternoon session on the 1st of December, a morning session on the 4th of December and three overnight stays allowing ample informal interaction among workshop participants. See Appendix II for the workshop program.

The objectives of the workshop were:
- To jointly develop a vision and land use map for future development of the western shoreline of Lake Ziway.
- To contribute to sustainable environmental management.
- To exchange information on land use plans.
- To strengthen the capacity of stakeholders on integral resources planning, and more specifically on land use planning.

The workshop was organized by the Horn of Africa Regional Environment Centre (HoA-REC), currently hosted by the Science Faculty of Addis Ababa University (AAU), by WUR- Wageningen University and Research Center and DLG-Government Service for Land and Water Management, the latter both from the Netherlands.

This report describes the background and justification of the workshop (this Chapter). In Chapter 2 the preparatory steps, the approach and applied methods during the workshop are described. The results of the workshop are described in Chapter 3. The workshop is evaluated from different perspectives in Chapter 4, namely from the point of view of the participants, the followed process (preparation and choices made therein), and the outcomes of the workshop. In the concluding chapter the outputs of the workshop are summarized and steps forward suggested.

This report is accompanied with a CD containing a GIS viewer, an updated current land use map and a future land use map of the western shoreline of Lake Ziway. Please read the readme.text file on the CD to install the GIS viewer and to explore the geodata of both maps.

1.1 Background and justification of workshop

The Central Rift Valley (CRV) in Ethiopia (between 38°00'-39°30' E and 7°00'-8°30' N) covers about 1 million ha and is part of the Great African Rift Valley. The CRV is in the centre of the Ethiopian Rift, 150 km southwest of the capital Addis Ababa, and encompasses three large lakes, i.e. Lake Ziway, Abyata and Langano, and three major rivers, i.e. Bulbula, Meki and Katar. Lake Shala, which borders the CRV, forms together with Lake Abyata the Abyata-Shala Lakes National Park.

Recently, various studies have reported on the fragility of the Central Rift Valley, which is a closed river basin, i.e. there is no inflow and outflow of surface water (Ayenew, 2002; Legesse and Ayenew, 2006). Since the CRV is a closed basin relatively small interventions in land and water resources, such as irrigation, have far reaching consequences for ecosystems goods and services, and potentially undermine the sustainable use of the area (Jansen *et al.*, 2007). First symptoms of over-exploitation of water resources show up in the terminal Lake Abyata.

The Rift Valley Lakes Basin Master planning project commissioned by the Ministry of Water Resources concludes that Lake Ziway is very fragile and sensitive in terms of water use (MoWR, 2008). The shorelines of Lake Ziway require urgent attention due to the rapidly growing competing claims on the available natural resources, such as water for irrigation, for nature and other uses (Fig. 1). Competition for resources has intensified among different sectors but also within sectors such as fisheries resulting in over-fishing. For example, it is estimated that the annual fish catch from Lake Ziway has decreased from almost 2500 ton in the period 2000/2001 to less than 1000 ton in 2004/2005 due to overfishing and destruction of breeding grounds of fish stock (MoWR, 2007).

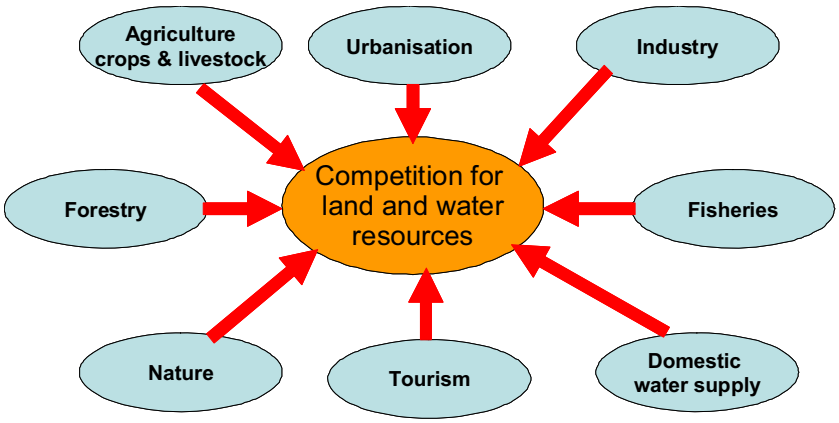

Figure 1.1. Competing claims for land and water resources in the Central Rift Valley.

Lake Ziway and its surrounding are of commercial and tourist interest and support a large livestock population. Over-exploitation of the natural resources and increasing use of agrochemicals threaten the environment. The size of the downstream located Lake Abyata has been reduced by almost 50% over the last ten years mainly due to the reduced inflow of water from Lake Ziway (Fig. 1.2). Especially after the year 2000 there has been a sharp drop in water level and lake size, while at the same time the irrigated area has increased sharply. For two reasons this decline is alarming: first, it means that less water is available for nature and the population living downstream, but maybe more importantly, it means that less water flows through the Bulbula river. Consequently, the salt content of Lake Ziway could increase and the lake could become as salty as Lake Abyata.

In general, competition for resources has resulted in the intensified use of land and water resources in the CRV. The area with intensive rain fed cultivation increased from 100.000 ha in 1973 to 400.000 ha in 2006, and the irrigated area in the same period from almost zero to about 10.000 ha (Jansen *et al.*, 2006). The analysis in the Master Plan is indicative for the current situation, i.e. recent land conversion rates have slowed down recently because little natural vegetation is left.

At the same time there is a growing interest to exploit the scenery and nature in the CRV for (eco-)tourism as expressed in the increase in the number of visitors to Abyata-Shala National Park and the recent construction of various lodges and resorts for tourists along Lake Langano. Although such developments may help to diversify the local economy towards less water consuming activities they also require careful resource planning and management.

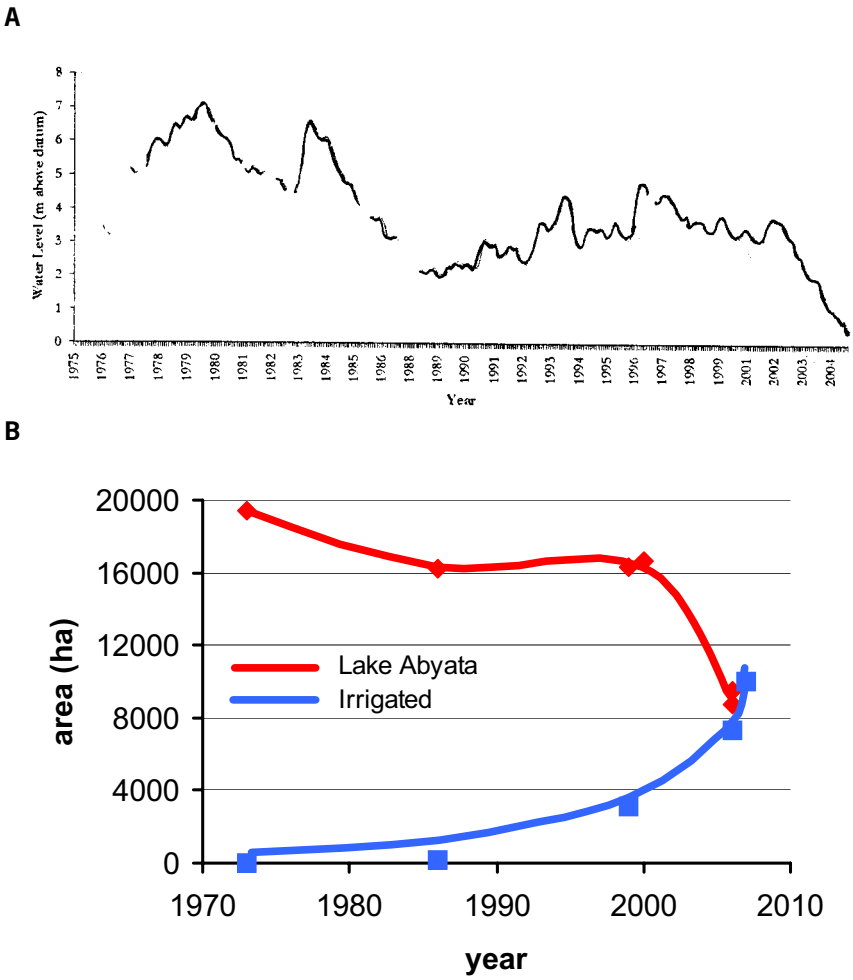

Figure 1.2. (a) Water level of Lake Abyata (MoWR, 2008) and (b) the size of Lake Abyata and the area with irrigated agriculture (own data).

Some resource claims are relatively new, for example projects aimed at agricultural development. Some of these projects have triggered public unrest because no proper Environmental Impact Assessment has been undertaken, for example the clearing of the Acacia vegetation on the former state-owned Abernossa ranch. Other resource claims have a long tradition, such as the claim on woody biomass by the local population contributing to deforestation, or the claim for biomass by livestock which fulfills many different functions in the traditional mixed farming systems. Currently, there is already a shortage of good feed and overgrazing of common pastures is widespread. With increasing resource claims, current common grazing lands are converted first to other uses.

With the growing local economy, claims for land and water by urban development will increase. The urban population will grow rapidly, develop more small and medium sized enterprises and demand an improvement of the social infrastructure and public services such as waste disposal and sanitation, requiring careful planning and management of available resources.

The CRV faces many challenges ranging from the overruling objective to reduce poverty, a rapidly growing population (2.5 to 3 % per year) that needs to be fed, rapid urbanization (expected to quadruple in 15 years) and associated needs, and the need to increase the current low agricultural productivity (MoWR, 2008). These and other challenges need to be realized against the background of the reduced availability of land and water resources. Further uncoordinated exploitation of the water resources may result in salinization of Lake Ziway and thus can have dramatic consequences for the local population and future development options. Therefore, policy development and the integrated use and planning of water, land and related resources is crucial to stimulate the sustainable development of Lake Ziway and its basin.

2. Approach and methodology

In this chapter, the approach and the land use planning methodology that were applied in the workshop are described. In addition, the choice for the study area is justified and the major activities that were carried out are highlighted.

2.1 Land use planning approach

The applied planning approach was formed by three interacting principles:
1. Genuine participation of relevant stakeholders;
2. Multi-stakeholder dialogue creating the prerequisites for a successful exchange, negotiation and co-operation;
3. Multi-functional and multi-disciplinary approach.

2.1.1 Genuine participation of stakeholders

In line with one of the objectives of the workshop, i.e. to strengthen the capacity of stakeholders on land use planning, the project team worked together with various stakeholders in the preparation and implementation of the workshop. The active involvement of stakeholders in the preparation and implementation of the workshop was assured through:

- **Participation in the workshop set-up**: In the preparatory stage, decisions regarding the study area, land use planning approach, workshop program and potential workshop participants were taken in close collaboration with HoA-REC and the multi-stakeholder platform Central Rift Valley Working Group, the latter consisting of a group of professionals from the private and public sector involved in the development of the CRV. Tentative ideas were discussed with other stakeholders in early stage of the workshop preparations (Table 2.1);
- **Workshop facilitation**: To a large extent, the facilitation of the workshop was carried out by an Ethiopian facilitator who is capable to facilitate the follow-up land use planning activities in the future. In addition, three local GIS experts received training in managing and facilitating group discussions;
- **Communication**: Working languages during the workshop were predominantly Amharic and Oromifa. The use of these local languages enabled an active involvement and engagement of all participants in the workshop;
- **Applied methods**: The participatory methods used in the workshop, for example, the updating of the current land use map and the field trip to identify strengths and weaknesses of the study area, helped to extend the capabilities of the participants to jointly plan and act. See Appendix II for the complete workshop program.

