

Policy and stakeholder analysis to inform advocacy on drowning reduction among fishers in southern Lake Victoria, Tanzania: REPORT

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ACRONYMS

BCC	behaviour change communication
CBO	community-based organization
CSO	civil society organization
EAC	East African Community
EALA	East African Legislative Assembly
EMEDO	Environmental Management and Economic Development Organization
FAO	Food and Agriculture Organization
FBO	faith-based organization
FETA	Fisheries Education and Training Agency
FGD	focus group discussion
FUO	Fishers Union Organization
GPS	Global Positioning System
HSSP	Health Sector Strategic Plan
IDI	in-depth interview
ILO	International Labour Organization
IMO	International Maritime Organization
IFBO	international faith-based organization
INGO	international non-governmental organization
LSHTM	London School of Hygiene and Tropical Medicine
LVBC	Lake Victoria Commission Basin
LVFO	Lake Victoria Fisheries Organization
MCT	Ministry of Communications and Transport
MHA	Ministry of Home Affairs
MITU	Mwanza Intervention Trials Unit
MLEYD	Ministry of Labour, Employment and Youth Development
MLF	Ministry of Livestock and Fisheries
MLFD	Ministry of Livestock and Fisheries Development
MNRT	Ministry of Natural Resources and Tourism
MOEST	Ministry of Education, Science and Technology
MOEVT	Ministry of Education and Vocational Training
MOHCDGEC	Ministry of Health, Community Development, Gender, Elderly and Children
MOHSW	Ministry of Health and Social Welfare
MWTC	Ministry of Works, Transport and Communications
NGO	non-governmental organization
OHS	occupational health and safety
PMO-LYEPD	Prime Minister's Office - Labour, Youth, Employment and Persons with Disability
PO-RALG	President's Office, Regional Administration and Local Government
RNLI	Royal National Lifeboat Institution
SADC	Southern African Development Community
SECOM	Sectoral Council of Ministers on Lake Victoria
SUMATRA	Surface and Marine Transport Regulatory Authority
TAFIRI	Tanzania Fisheries Research Institute
TASAC	Tanzania Shipping Agencies Corporation
TMA	Tanzania Meteorological Agency
TTCL	Tanzania Telecommunication Company
TZS	Tanzanian shillings
UN	United Nations
URT	United Republic of Tanzania
WHO	World Health Organization

Executive Summary

1. BACKGROUND

Drowning is a significant risk in fishing communities in Lake Victoria, East Africa. In the southern part of the lake, within the United Republic of Tanzania (URT), the incidence of fatal drowning is estimated at 217 people per 100,000 person-years, far exceeding the estimated national average incidence (Sarassett et al. 2019; Whitworth et al. 2019). This study aimed to identify major stakeholders and potential approaches to drowning reduction advocacy for small-scale and artisanal fishers in southern Lake Victoria.

2. RESEARCH METHODOLOGY

Four key research questions were the focus of the study:

- a. Who are the main individual and institutional actors affecting or affected by changes in drowning policies or practices related to fishers in southern Lake Victoria?
- b. What is the existing policy and regulatory framework governing safety on the lake for fishers in southern Lake Victoria?
- c. Why have efforts to increase lake safety among fishers in southern Lake Victoria been successful or unsuccessful?
- d. How could current and potential stakeholders become more engaged in advocacy and agenda-setting to reduce fisher drowning in southern Lake Victoria?

Research methods consisted of:

- Review of 18 national acts, rules, regulations, policies and plans and 20 international agreements and voluntary guidance documents that are relevant to fisher water safety and drowning reduction in southern Lake Victoria, Tanzania;
- 31 semi-structured in-depth interviews primarily conducted with government officers who work directly with the fisheries industry (i.e. shipping/transport, fisheries, or police) from the local to national levels; and
- 8 focus group discussions primarily conducted with fishers and fishing community leaders in four villages in southern Lake Victoria.

3. RESULTS

3a. Who are the water safety stakeholders currently?

Currently the main water safety stakeholders affecting or affected by drowning-related policies and practices in southern Lake Victoria are: small-scale fishers and their families; boat owners and builders; Beach Management Units (BMUs) and other local leaders; and Tanzania Shipping Agencies Corporation (TASAC), fisheries, and marine police officers; and the East African Community (EAC), e.g. the Lake Victoria Basin Commission (LVBC).

BMU members are quasi-governmental, elected local authorities who are expected to enforce laws and bylaws and also represent community interests. The LVBC, with the support of the African Development Bank, has initiated the Lake Victoria Maritime Communications and Transport Project, which has goals to establish an East African Maritime Transport Strategy and a maritime communications system for

safety on Lake Victoria, including and a maritime communication network, maritime rescue coordination centers, search and rescue centers, and weather alert services.

3b. What is the water safety policy?¹

At the national level:

- **Fisheries, transport, shipping, and meteorology:** These acts, rules, regulations, policies, and plans directly relate to fisher water safety mainly focus on enforcement of fisher and boat licensing requirements, e.g. safety equipment and boat sea worthiness, although the latter is only vaguely defined for artisanal vessels. Key documents include:
 - the 2019 Tanzania Meteorological Authority Act (A1-1);
 - the 2003 Merchant Shipping Act and its various (e.g. 2014 and 2019) Regulations and Rules (A1-15, A1-2);
 - the 2017 and 2018 Tanzania Shipping Agencies Act and Regulations (A1-3);
 - the 2003 Fisheries Act and its 2009 Regulations and 2015 Policy (A1-16, A1-9, A1-6); and
 - the 2003 National Transport Policy (A1-18).
- **Health, labour, and youth:** While these sectors have not historically been involved in drowning prevention work in the URT, they also have policies and regulatory documents that are relevant to fisher drowning prevention, particularly content related to unintentional injury, occupational health and safety, and youth development. Key documents include:
 - the 2009 Public Health Act (A1-10);
 - the 2012 National School Health Strategic Plan 2013 – 2017 (A1-8);
 - the 2015 Health Sector Strategic Plan, July 2015 – June 2020 (HSSP IV) (A1-7);
 - the 2017 National Health Policy (A1-4);
 - the 2003 National Occupational Health and Safety Act and its 2009 Policy (A1-17, A1-11);
 - the 2004 Employment and Labour Relations Act and its 2008 Policy (A1-14, A-12); and
 - the 2007 National Youth Development Policy (A1-12).
- **Education:** This sector does not currently have policies or regulations related to fisher water safety (e.g. the 2017 Education Sector Development Plan (2016/17-2020/21), A1-5), but it has the potential to be an important stakeholder in this area.

