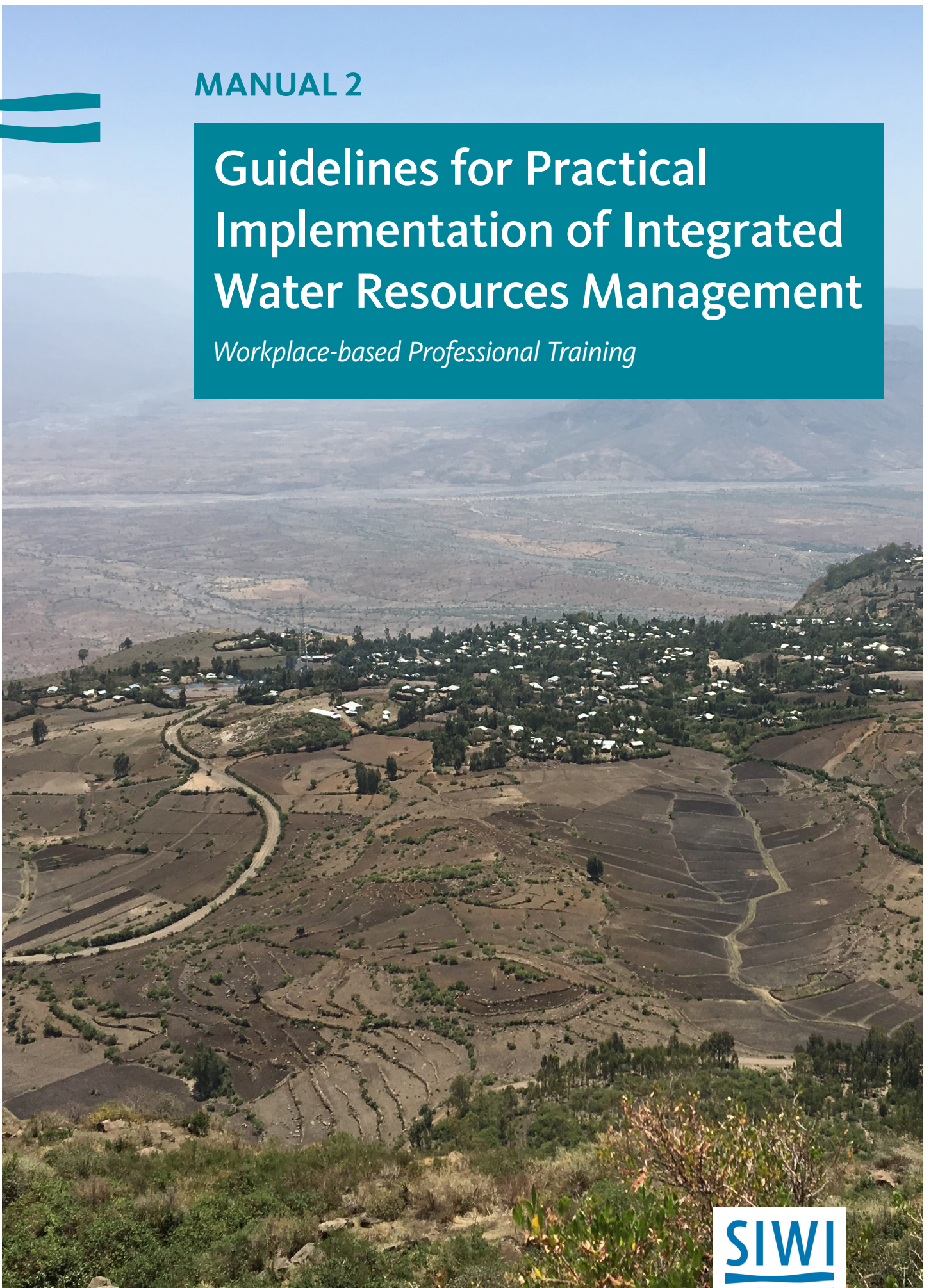




MANUAL 2

# Guidelines for Practical Implementation of Integrated Water Resources Management

*Workplace-based Professional Training*



# Contents

<b>Introduction</b> .....	4
<b>Expectations</b> .....	4
<b>Manual layout</b> .....	4
<b>Purpose, outcomes and assessment criteria</b> .....	5
<b>CHAPTER 1: Stakeholder identification in shared water resources</b> .....	6
1.1 Stakeholders sharing the Lake Hawassa water resources .....	6
1.2 Roles, responsibilities and water rights of different stakeholders .....	8
1.3 Power/knowledge relationships among the different stakeholders and their implications .....	8
<b>CHAPTER 2: Stakeholder awareness, mobilization, participation and conflict management</b> .....	10
2.1 Stakeholder awareness and communication on IWRMs .....	10
2.2 Stakeholder mobilization for IWRM .....	10
2.3 Stakeholder participation in IWRM processes .....	11
2.4 Conflict management and resolution in IWRM processes .....	14
<b>CHAPTER 3: Sustainability of water resources and ecological systems</b> .....	18
3.1 Water quality, availability and ecological sustainability of the Lake Hawassa catchment .....	18
3.2 Enhancing the socio-economic sustainability of Lake Hawassa communities .....	19
<b>CHAPTER 4: Participatory water governance in IWRM</b> .....	22
4.1 Why an integrated approach? .....	22
4.2 Implementation of stakeholder participation in IWRM .....	22
4.3 Application of water related policies and legislation in WRM implementation .....	23
4.4 Enabling inter- and cross-sector dialogue and collaboration in implementing IWRM .....	23
4.5 Institutional arrangements in IWRMn .....	24
4.6 Economic instruments for IWRM implementation .....	24
4.7 Monitoring and evaluation of IWRM implementation process .....	25
4.8 Enhancing water governance through iWRM implementation .....	26
<b>References</b> .....	27

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# Introduction

Welcome to Guidelines for the Practical Implementation of Integrated Water Resources Management, the second manual in the Workplace-based Professional Training on Integrated Water Resources Management. Water is everybody's business and its equitable distribution and sustainable utilization requires the informed engagement and active participation of all involved in the management of water resources. This manual is therefore intended for all stakeholders (water users and managers) in the Lake Hawassa catchment area. The purpose of this manual is to introduce stakeholders to the practical implementation of integrated water resources management (IWRM). The aim is to provide a solid understanding of aspects of IWRM practice to all participants.

## Expectations

After going through the training in this manual you will be expected to achieve the following specific outcomes (see Figure 1).

1. Identify the different stakeholders in shared water resources use in the Lake Hawassa catchment area.
2. Discuss approaches to awareness-raising, communication, mobilization, enabling participation and managing conflict among the different stakeholders in the Lake Hawassa basin.
3. Discuss how water resources and ecological systems in the Lake Hawassa basin can be sustained.
4. Explain how a participatory and collaborative approach to IWRM can be achieved in the Lake Hawassa basin.

To get the most out of the course, remember to be an active learner and participate fully in the training programme!