The future land use of the western shoreline of Lake Ziway that meets both socio economic objectives and environmental protection is a very complex issue and can not be dealt with by one single stakeholder or one type of knowledge only. Based on this assumption, various stakeholders with different backgrounds, paradigms, knowledge, perceptions and interests were invited to the workshop. Stakeholders were considered those persons and organizations having an interest in the use of the water of Lake Ziway and/or in the use of the land of the western shoreline of the lake. Stakeholders operate at different decision making levels (e.g., farm, city, *woreda*, state, national). Specifically, stakeholders were considered those people:

- Who make use of the water and/or the land (e.g., irrigating farmers, greenhouse enterprises, fishermen);
- Who are affected by the consequences of land or water use activities (e.g., citizens)
- Who have (political) influence and are able to shape policies, strategies and activities in the area (e.g., mayor of Ziway, Oromia Investment Commission, Civil Society Organizations (CSOs));
- Who have specific knowledge and experience regarding (the western shorelines of) Lake Ziway (e.g., irrigation specialists, specialist on the Rift Valley Lakes Integrated Natural Resources Development Master Plan).

Emphasis in the composition of the group of participants was on local stakeholders. There is growing recognition that 'lay knowledge' or 'local expertise' is valuable and can generate new insights and options into land use planning. Compared to academia and researchers, local stakeholders may have a different view of the prevailing problems and planning issues providing a more complete appraisal of problems and possible solutions (Däne and Van den Brink, 2007).

During the workshop the participants were encouraged to update the current land use map, to develop future land use options and land use plan(s) reflecting an integration of their knowledge, perceptions and interest. Moreover, the engagement and commitment of the participants was facilitated in order to enhance the support of the stakeholders for the workshop outcomes and consequently, to favour the implementation of the action plans agreed upon in the workshop.

2.1.2 Multi-stakeholder dialogue

The land use planning workshop was organized in such a way that it encouraged a dialogue amongst all stakeholders to negotiate and decide on sustainable forms of land use in the study area. Firstly, the workshop facilitators tried to enhance an effective exchange of ideas and opinions between the participants. Small groups were formed allowing confidential discussions before proposals were presented in plenary sessions. These groups were formed in such a way that each group included participants with wide divergent interests and views. The chosen approach enhanced trust among participants and feelings of shared responsibility for the study area. Secondly, geo-visualization tools such as digital maps and the Geographic Information System of the study area were used to enhance the dialogue among participants. The designer and the GIS specialists encouraged the participants to express their perceptions and interests, and they (helped to) visualized these in terms of pictures, drawings, sketches and (digitized) land use plans. Through these visualizations, perceptions and interests regarding desired future development options became explicit and as such subject for further discussions.

2.1.3 Multi-functional and multi-disciplinary approach

The ecological, economic, technical, social and cultural dimensions of land use of the western shorelines of Lake Ziway made it necessary to work with a multi-disciplinary approach. Moreover, in the workshop all relevant land use types were considered such as small and large scale irrigated agriculture, rain fed agriculture, eco-tourism, nature conservation, housing, and fisheries. The required knowledge on the multiple land use functions and various disciplines was predominantly put forward by the participants themselves. Moreover, the combination of geo-visualization tools (e.g., GIS, maps) and a field visit allowed the incorporation of perspectives and data that are derived from various disciplines and land use functions.

2.2 Study area

The choice of the study area between the cities Meki and Ziway was based on two major criteria. First, both cities are the two major economic growth centers affecting future resource use most along Lake Ziway. Second, to avoid vague discussions and to favor a dialogue on specific locations in order to come up with concrete land use options, the selected study area covered only a part of the entire shoreline of Lake Ziway. A more practical reason was that preparation of a workshop for a larger study area would have required much more time and resources. Most likely it would have required also a a more targeted selection of participants as the number of potential participants would have increased considerably. Although, the relatively small study area enabled the organization of the workshop in a relatively short period it caused shortcomings in the approach as well (chapter 4). The approach can be easily adapted to suit other study areas and can thus be replicated/scaled up.

2.3 Major activities

The major activities carried out by the project team in relation to the workshop can be grouped into three phases: 1) preparation of the workshop; 2) implementation and 3) reflection and documentation. The activities are summarized in Table 2.1.

Table 2.1. Major activities related to the preparation, implementation and documentation of the workshop.

Major activities	Major stakeholders involved	Outcome	Period
1. Preparation of the workshop:			
Assessing the need for a participatory land use planning process through identification mission of WUR staff	• HoA-REC • Administration Ziway city • *Woredas* administrations • Several Central Rift Valley Working Group members • Embassy of the Kingdom of the Netherlands • WUR	• The organization of a participatory land use planning process was considered relevant. • Preference for entire shoreline of Lake Ziway as study area was made explicit.	June 15-21, 2008
Further developing of proposal and commitment for a participatory land use planning process.	• HoA-REC • Several Central Rift Valley Working Group members • Embassy of the Kingdom of the Netherlands • WUR	• Workshop proposal • DLG involvement	June 21-July 31, 2008
Development of workshop program, approach, list of participants In second WUR mission contact with GIS experts, Ethiopian facilitator and other local participants (a.o. in Meki, MoWR). Identification of persons for the Opening/closing ceremony	• HoA-REC • GIS experts • Ethiopian facilitator • DLG • WUR • Embassy of the Kingdom of the Netherlands • Several Central Rift Valley Working Group members	• Tentative workshop programs, approach and list of participants. • GIS experts and facilitator involved in further preparation	September-October, 2008
Developing a current land use map of the western shoreline of lake Ziway Drafting invitation letters	• GIS expert • HoA-REC • DLG • WUR	• Geo-referenced data of current land use map of the western shoreline of Lake Ziway • A set of customized invitation letters	1-11 November, 2008
Invitation of participants and final arrangement Hotels and meeting place Digitization and plotting of current land use maps Preparing workshop presentations	• HoA-REC • DLG • GIS expert • WUR	• 35 participants invited	November 10-30, 2008
2. Implementation the workshop:			
Implementation of the workshop	43 participants (Appendix I)		December 1-4
3. Reflection and documentation of the workshop:			
Participants' evaluation	Participants	Section 4.1 of this report	December 4, 2008
Documentation and dissemination of the workshop	• WUR • ECWP	• Executive summary • Article in LNV International Newsletter • Workshop report	December 2008-January 2009

3. Workshop results

3.1 Kick-off workshop

His Excellency Prof. Mesfin Abebe, former Minister of Natural Resources and current advisor of the Deputy Prime Minister of Ethiopia opened the workshop. See Appendix III for his key note. He expressed his appreciation for the involvement of all relevant stakeholders in the workshop of which the 'lessons learned' may be applicable for other parts of Ethiopia. In this respect, he referred to Lake Alemaya in Eastern Ethiopia which has completely dried up due to overexploitation of the surrounding natural resources. He emphasized that the current environmental destruction in Ethiopia is related to the lack of proper policies and the imposed 'blue-prints for prosperity' by past regimes, and to those motivated by 'quick money' while neglecting environmental concerns. A decreasing natural resource base increases insecurity, which is a breeding ground for conflict. Therefore, a holistic participatory approach is required to realize sustainable development. The Head of the Oromia Investment Commission Mr. Alemu Sime addressed the lack of proper management and over-use of natural resources, and the need for a sound and broadly supported land and water use plan. Sustainable development can only be achieved with the participation of all stakeholders. Finally, the Mayor of Ziway, Mr. Tola Chala, welcomed the participants of the workshop in his city and acknowledged the increased competing resources claims which the city faces (Figure 3.1).

Figure 3.1. Opening ceremony by His Excellency Prof. Mesfin Abebe, advisor of the Deputy Prime Minister of Ethiopia, Head of the Oromia Investment Commission Mr. Alemu Sime and Mayor of Ziway, Mr. Tola Chala.

3.2 Current land use map and major plans

The first working session on day one of the workshop consisted of updating and revising the current digital land use map, which was specifically developed for this workshop (Chapter 2). This session served two goals: first, the exercise was an introduction to the study area especially for participants who were not so familiar with the area. Second, the exercise aimed at creating ownership of the study area and the map, i.e. reflecting the participants' perception of the situation on the ground. Although the initial version of the map already contained a lot of information on current resource use, this exercise provided new information and created the same level playing field

among the participants. The result of the updated current land use map is shown in Figure 3.1, and can be accessed through the CD-Rom provided with this report.