Currently the health and education sectors in the URT are large and powerful, but under-resourced. The labour sector is a smaller and less influential sector, while the youth sector is very small.

Strengths of the national policy and regulatory framework are: active collaboration between the fisheries, transport, and police sectors; the meteorology sector is becoming stronger; the fisheries and shipping sectors generally have clear policies, rules, and regulations; the health and labour sectors have broadly relevant policies; and the youth sector has a specifically relevant policy. **Weaknesses and gaps** are that there is no national water safety plan or strategy, as recommended by the World Health Organization (WHO 2017; WHO 2018); few national documents directly address water safety among fishers on inland waters; and there is little attention to fisher water safety education and training needs

At the international level: Many regulatory, policy, and voluntary guiding documents also are relevant to fisher water safety in Lake Victoria. The URT has endorsed and/or ratified binding international protocols or agreements with the South African Development Community (SADC) (A2-4, A2-10, A2-15, A2-17, A2-19) and the EAC LVBC and Lake Victoria Fisheries Organization (A2-5, A2-14). The SADC

¹ Summaries and relevant excerpts for each of the numbered policy documents (e.g. A1-1, A2-20) can be found in the Appendices and Annexes, respectively.

protocols have content relevant to fisher water safety, such as State agreement to encourage and guide the fishing industry to promote the welfare and working conditions of all employees, and State cooperation in reducing the prevalence of occupational injuries.

At this time, the URT has not endorsed or ratified highly relevant international conventions with the International Labour Organization (ILO) or International Maritime Organization (IMO) (Table 8). However, the URT is a member of those international agencies as well as the World Health Organization (WHO) and Food and Agriculture Organization (FAO). FAO, WHO, ILO and IMO all have produced highly relevant voluntary international documents that could be adapted in southern Lake Victoria (A2-2, A2-3, A2-6, A2-7, A2-8, A2-9, A2-11, A2-12, A2-13, A2-16, A2-18, A2-12). For example, the voluntary guidance documents address promotion of a preventative occupational health and safety culture, worker education and training on swimming skills and water safety, and development of a national water safety plan.

- **Strengths of the international policy and regulatory framework** include the planned LVMCT Project, the ratified SADC protocols, and the detailed, voluntary guidance on fisher water safety from international bodies within which the URT is a member.
- **Weaknesses and gaps** are that many of the international fisheries documents do not address small-scale fishers in inland waters, and very few relevant international Conventions have been ratified by the URT.

3c. Why have efforts to increase lake safety been successful or unsuccessful?

Table 1 summarizes the main factors contributing to the successes and limitations of efforts to increase lake safety among fishers in southern Lake Victoria.

Table 1. Successes and limitations of water safety efforts in southern Lake Victoria

Water safety effort	Successes / limitations	Factors influencing fisher water safety
1. General implementation of policies and regulations	<i>Successes</i>	a. Stakeholder understanding of policies and regulations b. Government capacity for boat and fisher registration, licensing, and inspection
	<i>Limitations</i>	a. Insufficient progress in implementing water safety measures b. Limited government coordination and guidance c. Inadequate government capacity and resources d. Some BMU or government conflicts of interest, negligence, and/or corruption e. Poverty inhibiting fishers' abilities to meet licensing and safety requirements f. Many unsafe boats used for fishing g. No stakeholders focused on fisher safety and welfare, and particularly drowning reduction
2. Weather forecasting services	<i>Successes</i>	a. Weather information is available and improving in quality and coverage
	<i>Limitations</i>	a. Some fishers are unable to access weather information b. Some fishers disregard weather forecasting
3. Search and rescue services	<i>Successes</i>	a. Collaboration of government and private stakeholders in search and rescue
	<i>Limitations</i>	a. Inadequate centralization, communication, resources and/or concern from authorities

Water safety effort	Successes / limitations	Factors influencing fisher water safety
4. Promotion of safety knowledge and related attitudes	Successes	<ul style="list-style-type: none"> a. Basic education provided to fishing communities by fisheries, TASAC, and marine police officers b. Specialized training for small vessel operators by the Fisheries Education and Training Agency (FETA)
	Limitations	<ul style="list-style-type: none"> a. Education and law enforcement conflict of interest b. Limited quality and coverage of water safety education/training c. Many fishers have negative attitudes about wearing life jackets d. Some fishers have conflicting religious or traditional beliefs e. Some fishers underestimate risk
5. Promotion of safe practices	Successes	<ul style="list-style-type: none"> a. Safety equipment often is accessible and affordable for boat owners and fishers at the local level b. Many boat owners maintain their boats adequately and provide safety equipment c. A minority of fishers use life jackets
	Limitations	<ul style="list-style-type: none"> a. Many fishers cannot swim b. Underage fishing is common c. Safety equipment is not affordable for some d. Some boat owners do not provide safety equipment e. Some fishers do not use available safety equipment f. Some fishers have high-risk behaviors while fishing in the lake, including intoxication g. Danger of drowning due to crime (e.g. pirating)

3d. How can water safety stakeholders become more engaged?

