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# Source-to-sea stakeholder assessment

Lake Hawassa Sub-Basin  
Sediment erosion

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This project followed the guidance provided in “Implementing the Source-to-Sea Approach: A Guide for Practitioners” and “Source-to-Sea Framework for Marine Litter Prevention: Preventing Plastic Leakage from River Basins”. Both of these resources as well as many others can be found at [www.siwi.org/source-to-sea](http://www.siwi.org/source-to-sea).

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## Foundations for Source-to-Sea Management

The Stockholm International Water Institute (SIWI), funded by the Federal Ministry of Economic Cooperation and Development (BMZ) conducted a project "Foundations for Source-to-Sea Management" to pilot the source-to-sea approach<sup>1</sup> in the Vu Gia Thu (VG-TB) River Basin, Viet Nam and the Lake Hawassa sub-basin, Ethiopia. By focusing on the first three steps of the source-to-sea approach, the two pilots:

- Increased knowledge of priority local challenges constraining sustainable development;
- strengthened awareness of the linkages between upstream and downstream activities and their impacts;
- highlighted the opportunities and challenges associated with implementing the source-to-sea approach to management; and
- built local capacity for taking a holistic approach to natural resource management and economic development.

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# Introduction

The Stockholm International Water Institute (SIWI), funded by the Federal Ministry of Economic Cooperation and Development (BMZ) conducted a project “Foundations for Source-to-Sea Management” to pilot the source-to-sea approach as it is laid out in [“Implementing the source-to-sea approach: A guide for practitioners”](#) and [“Source-to-Sea Framework for Marine Litter Prevention: Preventing Plastic Leakage from River Basins”](#). Two specific locations, Vu Gia Thu Bon River Basin (VGTB), Viet Nam, and Lake Hawassa sub-basin, Ethiopia, were selected for the implementation of pilot studies that involved the application of the first three steps within the source-to-lake approach (Error! Reference source not found.).

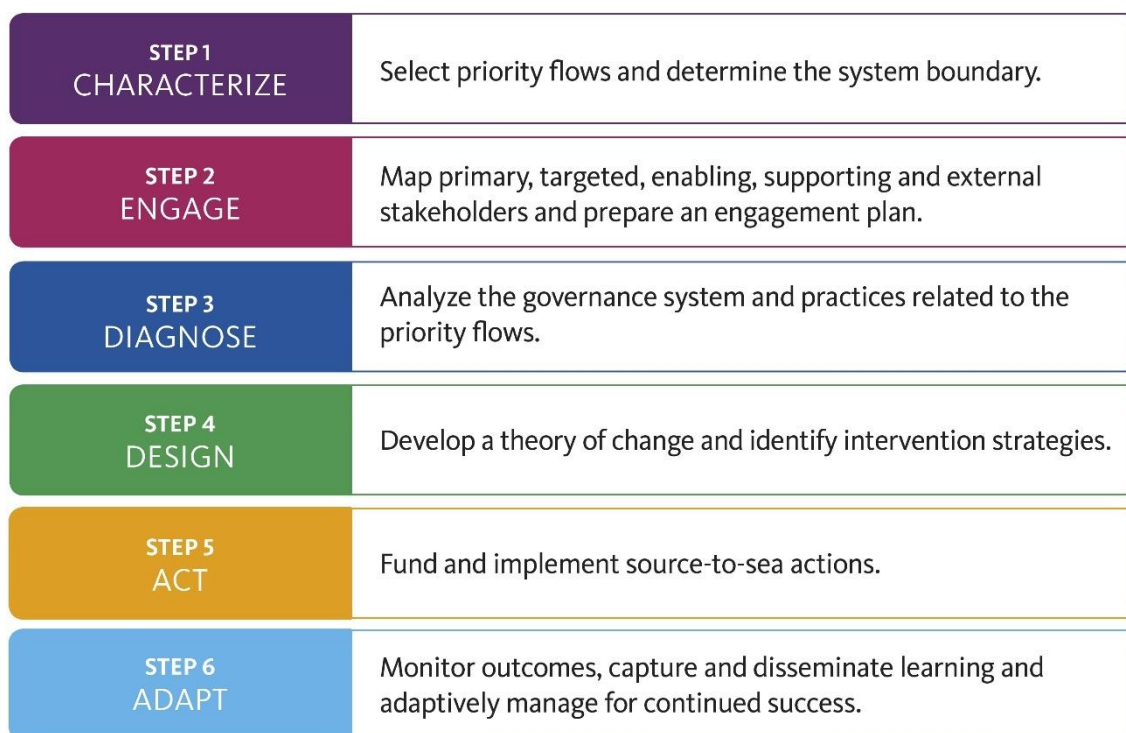


Figure 1: Six steps of the source-to-sea approach (Source: Mathews, et al. 2019)