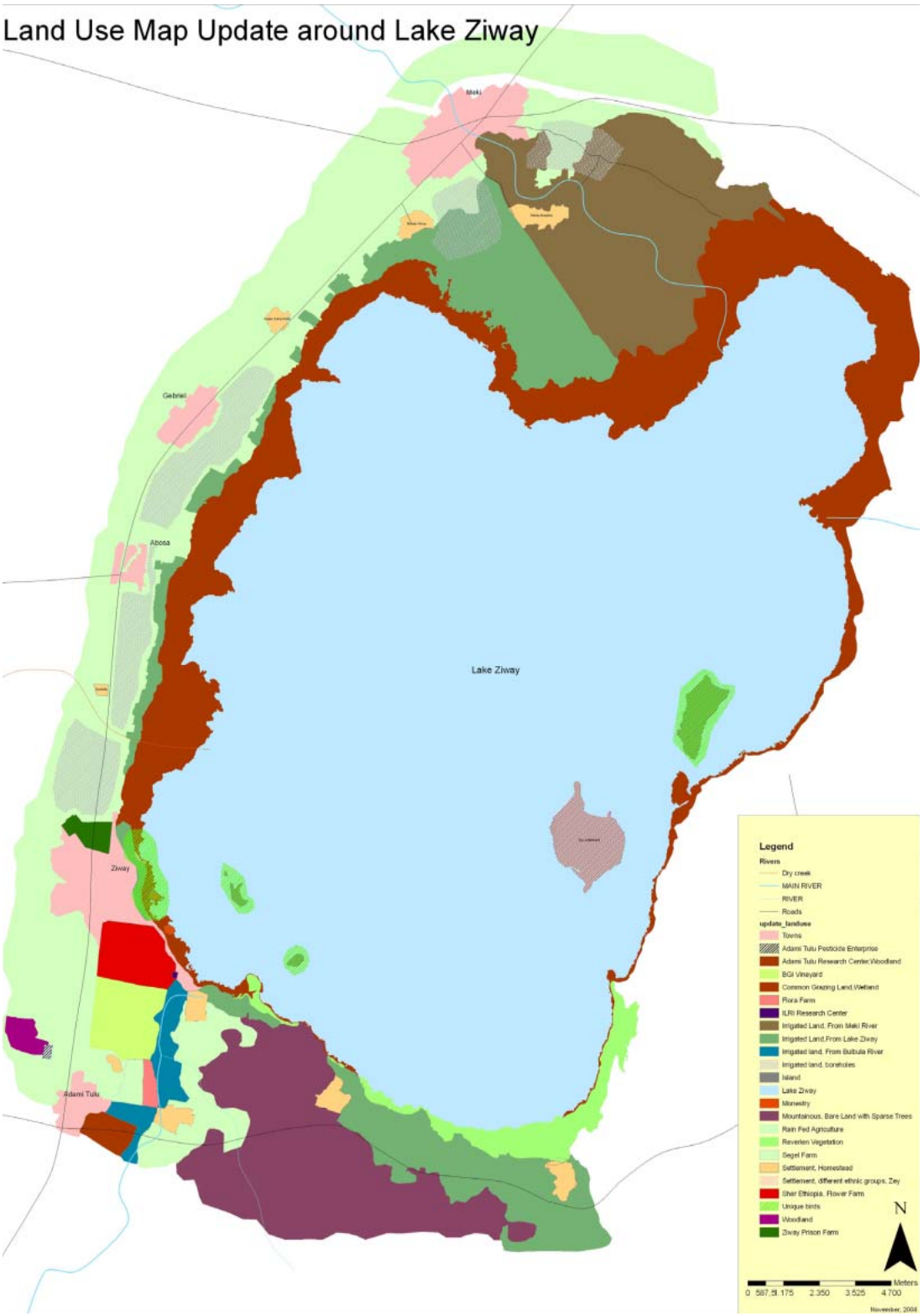

Figure 3.2. Updated current land use map of the western shoreline of Lake Ziway by participants of the workshop.

Dejen Chaka of the Oromia Investment Commission presented the latest developments in planning and the major investment plans that are in the pipeline for the area. He acknowledged that lack of a proper policy framework has contributed to uncontrolled deforestation, loss of biodiversity and over-exploitation of fresh water resources in the CRV. Lack of land and water ownership is part of the problem resulting in mismanagement of the natural resource base. Responsibilities of land users are embedded in various legal frameworks but there seems to be no attempt or capacity to enforce such frameworks properly. Dejen Chaka also presented the history of land use planning in the CRV from the 1960s with a Land Use Planning and Regulatory Department at national level till the very recent Rift Valley lakes Basin Integrated Resources Development Master Plan Study commissioned by MoWR, which will be completed in August 2009. A social development and environment impact assessment study has been done in 2008 by the Water Work Design & Supervision Enterprise, which indicated the feasibility of a 15.000 ha irrigation scheme under drip and sprinkler systems. Recently, there has been increased attention for buffer zones along Lake Ziway to combat water level reductions, increase fish yields and improve water quality. BoARD of Ormonia and Oromia Water Works Construction are preparing a land use Master Plan of the rural areas in Oromia. In addition to these public efforts to plan and use resources in a more organized way, a number of private enterprises have been established in the study area over the last few years:

Name company:	Type:	Where:	Size:
Sher Ethiopia Plc	Floriculture and horticulture	Ziway	500 ha
ETCO Plc	Horticulture	Aannoo Shiishoo	86.8 ha
Ethio-Flora Plc	Horticulture	Garbi Wadano	65.5 ha
Segel Plc	Horticulture	Garbi Wadano	95.7 ha
S&U Trading Plc	Vegetable & fruit	Meki	17.2 ha
Catholic Church	Vegetable & fruit	Abono Gebriel	30 ha
Biruktayit Dawit	Vegetable & fruit	Mekdela	35.7 ha
Ahimad Mohammed	Horticulture	Tepho Choroke	24.1 ha
Mako	Vegetable & fruit	Bekela Grisa	10 ha
Kibreab Abebe	Vegetable & fruit	Tepho Choroke	21.4 ha
Abeje	Vegetable & fruit	Bekele Girisa	10 ha

Some other investment projects are under construction or in the pipeline:

Name company:	Type:	Where:	Size:
Phawulos	Goat and crocodile	Bekele Girisa	4.3 ha
Clifton William James	Seed cleaning for export	Ziway	0.5 ha
SKM General Business Plc	Vegetable & fruit	Mallima Doddo	165.4 ha
Al-Habasha	Resort development	Not yet allocated	

3.3 Strengths of current land use, and opportunities and risks for future land use

Day 2 of the workshop started with a field trip to identify the strengths of the current land use system and the opportunities and risks for future land use. Since the study area is quite large, the participants were sub-divided into four groups, each group focusing on a specific geographical area: Group I covered the area between the cities of Meki and Abossa, Group II the area between the cities of Abossa and Ziway, Group III the area around Meki city, and Group IV the area around Ziway city. The assignment was to discuss and take pictures of the strengths of the current land use system and the opportunities and risks for future land use. Based on these pictures each Group made a collage (Figure 3.3), which was presented and discussed in the plenary afternoon session.

Table 3.1. Summary of the strengths of current land use and opportunities and risks of future land use in the CRV.

Group	Group I Abossa-Meki area	Group II Ziway-Abossa area	Group III Meki area	Group IV Ziway area
Risks:	1. Inefficient uncontrolled irrigation/water use 2. Overgrazing & land degradation 3. Lack of buffer zone 4. Erosion & land degradation 5. Bare land / degraded land	1. Fuel leakage (of irrigation pumps) to water 2. Overgrazing 3. Lack of buffer zone 4. Land degradation 5. Deforestation	1. Pesticide mixing adjacent to canal (pollution) 2. Overgrazing 3. Lack of buffer zone 4. Ziway's water supply passing territory of Sher 5. Urban drainage directly in Meki river	1. Pumping of water 2. Waste water drainage 3. Ditches 4. Erosion
Strengths:	1. Traditional & modern drip irrigation 2. Environmentally friendly brick making, 3. Vegetation and controlled irrigation 4. Ponds for cattle watering and irrigation 5. Vegetation, landscape 6. Rain fed agriculture/fattening	1. Crop management 2. Crop diversification 3. Woodland	1. Lush vegetation along Meki river 2. Sand mining in Meki river 3. Ritual old forest along Meki river 4. Labour force	1. ILRI Bulbula bank 2. Ziway treatment plant 3. Gebriel Monastry 4. SEDA nursery site 5. Fishery Research Institute
Opportunities:	1. Eco-tourism 2. Modern & traditional bee keeping 3. Expansion of modern drip irrigation 4. Traditional boats for fishing	1. Irrigatable land 2. Animal fattening 3. Improved seeds 4. Marketing 5. Crop diversification	1. poor irrigations suggests scope for improvement 2. Aquaculture in irrigation canals 3. Storage for dry beans 4. Mechanization 5. Crop diversification	1. Bird watching 2. Community green area in Ziway 3. Resort water front 4. Jetty in the lake 5. Open public area

Figure 3.3. Picture collage of the field work done by Group III covering the area around Meki city.

Commonly agreed risks associated with high water extraction, lack of buffer zones along water bodies, overgrazing and water pollution related to irrigated agriculture and urban development. There was less consensus on the strengths of the area and most of them related to location-specific land use functions such as a nursery in the city of Ziway, a small preserved old forest in the Meki area, and brick making on the basis of sand extracted from the Meki river (Figure 3.4).

Figure 3.4. Strengths of current land use: (a) An old forest in the Meki area, (b) Sand extraction from the Meki river.

Discussion points related to the topics identified by the various groups:

- Bee keeping (opportunity) may be difficult with the increased use of pesticides in irrigated agriculture.
- Some activities can be environmental harmful such as brick making; this needs to be preceded by a proper assessment within a well-defined context.
- Is drip irrigation a real opportunity because of future salinity problems, or is it a risk? Both primary and secondary salinization can occur; the first refers to salts formed by weathering of rocks or natural external inputs, the second to human-induced salinization in particular to irrigation. If irrigation water is not saline primary salinization will not easily occur.

- Mechanization (opportunity) may conflict with labour force (strength).
- The opportunities for building storages for agricultural commodities and crop diversification may be mutually reinforcing.
- The Ethio-Korean pumping station was considered a hotspot by this group as perceptions diverged, namely ranging from a risk (water table reduction of Lake Ziway), strength (providing water to irrigation farmers) to opportunity (station not yet used to its full potential).
- It appears that the water supply infrastructure of Ziway city crosses the land holding of Sher-Ethiopia. Recently, the pipeline was damaged during the rainy season, which resulted in discussions on who should pay the repair costs. The water supply company of Ziway is also afraid that contaminations of Sher-Ethiopia may seep into in the pipeline and thus pollute the water supply of Ziway city. The water supply company would like to reroute the pipeline but apparently lacks the required financial resources to realize this. According to Sher-Ethiopia, existing pipelines and infrastructure on land that investors obtain are not their responsibility. The quality of the lake water close to Sher-Ethiopia has been analyzed in Addis Ababa and no contaminations have been determined. The representative of Sher-Ethiopia explained that its owner is willing to discuss and solve any issue that results in public unrest, but he will not respond to unfounded and unbalanced criticism.

According to the participants of the workshop, major opportunities for the area are in the development of efficient irrigation methods, high value chains of sustainable products, crop diversification and services such as (eco) tourism. Issues that were hardly mentioned in the discussion were the (lack of) knowledge on the natural resource base, upper catchment treatment and environmental impact assessment as an opportunity to reduce environmental risks.

3.4 Land use planning criteria

First, the facilitators introduced the need for a set of land use planning criteria as they will guide:
- Tomorrow's future land use planning process.
- Future developments and decision making.
- The monitoring of future developments.

The criteria should be based on the three pillars of sustainable development, namely People, Planet and Profit. 'People' refers to social development: the needs of people must be met equally. People will want as high a standard of living as possible and this must be achieved in such a way that it does not harm others. Examples of social criteria are labour opportunities or labour conditions. 'Planet' refers to environmental protection: Planet Earth has a limited amount of natural resources. Human activities should aim at protecting the Earth's environment to make sure it is not damaged for future generations. Environmental criteria could relate, for example, to biodiversity or water quality. 'Profit' refers to economic development: Enable people to support themselves with a good standard of living requires the generation of wealth by economic activities. Economic criteria of land use could relate, for example, to productivity or profitability.

Subsequently, the four Groups were asked to identify for each sustainability pillar a criterion and improvement level. These criteria should guide and provide the building stones for the future land use plan development. The following criteria were identified by the four Groups (Figure 3.5):

Environmental development:
1. Contribution to micro climate improvement
2. Ground water development
3. Stress on the environment (resources)
4. Soil and water conservation
5. Conservation and sustainable development
6. Contribute to nature conservation
7. Inflow at Lake Abyata from Bulbula should be at least equal the average inflow of the last ten years (maintain environmental flow)
8. Enhance ecological friendly development activities

Social development:
1. Employment
2. Employment opportunities increase
3. Off farm employment
4. Create alternative livelihoods
5. Support to sustainable income
6. Technology transfer
7. Traditional culture

Economic development:
1. Average income increase
2. Should contribute towards the overall development
3. technology development
4. profitability
5. Income at local level
6. increase household income
7. Increase productivity
8. Income for government and private sector

Figure 3.5. Participants discussing the sustainability criteria for land use planning.