Increasing the engagement of stakeholders in water safety advocacy and agenda-setting will require complex interventions that address attitudes, social norms, and skills; these in turn will require investment of time and resources. Specific suggestions for engagement follow:

1. Fishers and their families:

- **Improve the quality and coverage of water safety education and training for fishers and their communities:** Provide clear, fact-based information; address social norms; promote behaviour change; foster skills development; provide training through a non-enforcing agency; implement low-cost (or free) trainings with wide coverage and repetition; educate fishers’ families and other community members; develop other interventions as appropriate to the community (e.g. alcohol and drug treatment and recovery).
- **Subsidize safety equipment and emergency services:** Provide subsidized or free safety equipment; develop and implement a more efficient search and rescue system.
- **Increase police protection for fishers:** Increase marine police patrols to protect fishers; increase police, TASAC, and fisheries patrols to enforce fishing water safety regulations
- **Promote alternative sources of income for fishers:** Implement a microcredit loan system; promote alternative livelihoods.
- **Support organization or unions of fishers:** Foster/facilitate creation of small-scale fisher unions locally and nationally; actively seek out and consult representative groups of fishers in national initiatives.

2. Boat owners and builders: Improve the quality and coverage of their water safety education and training; widely implement low-cost or free trainings in how to build safe, small boats; consider

implementing a conditional microcredit loan system and/or providing boat safety subsidies; define and enforce minimum safety requirements for small-scale fishing vessels; and actively seek out and consult boat owners and builders in drowning prevention initiatives.

3. **BMUs:** Improve the quality and coverage of their water safety education and training; standardize BMU responsibilities across villages; reduce BMU conflicts of interest; expand the BMU structure to fishing camps on remote shores and islands; and actively seek out and consult BMU members in drowning prevention initiatives.
4. **Ministries of: (a) Livestock and Fisheries (MLF); (b) Works, Transport and Communications (MWTC); and (c) Home Affairs (MHA):** Create and implement higher standards of small boat building, required safety equipment, and dissemination of weather forecasting; expand efforts to monitor and enforce safety regulations; develop and fund a strong, separate, enforcing training agent; and engage MLF, MWTC and MHA representatives in drowning prevention initiatives at all levels (local to national).
5. **(a) Ministry of Health, Community Development, Gender, Elderly and Children; (b) Prime Minister's Office - Labour, Youth, Employment and Persons with Disability; and (c) Ministry of Education, Science and Technology:** Identify a strong point person within each ministry/sector (health, labour, youth) who could champion this issue; provide stakeholders with clear evidence of the drowning prevalence and risk factors among fishers in southern Lake Victoria, and how this burden aligns with their sectoral priorities; and explore the possibility that they participate in development of a multisectoral national water safety plan. Specifically this should include exploring the possibility that the health sector co-lead a national plan and that the education sector develop and implement a swimming and water safety training course for school-age children in southern Lake Victoria.
6. **NGOs, CSOs, and FBOs:** Conduct a targeted survey of Tanzanian NGOs and international NGOs that have interests that are closely aligned with fisher water safety (e.g. sustainable, small fisheries; public health; youth economic empowerment; behaviour change communication). Tanzanian NGO possibilities include Environmental Management and Economic Development Organization (EMEDO) and Fishers Union Organization. INGO possibilities include Plan International and Action Aid. IFBO possibilities include World Vision and IMA World Health.
7. **International agencies:** Explore possible collaboration in fisher drowning prevention programming, advocacy and agenda-setting with SADC, EAC (especially LVBC), WHO, FAO, ILO, and IMO. Closely engage with stakeholders whose work already closely relates to small-scale fisheries and water safety, e.g. FAO and LVBC. The current, on-going development of the Lake Victoria Maritime Communications and Transport Project may offer a particularly important opportunity to shape policy and programming and secure resources for small-scale fisher drowning prevention initiatives in southern Lake Victoria. However, engagement with WHO and ILO should also be prioritized, as their international guidance documents offer strong, practical recommendations on fisher water safety.

4. RECOMMENDATIONS

4a. At the national and international policy level: Continue coordinating efforts with Uganda, Kenya, and Lake Victoria regional agencies; promote multilevel, intersectoral collaboration in national drowning prevention efforts; develop a national water safety plan; better support and enforce existing policies and regulations; design new policies, regulations, and action plans to address gaps within the fisheries and transport sectors, as well as other (new) sectors; and improve national or regional boating incident and injury data collection systems.

4b. At the regional, district, ward, village and beach enforcement levels: Continue improving the accuracy and dissemination of weather forecasting; improve regional and local search and rescue systems; develop and enforce safety standards for the manufacture and maintenance of small vessels; promote and better enforce regulations for proper loading of small vessels; improve enforcement of safe boating regulations; develop and implement training courses for BMUs and fisheries, transport, and police officers; review and improve current BMU structures and practices; strengthen broader fishing community awareness of drowning and promote water safety skills through strategic communications and large-scale participatory activities; and improve regional and local boating incident and injury data collection systems.

4c. At the community level: Require subsidized or free intensive water safety training and certification of all fishers; explore and implement measures to increase the availability, affordability, accessibility, and quality of safety equipment locally; consider programs to promote alternative or additional sources of income for fishers; explore approaches for fishers and fishing communities to organize and advocate for their interests; reduce or eliminate alcohol and illicit drug use among boat operators and passengers; explore means of ensuring boat builders and boat owners create and maintain safer boats; offer subsidized or free broader fishing community water safety education at scale; and consider developing community-level risk assessments and water safety plans.

4d. Further research needed related to fisher water safety in southern lake Victoria includes research on: social determinants (e.g. fisher perceptions of masculinity and risk); intervention development and evaluation (e.g. behaviour change interventions; swim skills training); technical challenges (e.g. a safe, affordable boat design; communication systems); the fisheries value chain (e.g. other possible stakeholders for drowning prevention initiatives); funding and cost-effectiveness (e.g. affordability / subsidization of safety equipment); policy (e.g. extent to which relevant non-fisheries sector policies are resourced, enforced, and active); monitoring and evaluation (e.g. improving data collection systems); and the scalability and sustainability of promising interventions.

CHAPTER 1: Background

1.1. Drowning as a major cause of injury and death

Drowning is a leading, preventable, cause of non-intentional injury and mortality worldwide, accounting for 7% of injury-related mortality (WHO 2014; GBD Causes of Death Collaborators 2017). Up to 90% of drowning deaths occur in low and middle-income countries (LMICs) (WHO 2014). Key risk factors for drowning in these settings are flooding disasters, living near water, travelling on or working in or around water, low socioeconomic status and alcohol, and substance abuse.