## Manual layout

The manual consists of four units that address the specific outcomes, as stated below (Figure 1). The guide is designed for an active learning approach where you will be required to participate in discussions and take notes. You are welcome to add information derived from other sources and share these with your colleagues either during or after a training session.

Each unit will begin with questions to help you focus on specific aspects of the training. These questions may be linked to the specific outcomes. Thus, by the end of the training, you should be able to answer the questions and prove that you can fulfil the specific outcomes.

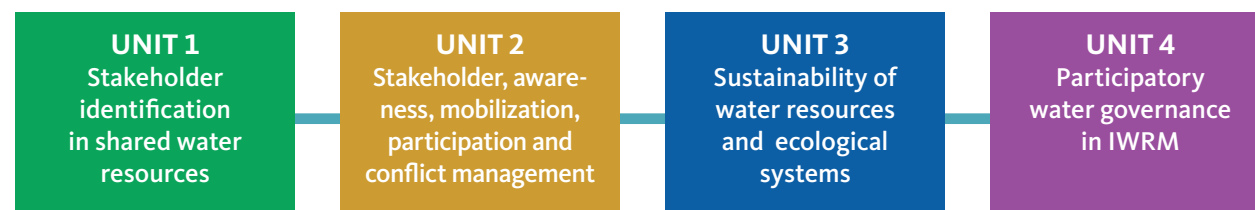


Figure 1 Structure and content of Manual 2

# Purpose, outcomes and assessment criteria

It is important to realize that the success of this training **depends on you**. It is your determination and will to learn that will make you and your community better implementers of IWRM. Learning can take place if you participate and become aware of all that you used to take for granted as well as correct mistakes that you would have made previously. Remember, you will only learn if you move out of your comfort zone and participate fully.

The specific outcomes and assessment criteria are presented in Table 1. You can use this table as a checklist to evaluate your progress, including whether you have fulfilled the expectations.

Specific outcomes	Assessment criteria
<b>Identifying multiple stakeholders in shared water resource use</b>	• Understanding of the different types of stakeholders in shared water use in the Lake Hawassa basin. natural ecosystem using a diagram.
	• Understanding the roles and responsibilities of different stakeholders and their water use rights.
	• Understanding power/knowledge relationships among the different stakeholders in the Lake Hawassa basin and the effects these have on water rights, participation and collaboration for IWRM.
<b>Stakeholder awareness, communication, mobilization, participation and conflict management/resolutionh</b>	• Identifying appropriate approaches to stakeholder awareness and communication for IWRM in the Lake Hawassa basin.
	• Utilizing appropriate approaches to mobilize stakeholders for the IWRM process.
	• Creating an enabling environment for the participation of all stakeholders on IWRM decision-making and implementation processes in the Lake Hawassa basin.
	• Managing and resolving conflicts that emerge from the IWRM process in the Lake Hawassa basin.
<b>Sustainability of water resources and ecological systems (holistic approach)</b>	• Understanding the importance of water quality and availability in sustaining water resources for present and future use.
	• Understanding the role of ecological systems in maintaining the water cycle and the need to sustain watershed ecosystems.
	• Explaining the link between sustainability of water resources, ecosystems and socio-economic sustainability.
<b>Establishing and implementing a participatory and collaborative governance approach to IWRM</b>	• Creating an enabling environment for the equal participation of all stakeholders in the IWRM process in the Lake Hawassa basin.
	• Understanding existing policy and legislation on IWRM and its role in enabling the implementation of IWRM in the Lake Hawassa basin.
	• Establishing inter- and cross-sectoral dialogue in the implementation of IWRM in the Lake Hawassa basin.
	• Identifying and recognizing different institutional roles and responsibilities in the planning and implementation of IWRM in the Lake Hawassa basin.
	• Designing management instruments for water users in the Lake Hawassa basin (assessing water availability and demand, infrastructure and technology, communication and information systems, water allocation and conflict resolution, control and regulation, economic instruments).
	• Planning for monitoring and evaluation of the implementation of IWRM in the Lake Hawassa basin:
	1. Review – success indicators. 2. Reflection – what worked/failed and why. 3. Corrective action – what needs to be done/what can be done better.

Table 1. Specific outcomes and assessment criteria for Manual 2

# 1. Stakeholder identification in shared water resources

## GUIDING QUESTIONS

- Who are the different stakeholders sharing water resources in the Lake Hawassa basin?
- What are the roles, responsibilities and water rights of the different stakeholders?
- In what ways is water important for biodiversity in the Lake Hawassa basin?
- What are the existing power/knowledge relationships among the different stakeholders and what are the implications on their participation, collaboration and access to water resources?

## 1.1 Stakeholders sharing the Lake Hawassa water resources

A stakeholder refers to an individual, organization/ entity or group with a direct or indirect interest

in water resources or that affects or is affected positively or negatively through activities within a water catchment area. Effectiveness of IWRM is context dependent and it is important in IWRM to involve all stakeholders in the allocation of water resources,

Stakeholder type	Specific stakeholder	Uses	Roles and responsibilities
Water users	Households in residential areas (domestic users).	Drinking, cooking, washing, cleaning.	<ul style="list-style-type: none"> <li>Wise use of water resources.</li> <li>Minimizing water pollution.</li> <li>Water conservation and reuse</li> </ul>
	Local municipality water and wastewater treatment facilities.	Manufacturing.	<ul style="list-style-type: none"> <li>Water treatment (purification) for distribution.</li> <li>Sanitation (wastewater collection and treatment).</li> <li>Stormwater and flood management.</li> </ul>
	Industry.		<ul style="list-style-type: none"> <li>Minimizing water pollution.</li> <li>Water conservation and reuse.</li> </ul>
	Public institutions (schools, hospitals, offices).	Drinking, cooking, sanitation.	<ul style="list-style-type: none"> <li>Minimizing water pollution</li> <li>Water conservation and reuse.</li> </ul>
	Business premises (hotels, restaurants, business complexes)..	Drinking, cooking, washing, sanitation.	<ul style="list-style-type: none"> <li>Minimizing water pollution.</li> <li>Water conservation and reuse.</li> </ul>
	Wildlife parks, nature reserves.	Water for wildlife and vegetation.	<ul style="list-style-type: none"> <li>Maintaining the hydrological cycle.</li> <li>Surface and ground water recharge.</li> <li>Provision of ecological regulatory services (pollution, erosion, flood and climate regulation).</li> <li>Cultural services (maintenance of natural and cultural heritage, ecotourism).</li> </ul>
	Agriculture.	Water for irrigation and for livestock.	<ul style="list-style-type: none"> <li>Minimizing water pollution.</li> <li>Water conservation and reuse</li> <li>Minimizing land erosion, deforestation and overgrazing.</li> <li>Practising sustainable agriculture.</li> </ul>