3.5 Future land use plans

On day three of the workshop the four groups sketched and designed a future land use plan for each of the areas they covered taking into account the strengths of current land use, and risks and opportunities identified during the field trip on day two of the workshop. Figure 3.6 shows the sketches and concepts for future land use activities in each of the four zones within the study area.

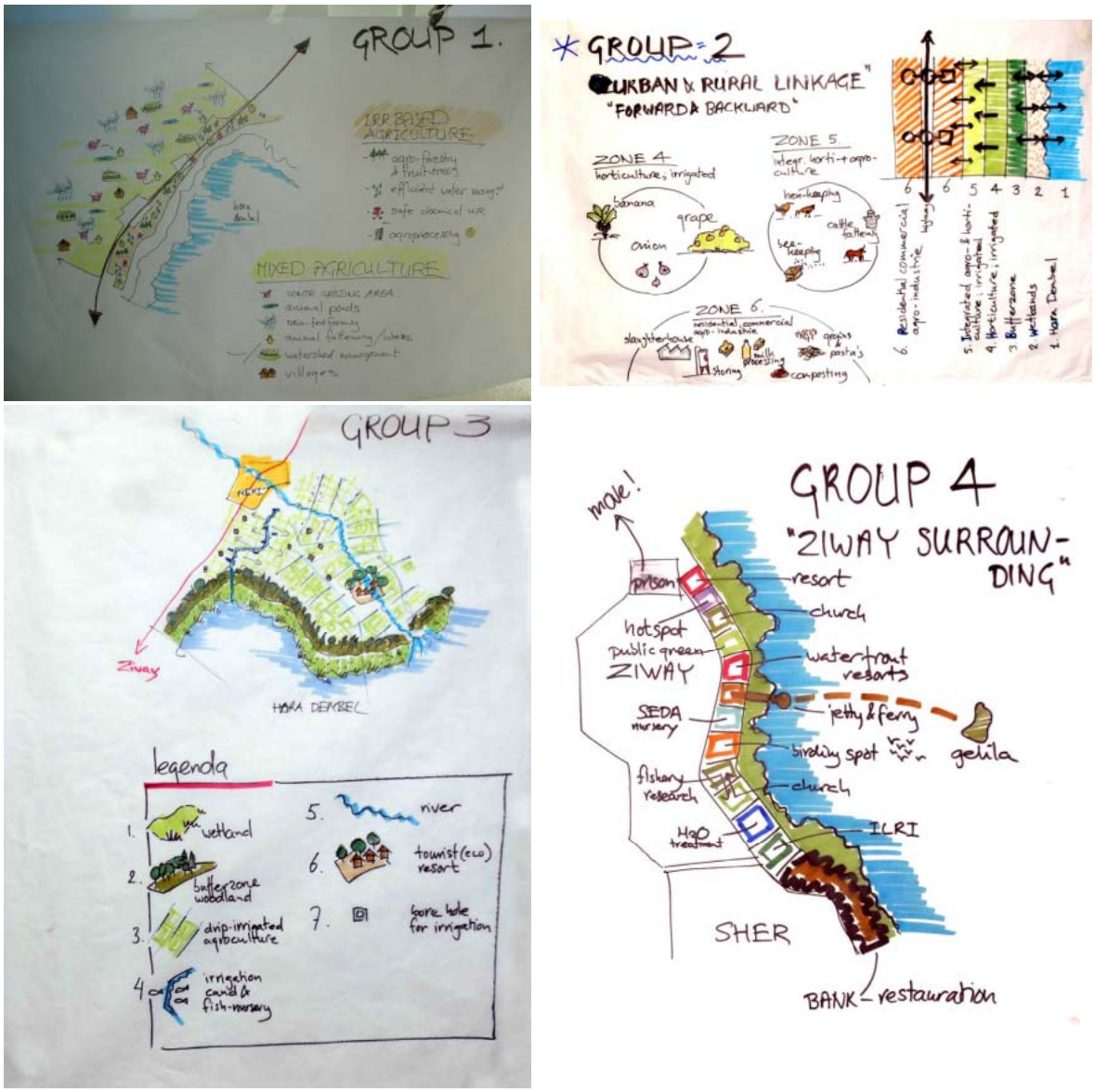

Figure 3.6. Future land use sketches of (a) Group I, area between the cities Abossa and Meki, (b) Group II, the area between the cities Abossa and Ziway, (c) Group III, the area around Meki, and (d) Group IV, the area around Ziway.

Common denominator in the design of most groups was a spatial zonation including a buffer zone between Lake Ziway and the cultivated land (Figure 3.7). The workshop participants considered well-managed buffer zones a necessity to conserve soil and water resources. Also for the shoreline of the city of Ziway a zonation was developed in which various functions are spatially differentiated (Figure 3.6d). Finally, the four sketches of different parts of the study area were digitized (See for example the result of Group II in Figure 3.8) and integrated into one future land use map for the shoreline of Lake Ziway (Figure 3.9), which can be accessed through the CD accompanying this report.

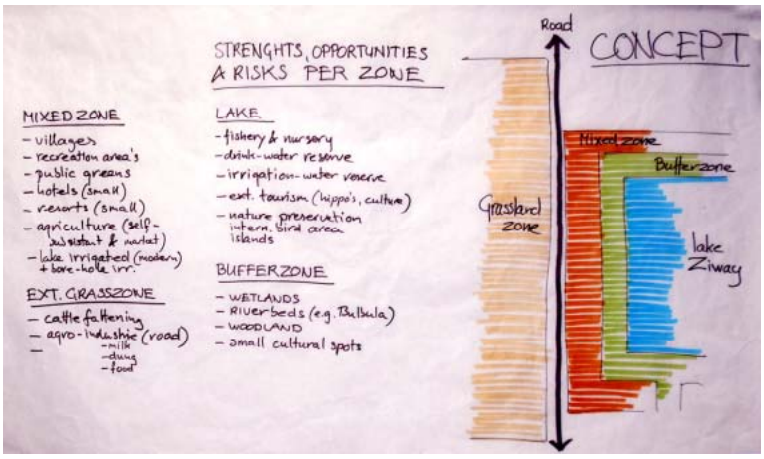

Figure 3.7. The common concept of buffer zones which appeared in all land use designs.

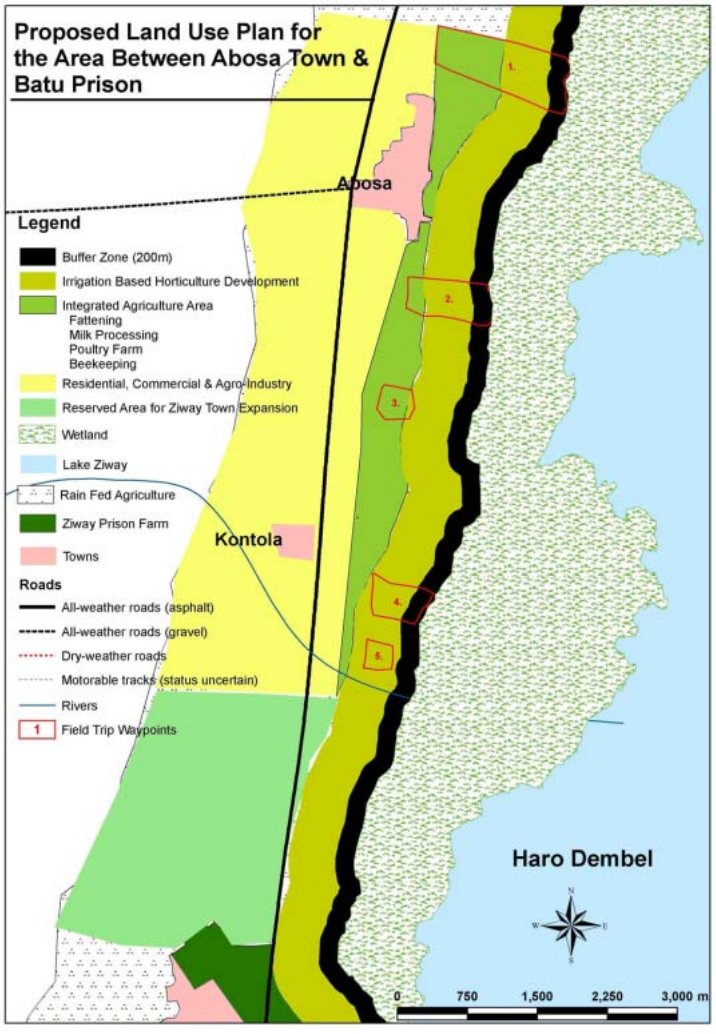

Figure 3.8. Digitized version of the future land use map of Group II, the area between the cities Abossa and Ziway.

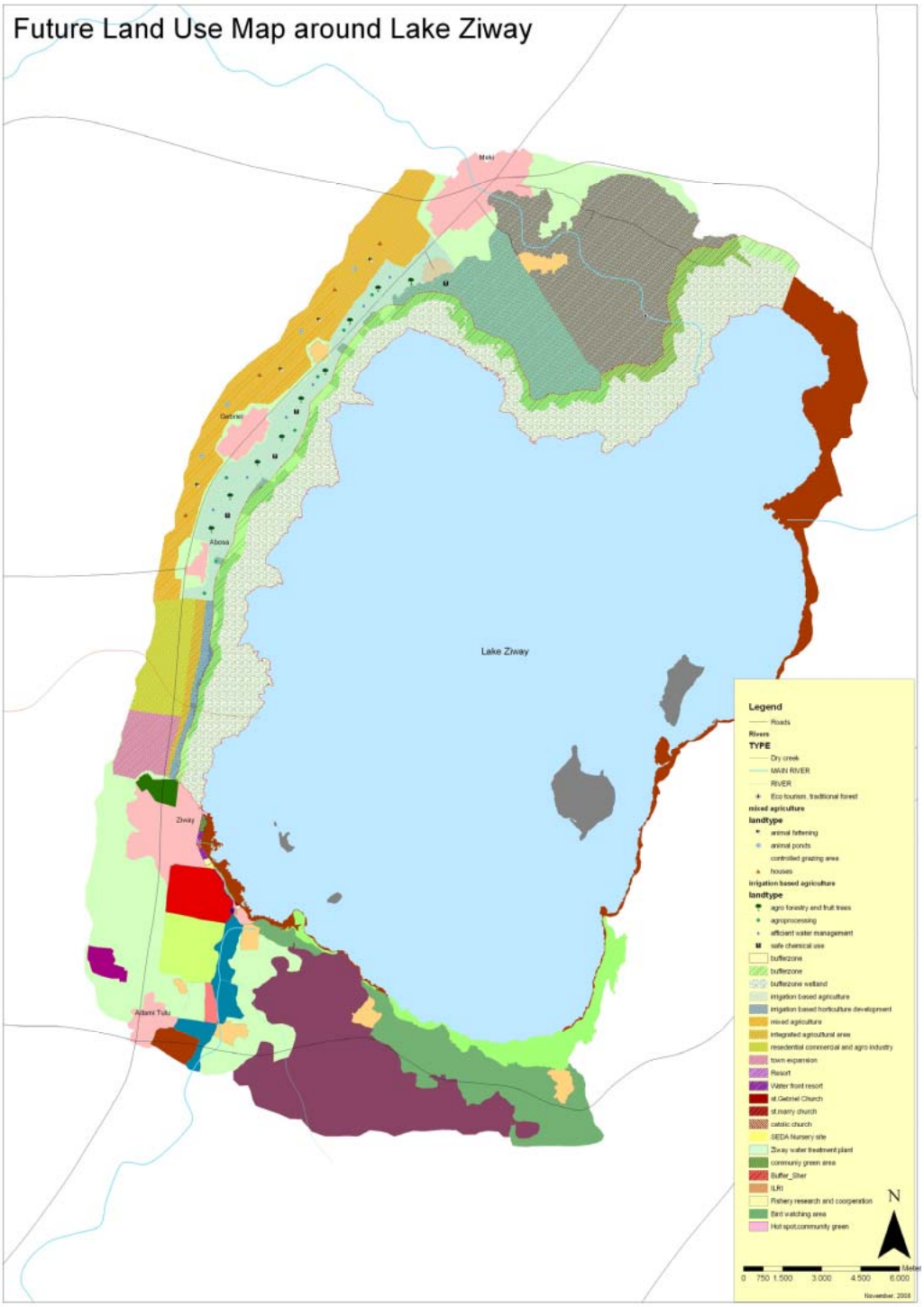

Figure 3.9. Digital map of future land use along the western shoreline of Lake Ziway.