In the Lake Hawassa sub-basin, two priority source-to-sea flows were identified as important – sediment from soil erosion and plastic pollution. In the VGTB, plastic pollution was selected as the priority source-to-sea flow for this project. These priority flows were chosen following early discussions with local partners. In both Ethiopia and Viet Nam, stakeholder workshops, capacity building workshops and field visits were conducted. Activities in the Lake Hawassa sub-basin were conducted with GIZ, and the Basin Development Authority of Ethiopia (BDA). While activities in the VGTB were conducted with IUCN, Department of Natural Resources (DONRE) and Quang Nam Provincial Peoples’ Committee. In the Lake Hawassa sub-basin, the source-to-sea approach was adapted to source-to-lake, recognizing the similarities in characteristics in an endorheic lake basin and as compared to a sea or ocean. Consultants were commissioned to prepare reports characterizing the priority flows as described in Step 1 of the source-to-lake approach. These reports

were used to define the system boundary for each priority flow, and, in turn, provide a base for undertaking Step 2: Engage and Step 3: Diagnose within the pilot studies.

The focus of this report is the results from carrying out Step 2: Engage.

## Lake Hawassa sub-basin

The Lake Hawassa sub-basin is located 275 km south of Addis Ababa and covers approximately 1400 km<sup>2</sup>. Lake Hawassa is 90 km<sup>2</sup> in size and is the endpoint of an endorheic hydrological system, with some limited groundwater outflow. Erosion and sediment flows are considered major issues in Hawassa and have been driven by the substantial land use changes over the past 50 years. Ongoing changes in land use have led to infilling of aquatic environments, including the loss of Lake Cheleleka, and increased water turbidity in local waterbodies.

The main urban area is Hawassa City and it is one of the fastest growing cities in Ethiopia. The population of Hawassa City in 2015 was estimated to be 350,000 in the urban area and was growing very quickly at 4% per annum. The population of the entire sub-basin is approximately 3 million people who mainly live in rural areas. Prominent land uses in the sub-basin include agriculture (including enset, maize and potatoes), tourism, and, most recently, industries supported by the inception of a major industrial park (Hawassa Industrial Park (HIP)).

### Land use

Land degradation, erosion, and sediment flows are long-standing issues in the Lake Hawassa sub-basin. Sources of sediment are scattered and widespread, with close to 750 km of gullies found across the sub-basin, generating close to 67875 m<sup>3</sup> sediment per annum flowing into Lake Hawassa from this source. Belete (2019) estimates that close to 87% of the sub-basin is used for agricultural purposes, including cropping, pasture, horticulture and agroforestry. Other estimates for land use include Degife (2019) who estimated 62% of land in the sub-basin is specifically for cultivation or agroforestry in 2017. The area of cultivated land has expanded substantially over the past 50 years. For example, in 1972, it was estimated that cultivated land and agroforestry activities represented 9.5% and 14.7% of land uses, respectively. By 1992, these land uses accounted for approximately 36.5% of the sub-basin, and by close to 62% of the sub-basin, respectively. Much of these land use changes have been at the expense of forest, woodland, shrubland and wetland. Forest, woodland, shrubland, and wetlands comprised approximately 61% of the sub-basin in 1972, 46.5% of the sub-basin in 1992, and 20.7% of the sub-basin in 2017 (Degife 2019). The resultant land use change, often found in locations with erodible soil conditions or marginal slopes, has been a substantial contributor to the increase in sediment erosion.

Belete (2019) outlines several behaviours or practices that contribute to many of these land use changes. Behaviours and practices include the conversion of forest or woodlands to agriculture through either planned approaches endorsed by government or unplanned expansion through times of political instability; increased intensity of land uses or techniques associated with key crops grown in the Lake Hawassa Basin; ongoing demand for wood fuel that leads to vegetation removal; limited resources available to local authorities for managing early stage erosion; difficulties in applying context specific management to late stage erosion; increases in livestock needs under pastoralism affecting riparian areas, and the exacerbation of already exposed gullies and other sources by sand-mining, either through the use of lengthier gullies as transport networks or as sources of sand that is used to supply the building boom taking place in Hawassa City, which was the fastest growing city in

Ethiopia. Future hotspots for sediment sources include presently forested locations that are under pressure from wood collection or are close to larger settlements.

Whilst the sources of sediments were widespread, Belete (2019) noted three key continuums in terms of sediment flows into Lake Hawassa: Continuum 1: Source-Gully-Lake, Continuum 2: Source-Urban Lake, and Continuum 3: Source-Wetland-Lake.



Figure 2: General source-to-lake continuums (Source Belete 2019)

### Continuum 1: Source-Gully-Lake

The first continuum represents the most substantial flows of sediment, estimated to deliver 68375 m<sup>3</sup> sediment per annum into Lake Hawassa. This continuum begins in hills found in the upper sub-catchments surrounding the lake that then flow through the lowland areas until reaching Lake Hawassa. Erosion and sediment flows are often found on soils that were already susceptible to erosion but, following land use changes over the last 50 years, the soils are more exposed to water flows, which then allows for the formation of gullies.