Globally, an estimated 220 million people live in small-scale fishing communities, including approximately 37 million fishermen (World Bank 2015). Most of these communities are in LMICs, where fishers are particularly vulnerable to drowning due to adverse weather conditions, very limited systems for early warning, and search and rescue; and the use of small, poorly maintained vessels (Tumwesigye et al. 2012; Sileo et al. 2016; Kobusingye et al. 2017; Whitworth et al. 2019; Willcox-Pidgeon et al. 2019).

Drowning is a significant risk in fishing communities in Lake Victoria, East Africa. In Tanzanian Lake Victoria – the southern part of the lake – the incidence of fatal drowning is estimated at 217 people per 100,000 person-years, far exceeding the estimated national average incidence (Sarassett et al. 2019; Whitworth et al. 2019). This is the equivalent of almost 4,000 deaths per year on the Tanzanian shore of Lake Victoria, primarily among fishers.

1.2. The need for water safety programming and policy

Drowning incidences remain high in Lake Victoria and other LMIC settings despite proven preventive interventions, which points to gaps in engagement and implementation of safety interventions among fishermen and policy makers (FAO 2015; FAO 2016; ILO 2016; WHO et al. 2017; WHO 2018). In such settings water safety policy and regulatory frameworks may be minimal or lacking, and the requisite regulatory capacity also constrained, so advocacy, resource mobilisation, and intervention programming are urgently needed.

As with other public health interventions, the effectiveness of water safety interventions can be maximised if intervention designers understand the policy and regulatory context and also address the concerns of fishers, broader fishing communities, and other key stakeholders (Walt and Gilson 1994). Common characteristics with other small-scale fishing communities around the world include that they are located in remote areas, they have limited organizational structures, and community members have relatively poor access to health, education, and alternative livelihoods to the fishing industry (FAO 2015). However, in southern Lake Victoria, relatively little is known about more specific contextual factors, such as existing lake safety and fisheries regulations and policies, or the positions and preferences of individual and institutional stakeholders.

1.3. The context of fishing in southern Lake Victoria

When considering the current state and context of water safety policy and activities in southern Lake Victoria, it is important to first consider the historical context. Box 1 provides a brief historical

background on southern Lake Victoria fishing communities, highlighting important political, cultural, and economic changes.

Box 1. Historical context of fishing communities in southern Lake Victoria

The six administrative regions that border Lake Victoria today - Kagera, Geita, Mwanza, Shinyanga, Simiyu and Mara – are collectively known as the Lake Zone. Only sixty years ago, this area, like all of current day Tanzania, was still controlled by a colonial power. Formal education, capacity, and infrastructure were extremely limited. In the 1957 census, for example, only 16 percent of boys and 8 percent of girls aged 6–15 years in the Western Province (an area that overlapped with the current Lake Zone) were estimated to have had any form of primary education (Abrahams 1967).

The Lake Zone has undergone tremendous political and economic transitions since national independence, including changes to the nature and scale of fishing practices in Lake Victoria. In the 1950s, a massive, meaty fish - Nile perch - was introduced to the lake to strengthen commercial fishing stocks, and by the early 1980s its population had exploded (Witte et al. 1992; Lowe-McConnell 1994). As a result, the fishing industry expanded substantially and began exporting fish to elsewhere in Africa and Europe. Fishing became much more lucrative for local men. Lakeshore farmers and occasional fishermen began to work as full-time fishers, and many men migrated to the area to do the same, creating large, multiethnic, and relatively affluent fishing villages along the lakeshore.

Nonetheless, in the first decades of the twenty-first century, the Lake Zone population continued to be largely rural, with limited financial and material resources, and very poor health, education, water, and sanitation services (World Bank 2006). An anthropological study conducted over three person-years in nine Mwanza region villages - including three fishing villages - found that fishing villages were sizeable trade centers with a high level of mobility and migration (Plummer and Wight 2011). Fishing villages were loosely networked with numerous temporary and/or informal fishing camps on remote shores and islands. Most of the adult male population in fishing villages engaged in fishing, but almost no women did; women instead often worked in preparing and selling fish after they were brought to shore. Boys became involved in fishing from as young age six years old, and some school pupils setting nets in the evening and bringing them in the following morning before school.

During this period, many fishers used nets with holes smaller than the 4-inch legal limit that was mandated to prevent the loss of juvenile fish important to the future fish stock. They feared being caught and fined or imprisoned by authorities, so they hid this practice by fishing at night and selling their haul early in the morning. Generally, the fishing villages were characterized by more illegal activity than found in typical agriculture-based villages, including theft, production of bootleg alcohol, sex work, and bribery of government representatives. Local men sometimes worked for fishing companies in camps on remote shores and islands, where alcohol consumption and unlawful, dangerous incidents (e.g. assault) were reported to be particularly frequent (Schapink et al. 2001; Plummer and Wight 2011).

A 2017-2018 study of in six fishing communities in southern Lake Victoria found that commonly reported and observed risk-taking behaviours among fishermen included: fishing in poorly maintained boats and/or boats powered with oars; fishing at night and in bad weather; not wearing a life jacket; and fishing while intoxicated with drugs or alcohol. In most cases, fishers drowned following the sinking or capsizing of their vessel (Whitworth et al. 2019). Themes of poverty and disempowerment were common in community reports, with the economic imperative to fish, lack of job security, and

acceptance of hazards as “part of the job” all contributing to safety being a low priority for many fishermen.

In the 2017-2018 study, most fishing vessels were shallow draft wooden vessels, both powered and unpowered. Poor maintenance and instability of vessels, long distances travelled, and changeable weather conditions were seen by members of the community as a key cause of drownings. The inability to cope once in the water was also a recurring theme throughout qualitative and quantitative results, as two-thirds of those who drowned could not swim. Lifejackets were worn infrequently by those who drowned (less than 5% reported using one) and only 10% of the fishing population reported using a lifejacket. Although the introduction of mobile phones in Tanzania in the last two decades has greatly increased the possibility of large-scale emergency warning systems, the 2017-2018 study found that mobile phone signal availability on the lake was still highly variable. 75% of fishermen reported taking mobile phones with them whilst fishing, but the majority of these (91%) are non-smartphones. Of those who died, only half took mobile phones with them and none of them had a smartphone.