Table 2 continues on page 7 >>

Stakeholder type	Specific stakeholder	Uses	Roles and responsibilities
Developers	Government	Drinking, cooking, washing, cleaning	<ul style="list-style-type: none"> <li>Policy development and implementation, decision-making, custodians of water resources</li> <li>Development and maintenance of water resource infrastructure</li> </ul>
	International development partners	Manufacturing	<ul style="list-style-type: none"> <li>Development of water resource infrastructure, planning and decision-making</li> </ul>
	Private developers		<ul style="list-style-type: none"> <li>Development and maintenance of water resource infrastructure</li> </ul>
Managers	Government ministries and departments e.g. the Ministry of Water, Irrigation and Electricity		<ul style="list-style-type: none"> <li>Water governance</li> <li>Water allocation</li> <li>Developing and implementing water policy that enables social equity and economic efficiency</li> <li>Establishment of river basin organizations including the Rift Valley Lakes Basin Authority which oversees Lake Hawassa</li> <li>Development of IWRM projects</li> </ul>
	Local municipalities		<ul style="list-style-type: none"> <li>Water-use rights</li> <li>Issuing of water-use permits</li> </ul>
Researchers	Universities Research organizations and academic institutions		<ul style="list-style-type: none"> <li>Providing up-to-date data on water resources and recommendations</li> </ul>

Table 2. Some stakeholders in water resources.

application or development of relevant policies and legislation, and in the actual management of water resources. Lake Hawassa's shared water resources involve diverse stakeholders including multiple water users, developers, policy-makers, water managers and researchers. These diverse stakeholders are summarized in Table 2.

Stakeholders in IWRM are context-specific. This means that there is no one-size-fits-all blueprint for IWRM. However, there are common aspects to be considered for effective IWRM. In identifying stakeholders in IWRM in the Lake Hawassa basin it is important to consider the following aspects:

- Who are the key beneficiaries of water resources?
- Who are the people or groups in charge of infrastructure development and maintenance?
- Who are the people who have the power to affect water resources management?
- Who are the people with knowledge/information on the water resources and related ecosystems in the Lake Hawassa Basin?

- Who are the main culprits in water pollution and ecosystem degradation?
- Who are the most affected by water abstraction, water pollution and ecosystem degradation?
- Who are the policy developers and implementers of regulations on water resource use?
- Who are the individuals or groups whose interests are least represented in planning and decision-making processes?
- What relationships exist among stakeholders in the Lake Hawassa basin?
- Who are the important stakeholders outside the Lake Hawassa basin?

Knowledge of all water users is important for the effective management of freshwater resources in a basin. Water uses can be broadly categorized into:

- Consumptive use (use of water for domestic, industrial and agricultural purposes).
- Sanitation services (use of water to transport waste).

3. Ecological services (use of water for biodiversity sustenance).
4. Recreational use (use of water to generate income from tourism, sports, etc.).

Water users significantly affect the quantity and quality of water resources through abstraction and pollution.

## 1.2 Roles, responsibilities and water rights of different stakeholders

### Water rights

Water rights refer to the **entitlement to access and use water resources**. Water rights confer upon the user power and control over water resources. Water rights can be categorized into **basic water rights** and **water user rights**.

Access to water is a basic human right (UN, 2010). Every individual has a right to access sufficient (quantity) and safe (quality) water for basic domestic needs (human consumption and sanitation purposes).

Water user rights refers to access to water through an administrative water allocation process such as **water charges/tariffs** or **water permits/licensing**.

### Benefits of water rights

Knowledge of water rights among stakeholders can lead to a number of social, economic and environmental benefits, including:

- Equitable use of water resources among user groups.
- Access to water for previously marginalized groups.
- Improved efficiency in water allocations.
- Increased willingness by users to contribute to water management practices.
- Protection and sustainable use of water resources.

- Protection of ecosystems that contribute to the sustenance of water resources.

### Responsibilities of water users.

In addition to water rights and access to water resources, each stakeholder should realize that they have responsibilities towards the sustenance of the water resource and the surrounding ecosystems in the Lake Hawassa basin. Water users in the basin have the responsibility to:

- Use water resources wisely (reduce, recycle, reuse).
- Avoid or minimize pollution and degradation of water resources.
- Protect aquatic and terrestrial ecosystems and biodiversity in the water catchment area.
- Protect land resources from erosion and degradation in the water catchment area.
- Share water resources with others.
- Contribute to the maintenance and protection of water infrastructure.
- Consider the impacts of their water-related activities on other users around them and downstream.

## 1.3 Power/knowledge relationships among the different stakeholders and their implications

IWRM is anchored in stakeholder engagement in the planning and implementation processes at basin level. Involvement of all stakeholders in planning and decision-making processes fosters ownership of and cooperation in the IWRM process.

It is important to investigate characteristics (influence and interests) and relationships between stakeholders in order to address power/knowledge dynamics to enable transparent, fair and equitable stakeholder participation processes. It is important to ensure that vulnerable groups in society, such as women, the disabled, the youth and the elderly, are not marginalized in the IWRM processes. If participation takes place but those with decision-making

power are not willing to relinquish some of that power (roles and responsibilities) to lower-level participants, then IWRM will not be achieved.

### *Powerful stakeholders in IWRM include:*

- Government representatives/officials.
- Political office-holders.
- Representatives of international organizations and institutions.
- Private sector developers.
- Business people (commercial farmers, industry owners, etc.).
- Researchers and academic institutions.
- Representatives of national organizations and institutions.
- Representatives of local organizations and institutions.
- Community leaders.
- Men.

### *Less powerful stakeholders include:*

- Ordinary community members.
- The poor (e.g. subsistence farmers).
- Women.
- Youth
- Disabled.
- Elderly.

### Activity 1

1. Describe the different types of stakeholders in water resources in the Rift Valley Lakes basin.
2. Assess the knowledge of water rights among stakeholders in your area. How can this knowledge benefit the IWRM process?
3. Describe the power/knowledge dynamics among stakeholders in IWRM in your area. How do these power/knowledge relationships affect participation? Suggest ways to improve power/knowledge relationships to enhance equal participation.



## 2. Stakeholder awareness, mobilization, participation and conflict management

### GUIDING QUESTIONS

- How can we enhance stakeholder awareness and communication on IWRM in the Lake Hawassa basin?
- How do we mobilize stakeholders for IWRM in Lake Hawassa basin?
- What mechanisms can we use to enhance stakeholder participation in the Lake Hawassa basin?
- What approaches can we employ to manage and resolve conflict on IWRM issues in the Lake Hawassa basin?

### 2.1 Stakeholder awareness and communication on IWRM

At the core of IWRM is the need for equitable, beneficial and sustainable use of water resources. To achieve this, there is need for all stakeholders to have a say in the management of water because they have an interest in and concern about the water resources on which they depend.

confidence among stakeholders, particularly marginalized members of the community.

- Transparency with regards to the water situation in the Lake Hawassa basin, based on monitoring data.
- Information that is easily accessible to all stakeholders, including the poor and vulnerable including women and youth.
- Opportunities for stakeholders to voice their opinions and concerns and to participate in decision-making with regards to water resource use and management.