Different stakeholders were identified in connection with this continuum, with primary stakeholders generally being farmers and rural communities in upper and lower sub-catchments that lose access to productive land and fisherman reliant on Lake Hawassa for their livelihoods; targeted stakeholders including farmers whose management practices can exacerbate erosion, local construction industry actors that access sand, wood fuel collectors, and forestry management interests; enabling stakeholders including various regional state bureaus and Hawassa City Authority; supporting stakeholders such as Hawassa University and GIZ; and external stakeholders such as Ethiopian Airlines that services local tourism. Other examples can be found in Annex 1.



## *Continuum 2: Source-Urban-Lake*

The second continuum noted in Belete (2019) was the Solid waste-buffer-lake continuum. Earlier work undertaken by Hawassa City (RiPPLE, 2014 2014) noted that urban areas were substantial sources of sediment flow through connections with solid waste directly into Lake Hawassa, but these are not the only flows from urban locations. Between 1973-2015, built-up areas of Hawassa City expanded by 24%, along with an expansion of peri-urban landscapes, whilst the population grew quickly. These land use changes exposed soils to water and wind related exposure and increased the sediment rate and deposition in Lake Hawassa, especially from locations near or beside Lake Hawassa. In addition to the land use changes generating sediment, Belete (2019) noted that solid waste found in Hawassa City contains substantial amounts of ash, with an estimated 43% by composition and that much of this ash also finds its way into Lake Hawassa. Hotspots include touristic areas, stormwater catchments that directly connect to Lake Hawassa, or locations close to water undergoing land development.

The primary stakeholders within this continuum tend to be the urban communities that suffer from flooding when blocked stormwater outlets flood the streets during the rainy season; targeted stakeholders are the members of the communities that dispose of ash within their solid waste, as well as the city administration that should be providing solid waste management services, developers of land near water bodies, and the construction industry that is fuelled by the urbanisation boom in Hawassa City. Enabling stakeholders in this continuum tend to be urban authorities and urban kebeles in terms of administration, but potentially also regional state bureaus relating to urban development and housing that are overseeing the population expansion. Supporting stakeholders in this continuum tend to be organisations that support activities to reduce poorly managed solid waste. These sector actors are important for the governance baseline, i.e., the institutions and instruments relating to urban land management, urban planning, and other urban services. This analysis also provides a connection to the first continuum in that much of the sand used for building construction in Hawassa is sourced from and through the gullies identified under Continuum 1.

## *Continuum 3: Source-Lake Wetland-Lake*

The third continuum noted by Belete (2019) is Land-Wetland-Lake. In this continuum, sediment sources in the eastern hills, around Wondo Genet for example, have traditionally been a source of sediment to Lake Hawassa through the various rivers and streams, but Lake Cheleleka and associated wetlands increasingly became a sink for much of the sediment flow. The gradual infill of Lake Cheleleka occurred following land use changes in contributing sub-catchments to the east to the extent that the lake disappeared and continues to be a sediment sink. Local communities have since moved into the former lake area and wetland, although there continues to be water flow carrying sediment from the eastern hills through Tika-Wuha River in the northern part of the former lake. Much of the area to the east of Lake Hawassa has seen significant land use changes since 1972 (Belete 2019), leading to substantial sediment flows that eventually impacted on the wetlands in this area.

Primary stakeholders in this continuum include farmers affected by gully erosion but also communities who have moved onto the wetland and taken steps to entrench the changes to the landscape. The targeted stakeholders include farmers whose practices continue to contribute to the sediment flows from the upper catchment, as well as the pastoralist communities now found in the former lake and remnant wetland area. Whilst upstream agricultural activities are the main source of sediment in this continuum, ongoing changes in Lake Cheleleka suggest that these remnant wetlands, and their ongoing conversion to pastoral and other agricultural purposes, reduces capacity

as a sediment sink for sediment sourced from upstream, and may become a source of sediment over time.

## Impacts

During stakeholder engagement workshops as part of the project, stakeholders were asked to identify impacts from excessive sediment flows as well as some of the key geographical locations or practices that they thought contributed to the erosion. It is noted that the sources of sediment identified in this process were very widespread, touching on most parts of the sub-basin and have been derived from many sectoral activities. Of note also was that the impacts were widespread, but concerns relating to health impacts and ecosystems were uppermost in many participants minds. Further results from both Step 1 Characterize and Step 2 Engage also indicate that the sources and geographical locations of sediment erosion are very widespread, and that there is a range of stakeholders whose practices and behaviours contribute to those flows