1.4. Purpose of this study

This study aimed to identify major stakeholders and potential approaches to drowning reduction advocacy for fishers in southern Lake Victoria, with a particular focus on small-scale and/or subsistence fishers. The study thus focuses on the large population of small-scale fishers in southern Lake Victoria, rather than fishers who may work on large boats and ships within the larger, organized fishing industry. The research methods include a review of national and international policy and regulatory documents; interviews with key informants; and focus group discussions with fishers and community leaders. Findings will help address questions around preferences, communication entry points, and positions of identified actors toward the issue of drowning reduction in fishing communities, to inform advocacy, resource mobilisation, and future prevention strategies.

Chapter 2 of this report will outline the study methodology, including the review of policy documents, qualitative data collection, and triangulation of data and stakeholder mapping. Chapters 3-6 will address each of the key research questions in turn, specifically:

- **Chapter 3: Who are the water safety stakeholders currently?**
Who are the main individual and institutional actors affecting or affected by changes in drowning policies or practices related to fishers in southern Lake Victoria?
- **Chapter 4: What is the water safety policy?**
What is the existing policy and regulatory framework governing safety on the lake for fishers in southern Lake Victoria?
- **Chapter 5: Why have efforts to increase lake safety been successful or unsuccessful?**
Why have efforts to increase lake safety among fishers in southern Lake Victoria been successful or unsuccessful?
- **Chapter 6: How can water safety stakeholders become more engaged?**
How could current and potential stakeholders become more engaged in advocacy and agenda-setting to reduce fisher drowning in southern Lake Victoria?

Chapter 7 concludes the report with a final discussion of the findings and specific recommendations.

CHAPTER 2: Study methodology

2.1. Study design

This qualitative study involved: (a) review of legal and policy documents that were potentially relevant to fisher water safety and drowning reduction in southern Lake Victoria, Tanzania; (b) semi-structured in-depth interviews (IDIs) and focus group discussions (FGDs) with representatives in four fishing communities near Mwanza; and (c) key informant IDIs with representatives of national and international agencies involved in or potentially relevant to the fishing industry around southern Lake Victoria, Tanzania.

2.2. Research questions

Several research questions guided data collection and analysis:

- **Who are the water safety stakeholders currently?**
Who are the main individual and institutional actors affecting or affected by changes in drowning policies or practices related to fishers in southern Lake Victoria?
- **What is the water safety policy?**
What is the existing policy and regulatory framework governing safety on the lake for fishers in southern Lake Victoria?
- **Why have efforts to increase lake safety been successful or unsuccessful?**
Why have efforts to increase lake safety among fishers in southern Lake Victoria been successful or unsuccessful?
- **How can water safety stakeholders become more engaged?**
How could current and potential stakeholders become more engaged in advocacy and agenda-setting to reduce fisher drowning in southern Lake Victoria?

2.3. Policy document search and review

The desktop review focused on publicly available, English-language regulatory and policy documents related to boating, water safety, and drowning prevention in Tanzania. The search and review processes were conducted independently in three stages by three researchers (AD, PA, and MP). First, AD conducted a rapid search and review of legal and policy documents online, producing a two-page overview and list of 16 key documents in the fisheries, shipping, and transport sectors. Second, PA reviewed many of those documents to excerpt and summarize key findings and patterns.

Third, MP conducted a more comprehensive online search and review, including all possible sectors that might be relevant to water safety and drowning reduction (e.g. fisheries, labour), even if those sectors have not historically been associated with those issues in the United Republic of Tanzania (URT) (e.g. health, labour, youth). This search sought to identify relevant national policies, acts, regulations, guidelines, strategies, and action plans available on the websites of URT ministries. The complete list of national sources that were searched can be found in Table 2. In addition, each search sought to identify relevant regulatory, policy, or voluntary guiding documents on the websites of international agencies

within which the URT is a Member State. The complete list of international sources that were searched can be found in Table 3.

In addition to systematic search of English-language documents available on institutional and government department websites, limited additional searches were conducted: (a) of Swahili-language documents on the same websites; (b) using other online search engines (e.g. PubMed and Google), to locate known guiding documents which could not be found on ministry or international agency websites; and (c) by direct request of stakeholders.

Table 2. URT ministry websites that were searched for regulatory and policy documents

No.	URT Ministry
1.	Ministry of East African Cooperation
2.	Ministry of Education, Science, Technology and Vocational Training
3.	Ministry of Health, Community Development, Gender, Elders and Children
4.	Ministry of Home Affairs
5.	Ministry of Industry and Trade
6.	Ministry of Information, Culture, Arts and Sports
7.	Ministry of Livestock and Fisheries
8.	Ministry of Natural Resources and Tourism
9.	Ministry of Water
10.	Ministry of Works, Transport, and Communications
11.	Prime Minister's Office - Labour, Youth, Employment and Persons with Disability
12.	President's Office, Regional Administration and Local Government
13.	Office of the Attorney General

Table 3. International agency websites that were searched for regulatory, policy, and voluntary guidance documents

No.	International agency
1.	Food and Agriculture Organization (FAO), of the United Nations (UN)
2.	International Labour Organization (ILO), of the UN
3.	International Maritime Organization (IMO), of the UN
4.	Lake Victoria Basin Commission (LVBC), of the East African Community (EAC)
5.	Lake Victoria Fisheries Organization (LVFO), of the EAC
6.	Southern African Development Community (SADC)
7.	World Health Organization (WHO), of the UN

Documents were reviewed by reading them in full or systematically searching them for relevant content using key word roots, such as “fish”, “safe”, “swim”, “drown”, “injury”, and “hazard”. Approximately 80 documents were reviewed, of which 38 (18 national; 20 international) had findings that were relevant to the research questions and thus were included in the findings. General findings were summarized for each document in Appendixes 1 and 2, and specific relevant excerpts were compiled verbatim in Annexes 1 and 2.