### 2.2 Stakeholder mobilization for IWRM

To attract the involvement and participation of all stakeholders in IWRM it is necessary for key role players to mobilize stakeholders across different economic and governance sectors and across the different communities within the Lake Hawassa basin.

In mobilizing stakeholders, it is essential that they see **value in (benefit from) the IWRM process** in order to maintain their active and continuous participation over time. It is important therefore to highlight the social, economic and environmental benefits of IWRM.

#### Long-term stakeholder participation requires:

- Constant communication and sharing of information on water resources in the IWRM process to increase knowledge, build capacity and develop

#### Formal approaches to stakeholder participation

Table 3 on page 11 illustrates some of the various methods that can be used to mobilize stakeholders.

#### Traditional stakeholder participation

Within indigenous rural community contexts around the Lake Hawassa basin, it is essential to recognize and utilize indigenous ways of gathering people as these are ways of participation that local communities are familiar with. Such approaches include:

- Traditional communication (e.g. use of talking drums in some indigenous communities).
- Traditional meetings and fora.
- Traditional collaborative events (collective ploughing, weeding, harvesting, etc.).

Method	Objectives	Strengths	Weaknesses
<b>Focus group discussions</b>	Obtain information, problem identification, learning between different stakeholder groups, learning between experts and other stakeholders	Rapid, cost effective, adaptable, reach group consensus, flexible means of assessing information from public	Information based on few people, less structured, requires effective facilitation to prevent loss of focus
<b>Citizen juries</b>	Reach consensus, obtain recommendations, have democratic decision-making process	Deliberative, promote open and constructive dialogue	Decision-making by few people, outcome may depend on social and psychological group factors
<b>Workshops</b>	Share planning and decision-making responsibilities, develop skills of stakeholders	Improve decision-making process, empowers people	Outcome may depend on social and psychological group factors
<b>Interactive web pages</b>	Involve a broader segment of the population, announce meetings, hold consultations, invite open response on a significant issue	Important when quantity rather than quality of data is needed, reaches the younger generation, efficient flow of information	Only people with knowledge in information technology and who are computer literate with access to internet can participate, it is expensive
<b>Consultation document</b>	Obtain views and opinions on a significant issue	Improved decision-making	Requires literate participants
<b>Public hearings/ meetings, open forums</b>	Obtain public testimony or comment	Inexpensive way of disseminating information to a large number of people	Can be dull or confrontational, insufficient deliberation, may intimidate the uneducated and verbally unskilled, ownership not encouraged, may be dominated by unrepresentative groups
<b>Demonstrations</b>	Show a viewpoint	Stakeholders can have a voice to affect a decision	Conflict may develop

Table 3. Approaches to mobilizing stakeholders. (Source: Anokye, 2013).

Such community gathering practices can be drawn upon to engage communities to participate in deliberations of IWRM.

### 2.3 Stakeholder participation in IWRM processes

#### Principles of stakeholder participation

Stakeholder participation in IWRM has to be collaborative and interactive and should be based on the principles of:

- **Inclusiveness** – democratic legitimacy and the representation of all stakeholder groups (water users, policy-makers, managers, developers)

in planning and decision-making processes in IWRM; fairness and justice in allocation of water resource rights and responsibilities.

- **Equity** – respect to and consideration of marginalized groups such as women, the poor and the youth in planning and decision-making processes.
- **Accountability** – of all stakeholders.
- **Transparency** – openness, discussion and criticism on IWRM issues; stakeholder access to information in an accessible form.
- **Legitimacy** – active participation and consensus in planning, decision-making and action in IWRM processes.

- **Conflict minimization** – management and resolution of differences among stakeholders.
- **Social learning** – stakeholders are all learners and educators. Capacity-building in IWRM should be an in-built, ongoing process, particularly for the lowest level stakeholders, to enhance confidence and participation in decision-making processes.
- **Effectiveness and efficiency** – efficient and sustainable water resource use, ecological sustainability and economic sustainability.

**Stakeholder participation is important to:**

- Share or transfer information on IWRM.
- Acquire views and perspectives, raise concerns and air values on IWRM issues from all stakeholders.
- Obtain local/indigenous knowledge on IWRM from the grassroots level.
- Enhance inclusivity and confidence in IWRM processes, particularly from the poor and excluded groups (such as rural communities, women and the youth).

- Enhance transparency and accountability in IWRM decision-making processes.
- Minimize/reduce conflict in IWRM processes.
- Protect water resources, land and ecosystems in the catchment area.

**Levels of stakeholder participation**

Participation can occur at different levels (see Table 4 below and Figure 2 on page 13).

Levels of participation/involvement can be summarized as follows:

1. **Information and notification** – one-way passive flow of information.
2. **Consultation** – two-way passive flow of communication.
3. **Participation** – interactive meetings.
4. **Negotiation** – face-to-face discussion.
5. **Community empowerment** – decentralized full control of decision-making processes by community members.

Level of participation	Characteristics
<b>1. Manipulation</b>	Stakeholder participation is simply a ritual (pretence) to further political or economic interests of more powerful role players (officials). Community members are gathered to rubberstamp already-made plans and decisions on IWRM without their full understanding of them and their implications. Their support is socially engineered.
<b>2. Therapy</b>	Stakeholders are gathered to be 'educated' on what more powerful stakeholders think is right about IWRM, and their rights, opinions and ability to make decisions are not tolerated or entertained.
<b>3. Informing</b>	Stakeholders are convened to be given information and to comply with already-made decisions on IWRM by more powerful stakeholders. Communication is one-way, no feedback is permitted from the community members and there is no room for negotiation or participation in decision-making processes.
<b>4. Consultation</b>	Stakeholders are gathered to extract information from them while not actively involving them in decision-making processes in IWRM.
<b>5. Placation</b>	Token representation by individuals from communities in high-level decision-making bodies where their representative voices are overruled.
<b>6. Partnership</b>	Equitable representation of community stakeholders with more powerful key stakeholders providing opportunity for interaction, negotiation and joint planning and decision making processes in IWRM.
<b>7. Delegated power</b>	Decentralized decision-making processes where community representatives become the dominant decision-making authority in local IWRM processes.
<b>8. Citizen control</b>	Empowerment for self-management where communities have total control and accountability in decision-making processes on IWRM.

Table 4. Levels of participation in IWRM.