3.6 Follow-up activities

Based on the designs of the different parts of the study area, the groups identified follow-up activities required to realize the land use plan in practice. The assignment was to link the activity to a clear objective, preferably measurable but at least realistic and practical. In addition, lead persons and organizations had to be assigned by each group including a tentative time horizon for achieving each of the objectives. These activities can be considered as the first step towards the implementation of the land use plan.

Group I. *Activities as part of the future land use plan/map for the Abossa-Meki area.*

Objective:	Follow-up activity:	Who is responsible:	When to be implemented:
1. Seek commitment for the plan	Share preliminary results with decision-makers	HoA-REC/N	Early 2009
2. To ensure appropriateness and development of the proposed land use plan	Conduct feasibility study on the proposed future land use plan with broader stakeholders' participation. E.g. natural resource survey, socio-economic survey, environmental assessment, Master Plan studies, regional plan	BoARD	2009
3. Define implementation modalities	To define implementation arrangements and responsibilities	BoARD	After workshop report is available

Overall comment relevant for all groups: Whoever benefits from the resources should also pay for their use (irrigation farmers, fishermen, tourist sector, etc.). How to realize this, i.e. through licensing, permits, taxing? This needs to be studied in a follow-up activity. Tools and instruments need to be identified for regulating resource use. It was noted that this is an extremely complex issue and also in developed countries many policy instruments often fail, for example resulting in over-fishing of seas and water pollution.

Group II. *Activities as part of the future land use plan/map for the Abossa-Ziway area.*

Objective:	Follow-up activity:	Who is responsible:	When to be implemented
1. Include the requirements of the community in the plan	Community awareness and getting feed back	Respective *woreda* administration, agri, investment and culture and tourism offices	Dec 2008- Feb 2009
2. Base the plan on detailed and relevant information	Detail map development, showing Peasant Association boundaries and land capability	HOA-REC/N in collaboration with Oromia regional state	Jan - June 2009

During the discussion the issue was raised of who has the usufruct of the buffer zones? Currently, these zones are public/common land, but in many parts people have settled. This issue needs further consideration as there seems to be legislation specifying the usufruct of these zones. A related issue which also came to the fore in other group discussions was what are suitable tree species for buffer zones? Implicitly, participants considered a tree cover as most suitable vegetation for buffer zones. Such trees should provide some economic returns (who are beneficiaries?). Natural generation of buffer zones could be supported by planting trees which are able to survive temporal flooding and have economic value (e.g. fodder, fruits, energy).

Group III. Activities as part of the future land use plan/map for the Meki area.

Objective:	Follow-up activity:	Who is responsible:	When to be implemented:
1. Approval of the Bureaus of Agricultural & Rural Development and creation of ownership of aquaculture development in the irrigation canal of the Ethio-Korean irrigation project.	Contact and inform Bureau of Agricultural & Rural Development at Dugda and Oromia level, and the Water Use Association managing the irrigation canal.	Fish4All and the Research Institute for Fisheries in Ziway	March 2009 (After report and maps are available)
2. Assess the irrigation studies done or that are underway by the MoWR on technical feasibility, environmental sustainability and economic viability.	Contact MoWR and ask them to make public and communicate the studies carried out in the Meki area concerning irrigation development and planning.	Manaye Yimenu of MoWR will contact the responsible persons at MoWR to make the studies available for others	March 2009 (After report and maps are available)
3a. Verify the existence of a 200 m buffer zone law along water bodies, and its enforcement. 3b Create commitment at different Government levels for implementing buffer zones	a. Contact EPA b. Contact other Ministries	Siraj Bekele (Oromia EPA)	March 2009 (After report and maps are available)
4. Preserve the 1 ha old forest along the Meki river area as hotspot area.	a. Recommend in the workshop report no large scale developments affecting the forest and indicate the forest as hotspot on the map b. Support of the Dugda woreda in implementing its plan for sustainable use of the forest	a. WUR b. Oromia Tourism Bureau and SNV, EWNHS	a. January 2009 (part of report) b. March 2009 (After report and maps are available)
5. Improve irrigation productivity and create value chain.	a. Capacity building through farmer field schools b. Demo field management c. Pilot/feasibility study Agro-processing (e.g. preservation onions, juice making, drying fruits and vegetables) d. Market analysis new products and development of market information system	a.,b. WUR in collaboration with Awassa University, EIAR and JICA as potential partners. c. Woreda Dugda BoARD?? d. WUR/IDE/ Meki Batu vegetables	All activities in 2009

Aquaculture seems an option in the main canal of the Ethio-Korean irrigation project. It should be managed by and benefits should accrue to the surrounding farmers. The activity will not generate a full family income but should be considered a supplementary income source for existing irrigation farmers. Tilapia may be a suitable fish species in this canal, if sufficient options for transporting it to the market exist. Feed sources could be chaff of cereals. The risk of water pollution due to agro-chemicals may be limited if the farming community is in control and reaps the benefits of the activity.

With respect to follow-up activity 2 of Group III, soil salinization may pose a problem. Secondary salinization may be avoided using drip irrigation but carbonates in groundwater may pose another problem resulting in the clogging of drips. This will require further study. In general, insight is lacking in the results of the feasibility studies of irrigation projects carried out by MoWR. More advanced irrigation systems will only be economically viable when the agricultural products can generate export prices. For products sold against local prices such systems will not be remunerative according the expert of MoWR. With respect to crop and product diversification the following options were suggested: fresh melons (but market?), agro processing (dried tomatoes, dried onions, canning of tomatoes, juice making and dried fruits).

Concerning activity 3 of Group III: This old forest (Figure 3.4a) is too small to support large scale (eco) tourism development but may serve as resting area for passing tourists or for local tourism. Important in the short term is that no nearby land is leased to investors with plans that may affect the forest negatively.

Group IV. Activities as part of the future land use plan/map for the Ziway area.

Objective:	Follow-up activity:	Who is responsible:	When to be implemented:
1a Soil conservation 1b Landscape preservation 1c. Absorption of chemicals	Buffer zone development	Sher Ethiopia plc; Town administration	Immediate action
2a Tourism promotion 2b Employment creation 2c Lake edge conservation	Develop bird watch spot (I)	Town administration, CRV-WG –tourism consortium	As soon as possible
3a Promotion of urban agriculture 3b Employment creation 3c Poverty reduction	Urban agriculture demos	Town administration, SEDA	As soon as possible
4. Widening and cleaning of jetty	Develop bird watch spot (II)	Town administration, CRV-WG –tourism consortium	As soon as possible
5a Promotion of tourism. 5b Make use of natural scenery 5c. Improved waste disposal	Encourage water front resorts	Investors under strict supervision of town administration	In 6 months
6a. Recreation for urban population 6b. Conservation of lake shore	Develop public green park	Town administration	In one year
7. Protection against pollution	Monitoring discharge of pollutants in lake	Town administration, Oromia EPA	Continuous process from now
8. Maintain water quality and quantity of the lake	Research on water balance of the lake	Concerned bodies	As soon as possible
9a. Promote conservation 9b. Facilitate decision-making and planning	Gather data on biodiversity of the lake	Concerned bodies	As soon as possible

In the discussion the issue was raised whether reed from the wetlands could be used for handy craft or roofing of houses. In general, roofs made of reed are considered inferior to the modern metal roofs and a sign of poverty. Therefore, there is little scope for further developing this idea.

In the discussion on the activities identified by Group III and IV, the question was raised what is eco-tourism and what is the added value of developing tourism along Lake Ziway compared to the existing tourism development along Lake Langano? Aim of eco-tourism development should be the provision of alternative livelihoods to the local population. Hence, local people need to be involved in such tourism development. 'Eco' is an environmental-friendly way of implementing tourism that not further degrades the natural resource base. Current eco-tourism activities in Ziway relate to bird watching spots and boat trips on the lake to the islands (a.o. with hot springs and monastery). Participants agreed that there is potential to further develop and exploit such attractions. In collaboration with HoA-REC/N a ring of lakes route is being developed; the route extends beyond the borders of the CRV. Lake Langano has beaches but water life is less rich because of the turbidity of the lake water. Ziway has its own unique nature including birds, hypo's and islands. The target for Lake Ziway eco-tourism should be both foreign tourists as well as the local population since Lake Langano is too expensive for most Ethiopians.

Based on the activities identified by each Group a list of common activities was identified, which should receive priority in the future.

Objective:	Follow-up activity:	Who is responsible:	When to be implemented:
1. Soil conservation, landscape preservation and absorption of sediments	Buffer zone development: - Verify the existence of a law specifying 200 m buffer zones along water bodies, and its enforcement. - Create commitment at different Government levels for implementing buffer zones	Federal and Oromia EPAs -Contact: Siraj Beklie	Immediate action
2. Create ownership of local population	Community awareness and getting feed back	Respective *Woreda* Administration, Agriculture, Investment, Culture and Tourism Offices	February 2009
3. To assess the technical feasibility, environmental sustainability and economic viability of the irrigation studies done by MoWR	Ask MoWR to make public and communicate the studies carried out in the Meki area concerning irrigation development and planning	MoWR Contact: Ato Manaye Yimenu	After report and maps are available
4. Protection against water pollution	Develop a plan for monitoring pollutants (where, what, when and how)	Town Administration, Oromia EPA	Before June 2009
5. Tourism promotion, employment creation, Lake edge conservation	Develop bird watching spots (at two sites + Making use of Islands)	Town administration, CRV-WG (Tourism Consortium)	As soon as possible
6. Improve performance of horticulture sector	Capactly building and demo-fields in combination with development market chain	WUR, Meki Batu vegetables, and others	As soon as possible

3.7 Closing session of workshop

On day four, the results of the workshop were received by His Excellency Mr. Hennekens, ambassador of the Kingdom of the Netherlands in Ethiopia, Mr. Tola Chala, Mayor of Ziway and Dr. Araya Asfaw, Director of the Horn of Africa Regional Environment Centre (Figure 3.10).