Table 1: Identified impacts and sources

Impacts	Sources of Pollution
<ul style="list-style-type: none"> <li>• <b>Air pollution and residues (dust)</b></li> <li>• <b>Impacts on biota / biodiversity</b></li> <li>• <b>Direct impacts on poor communities through loss of land and gully systems</b></li> <li>• <b>Health impacts – general and specific</b></li> <li>• <b>Loss of fishery, population reduction</b></li> <li>• <b>Flooding in many areas through sediment loading in drainage systems</b></li> </ul>	<p><b>Geographical sources</b></p> <ul style="list-style-type: none"> <li>• Western areas: Hawassa Zuria (incl. Galo Argisa (airport), Dore Bafano, Shafo and Rukessa Kebeles), Anolo-Ljara Mountains (over mining of sands for building purposes), Shalla and Boricha Woreda, Shashemene Woreda. Western watersheds have large open gullies.</li> <li>• Eastern areas: Wondo Genet Woreda, Shalla / Shaamene Chelelek Kes Woreda, Tula sub city</li> <li>• Solid waste from Hawassa City (high levels of ash and dust)</li> </ul> <p><b>Sectoral sources</b></p> <ul style="list-style-type: none"> <li>• Excavation of airport project (without appropriate mitigation measures)</li> <li>• Lakeshore farming (impacting on soil)</li> <li>• Deforestation in watershed, leading to more erosion</li> <li>• Soil nature in many parts of the Sub-basin is very fragile</li> <li>• Quarry sites</li> <li>• Sand-mining</li> </ul>

# Stakeholder assessment

There are many different sources of sediment flow into Lake Hawassa, often from different land use types, resulting in a fragmented governance system. Applying a source-to-sea approach (locally called source-to-lake) helps address this issue by focusing on the linkages between land, rivers and lakes. The approach considers the entire source-to-lake system – stressing upstream and downstream environmental, social and economic linkages and stimulating coordination across sectors and spatial segments, across flows such as water and sediment. This knowledge is then used to build commitment by critical stakeholders for designing strategic courses of action that hold greater benefits for the land-to-lake system, rather than one or two sectors or specific sources of sediment flow.

The project in the Lake Hawassa Sub-basin provides a good opportunity to highlight the benefits of taking an integrative approach for source-to-lake management and working with local stakeholders on developing solutions and strategic course of action and identifying gaps or overlaps in terms of governance on a long-standing issue.

## Source-to-lake approach

The source-to-lake approach begins with Step 1: Characterization. In this step, the local challenges related to the alteration of the patterns and behaviours of the priority flow and the observed biophysical changes to the system are assessed. With this understanding of changes to the priority flow and their impacts, the next step is to identify stakeholders that are either affected by alterations to the priority flow, are contributors to those alterations, or are important for supporting future interventions. Stakeholder assessments differ in the level of granularity required, dependant on the system boundary being used, the objectives being sought, and the overall purpose of the project.

In this project, the stakeholder assessment is informed by initial identification of stakeholders to engage in project activities and is elaborated through this engagement and as more understanding of the local challenges from the biophysical, social and governance perspectives is gained., where the different combinations of system boundaries, stakeholders, and governance frameworks feed into next steps with the purpose of eventually identifying a theory of change that identifies important interactions, and possible interventions. However, the source-to-lake does not simply identify the different stakeholders that will be affected by or involved in the behaviour leading to alterations in the priority flow, it also recognises the importance of identifying gaps or overlaps amongst the stakeholders already engaged. Ultimately, the aim is to involve the full suite of stakeholders needed to ensure that the proposed interventions are implemented. Five categories of stakeholders are considered in the source-to-lake approach: primary, targeted, enabling, supporting, and external. The descriptions of each will be found in the next section, but it is important to realise that each type has a role to play in the overall source-to-lake approach.

# Conducting the stakeholder assessment

## Methods

In order to undertake Step 2: Engage and identify source-to-lake stakeholders, two different research approaches were used. The first was through the Step 1 Characterization study commissioned as part of the characterisation reports prepared by a local consultant (Belete 2019). While the focus of this report was on providing baseline information that helps to characterize the situation regarding erosion and sediment issues, they also included sections on Step 2: Engage and Step 3: Diagnose. The second approach was through engagement with stakeholders in workshops held as part of the project in late 2019 and early 2020. These workshops included representatives from various institutions and communities throughout Lake Hawassa sub-basin as well as from the regional and federal level and focused on enhancing knowledge about the system boundary and the identification of impacts, stakeholders and institutions as applicable. In terms of restrictions, whilst the combination of both approaches contributed to the stakeholder assessment, the programme was intending to hold further workshops in Hawassa to verify and endorse the findings, and potentially identify other stakeholders as necessary, which were cancelled due to Covid-19.