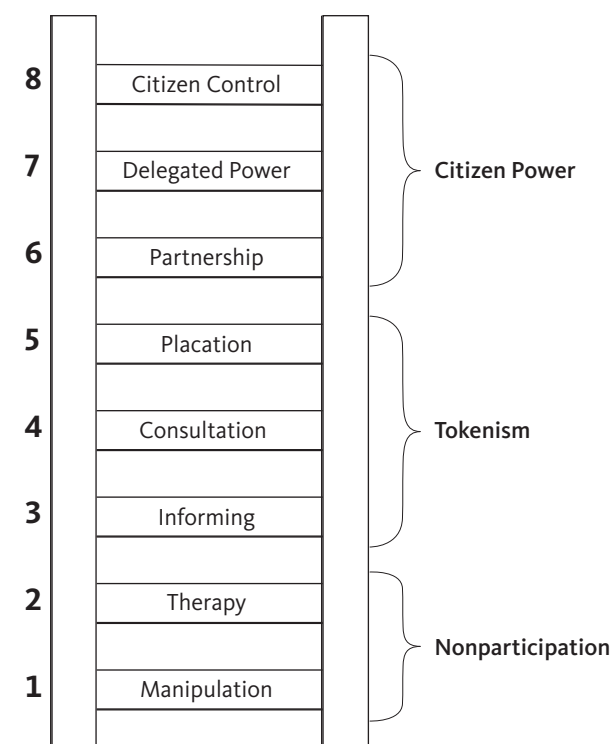


Figure 2. Arnstein's ladder of citizen participation (Source: Arnstein, 1969).

**Styles of stakeholder participation**

The two styles of stakeholder participation: **instrumental** and **transformative** are summarized in Table 5.

**Transformative participation** is the preferred style in IWRM processes as it is associated with good governance, transparency, legitimacy, inclusiveness, empowerment and active stakeholder engagement.

**Inclusivity and effectiveness in stakeholder participation**

During stakeholder participation, it is important to ensure involvement of marginalized groups such as poor rural communities, women, the disabled and the youth in order for them to:

- Understand their rights as well as their responsibilities.
- Formulate their demands based on their rights.
- Articulate their demands to the relevant authorities through appropriate channels.

Style of participation	Characteristics
<b>Instrumental</b>	Uses participation as a means to achieve an intended end (predetermined objective) and has a <i>planner-centred</i> focus. The result of the participatory process is objective-focused.
<b>Transformative</b>	Adopts a <i>people-centred</i> participatory process that aims at socio-political and/or economic empowerment of community members at the lowest level of decision-making in IWRM. It enhances stakeholders' management capacity and increases confidence at the lowest levels of power among stakeholders in the IWRM process.

Table 5. Styles of participation.

Effective participation in IWRM processes is achieved when there is:

- Involvement of public and private stakeholders.
- Fair and just dialogue.
- Consideration of all views, opinions and perspectives.
- Consensus in planning, decision-making and action.
- Accountability of all stakeholders.

Multi-stakeholder participation and collaboration in the IWRM process engages a broad range of stakeholders in problem-solving and joint decision-making processes. It is necessary to:

- Define IWRM implementation problems.
- Identify what is desired and achievable in IWRM implementation.
- Agree on the process achieving common goals in IWRM implementation.

## 2.4 Conflict management and resolution in IWRM processes

### Sources of conflict

Freshwater is a limited resource that is under increasing pressure from human demands and human impacts. Considering the central role of water to all human communities, conflicts of interests are

bound to arise between multiple water users with regards to access, allocation development and management of water resources.

It is important to realize that the different stakeholders sharing the water resources of the Lake Hawassa basin may have hidden, multiple and contradictory aims and interests that they will seek

Stakeholder	Water use	Interests	Impacts on water resources and other stakeholders
<b>Farmers</b>	Irrigation and livestock.	Sufficient water at low cost.	<ul style="list-style-type: none"> <li>Excessive water abstraction for irrigation and livestock purposes which could affect other users in the catchment area.</li> <li>Water pollution from fertilizers and agricultural chemicals.</li> </ul>
<b>Urban households</b>	Domestic consumption and sanitation.	Safe water quality for domestic consumption.	<ul style="list-style-type: none"> <li>Water pollution from wastewater.</li> </ul>
<b>Urban municipalities</b>	Water for wastewater reticulation.	Cost recovery.	<ul style="list-style-type: none"> <li>Water pollution from wastewater .</li> </ul>
<b>Rural households</b>	Domestic consumption and sanitation.		<ul style="list-style-type: none"> <li>Water pollution from wastewater.</li> </ul>
<b>Industry and mining</b>	Manufacturing Effluent discharge.	Reliable and good quality water supply.	<ul style="list-style-type: none"> <li>Water pollution from effluent discharge.</li> </ul>
<b>Business/office complexes</b>	Water consumption and sanitation.	Safe water for consumption.	<ul style="list-style-type: none"> <li>Water pollution from wastewater.</li> </ul>
<b>Public/private institutions</b>	Water consumption and sanitation.	Safe water for consumption.	<ul style="list-style-type: none"> <li>Water pollution from wastewater.</li> </ul>
<b>Tourism</b>		Safe water for consumption, water bodies for aesthetic purposes.	<ul style="list-style-type: none"> <li>Water pollution from wastewater</li> <li>Water pollution from water transport (boats, etc.).</li> </ul>
<b>Environment</b>		Water for biodiversity and ecosystem services.	
<b>Local non-government organizations (NGOs)</b>		Water access for the poor.	
<b>Environmental NGOs</b>		Protection of ecosystems and hydrological cycle.	
<b>International agencies (Developers)</b>		Development of water resources.	<ul style="list-style-type: none"> <li>Ecological and social impacts of dam projects.</li> </ul>
<b>Government sectors</b>		Policy implementation Conflict resolution.	

Table 6. Stakeholder Interests and Impacts.

to promote and defend. These may be in direct contradiction with the views of other water stakeholders and could result in conflict. Table 6 presents some stakeholder interests and impacts that could be a source of conflict.

It is also important to note that there are varying levels of understanding on IWRM among stakeholders in addition to different perceptions and views, and these can also cause conflict. It is also important to take into consideration the organizational and political influences of different stakeholders on water resources, which are a further potential source of conflict.

### Conflicts can be:

- **Interpersonal** – between individuals.
- **Intra-group** – within a particular group of stakeholders.
- **Inter-group** – between different groups of stakeholders.

Conflict management and resolution is therefore a key aspect in IWRM. The aim is to provide a neutral platform for dialogue and negotiation on water re-

sources in order to reach consensus and agreement and ensure sustainable water resource use and the protection of natural ecosystems.

### Strategies to manage and resolve conflict

Conflict management is the application of relevant knowledge, skills and strategies to anticipate, prevent and resolve conflicts. The key focus of conflict management in IWRM is to bring about change that:

- Enhances equal access to water resources, particularly for the vulnerable groups (women, youth and the poor).
- Ensures democratic representation in planning and decision-making processes.
- Promotes efficient uses of water resources.
- Engenders accountability and responsibility among all water users.
- Promotes sustainability of water resources (and related land resources and ecosystems) for present and future generations.

Some strategies to manage and resolve conflict are summarized in Table 7.