2.4. In-depth interviews and focus group discussions

Semi-structured in-depth interviews (IDIs) and focus group discussions (FGDs) were conducted by EM and AM from July to September 2019. FGD participants were recruited purposively with the assistance of local authorities. Almost all IDIs and all FGDs were conducted face-to-face in Swahili after informed

written consent was provided. A small number of IDIs were conducted in English and/or remotely by telephone.

Table 4 shows the number of IDI and FGD participants, by research method, affiliation, administrative level, and region. IDIs were primarily conducted with institutional representatives working in fisheries from the ward to the international level. The main participants were government representatives who work directly with the fisheries industry (i.e. 24/31). This included 11 fisheries officers at national, regional, district, and ward levels; 5 representatives of fisheries research or training; 3 Tanzania Shipping Agencies Corporation (TASAC) representatives; 2 transportation representatives; 1 Tanzania Meteorological Agency (TMA) representative; and 2 marine police officers. In addition, 3 IDI participants were privately engaged in work related to the fisheries industry (i.e. shopkeeper; fish seller; journalist). Finally, 4 representatives of international agencies participated in IDIs, i.e. representatives of the Lake Victoria Fisheries Organization (LVFO), the International Labour Organization (ILO), the Food and Agriculture Organization (FAO), and the World Health Organization (WHO).

Four FGDs were conducted with fishing community leaders (e.g. village executive officers; members of the Beach Management Unit (BMU)), while four FGDs were conducted primarily with fishers but also with a few other community members (e.g. boat builders; shop keepers who sell life-jackets). Because fishing in Lake Victoria - and related drowning risk - almost entirely involves men, most FGD participants were men. However, in each FGD usually at least one or two women also participated, e.g. as boat owners, fish sellers, or leaders of local government or a women's group.

All Swahili-language IDIs and FGDs were transcribed and translated into English. Limited translation quality checks and edits were conducted by PA and MP during analysis, particularly of excerpts selected for report inclusion.

Table 4. Number of IDI and FGD participants, by research method, affiliation, administrative level, and region

Type of research participant	Total (group or individual)	Method		Affiliation			Administrative level						Region		Explanation of asterisks in row
		FGD	IDI	Government	Other instit.	Fishers	Int'l	Nat'l	Reg.	Dis.	Ward	Comm.	Mwanza	Other	
Community (subtotal)	11	8	3	0	6	5	0	0	1	2	0	8	11	0	
Small-scale fishers	4	4	0	0	0	4	0	0	0	0	0	4*	4	0	*from 4 different communities
BMU and other community leaders	4	4	0	0	4*	0	0	0	0	0	0	4**	4	0	*BMU, local government **from 4 different communities
Other (private) citizens	3	0	3	0	2*	1	0	0	1	2	0	0	3	0	*Mwanza Press Club; Fish Sellers Association
Government (subtotal)	24	0	24	24	0	0	0	7	8	4	5	0	13	11	
Ministry of Livestock and Fisheries (subtotal)	16	0	16	16	0	0	0	3	4	4	5	0	10	6	
Fisheries	11	0	11	11	0	0	0	0	2	4	5	0	8	3*	*Kagera
Fisheries Training (FETA)	2	0	2	2	0	0	0	1	1	0	0	0	1	1*	*Pwani
Fisheries Research (TAFIRI)	3	0	3	3	0	0	0	2	1	0	0	0	1	2*	* Dodoma, Dar es Salaam
Ministry of Works, Transport and Communications (subtotal)	6	0	6	6	0	0	0	4	2	0	0	0	1	5	
Shipping (TASAC)	3	0	3	3	0	0	0	1	2	0	0	0	1	2*	*Dar es Salaam, Kagera
Transportation	2	0	2	2	0	0	0	2	0	0	0	0	0	2*	*Dodoma
Meteorology (TMA)	1	0	1	1	0	0	0	1	0	0	0	0	0	1*	*Dar es Salaam
Ministry of Home Affairs (subtotal)	2	0	2	2	0	0	0	0	2	0	0	0	2	0	
Marine police	2	0	2	2	0	0	0	0	2	0	0	0	2	0	
International agencies (subtotal)	4	0	4	0	4	0	4	0	0	0	0	0	0	4	
FAO, ILO, LVFO, WHO	4	0	4	0	4	0	4	0	0	0	0	0	0	4*	*Dodoma, Dar es Salaam
Total	39	8	31	24	10*	5*	4	7	9	6	5	8	24	15	*Includes multiple participants in FGDs

Key: FAO=Food and Agriculture Organization; FETA=Fisheries Education and Training Agency; FGD=focus group discussion; IDI=in-depth interview; ILO=International Labour Organization; LVFO=Lake Victoria Fisheries Organization ; TAFIRI=Tanzania Fisheries Research Institute; TASAC=Tanzania Shipping Agencies Corporation; TMA=Tanzania Meteorological Agency; WHO=World Health Organization

2.5. Data processing, analysis, and write-up

The first stage of analysis involved inductive, thematic coding of the English-language IDI, FGD, and policy document data (by AD) using the NVIVO programme. This included generating codes while entering data into the programme, identifying themes among codes, and defining themes. A summary report was produced based on preliminary findings from this analysis, primarily based on the FGD and IDI findings.

The findings from the first stage of analysis were broad, so - in addition to the large policy document review already described - new analyses of the IDI and FGD data were conducted with objectives to identify and refine themes and recommendations with more nuance, context, and evidence. This stage of analysis (by MP) involved direct review of a representative sample of Swahili-English FGD and IDI transcripts. Data were systematically reviewed using a grounded theory approach to answer each of the research questions. In total, 6/8 FGDs and 13/31 IDIs were read in full, and all other IDI and FGD transcripts were partially reviewed, e.g. selective searching to better understand and describe specific topics. Relevant findings were summarized and then grouped thematically. All four of the FGDs with fishers and other community members, and two of the four with fishing community leaders, were read in full at this stage. Nine of the 13 IDIs that were read in full were with government representatives working in fisheries at ward, regional, and national levels, including representatives of the Fisheries Department, TASAC, TAFIRI, and the marine police. These government staff were based in Mwanza, Kagera, Dodoma, and Dar es Salaam. The remaining IDI transcripts that were read in full were with 4 representatives of international agencies (FAO, ILO, LVFO, WHO).