## Source-to-lake stakeholder categories

### Primary Stakeholders

Primary stakeholders are those individuals or groups who are affected by changes in the priority flow, generally negative. In the case of sediment, these are the stakeholders that are being affected by increased flows from sediment into waterbodies, exacerbation of gully systems, reductions in land productivity, possible transport of pollutants and so on. The primary stakeholders in the Lake Hawassa sub-basin include rural communities where available land is lost to gully formation in uplands, downstream communities that depend on fisheries that may be affected by the smothering of breeding grounds, or those parties who suffer a loss of income associated with a decline in water quality and associated loss of perceived value, such as water-based tourism operators. As stated in Mathews and Stretz (2019): *Primary stakeholders are affected by the alteration of priority flows and benefit from the intervention strategies.*

Table 2: Identified primary stakeholders

Stakeholder Name	Level	Source-to-lake segment	Source-to-lake sub-segment	Interest	Influence
Farmers	Local	Land system	Rural / Urban	Strong	Weak
Local Community	Basin	Land system	Rural / Urban	Moderate	Weak
Fisherman	Local	Freshwater system	Lake	Moderate	Weak

### Targeted Stakeholders

Targeted stakeholders refer to those individuals or groups whose practices are creating or exacerbating the problem. In the example of sediment, stakeholders in this category may include upper or lower catchment farming communities whose farming techniques result in increased

sediment flows, those catalysing land use changes that remove vegetation cover and increase soil exposure to erosion, those parties removing vegetation cover to access mineral resources or for building infrastructure, and those grazing domestic animals on the water's edge. As stated in Mathews and Stretz (2019): *Targeted stakeholders are actors or sectors whose practices are contributing to the alteration of priority flows and whose behaviour intervention strategies are aimed at changing.*

Table 3: Identified target stakeholders

Stakeholder name	Level	Source-to-lake Segment	Source-to-lake sub-segment	Interest	Influence
<b>Construction Industry</b>	Local	Land system	Urban	Weak	Local
<b>Agricultural Community</b>	Basin	Land system	Rural / Urban	Moderate	Basin
<b>Pastoralists</b>	Basin	Land system	Rural / Urban	Weak	Basin
<b>Hawassa Municipality</b>	Municipal	Land system	Urban	Moderate	Municipal
<b>Rural Community</b>	Basin	Land system	Rural / Urban	Strong	Basin
<b>Sand Miners</b>	Basin	Land system	Rural / Urban	Weak	Basin

### Enabling Stakeholders

Enabling stakeholders are those stakeholders who have a role in managing the practices and behaviours that impact on the priority flow. This set of stakeholders include those institutions that have been granted legislative mandates regarding the priority flow, or perhaps control budgets that affect how much effort can be expended in managing the flow. Whilst many of these enabling stakeholders are formal bodies such as bureaus within regional state government, several informal bodies may also emerge. As stated in Mathews and Stretz (2019): *Enabling stakeholders provide the enabling conditions for behaviour changes to occur and benefits to be sustained over time.*

Table 4: Identified enabling stakeholders

Stakeholder name	Level	Source-to-lake Segment	Source-to-lake sub-segment	Interest	Influence
<b>Natural Resources Offices</b>	State	Land system	Rural / Urban	Moderate	Weak
<b>RVLBDO</b>	Basin	Freshwater system	Rural / Urban	Strong	Moderate
<b>Agricultural Offices</b>	State	Land system	Rural / Urban	Moderate	Strong

### Supporting Stakeholders

Supporting stakeholders are those who provide support for managing an environmental issue but may not have legislative powers or a formal mandate in terms of managing the issue. Supporting stakeholder are often an important source of funding for future interventions. For example, stakeholders that build awareness or knowledge about an issue, such as universities, or civil society organisations that can bring additional resources into the project, such as GIZ. As stated in Mathews and Stretz (2019): *Supporting stakeholders include development partners or financiers whose strategies are aligned with and can support the source-to-sea objectives.*



Table 5: Identified supporting stakeholders

Stakeholder name	Level	Source-to-lake segment	Source-to-lake sub-segment	Interest	Influence
<b>SIWI</b>	Global	Freshwater system	Urban / Rural	Strong	Weak
<b>GIZ</b>	Global	Land system	Urban / Rural	Strong	Moderate
<b>Universities (Hawassa University)</b>	National	Land system	Urban	Moderate	Weak
<b>Research Institutes</b>	National	Land system	Urban	Moderate	Weak
<b>Hotels &amp; Resorts</b>	Basin	Land system	Urban	Moderate	Moderate
<b>Friends of Lake Hawassa</b>	Basin	Land system	Rural / Urban	Strong	Moderate

### External Stakeholders

The final category of stakeholder are external stakeholders. This category includes those stakeholders who may have interest in the priority flow being addressed but sit outside the biophysical boundaries or may be unaware that they have an interest. As stated in Mathews and Stretz (2019): *External stakeholders are individuals or groups outside of the system boundary who share an interest in the outcomes of the project or programme.*

However, specific external stakeholder were not identified by the consultant or workshop participants.