Approach	Characteristics
<b>Avoidance</b>	Consensus-building through creating enabling platforms for stakeholder participation, dialogue and collaboration, which reduce the chance of disputes.
<b>Negotiation</b>	Dialogue and negotiation between disputing parties towards reaching a mutually acceptable solution or settlement (win-win situation).
<b>Facilitation</b>	Involvement of neutral party to engage disputing parties in problem-solving meetings to jointly assess, plan and implement solutions. The role of the facilitator is to create conditions that ensure everybody has the opportunity to speak freely and reach an agreement without the facilitator volunteering their own ideas or participating in the decision making process (win-win situation).
<b>Mediation</b>	Involvement of a neutral party in overseeing the negotiations between the disputing parties and designing a process for reaching a mutually acceptable solution. The role of the mediator is to create an enabling and safe environment for disputing parties to share information, vent their emotions and address the underlying issues (win-win situation).
<b>Arbitration</b>	A neutral party hears presentations from each side of the disputing parties and makes an external decision in favour or against one of the disputing parties (win-lose situation).
<b>Litigation</b>	Engagement of legal entities to make an external judgement on a dispute through the country's legal system in a court of law on the basis of existing water laws in force in the country (win-lose situation).

Table 7. Approaches to conflict management and resolution. (Adapted from Cap-Net, 2008).



**To effectively resolve conflicts, it is important to:**

- Understand the problem rather than offer solutions.
- Focus on the interests of the various stakeholders.
- Identify various alternatives to solving the problem.
- Let the disputing parties weigh and evaluate each alternative solution.
- Seek an agreement among the disputing parties on the preferred solution.
- Document agreements for future reference and to reduce risks of later misunderstanding.
- Plan and create commitment to implement the solution by identifying the specific roles of the stakeholders for executing the agreed actions.
- Follow up on the implementation of the solution and evaluate it in relation to the agreement(s).

**Successful conflict resolution depends on:**

- Willingness of disputing parties to participate in the conflict resolution process.
- Opportunity for equitable and fair participation and representation of all disputing parties.
- Opportunity for mutual gain where both parties will stand to be better off through cooperative action.

- Identification and exposure of vested interests in the conflict.
- Development of options or alternatives to resolve the dispute.
- Agreement on resolution and planning of actions to implement resolution.
- Successful implementation of agreed actions by responsible parties.

In the IWRM process in the Lake Hawassa basin, due consideration should be taken of traditional approaches by indigenous communities to conflict management and resolution on shared water resources, particularly when working with rural communities. Traditional conflict management and resolution brings into play shared cultural knowledge and practices that are commonly acceptable to a local community. These include:

- Commonly shared cultural ways to resolve disputes – these include the collective decision of community members such as through traditional court systems.
- Commonly shared ways of utilizing and protecting water resources (governed by taboos and sacredness of water resources, ecosystems and species).
- Commonly shared water rights and responsibilities.

**Activity 2**

1. Conduct an analysis of stakeholders in water resources in your area. List and categorize them.
2. What approaches to mobilizing stakeholders for IWRM have been employed in your area? What other approaches are possible?
3. What levels of stakeholder participation are common in IWRM processes in your area? How can stakeholder participation for the area be enhanced?
4. What is the style of stakeholder participation common in your area? What are its advantages and disadvantages?
5. What benefits in IWRM processes have been realized through stakeholder participation in your area?



Strategic sub basin planning is key to managing diverse stakeholder interests on water.



Multi-stakeholder forums brings different water managers and users together to discuss the practice and challenges faced.



## 3. Sustainability of water resources and ecological systems

### GUIDING QUESTIONS

- How do we ensure the availability of fresh-water resources and the provision of good quality water supply in the Lake Hawassa basin?
- How can we ensure ecological sustainability of the Lake Hawassa catchment area?
- How can we enhance socio-economic sustainability of communities in the Lake Hawassa basin?

### 3.1 Water quality, availability and ecological sustainability of the Lake Hawassa catchment

The environmental dimension of IWRM is concerned with the sustainable use of water resources and the protection of the land and natural ecosystems that maintain the hydrological cycle. It should be realized that **water is an integral component of the natural ecosystem**. To ensure security of water resources there is a need to **protect the aquatic and terrestrial ecosystems** within a catchment area. The Lake Hawassa catchment ecosystem performs several ecological and socio-economic functions, which include:

- Provision of water for domestic, agricultural and industrial use.
- Provision of soil moisture to support vegetation.
- Provision of habitats for wildlife (fish, birds, animals, insects, etc.).
- Recharge of groundwater, wetlands and surface water resources.
- Nutrient recycling.
- Pollution regulation (assimilation of wastes).
- Climate regulation (carbon sequestration, contribution to the hydrological cycle).

Population growth and associated human economic development increase water demand and water pollution, creating stress on the limited freshwater resources. There is a need to understand the water-related roles and needs of ecosystems and the water-related implications of human activities for ecosystems. Negative changes to the ecological landscape of the Lake Hawassa catchment area due to land and water use activities have direct impacts on the hydrological cycle, the ecosystem and the quantity and quality of water resources. Human use of land and water resources result in changes in infiltration and groundwater recharge, surface runoff and sediment transportation. These in turn cause:

- Increased flood flow during the rainy season.
- Decreased dry season flow in the catchment area.
- Increased evaporation from the lake surface.
- Increased sedimentation and pollution in the lake.

Human activities also result in:

- Increased abstraction of freshwater resources for socio-economic purposes.
- Pollution from agriculture, industrial effluents and urban wastewater flows.
- Deforestation.
- Biodiversity loss and ecosystems change.
- Reduced aesthetic appearance of the catchment ecosystem.

Overall, unsustainable human activities have direct and indirect impacts on the quantity and quality of water resources in the Lake Hawassa basin. If adequate measures are not put in place to conserve water and related land and ecosystem resources, achieving long-term water sustainability and security will be impossible. In managing water resources, management of land and ecosystem sustainability is essential for the sustenance of water resources in the Lake Hawassa basin. A holistic approach to water resources management that integrates so-

cio-economic and ecological management aspects is vital.

Consideration of the carrying capacity of the natural ecosystems and the need to sustain the aquatic and terrestrial ecosystems in the Lake Hawassa catchment area provides the logical starting point for sustainable socio-economic development in the basin. A degraded environment cannot sustain socio-economic development and negatively impacts on water security. IWRM aims to transform human activities towards achieving ecosystem sustainability as well as socio-economic sustainability. Priority therefore needs to be given to safeguarding the ecosystems in the Lake Hawassa catchment area in order to ensure water security for socio-economic sustainability of present and future generations.

### 3.2 Enhancing the socio-economic sustainability of Lake Hawassa communities

#### Socio-economic activities in the Lake Hawassa basin

Water is a source of livelihood for various sectors of the population. The availability of adequate and quality freshwater is a key driver of economic and social development. Lake Hawassa is an important political economic development centre in Ethiopia. Water resources in the basin are required for the following socio-economic activities:

- **Food security** – the growing population in Hawassa town and the broader Ethiopian society requires food in the form of grains and cereals, fruit, vegetables and animal products. Producing food requires a constant water supply for irrigation and livestock.
- **Commercial agriculture** – production of agricultural produce for export such as coffee, flowers, fruit and cotton requires intensive agricultural practices that have a high water demand.
- **Fishing** – Lake Hawassa supports a thriving local fishery enterprise. This requires water resources for sustaining the aquatic ecosystem and biodiversity. It also requires control and minimization

of water pollution to sustain good quality water for aquatic biodiversity.