Figure 3.10. Receipt of the workshop results by His Excellency Mr. Hennekens, ambassador of the Kingdom of the Netherlands in Ethiopia, Mr. Tola Chala, Mayor of Ziway and Dr. Araya Asfaw, Director of Horn of Africa Regional Environment Centre.

Results were presented by the participants of the workshop and comprised the following components:

1. Introduction (rationale, objectives and process)
2. Display of the field study: strengths, opportunities and risks (collages) (Group 3 as example)
3. Updated current land use map (only for Group 1)
4. Generic concept behind the future land use (sub)plans
5. Group presentation of future plan (Group 2 as example)
6. Digital future land use map
7. Follow-up actions and responsibilities
8. Reactions and discussion
9. Closing

In his reaction His Excellency Mr. Hennekens referred to the densely populated Netherlands where spatial planning is a necessity to use resources efficiently. He recalled Ziway as being a dusty and little dynamic city three years ago and now it is booming thanks to the recent investments in horticulture and floriculture. He emphasized the need for activities aimed at securing a sustainable water level of Lake Ziway. Referring to the buffer zones, attention is needed for the people currently living in these zones since expelling of people from land is extremely difficult in Ethiopia. Mr Tola Chala was impressed by the commitment of participating organizations, but he warned for too much optimism as action plans of similar exercises have failed in the past. He promised that the city of Ziway will provide any support to make the identified follow-up activities happen. Dr. Araya Asfaw concluded that bringing the concept of sustainable development into practice is difficult, but that the developed future spatial plan could transform the city of Ziway and its surrounding into a modern and prosperous place and set an example for other parts of Ethiopia.

In the discussion, the initiative for the Ring of Lakes route was highlighted that is being developed and promoted by the Central Rift Valley Working Group and the HoA-REC. This initiative could (and should) be linked to the identified follow-up activities aimed at (eco-)tourism development. In this context Janny Poley of the Embassy of the Kingdom of the Netherlands in Addis Ababa (1st secretary Environment, Water and Energy) suggested to interest crew members of international air carriers for short trips to the CRV. They are often frontrunners in discovering tourism hotspots and could act as 'walking billboards' promoting the CRV.

The discussion also highlighted the need to create local ownership and community commitment of the presented plans. Various follow-up activities link up to enhancing local ownership.

Given the fact that the basin-wide drop in surface water table size is the largest and most visible symptom of over-exploitation of natural resources in the CRV (Fig.1.2), one comment referred to how to deal with this. The unsustainable use of water is outside the control of downstream people who are affected most. The Ethiopian Government should take the initiative for basin-wide action, as the local activities along Lake Ziway identified during the workshop will not contribute much to solving this issue. Hence, the question is how to link the local identified actions with the larger basin-wide problems? It is clear that one workshop is not sufficient to solve all problems. Most participants considered as major benefit of the workshop the fact that so many stakeholders with a very diverse background have been debating for four days. Getting to know each other is a first step in building mutual trust required for collaboration and may contribute to new alliances and partnerships. This in turn can lead to more transparency and openness in (environmental) decision making, a prerequisite for facing future challenges too often lacking in the Ethiopian context.

3.8 Workshop outputs

The workshop has resulted in a number of tangible and less tangible outputs:

- The workshop brought together many key stakeholders which normally do not meet but whose actions have cross-cutting policy dimensions.
- A common vision developed by stakeholders on the future sustainable development of the area expressed in a number of concrete follow-up activities.
- Awareness and appreciation of the environmental problems and competition for natural resources in the area raised.
- Commitment of stakeholders expressed as indicated by the responsibility to lead various follow-up activities.
- Current land use and plans in pipeline understood.
- Updated version of the current land use map (Figure 3.2).
- Strengths, opportunities and risks of the area identified (Section 3.3; Table 3.1).
- Criteria drafted for land use planning, decision making and monitoring of implementation. (Section 3.4)
- Participatory developed future land use map of the area (Figure 3.9)
- Knowledge, experience and information on integrated land use planning widely shared.

4. Workshop evaluation

The workshop has been evaluated from different points of views and perspectives, namely those of the participants (section 4.1), the process (section 4.2), the organization (section 4.3) and the quality of the results (section 4.4). Only the participant evaluation is a quantitative assessment, the evaluation of the process and organization is based on the experiences and perceptions of the organizers of the workshop. Results of the workshop are evaluated against the background and justification of the workshop (section 1.1).

4.1 Evaluation by participants

At the end of the workshop the participants were invited to fill out an evaluation form with five questions which could be rated from very high/very good to very low/very poor (Table 4.1). In total 19 participants answered and returned the questionnaire (Table 4.1).

Table 4.1. Rating of the five evaluation questions by participants. Numbers indicate the number of participants.

	Very high/very good	High/ Good	Moderate	Low/ poor	Very low/very poor
Relevance of the workshop to the western shore of Lake Ziway	17	2			
Relevance of the workshop to your work	15	3	1		
Quality of the workshop results	8	9	2		
Expectations towards implementation of follow up activities	3	8	7	1	
Organization /logistics	9	5	4	1	

On the basis of the high scores for the relevance of the workshop for the region and the work of the participants, it appears that the topic of workshop was timely and well-targeted. The relevance of the workshop was rated higher than the quality of the workshop results. However, latter was still relatively high compared to the expectations concerning the implementation of the follow-up activities. Most evaluation forms were returned to the organizers before the announcement was made during the closing session that a monitoring workshop will be organized within six months after this workshop. Results of the workshop are further assessed in section 4.4.

Some of the comments made by participants in the evaluation forms:

- 'Better to involve the farmer as stakeholder.'
- 'As far as previous experience concerned planning is not problem, but implementation. Thus it would be good if HoA closely make follow-up and give required financial support for implementation. Those participants of the workshop may turn over (change over their position) and as a result all the cost paid may remain without result. It will be good if new department formed only for this purpose within district Agricultural and Rural Development Office.'
- 'The workshop would have involved as many broader stakeholders as possible. Pre-investigation/assessment on socio-economic and actual resources (land use) should have been conducted.'
- 'The workshop is very good for future expectation.'

- 'The beds and the place of workshop are situated at different places and there is no transportation facility for some of us.'
- 'It is better to participate other concerned institutions (research institutions, higher learning institutes) and key resource personnel from the concerned departments around the area.'
- 'Other strengths of the workshop is participatory approach.'
- 'Further consultation and participation of the watershed community should give due attention.'

4.2 Process

The workshop was largely in Amharic to facilitate the participation of all local stakeholders. English presentations of the project team were translated in Amharic. When necessary, Orofima was used. Major discussions in Amharic were summarized in English. This worked out well as it allowed the participation of all stakeholders, but was time-consuming as a result of which some workshop sessions were somewhat short.

The process was facilitated by a project team consisting of two WUR staff member, two DLG staff members, and four local consultants of which one had the role of facilitator and three the role of GIS specialist. One GIS specialist had to leave the workshop after one day because of personal circumstances. This somewhat slowed down the digital mapping of the current and the future land use map and they were not completely finished at the end of workshop. It was already foreseen before the workshop that finalization of the map for the entire area would be difficult to achieve during the workshop, but this did not affect the presentation of the results as some plan parts of the shore of Lake Ziway were finished in time (Figure 3.8) and presented as illustration during the closing session.

The use of geo-visualization tools to exchange information about land use changes was new for most all participants. In the beginning of the workshop, the digital visualization of the current land use was probably difficult to understand for many participants. However, the first session to update and revise the initial map proved to be very effective to get acquainted with the digital map, and to strengthen ownership of and shared responsibility for the study area. Moreover, it provided a lot of new information. Most effective was the sketching of future land use on day three of the workshop as it allowed true interaction among participants and simultaneous discussion about the pros and cons of various proposals/ future developments.

Program sessions followed each other in logical order and served well as stepping stones to arrive at the final future land use map and plan. Only the results of the session on land use planning criteria (section 3.4) were hardly used during the design process because the workshop was qualitative by nature and not aimed at quantification of associated costs and benefits of plans. Some comments of participants hinted to the lack of disciplinary and quantitative knowledge during the workshop (section 4.1). The workshop aimed at providing an atmosphere of mutual trust facilitating the identification of truly participatory and innovative options. The aim was to explore all possible options without being held back too much by associated knowledge gaps, technical feasibility or economic viability of such options. The idea was that ground-breaking and jointly-developed options would trigger the interest of participants to take responsibility to further explore and develop such options. A more quantitative assessment of the identified options involving academia and research was planned in a later stage as part of such an exploration.

The workshop brought together a great number of stakeholders operating at various decision-making levels (local, state, national). The stakeholders contributed with sectoral disciplinary and practical knowledge. However, during the workshop it appeared that some stakeholders were missing, for example, the Ministry of Agriculture and Rural Development at state and national level, and some specific knowledge was missing, for example, on the irrigation plans of the Ministry of Water Resources. During the preparation of the workshop it appeared that some relevant stakeholders of the Ministry of Water Resources at state and national level were not able to participate, also after various attempts from the project team.

4.3 Organization

As described in Chapter 2, two preparatory missions of two WUR staff members were undertaken to help organizing the workshop and to meet, select and inform participants. Although the first mission was well in time, the second mission at the end of October appeared (too) close (four weeks) to the actual workshop date. This mission was targeted among others at inviting high officials for the opening and closing ceremony. Especially, the process of inviting these officials required more time than anticipated. In addition, the initial digital map of the study area was made under time pressure but appeared to serve well its goal during the workshop (section 3.2 and 4.2). One advantage of the tight time schedule between the second mission and actual workshop was the momentum, disadvantage was the little time for searching alternatives.

Logistics of the workshop were mainly arranged by the HoA-REC in Addis Ababa. To create a sense of local ownership and to emphasize the need for involvement of local stakeholders the workshop was held in Ziway. Additional advantage of organizing the workshop in Ziway was the possibility for a field trip and the (spatial) separation of participants from their daily duties (at least for those from Addis Ababa). Latter worked well-out considering the high attendance rate of participants during all four days of the workshop. In addition, the field day was a prerequisite for a successful workshop since various stakeholders from outside the area were less familiar with the actual situation on the ground.

During the first mission it became clear that Ziway did not have a suitable convention center to host both the meeting and the lodging of participants. Instead the meeting was held in the Tourist hotel in Ziway and the participants were divided over several other hotels. This required quite some organization in a city with little facilities (no bus or taxi). Logistics lead to few comments of participants (Section 4.1).

4.4 Workshop results

One of the pillars of participation in decision-making is the provision and sharing of information. Although the effects of information provision are difficult to measure, the workshop has contributed to increased awareness and appreciation of the environmental problems and competition for natural resources in the area. In addition, knowledge, experience and information on integrated land use planning has been widely shared.