### How do the different categories of stakeholders contribute to source-to-sea management?

The source-to-sea approach is designed as a structured approach in which each step in the process contributes to the development of an overall theory of change and a suite of interventions that will work in the context. By taking a more structured approach to addressing the issue, new insights or perspectives may be gained at each step of the approach. When combined with a holistic approach, looking at sediment overall, it is more feasible to develop strategies that intervene across a spectrum of sources. Through Step 1: Characterisation, system boundaries and issues are identified which are then used to identify stakeholders and their specific roles or contributions to present and future source-to-sea management. Whilst the impact of sediment on Lake Hawassa is often the same, irrespective of the actual source, addressing the issue will require different interventions across a large biophysical area or affect significant numbers of people, often by institutions that have a mandate to manage only one or two sources.

Primary stakeholders contribute to source-to-sea management as they can better contextualise the extent of the problem and may be encouraged to take part in interventions if they are aware of how the issue impacts on them.

Targeted stakeholders contribute to source-to-sea management as they are the ones who practices contribute to the problem and the ones who may need support for behaviour or practices to change and therefore reduce the impact or extent of the problem.

Enabling stakeholders contribute to source-to-sea management as it is their mandates, and how they give effect to these, which helps create the conditions for local practices, and this may need to be adjusted. For example, one institution may have responsibilities for different activities within several sub-segments, with several of these in potential conflict. For example, the Bureau of Agriculture may be responsible for the expansion of cultivated land but in doing so affect the infiltration capacity of local ecosystems

Supporting stakeholder contribute to source-to-sea by bring in additional resources that can support changing of behaviour, potentially through knowledge sharing, advocacy and potentially additional financial resources not available through enabling stakeholders.

External stakeholders are less likely to initially contribute to source-to sea-management, as they may be unaware of the opportunities for interventions or normally operate at a scale that precludes active local engagement. Some of their actions may support changes to enabling conditions whether positively or negatively or, alternatively, interventions may be designed to support them to shift to being supporting stakeholders.

In the case of the sediment priority flow, it is important to note that stakeholders can be linked to one or more stakeholder communities. For example, farming communities can be affected by sediment flows in many ways, but it may be their own practices that exacerbate the problem.

## Source-to-lake roles

Given the widespread nature of the sources and impacts of sediment erosion, different interventions are required throughout the sub-basin, irrespective of the source-to-lake segment or sub-segment, whether upper catchments, lower catchments, riparian areas or in terms of the lake itself. A farming community in one part of the system may be responsible for the practices affecting another part of the system, especially in terms of upstream sediment erosion impacting downstream communities. Similarly, enabling stakeholders may be active in many parts of the basin, but their role can change according to the specific sub-segment within which they operate. An example of this is the Rift Valley Lakes Basin Development Office who may have legislative and regulatory powers regarding managing the buffer zones surrounding water bodies as an enabling stakeholder, but their role may be more limited to coordination or advisory only in the upper part of the catchment. Annex 1 gives some detail on the main sub-segment in which a stakeholder has a role.

## Interest vs influence

In the source-to-sea approach, it is important to understand how the various interests and influence of various stakeholders plays out in terms of their role in the process and desire for change. Interest, in this context, refers to the level of stakeholder interest in changes being made of present practices and behaviours under current management. For example, there may be stakeholders who are comfortable with the status quo, or the perceived costs outweigh the perceived benefits from change and therefore have very little interest in changes being made.

Influence, in this context, refers to stakeholder capacity to foment or catalyse changes in behaviours or practices and therefore reduce the extent or intensity of impacts or to block changes or interventions. Influence can arise from formal or informal mandates, leadership, resource access, or technical capacity and knowledge. Enabling stakeholders often have the most influence, owing to legal mandates, but other parties may also be influential such as knowledge institutions, associations

or private sector actors. On the other hand, there may be stakeholders who are very interested in changes being made but have little capacity to influence those changes through a lack of power, resources or capacity.

Interest and influence are important considerations within Step 2: Engage, as it helps to reveal stakeholder interests and motivations, and their capacity to support or limit change. More importantly, it can be used to help identify how to engage each stakeholder in developing and implementing interventions that are identified during Step 4: Design.

# Stakeholder engagement plan

The main objectives for stakeholder engagement differ according to the project. The project in Lake Hawassa was primarily concerned with developing capacity in source-to-lake management of the very real challenges found in Lake Hawassa.

Various institutions have carried out activities in the Lake Hawassa sub-basin over many years, including land use management programmes, capacity building, extension activities and more. However, the rate of sediment flows seems to be increasing despite these efforts. For example, several land use rehabilitation activities have occurred in different parts of the catchment, but these efforts have often been overshadowed or superseded by land use changes or sources of sediment from other locations.

Their roles and levels of interest, and influence of each stakeholder will have an impact on the way that they should be engaged in designing and implementing interventions. Whilst the project was more concerned with implementing Steps 1-3, it needed to be very cognizant of how results of this work impact on Steps 4-6 of the source-to-lake approach. For example, if a stakeholder has little interest in change, as it is benefitting from the status quo, but has a strong influence on whether change occurs, engagement strategies should be designed around raising their interest. Similarly, engagement of stakeholders that have a high interest in seeing change and a high capacity to influence those changes may be built around active engagement to address the issues.