- **Ecotourism** – the aesthetic scenery, aquatic and terrestrial wildlife as well as birdlife in the Lake Hawassa basin attract tourists, thereby sustaining a thriving ecotourism industry.
- **Industry** – Textile industrial manufacturing activities in the 400-hectare Hawassa Industrial Park (HIP), the largest textile and garment manufacturing park in Africa, require adequate clean water. HIP houses more than 18 leading global garment and textile companies. Fortunately for the lake ecosystem, this eco-industrial park is implementing zero liquid discharge, enabling it to recycle 90% of its sewage disposal water, fulfilling international standards of a green economy zone (UNIDO, 2018). This sustainable development practice greatly minimizes water pollution and increases water-use efficiency. In addition to zero liquid discharge, HIP uses renewable energy.

To ensure sustainable socio-economic development in the Lake Hawassa basin, it is necessary to effectively manage water resources while keeping the supporting ecosystems healthy. This requires a transition from 'development as usual' towards a sustainable development approach that maximizes social, economic and environmental benefits. A sustainable IWRM process calls for a **systems approach** that pays attention to both ecological (biophysical) and human (social, cultural, economic and political) systems and their interrelationships in the Lake Hawassa basin.

#### Indigenous sustainability practices for protecting water resources and ecosystems

Within local community contexts, particularly with rural communities around Lake Hawassa, it is important to draw on local knowledge and practices that have been used to conserve and protect water resources and ecosystems in the catchment area over many generations. Some of these indigenous knowledge practices, which are usually embedded in taboos, include:

- Not cultivating close to a water body as this will cause the water to dry up



- Terracing cultivated valleys to minimize soil erosion.
- Not fouling water bodies that are a source of domestic water supply (not washing, urinating or defecating in or near water bodies).
- Sacredness of water bodies as spiritual sites.
- Sacredness of aquatic species such as frogs and water birds, watershed trees and other species.
- Protection of fish populations through traditional observance of breeding seasons in which fishing is not permitted.
- Traditional land management and erosion control practices (maintaining and planting tree/vegetation boundaries around water bodies and cultivated land, maintaining vegetation cover or mulch on cultivated lands, agroforestry).

### Activity 3

1. What human activities in your own context impact on water quality and quantity?
2. How do human activities impact on economic activities around the Lake Hawassa basin?
3. Suggest strategies that can be employed to minimize the impacts of human activities in your own area.



Water pollution due to expanding textile industry poses a risk to water sustainability in the Rift Valley Basin of Ethiopia.



## 4. Participatory water governance in IWRM

### GUIDING QUESTIONS

- How do we create an enabling environment to enhance equal stakeholder participation in the Lake Hawassa basin?
- What water-related policies and legislation are available? How can we integrate them in implementing IWRM in the Lake Hawassa basin?
- How do we enhance inter- and cross-sectoral dialogue and collaboration in IWRM implementation in the Lake Hawassa basin?
- What are the institutional roles and responsibilities of stakeholder groups in the implementation of IWRM in the Lake Hawassa basin?
- What economic instruments are available for implementing IWRM in the Lake Hawassa basin? What instruments still need to be developed?
- How do we develop an effective system for monitoring and evaluation of the IWRM process in the Lake Hawassa basin?
- How do we develop an effective system for monitoring and evaluation of the IWRM process in the Lake Hawassa basin?
- How can we improve the governance of IWRM in the Lake Hawassa basin?

### 4.1 Why an integrated approach?

The use and abuse of limited water resources has led to water scarcity, water quality degradation and ecosystem destruction, with negative impacts on socio-economic development and ecosystem sustainability. Integrated water governance is necessary to socio-economic and environmental sustainability. Governance systems in IWRM require an integrated approach to social, economic and environmental aspects as well as ensuring stakeholder participation. The management of water resources requires:

- Stakeholder participation (development of basin management structures).
- Basin planning.
- Physical management (flood and drought control, pollution control).
- Information management.
- Economic management (water allocation and pricing).
- Monitoring and evaluation.

### 4.2 Implementation of stakeholder participation in IWRM

Stakeholder participation means including representatives from all water user groups and decision-making bodies. Active involvement of all stakeholders can improve the quality of decisions and the compliance of water users. Stakeholder engagement involves the following stages:

1. Mobilization of **stakeholder support** for the IWRM process.
2. Participatory **selection of committees** (comprising stakeholder representatives).
3. **Establishing trust and building capacity** (establishing rapport, recognizing traditional authority structures, identifying skills gaps and providing necessary training).
4. Participatory **problem identification** (contextual profiling of the area, conducting a rapid water resource audit and ranking needs).
5. Participatory **development of an IWRM action plan** (identifying possible solutions and planning for implementation of those solutions).
6. Participatory **implementation of the action plan** (stakeholder commitment, participatory learning and action).
7. Participatory **monitoring and evaluation** (what did not work, what worked, what could be done better).

### 4.3 Application of water related policies and legislation in WRM implementation

Water policies and legislation in Ethiopia emphasize the decentralization of decision-making and public participation. These include the Water Resource Management Policy, Water Resource Management Strategy, National IWRM Programme and other related IWRM projects, which are enablers for IWRM implementation. These policy instruments demonstrate political will to invest in the implementation of IWRM. It is important that these policies and related legislation are integrated during planning and implementation of IWRM processes.

### 4.4 Enabling inter- and cross-sector dialogue and collaboration in implementing IWRM

The water sector is highly fragmented and its management involves multiple public, private and not-for-profit non-government institutions at international, national, regional and basin levels. The allocation of roles and responsibilities in policy-making, water infrastructure development and implementation of water resources management is spread across different levels of governance. This presents a serious challenge in inter- and cross-sectoral integration in IWRM processes. IWRM requires the engagement of all actors to collectively share the roles and responsibilities for water resources management and the establishment of **effective coordination mechanisms**.

*Key sector ministries in water resources management in Ethiopia include:*

- Ministry of Water, Irrigation and Energy (MoWIE).
- Ministry of Environment, Forest and Climate Change (MoEFCC).
- Ministry of Agriculture (MoA).
- Ministry of Health (MoH).

In addition to government agencies, the government has established river basin organizations (RBOs) to decentralize the management of water resources in local catchment area. RBOs prepare IWRM plans through a multi-stakeholder participation processes involving federal government agencies, regional governments, technical representatives, international organizations and water users (local farmers, industries, communities, etc.).

**Multi-sectoral coordination and collaboration** in the IWRM process is complicated by the need to take into account the different views, perceptions, interests and policies currently operating in the water sector. There is also a problem of overlapping roles and responsibilities across sectors. IWRM requires “coherent, holistic and integrated consultation, participation and co-ordination of stakeholders” (OECD, 2015).