As described in section 4.2, the aim of the workshop was to provide an open atmosphere facilitating the identification of innovative options for which the participants would bear responsibility to further exploration and development. This is only partly achieved since many of the participants had difficulties with breaking away from mainstream and general solution pathways. This is concluded on the basis of a number of observations. First, most of the identified land use planning criteria (section 3.6) were very general and not specific for the study area. Second, with the exception of one group, responsibilities for follow-up activities were defined in very general terms, i.e. often assigned to institutions and organizations, while the goal was that individual representatives of participating organizations would take the lead in these activities. In some cases, responsibilities were assigned to organizations which did not participate in the workshop. Third, some participants took the responsibility for follow-up activities such as the creation of local ownership. Although, these initiatives are laudable and necessary to further develop plans, they suggest a high level of 'social and participatory correctness' without a clear targeted strategy on how to achieve such ownership. These shortcomings in specifying follow-up activities may have contributed to the relatively low expectations of participants towards their implementation (section 4.1). Obviously, a lack of time during the workshop has contributed to not well thought-out activities and poorly defined responsibilities. Therefore, participants need to be supported and stimulated to develop such strategies in future monitoring workshops to avoid the premature failure of follow-up activities.

With respect to the content of follow-up activities (section 3.6), the wide support for buffer zones along water bodies was an unexpected result of the discussions. The lack of buffer zones was identified as environmental risk in three of the four Groups (Table 3.1). The goal of these buffer zones is to conserve soils, avoid emissions of pollutants and to preserve the landscape. Although water pollution may increase in the future due to land use intensification, there is

little evidence of a recent deterioration of the water quality of Lake Ziway (MoWR, 2008). The issue of the usufruct of people currently living in these areas was addressed in the closing session (section 3.7) and is also considered in one of the follow-up activities. The support for bufferzones was little discussed in relation to dwindling (common) grazing land and reduced access of livestock to fresh water. However these maybe the foremost problem in the short term. Because conversion of common grazing land into irrigated land does not require compensation payments to local farmers this land is preferred for investments. In the follow-up activities was no attention to the problem of over-grazing, which was identified as a severe risk in three of the four sub Groups, just as much as the lack of buffer zones. Also other identified risks (erosion and degraded land) are associated with the over-population of animals in the area. Perhaps participants were not able to identify suitable follow-up activities to tackle this issue because livestock fulfills so many functions and it is an intrinsic part of the predominant mixed farming systems. Remarkably, there was relatively little attention in follow-up activities to the basin-wide drop in surface water tables which is currently the most visible symptom of over-exploitation of natural resources in the CRV. This issue was also indicated in the closing session (section 3.7) and may be related to the economic importance of the irrigation sector for the study area. Preparatory missions had learned that few stakeholders at local level (municipality and *woreda*) did not expect severe environmental problems within the coming twenty years. This can be considered a risky attitude concerning the future in favor of short-term economic benefits associated with the irrigation sector. Maybe the participation of stakeholders from downstream areas, who are most affected by changing water flows, could have put this issue more prominently on the agenda.

5. Conclusions

Competing claims on natural resources become increasingly acute in many parts of the world. A major challenge for research is to facilitate stakeholders in dealing with potentially conflicting uses of natural resources and in identifying options to reduce competing claims on resources. One of the means to address conflicting uses of natural resources is the transparent planning and management of natural resources. Therefore, land use planning is evolving from traditional top-down decision-making towards systems in which the key focus is on involving local stakeholders. Such participatory approaches are not yet widely accepted nor applied to land use planning in Ethiopia. Therefore, the workshop 'Towards a sustainable future of the western shoreline of Lake Ziway' provides important lessons for other planning projects beyond the context of the shoreline of Lake Ziway or the Central Rift Valley. The workshop was probably the first of its kind in Ethiopia using geo-visualization tools and participatory methods to develop a land use plan for a specific region together with its major stakeholders operating at multiple scales. These tools and methods contributed to trust building among stakeholders and feelings of shared responsibility for the future of the shoreline of Lake Ziway. This has resulted in the identification of a number of explicit follow-up activities for which participants have taken responsibility. Most agreement was on the development of buffer zones along water ways to conserve soils, avoid emissions of pollutants and to preserve the landscape. In addition, creation of ownership of the local population or Administrative bodies was considered a prerequisite to further developing other jointly agreed follow-up activities. Close monitoring of these and other activities will be required to avoid their premature failure, but support of these activities is foreseen in feedback workshops. Other activities can be linked to or incorporated in other initiatives such as the Ring of Lakes route that is supported by the Central Rift Valley Working Group and the HoA-REC, and the improvement of the economic and environmental performance of the irrigated horticulture including the creation of value chains for fruits and vegetables, which is addressed in the agenda of the Ethiopian-Netherlands Horticulture Partnership.

Maybe the biggest gain of the workshop was that such a large group of stakeholders with very diverse backgrounds discussed and debated land use issues for four days. Many of these stakeholders had never met each other while their actions have cross-cutting policy dimensions. The workshop was one of the first occasions that representatives of the Oromia Investment Commission with a big stake and decision making power concerning large scale investments in the area, the private (horticulture and floriculture) sector represented by EPHEA and Sher-Ethiopia, local Government officials from municipalities and *woredas*, civil society organizations and peasant associations went into debate to arrive at a jointly agreed future land use plan and associated follow-up activities. Through regular discussions, the private sector might gradually move towards more socially and ecologically sustainable enterprises, while the public sector might be better able to provide an enabling environment within private initiatives can flourish.

Obviously, this workshop is insufficient to expect major changes in resource use and management in the short term. Change will require time and investments. Only a transparent debate in which all stakeholders participate is able to provide widely accepted solutions and sustainable development pathways. Getting to know each other as facilitated by this workshop is a first step in building mutual trust required for collaboration and new public-private partnerships, in which transparency and accountability play a vital role to face future challenges in the Central Rift Valley.

References

Ayenew, T., 2002.
Recent changes in the level of Lake Abiyata, central main Ethiopian Rift. Hydrological sciences journal 47: 493-503.

Däne, S., Van den Brink, A., 2007.
Perspectives on citizen participation in spatial planning in Europe. In: Geo-visualization for participatory spatial planning in Europe. Imaging the Future. (Van den Brink, A., Van Lammeren, R., Van de velde, R., Däne, S., eds.). Mansholt Publication series Vol. 3. Wageningen Academic Publishers. pp. 33-51.

Jansen, H., Hengsdijk, H., Legesse, D., Ayenew, T., Hellegers, P., Spliethoff, P., 2007.
Land and water assessment in Ethiopian Central Rift Valley. Altera-report 1587, ISSN 1566-7197.

Legesse, D., Ayenew, T., 2006.
Effect of improper water and land resource utilization on the central Main Ethiopian Rift lakes. Quaternary international 148: 8–18.

MoWR [Ministry of Water Resources], 2007.
Rift Valley Lakes Basin Integrated Resources Development Master Plan Study Project. Draft Phase 1 report. Part II Sector Assessments. Volume 2 – Natural resources. Annex G: Fisheries and limnology. Halcrow Group Limited and Generation Integrated Rural Development (GIRD) Consultants.

MoWR [Ministry of Water Resources], 2008.
Rift Valley Lakes Basin Integrated Resources Development Master Plan Study Project. Draft Phase 2 report. Halcrow Group Limited and Generation Integrated Rural Development (GIRD) Consultants.

Appendix I.
List of participants

1	H.E. Prof. Mesfin Abebe	Advisor to the Deputy Prime Minister of Ethiopia
2	H.E. Alphons Hennekens	Embassy of the Kingdom of the Netherlands (ambassador)
3	Alemu Sime	Oromia Investment Commission (commissioner)
4	Dejen Chaka	Oromia Investment Commission (expert)
5	Fekede Terefe	Oromia Investment Commission (expert)
6	Kefyalew Tulu	Oromia Investment Office (head of East Shewa Zone Investment)
7	Geert Westenbrink	Embassy of the Kingdom of the Netherlands (agricultural counselor)
8	Janny Poley	Embassy of the Kingdom of the Netherlands (1st secretary Environment, Water and Energy)
9	Tola Chala	Municipality of Ziway (mayor)
10	Muluneh Balcha	Municipality of Ziway (vice mayor)
11	Wosho Kedir Hasan	Adami Tulu Jido Kombolcha woreda (head of woreda administration)
12	Feyisa Asefa	Adami Tulu Jido Kombolcha woreda (head of Agriculture and Rural Development Office)
13	Andarge Kecha	Municipality of Meki (mayor)
14	Abera Wakitola	Municipality of Meki (vice mayor)
15	Desalegn Geremew	Dugda woreda (head)
16	Assefa Hunde	Dugda woreda (capacity building executive)
17	Bariso Bekela	Dugda woreda (head of Agricultural and Rural Development Office)
18	Alemayehu Tafesse	Ministry of Water Resources (team leader)
19	Manaye Yimenu	Ministry of Water Resources (team leader)
20	Siraj Bekelie	Oromia Environmental Protection Office
21	Araya Asfaw	Horn of Africa Regional Environment Centre and Network (director)
22	Zelalem Abebe	Generation Integrated Rural Development Consultants (GIRD)
23	Teshite Guye	Selam Environmental Development Association (program coordinator)
24	Tesfaye Wudneh	Fish for All (manager)
25	Wario Kuno	Oromia Culture and Tourism Bureau (head of Tourism Department)
26	Tibebu Koji	Oxfam America (program officer)
27	Regassa Duressa	Ziway Water Supply (manager)
28	Siraj Hussein	Rift Valley Children and Women Development (senior program officer)
29	Tilaye Bekele	Ethiopian Horticulture Producers and Exporters Association (chief Technical Adviser)
30	Mengistu Wondafrash	Ethiopian Wildlife and Natural History Society (team leader biodiversity conservation)
31	Abiti Rafiso	Ilka Chalama Peasant Association (chairman)
32	Jabeessoo Markatoo	Gerbi Widema Boremo Peasant Association (chairman)
33	Mulugeta Debebe	Oromo Self Help Association (executive director)
34	Girma Dalu	Selam Environmental Development Association (executive director)
35	Bekele Belda	SHER Ethiopia (Director Public Relations)
36	Cheru Dane	SHER Ethiopia (Public Relations)
37	Damene Assefa	AENDETH News (Manager)
38	Zeleke Tesfaye	UNDP GEF Small Grants Program (coordinator)
39	Tafesse Bikila	Oromo Self Help Association (project manager)
40	Getachew Senbete	Ziway Fisheries Research Centre (director)
41	Zewdie Wondatir	Haramaya University (Msc student)
42	Aschalew Lakew	Ethiopian Agricultural Research Institute
43	Dabie Konshie	Selam Environmental Development Association

Organisers:

Kidanemariam Jembere	Ethiopia Country Water Partnership
Mygenet Hiruy	Horn of Africa Regional Environment Centre
Annemarie Groot	Wageningen University and Research Centre
Huib Hengsdijk	Wageningen University and Research Centre
Jasmina van Driel	Horn of Africa Regional Environment Centre
Pieter Boone	DLG Service for Land and Water Management
Joost van Uum	DLG Service for Land and Water Management
Zelalem Amdie	GIS expert
Dawit Yirga	GIS expert
Dinka Zewudie	Horn of Africa Regional Environment Centre