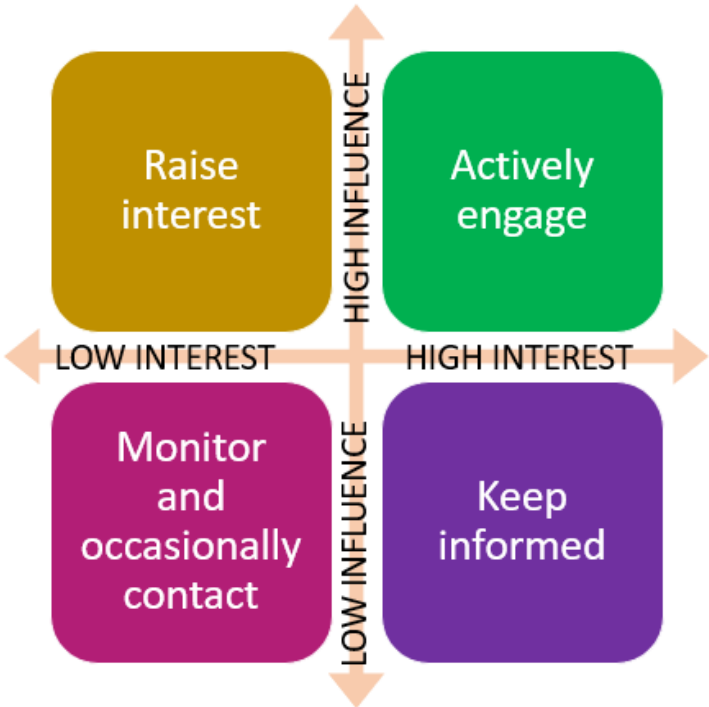


Figure 3: Analysis of interest and influence informs the stakeholder engagement strategy

Engagement of stakeholders with low interest and low influence is mainly through occasional check-in. Such engagement may help shift interest in change higher, but otherwise this is a low intensity component of the stakeholder engagement plan.

The strategy for engagement of stakeholders with low interest in change but high influence is primarily concerned with activities that build awareness of the impacts from alterations of the priority flow and how reducing these impacts may benefit them. In the more difficult cases, some stakeholders may have low interest in change due to benefiting from the status quo, but substantial influence in local decision-making, and the purpose of the engagement is primarily concerned with limiting opposition or perhaps encouraging support.

The guiding approach for stakeholders that have high interest but low influence is information sharing and finding ways to strengthen their level of influence.

Those stakeholders that have a high interest and high influence are likely to be the main driver of local activities and will be the main proponents of future interventions. Engagement with these stakeholders should form the bulk of activities and interventions as they have an interest in seeing change and the influence to make it happen. For this group, there may only be small barriers to action.

There may also be stakeholders that have either moderate interest in change or moderate influence over where change happens. They will form an important component of future engagement in order to raise their interest in change. They will have more barriers to involvement but can become strong allies.



# Discussion

This report represents the initial findings for Step 2: Engage of the source-to-lake approach. The stakeholder assessment will inform further steps in the process, especially Step 3: Diagnose, Step 4: Design, and Step 5: Act. As such, the report is more concerned with general attributes of stakeholders, but more detail about the motivations, activities, interest and influence of different stakeholders can be found in Annex 1.

Of particular interest is that participants in Lake Hawassa workshops tended to identify local enabling stakeholders but often failed to recognise the important role that federal institutions play. This may be because most visible responses to erosion are more localised and have often consisted of small-scale physical infrastructure or extension activities. However, issues such as woodfuel and sand-mining will require the involvement of enabling stakeholders at the federal tier, as these require shifts in policy and strategy.

It should be noted that most stakeholders in this report have only been identified generically, and further work is needed to fully understand the stakeholder landscape and who need to be involved in upstream-downstream cooperation and cross-sectoral coordination to establish source-to-lake management of sediment erosion. For example, specific sediment erosion, sand-mining and fuelwood collection geographical hotspots and associated actors could be used to specifically identify priority communities for action within Step 4: Design.