IWRM requires a cross-sectoral collaborative and adaptive management approach to ecosystems and water resources that takes into consideration the changing nature of institutions and the environmental context. A summary of the functions of the different levels of organization is provided in Figure 3.

#### National level

- Establishment of policies, strategies and laws for IWRM.

#### River basin level

- Allocating water flows, capacity-building, ecosystem maintenance and water infrastructure maintenance.

#### Water user level

- Utilizing water resources to meet water demands and needs subject to rules, water rights and responsibilities.

Figure 3. Organizational levels and functions in IWRM.

### Creating multi-stakeholder platforms

Multi-stakeholder platforms are needed for effective engagement and collaboration. Such platforms should enable the creation of:

- Clear rules of engagement, enabling every stakeholder represented to have a say and to participate fully.
- Communication among all stakeholders and access to information.
- A shared vision on IWRM.
- Complementarity, interdependency and reducing overlapping roles.
- Equitable power/knowledge relationships in planning and decision-making processes.
- Accountability of all stakeholders (commitment by stakeholders to their roles and responsibilities).
- Setting up an IWRM organizational framework (establishing committees for various targeted outcomes in the IWRM process).

### Establishing inter- and multi-sector dialogue

Collaboration allows stakeholders to find solutions that go beyond the individual stakeholder's capacity and limitations to work towards sustainable water resources management. Inter-sector dialogue and collaboration among different organizations and institutions in IWRM processes requires:

- Information exchange – stakeholders inform each other about their views and ideas.
- Dialogue – breaking down barriers that come from working separately and aiming for cooperation in IWRM processes.
- Deliberation – exploring commonalities and differences.
- Negotiation – making necessary compromises and attaining consensus.
- Establishing shared agreements – working together in partnership towards shared common targets (goals and objectives) and timelines (schedules) by sharing roles, responsibilities and risks.
- Mediation – maintaining rules of communication and managing and resolving conflicts.

## 4.5 Institutional arrangements in IWRM

Institutional arrangements are essential for ensuring social equity, economic efficiency and ecological sustainability of water resource management. Institutional arrangements refer to:

- Allocation of tasks and responsibilities to water agencies or structures at different levels of government.
- Corresponding linking mechanisms between these different agencies and/or structures.
- Water laws, standards and regulations that inform the institutional framework within which the agencies and/or structures work/operate.

*Institutional arrangements are necessary for carrying out all tasks of IWRM, including:*

- Planning
- Cross-sectoral coordination
- Infrastructure development
- Implementation
- Capacity-building
- Pricing
- Monitoring and evaluation

## 4.6 Economic instruments for IWRM implementation

The economic aspect of water resources is based on the Dublin Principle that: "Water has an economic value in all its competing uses and should be recognized as an economic good" (United Nations, 1992) and the argument that we should abandon the perception that water is a freely available resource. Economic instruments are used to manage water demand and to recover costs incurred in developing and maintaining water infrastructure as well as in treating water and wastewater for human consumption and other uses.

### Water demand management

Water demand management involves the formulation and application of incentives to limit water

demand and increase efficiency in water use. Water demand management aims to conserve water and change consumer behaviour towards more sustainable water use (reducing overall water consumption and promoting reuse).

### Water allocation

Water allocation refers to the process in which available water resources are distributed to water users within a catchment. Water is a limited and shared resource. In allocating water, priority must be given to satisfying the **basic human need** for water for consumption and sanitation, and the **environmental reserve** (minimum amount of water retained to sustain the ecosystem of the water resource). Water should then be allocated in such a way that each water user has access to water in accordance with their needs (municipal, industry, irrigation, hydro-power, etc.) using relevant economic instruments. In Ethiopia, as in other developing countries, agriculture is currently the biggest water user and can use up to 90% of the total water consumed.

### Economic and legal instruments

Water allocation can be determined according to its value for alternative uses. Economic instruments involve the use of value and prices to enhance efficiency and equity in water use.

*Economic instruments include:*

- Water use **tariffs and charges** paid by water users to water service providers. Effective tariffs are based on the amount (volume) of water used. Metering is therefore essential. Charging for water influences consumer behaviour towards conservation and efficient use. It also recovers the cost of services involved in purification, reticulation (delivery to consumers), and development and maintenance of infrastructure.
- Water **abstraction charges** (bulk water tariffs) are levied for the extraction of raw water directly from the water source (rivers, lakes and aquifers). Abstraction charges can be a fixed amount or depend on water use. They can also influence consumer behaviour towards water to view it as a limited resource.
- **Pollution/discharge charges** penalize the dis-

charge of contaminated water by water authorities or companies into public water bodies. Like water use charges, charges for effluents also require metering. When such permits are set high enough they force potential polluters to change their habits through reducing their waste discharges and treating their effluents before discharge.

- **Water subsidies** are used as positive incentives for inducing pro-environmental and pro-water conservation behaviour. These include installation of water pre-treatment plants in factories before discharge of effluent, and payment for environmental services to farmers when they practice sustainable agriculture and adopt environmentally friendly practices to preserve watersheds and aquatic ecosystems.

*Legal instruments are also used to regulate access to water resources and include:*

- General quotas for water
- Licences/permits for water extraction or wastewater effluent (pollution) discharge.
- Water and wastewater quality standards.
- Water taxes.
- Water regulations.

## 4.7 Monitoring and evaluation of IWRM implementation process

IWRM is a continuous process to ensure security of water resources and environmental sustainability. Monitoring includes:

- Monitoring of water resource system (freshwater supply, sources of pollution, levels of pollution).
- Monitoring of water infrastructure.
- Monitoring of catchment ecosystem (aquatic and terrestrial biodiversity, land, vegetation) through environmental impact assessment.
- Monitoring of water demand and economic instruments via economic assessment.
- Monitoring of institutional arrangements, roles and responsibilities.

- Monitoring of stakeholder participation and relationships.
- Monitoring of awareness, education, training and capacity-building.

## 4.8 Enhancing water governance through IWRM implementation

IWRM must be correctly viewed as a **continuous process of participatory stakeholder planning, implementation, evaluation of and reflection on water resource management actions**. Improvement in water governance through IWRM rests on achieving a balance between **maintaining ecosystem integrity and socio-economic development** so as to ensure both environmental and economic sustainability. This requires continuous attention and response to emerging challenges in water governance such as:

- Population growth.
- Economic growth and diversity.
- Increasing urbanization.
- Poverty.
- Local, national and international conflicts.
- Climate change and other global environmental crises.

### Activity 4

1. How is stakeholder participation for IWRM being implemented in your own context? What are the strengths and weaknesses of the implementation process?
2. How effective is inter- and cross-sector dialogue and collaboration on IWRM in the Lake Hawassa basin? What are the main challenges and how can they be alleviated?
3. How effective are institutional arrangements for IWRM in your own area?
4. What economic instruments are in place for IWRM in your area? How can they be improved?
5. To what extent is monitoring and evaluation of IWRM being practiced?

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