Appendix II.
Workshop program

December 1

11.30: Arrival of the participants
12.00: Lunch
13.00: Official opening of the workshop
- His Excellency Prof. Mesfin Abebe (Advisor to the Deputy Prime Minister of Ethiopia)
- Ato Alemu Sime (Oromia Investment Commission)

13.30: Statements on the need for a land use plan for the western shoreline of Lake Ziway
- Dr. Araya Asfaw (Director Horn of Africa Regional Environment Centre and Network)
- Ato Tola Chala (Mayor of Ziway)
- Ato Desalegn Geremew (Head of Dugda woreda)

14.00: Introduction of participants
14.30: Introduction to the workshop: Rationale, objectives and working approach
15.00: Coffee break
15.15: Introduction to the current land use plan
16.30: Presentations of major plans in the pipeline *(Ato Dejen Chaka, Oromia Investment Commission; Ministry of Water Resources)*
17.30: Introduction to next day's field visit

December 2

08.00: Field visit in small groups: Making pictures and discussing the strengths of the current land use system and the opportunities and risks for future land use
13.00: Lunch
14.00: Sharing results of the field visit
16.00: (Re)formulation of the land use planning task for the workshop
16.30: Agreeing on a set of land use planning criteria
17.30: Introduction to next days' land use planning process

December 3

08.00: Sketching a future land use plan of the western shoreline of Lake Ziway (in sub groups)
11.30: Sharing tentative ideas on the future land use plan
12.30: Lunch
13.30: Developing a future land use plan of the western shoreline of Lake Ziway (continuation)
- Developing a future land use plan (in sub groups)
- Sharing sub group results
- Identifying follow up activities

December 4

08.00: Finalizing the future land use plan of the western shoreline of Lake Ziway
09.30: Preparation of the presentation of the workshop results
11.00: Presentation of the workshop results to officials and other invited guests
12.30: Official closure of the workshop
12.45: Lunch

Appendix III.
Key note address of Prof. Mesfin Abebe

Excellencies (all protocols observed) and
Dear participants:

I feel honored to be here with you at what was a once pristine shore of Lake Ziway for no other reason than to make some reflections with due humility. Therefore, I need not declare to this august body the essence of natural resources and the environment as the fountainhead from which society obtains the materials for its survival. Included are endless array of services to ensure their comfort and convenience. That is why the relationship of society with natural resources has remained filial. Because of this fundamental necessity, farmers and pastoralists have recognized that there is no divorce from the complex and dynamic conjugal bond between them and nature. Therefore, they have acted upon this knowledge since it has under-pined their survival. As a consequence, and despite the continuation of subsistence, much has been learnt from the people, plants, and animals that have survived centuries of adverse environmental conditions. Such sound old concepts have undoubtedly helped people avoid grave dangers than being steam-rolled by the vagaries of nature.

Either way, to set the background on the issue at hand, one can not deny that there has been unwise use of natural resources in and around Lake Ziway. Yet, it can be asserted that with new formulae as the one that unfolds here at this workshop, the wealth of accumulated indigenous knowledge and practices can facilitate a win-win situation through the harmonization of development efforts with environmental concerns. Then, the multiple destructive human practices and the host of natural factors that have led to environmental degradation as a consequence of the development merry-go-round can be reversed. This means that the vicious circle of negative ecological changes that have continued to operate on already highly threatened renewable natural resources so much so as to under-grid their wise utilization can be turned into a virtuous circle in the fight against poverty and under-development. For certain, an environmentally-friendly development with nature as protagonist is the vision of those who wish to see the complex phenomena that surround fragile resources to be inter-woven. The end result would be a fascinating variety of scenery that would emerge through long-term sustainable development in tune with nature. In the process, users and policy makers can either forecast or assess changes to reverse the current precarious status through prioritized strategies and the implementation of down-to-earth action plans.

Indeed, I am not the first to air such views or voice concern on environmental degradation and the negative consequences of the development merry-go-round. There were many before me that have attempted to capture reality than improve on it. For instance, the Ministry of Water Resources has taken the initiative and prepared the Rift Valley Lakes Basin Master Plan that also has flashed 'red' on the issue. I might also underscore the recognition of the threat and therefore the demonstrated effort by the Horn of Africa Regional Environment Center under the auspices of the Science Faculty. With other stakeholders, it has hosted this workshop under an apt topical theme. The aim is the rehabilitation of the environment around Lake Ziway through a participatory land use plan. Its eventual formulation through your participation and implementation thereof would avoid or minimize the environmental degradation and development merry-go-round with value added to the surrounding. This means, a win-win situation would be created for their sound and efficient utilization within the limits of their potentialities and limitations.

That the workshop is also facilitated by the Ethiopian Country Water Partnership, the Dutch Government Service for Land and Water Management and Wageningen University is a living testimony to the earnest effort. Needless to say, the quest is to harness dwindling finite resources under grass-root participation in consideration of environmental issues within the framework of a multidimensional definition and concept of development. Among others, the aggregate outcome would be the provision of help to those who can use the knowledge at hand, and encouragement to those that are reluctant and/or fearful to abandon old ways. However, the bigger picture is to herald sustainable socio-economic development that includes the attainment of social, cultural and environmental goals to usher improved quality of life. As a result, the likes of me need not be devil's advocate on the pollution and

contamination of the lake and/or the degradation of the shoreline. Instead, it is my conviction that the knowledge and experience acquired as a consequence of this workshop would help us do justice to the manifested grandeur of Lake Ziway and the mosaic patterns inherent in the irrepressible scenic beauty of the surrounding.

I will also venture to add that the workshop underscores the need for convergence of purpose between policy makers, planners and implementing agencies. In itself, this requires a re-assessment of old concepts from an ecological point of view instead of being circumscribed by the *status quo.* Then, not only would current negative trends around Lake Zeway be mitigated but the remarkable diversity revealed in the intimate relationships between nature and its variable environment can also allow a balance towards what would be a self-maintaining and integrative natural resource. That is why I recognize the significance of the participatory plan since it would address economic, scientific, environmental and cultural factors. These can enhance synergism and facilitate conservation-based targeted interventions for maximum effectiveness. At the end of the day, new initiatives could be amplified and not rendered obscure. Further, it would assure the dynamism necessary to attain critical mass in the shortest possible time. Obviously, this can ensure sound management and environmentally-friendly utilization of resources in a sustainable and efficient manner. This is a must and a necessity because the effort to save a habitable environment around Lake Ziway and its sound utilization goes beyond the primal drive for survival. Therefore, I acknowledge with deep appreciation the genuine involvement of all stakeholders for an up-swing not only around Lakes Ziway but also the other Rift Valley water bodies with lessons learnt as an input to similar efforts in the country at large.

Even then, I wish to look back for a brief sketch of the downward slide in environmental concerns and therefore the dwindling life-support capacity in what were once pristine landscapes. To start with, the mounting destruction is the absence of proper policy and the top-down imposition of 'blue-prints' for prosperity by past regimes. It had little relations to social realities and was central to the hitherto deterioration of natural resources and the environment. As a consequence, suffering ensued. The other consequences were prominent negative impacts such as deforestation, overgrazing, erosion, siltation etc. This has become a major problem in some parts of the country and a malignancy in others. I might also add that it was not due to impediments of professional or scientific knowledge either. It is true that concrete and plastic blinds have kept some in the dark to the extent that people have undercut their own welfare. Therefore, they are forced by circumstances beyond their control to serve as agents of their own undoing. To use a figure of speech, it often has meant cutting the ground from under their feet.

The other dimension is that there are those that have been motivated by 'quick money' and disregarded environmental concerns. There are also those that have even created smoke-screens to make 'fast buck' or 'profit' through the misuse and/or abuse of fragile but finite resources. Ultimately, shorelines will be eroded, there will be increased displacement volume of water bodies due to siltation, and eutrophication will set in from nutrient enrichment of lakes. Therefore, the frightening prospect of the lake being eventually devoid of life and just be a dead water body for all intent looms large. Or, the lake can disappear from excessive extraction of water for irrigation purposes as did Lake Haromaya. Much can be learnt from what was Lake Haromaya that 'sublimed' into thin air in, so to speak, terms of the sustainable development of Lake Ziway. If regulated long-term conservation-based sound management is not put in place soon, the consequences of its shrinking resource could become a plague. Undoubtedly, it will upset the traditional balance between people and their habitat, lead to a breakdown of the sustainable agricultural and socio-economic systems by which they lived.

This brings us to the other side of the merry-go-round. A shrinking resource base breeds insecurity, while insecurity spreads conflict, and conflict causes environmental destruction. Distinct from the normal turn of events, insecurity and conflict caused by environmental degradation and the reverse effect, environmental degradation caused by insecurity, have been clearly demonstrated in Ethiopia. In other words, once established, environmental degradation and insecurity interact, swinging back and forth like a pendulum. Yet, these were virtually ignored in the past. However, we have come a long way with correct policies and strategies as vehicles of change and these are given full visibility. Hence, the above concerns are no more side-stepped or treated as short-term phenomena. Rather, given the conducive environment, a coordinated holistic approach is recognized as a must for participatory sustainable development. I believe this equally allows for the impetus to predict and control a *people-centered* change under realistic development agenda in accordance with their felt needs. However, this mission towards

accelerated development with improvement of quality and usefulness calls for knowledge of the resource potentials with genuine understanding of their capacities and limitations. In other words, it has to be based on sound scientific basis to establish milestones across the diverse agro-ecology of the country.

Thus, given the correct political setting, the revolution that can be wrought by science and technology cannot be stressed enough. That the Science and Technology Agency is now given a face-lift and is upgraded to ministerial status is testimony to this commitment by the government. As a corollary, institutionalized integration of research and development with environmental history of the surrounding also provides a solid basis for the introduction and adoption of appropriate packages for a fast-track development. So would an inventory on indicated and inferred natural resources reserves helps devise strategies for their increased productivity and production under sound management. Intensified research on the interaction of environment and development can also facilitate the discovery of the obstacles that stand against the transformation of certain resources into sustainable economic ones. This calls for stakeholders to create the capacity to monitor, measure, analyze and forecast environmental trends. The process would facilitate the mitigation of the adverse impacts from development efforts through proper *social mobilization* given the multiplicity of both sunset and state-of-the-art technology around.

Finally, I hope you would share my firm belief that we can face the lure of the open future in a spirit of environmentally-friendly development that is infused with appreciation of the heterogeneous but fragile natural resources of the area. Then their conservation-based integrated use can go a long way to usher sustainable socio-economic growth. Then follows that the natural beauty of Lake Ziway and its environ can continue to be a source of great excitement, wonder, and adulation to all concerned. All told, the end purpose is to ensure optimum quality of life without compromising the future. It is my conviction that we will all rise to this challenge of enormous importance because it is a continuation of all that is forward-looking. To that end, I wish you all success in your deliberation.

Thank you.