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# Annex 1: Stakeholder assessment worksheet

## STEP 2: Engage

Stakeholder Name	Description	Category	Level	S2S segment	S2S sub-segment	Interest	Influence	Activities	Additional Comments
Farmers	Farming activities are highly significant in the sub-basin, with up to 83% of land being used for this purpose. Such activities are not limited to rural areas, but can be found in urban and peri urban areas also. Farmers can be affected by the loss of productive land due to erosion.	Primary	Local	Land system	Rural / Urban	Strong	Weak		Loss of available productive land may result in loss of income generating activities, an increase in costs to service remaining land, and impacts on transport. The primary stakeholders are important to include to convey the impacts as well as to build the political will to do something to reduce those impacts. They also are used in the selection of indicators, i.e., how do the selected interventions reduce impacts to the primary stakeholders.
Local Community	Local communities include both urban and rural locations. The type and intensity of the impact from sediment will depend on the type and location of the local community, but in rural areas it is often reduction in available land whilst in urban areas it is potential flooding that is a key concern.	Primary	Basin	Land system	Rural / Urban	Moderate	Weak		The type and intensity of the impact from sediment will depend on the type and location of the local community, but in rural area it is often reduction in available land whilst in urban areas it is potential flooding that is a key concern. The primary stakeholders are important to include to convey the impacts as well as to build the political will to do something to reduce those impacts. They also are used in the selection of indicators, i.e., how do the selected interventions reduce impacts to the primary stakeholders.
Fisherman	Fish is an important source of local protein as well as a resource used to support the tourism industry. Sediment can impact on fisherman in many different ways including impacts on recruitment, product quality, fish catch, and ease of transportation	Primary	Local	Freshwater system	Lake	Moderate	Weak		The livelihood of fisherman are directly connected to the state of the fishery. These primary stakeholders are important to include to convey the impacts as well as to build the political will to do something to reduce those impacts. Their needs are also strongly connected to the state of local ecosystems, so their experiences are used in the selection of indicators, i.e., how do the selected interventions reduce impacts on the primary stakeholders.
Construction Industry	Rapid urban growth in Hawassa has increased demand for building materials including sand. Anecdotally, sand mining provides significant employment for youth and construction interests are driving the illegal sourcing of sand in many parts of the Hawassa sub-basin..	Target	Local	Land system	Urban	Weak	Strong		Engage with governance institutions to reduce impacts in hotspots, whether direct removal of materials or use of gullies as transport networks. Work with governance institutions to find alternatives, including techniques, locations, and income options.
Agricultural Community	Agricultural communities include both rural and peri-urban locations. The type and intensity of the impact on sediment flow from their behaviours and practices and the location of the local community. In upper catchments, the conversion of other land types to cultivated land is the key concern, whereas in established agricultural lands, it may be the type of management that creates sediment challenges.	Target	Basin	Land system	Rural / Urban	Moderate	Weak		

Stakeholder Name	Description	Category	Level	S2S segment	S2S sub-segment	Interest	Influence	Activities	Additional Comments
Pastoralists	Pastoral communities are mainly found in rural locations throughout the sub-basin. The type and intensity of their impact on sediment flow from their behaviours and practices will differ, but a key concern is overstocking rates and watering that increases localised flows of sediment in riparian locations.	Target	Basin	Land system	Rural / Urban	Weak	Weak		Use managed water points and sources as opposed to direct access to water bodies and avoid livestock grazing in riparian areas, and overgrazing in upper and low sub-catchments.
Hawassa Municipality	Urban authorities are a unit of governance that provides services, but can also be affected by impacts of plastic litter, including increased costs due to clean-up, damage to infrastructure, and impact on reputation.	Target	Municipal	Land system	Urban	Moderate	Moderate		Esnure that local planning and construction permitting doesnt increase sediment flows into Lake Hawassa. Undertake improved urban planning and solid waste activities that will result in reduced sediment loads, and investment into services.
Rural Community	Local communities can be affected by plastic litter in several different ways. In terms of Hawassa, the impacts on local fisheries, increased costs associated with service provision, and the role of plastic litter in exacerbating urban flooding are importants impacts to consider.	Target	Basin	Land system	Rural / Urban	Strong	Weak		
Sand Miners	Rapid urban growth in Hawassa has increased demand for building materials including sand. Anecdotally, sand mining provides significant employment for youth. It is often illegal and therefore less easy to manage or to legitimately introduce necessary standards to mitigate its impact.	Target	Basin	Land system	Rural / Urban	Weak	Moderate		Reduce impacts in hotspots. Work with governance insitutions to find alternatives, incluing techniques, locations, and income options.
Natural Resources Offices	These regional bureaus are responsible for the management of the environmental impact of new activities, controlling pollution, supporting policies and strategies from MEFCC at the Federal level. Wetlands identification, delineation, and implementation of community-based management are also done by this bureau.	Enabling	State	Land system	Rural / Urban	Moderate	Weak		
RVLBDO	As well as the Basin Development Authority hosted at the Federal level, there are local offices working in different basins across Ethiopia. The Office has an important role in coordinating different interventions on the sediment flow at the local level.	Enabling	Basin	Freshwater system	Rural / Urban	Strong	Moderate		
Agricultural Offices	This regional bureau is responsible for the management and promotion of water activities at a state level. It mainly focuses on the development, operation and maintenance of rural (and urban) water supply systems in the regions; and also irrigation developments.	Enabling	State	Land system	Rural / Urban	Moderate	Strong		Continue to provide, and possibly increase, support for sediment management and erosion reduction activities to be carried out in rural areas, including though policies, resources and capacity building.