The three sets of independent review findings and analysis were consolidated and triangulated by MP. In FGD excerpts quoted in this report, “I” refers to interviewer, and “R” to respondent; if more than one respondent is quoted in an excerpt, they are numbered sequentially (R1, R2, R3, etc.).

For the stakeholder analysis, a mapping tool was used to generate a matrix (<http://www.tools4dev.org/resources/stakeholder-analysis-matrix-template/>). For each key stakeholder, the matrix synthesizes current interest, current influence, and potential influence in drowning prevention, as well as how they might contribute to and/or weaken/block an intervention.

2.6. Ethics approval

Ethics approval for this study was obtained from the Tanzanian Medical Research Coordinating Committee/Lake Zone Institution Review Board in Tanzania and the Observational Research Ethics Committee of LSHTM in the UK.

CHAPTER 3: Who are the water safety stakeholders currently?

Who are the main individual and institutional actors affecting or affected by changes in drowning policies or practices related to fishers in southern Lake Victoria?

This chapter primarily draws on FGD and IDI findings to describe the main actors who currently are affecting or affected by changes in drowning policies or practices, including: fishers and other fishing community members (e.g. boat owners, boat builders, and BMUs), as well as government authorities at all levels working in the fisheries, transportation, and police sectors.

Importantly, the stakeholder groups identified below are not exclusive, and instead may overlap. For example, Beach Management Units are quasi-governmental bodies that are responsible for supporting and monitoring enforcement of regulations; members are elected and may themselves be boat owners and/or fishers. Similarly, government officers (Fisheries, TASAC, marine police) were often boat owners, and boat owners were often also fishers. These circumstances could contribute to conflicts of interest, which will be described and discussed more later in the report.

3.1. Community

3.1.1. Small-scale or subsistence fishers and their families

In the 2009 Fisheries Regulations, artisanal fishers are defined as those who do not own a fishing vessel, or who own from 1-4 fishing vessels; semi-commercial fishers are those who own 5-20 vessels, while commercial fishers own 21 or more (URT 2009 Fisheries Regulations). On fishing licenses, fishing vessels under 11.0 meters fall in the category of “artisanal”, “semi-artisanal”, and “semi-commercial”, and for each of these the fishing license fee USD 10.0, as it is for the license of a fisher who does not own a fishing vessel. Artisanal fishers can have their boat or engine compounded if they are fishing without a license or fishing using an unregistered vessel. Artisanal fishers are supposed to report their daily fish catch data to a fisheries beach recorder or Beach Management Unit.

It is difficult to generalize about small-scale fishers, because they make up a diverse group that has different subpopulations. For example, small-scale fishers include long-term residents who on average are likely to be older, more experienced, and better equipped and supported than migrant or transient fishers. This latter group is less likely to have been represented in this study because of recruitment of FGD participants through local authorities. In addition, small-scale fishers include those who own or rent boats in variable condition, as well as many independent, subsistence fishers who use make-shift vessels of low quality, e.g. small rafts made of wood and floatation materials, dugout canoes, or boats in very poor condition.

Nonetheless, it can broadly be said that fishers are the people most affected by changes in drowning policies and practices because they are the people most at risk of drowning, and sometimes also the first responders to others at risk of drowning. For example:

- I: *What is the role of fishers in ensuring the safety of a fishing vessel?*
R: *[As a fisher,] when an owner assigns me to a certain boat, first I have to make sure it does not have any leaks. That is the primary thing. Second, I have to make sure that the fishing equipment given to me is clean and neat. And lastly, for me, everything else can be set aside as long as there is a life*

jacket. Everything else can be cross-checked later, but of first importance is my life, and thus a life jacket.

I: *And do the owners give you life jackets?*

R: *Ninety percent do.*

– Community member at Chifufu beach, Chekundu Ward, Mwanza Region [FGD_8]

I honestly have never seen a group of people who love each other like fishermen. You can find a person has finished his fuel while still far away in the lake. And a fellow fisherman with fuel will help him. ... Or if their boat has sunk, and they are very far from their camp, a stranger will come [help]. That person will introduce himself as a fisherman and then will pull the other person to dry land. I congratulate fishermen because they are kind and generous while on the lake. They do not abandon each other; they help each other. - Regional Fisheries Officer, MLF, Kagera Region [IDI_10]

Broader communities in fishing villages are generally aware of drowning risks and prevalence among fishers, and its painful consequences for families of fishers. For example:

In our village ... we have never lost 5-10 people all at once to drowning. But one person drowns about every 5-6 months. That it is average. – Community leader at the port of Kasenyi Ward, Sengerema District, Mwanza Region [FGD_11]

[Drowning] is a problem because it involves [a person's livelihood]. Now when we talk of losing life it means there are impacts to society, starting with that person's family. ... If he is an adult then people surrounding him [suffer] because they in one way or another depended on him for many things in life. – Police Officer and Captain of Rescue Boat, Marine Department, Mwanza Region [IDI_20]

Most FGD participants stated that there was no organisation or union devoted to advocating for fishers or explaining their rights and responsibilities to them, and this affected them negatively, although other kinds of unions existed locally (e.g. boat makers; fish processors). Fishers perceived themselves as having to work without support from organisations or governmental agencies. Some respondents reported that, because fishers are not organized, they both were hard to engage with as a group and also not able to advocate for themselves in an effective way. For example:

R1: *The reason why fishers are not engaged [organized] is because of the low level of their education. ... Most of them are not aware of their rights, so when a whistle is blown as a way of summoning a meeting of fishers at the BMU gate, very few of them would show up. Ninety percent will just remain in their camps. If forming a union is proposed to the group in the meeting, they will think, "What use would the union be to us?" ... So my request to the government would be to come up with ways to empower fishers to know their rights. ... That is, for the government to come here and summon a meeting of all fishers, instructing them to form unions of fishers, and giving them education. Because the first need is education. They ought to know the meaning of that union that will be formed, and what help it will bring to fishers.*

R2: *Yes, [fishers] will realize we do not have any health insurance. As fishers, we are just surviving, we do not have any help of any kind.*

R3: *The boat makers have started their own unions. Economically it means the unions are supposed to have health insurance. Every meeting date is keenly observed by all the members, and they are engaged in discussions. ... [They help each other with] funerals, sickness, and economic empowerment, by giving loans. ...*

R4: *Let me add to the issue of why fishers do not have unions. They frequently search for new environments [for work]; they keep moving. If today there a good catch of dagaa in areas of Bukoba, they move from this area in Sengerema to Bukoba. Okay, next there is a huge catch of fish in Goziba. So maybe they move up there. Forming a union is difficult because of their migrant lifestyle.*

– Community members at Chifufu beach, Chekundu Ward, Mwanza Region [FGD_8]

Maybe it is due to the lack of education that [fishers] don't form association that can represent their issues. For example, currently we face a challenge of penalties and nets having been burnt, but we have no

one to represent us on the issue. All are full of fear. - Community leader at the port of Kayenze Ward, Ilemela District, Mwanza Region [FGD_5]

R1: *I have not seen a fishing union here. Maybe just one for the fish mongers - the people who sell fish are the ones who have formed a group. They made an organization and we see them contributing to it. But for us fishermen, I have not seen any.*

R2: *What he has said is true. We fish sellers have set our principals of contribution, and we have a book, we have a list. We contribute 2,000 TZS every day. If a person gets a problem, we can help each other, and that is how the community is. But I have not seen a similar book for fishermen.*

I: *From the perspective of fisherman, can anyone say why is it that the fishermen do not have such unions? ...*

R3: *Yes, to make contributions like this, mostly [we do not] because we do not do it because we do not trust each other. For example, today I might be here, but tomorrow I might move to Busisi. It very rare to trust each other like that. - Community members at the Shadi Fish Landing Site, Mwanza City, Mwanza Region [FGD_14]*

One Ward Fisheries Officer reported that the Tanzania Fisheries Union (TAFU) was becoming stronger at the port level, but was not yet present among small-scale fishermen in more remote areas. A brief online search found a handful of links to a TAFU mostly focused on business. One agricultural report referred to TAFU as a weak fishermen's organization with low bargaining power (MMA 2006), suggesting either that it might benefit from capacity building and/or an alternate form of organization could be started, possibly with specific focus on fishers' rights, health, and safety.

3.1.2. Boat owners and builders

Small boat owners and builders also are some of the main actors affecting and affected by fisher drowning policies and practices. Primarily, this involves meeting boat safety regulations upon initial boat inspection, licensing, and registration, and also routine maintenance to meet annual safety inspections. For example:

R1: *Before having a boat built, boat owners decide what type of fishing it will be used for, such as "dagaa" [a sardine-like fish] or Nile perch. Now, when it has been built and they have prepared all the essential tools, there are so many fishers [who will want to work on the boat]. Some fishers approach owners directly. Maybe all the boat owner needs to do is find one person who is experienced in that kind of fishing, and that person will look for the rest of the team, three more people to work with him. Then they will start working right away. ...*

R2: *As a boat owner, I have responsibilities to complete before I employ the fishers to start using my boat. ... First, I start with the BMU. I tell them that I have made a boat, and they inspect the boat to check it is fit for human use. ... The boat has to be inspected by government representatives, who will verify it is safe for use, because people may risk their lives while using it. ... [The authority] assigns you a number when satisfied, and you have to write it on the boat. Also, I pay a fee for the fishers. There is a fee of 1,000 TZS per fisher per boat. You pay a total of 80,000 TZS, and then you receive a fishing licence and hand all of the life jackets and tools to the fishers and they are allowed to start fishing.*

- Community members at Chifufu beach, Chekundu Ward, Mwanza Region [FGD_8]

The boat owners make sure fishermen have life jackets and a torch for their safety in the water. Also, for their safety at night, to avoid being hit by other vessels that travel at night. Yes, because here in the lake, it is like on dry land. There are very many canoes that travel at a time like that. You find that sometimes a canoe has four torches, two at the front and two at the back. The owners make sure that they have that. - Community member at the port of Kasenyi Ward, Sengerema District, Mwanza Region [FGD_7]

Despite these promising reports, the study found that many boat owners do not implement regulations as fully as intended, for several reasons. These include: some boat owners secretly share safety equipment for one boat between several to reduce costs; most government officers have insufficient capacity and resources to adequately monitor boats and safety equipment on the lake;

and some inspectors choose to ignore damaged boats or missing safety equipment at annual inspections as long as they collect required fees.

Boat makers were also expected to ensure that their boats are water-tight and follow safe standards. For example:

- R1: *The first role of boat makers is to make sure that they have built a strong boat, to make sure that the wood and fabric materials have been glued together in a smart way. When the boat is ready, the owner also finds a technician specialized in covering holes that might cause water leakage, and finally paints the boat to protect it from water penetration. ...*
- R2: *A boat maker must first make sure that he meets the prescribed measurements of 10 feet by 32 feet. He must make sure that he does not make anything less than prescribed standards, which will determine the operation licensing. That is the main responsibility: to strictly adhere to the standards.*
– Community members at Chifufu beach, Chekundu Ward, Mwanza Region [FGD_8]

A Fisheries Education and Training Agency (FETA) officer reported that his agency had developed a more safe boat design and trained a local group of boat builders in how to build it, but the boat builders had not adopted the better design over time, possibly due to the greater cost or learning curve required. In addition, however, most respondents reported that it is the boat buyers/owners who determine what kind of boat will be built, not the boat builders. For example:

I think the relationship [between boat makers, boat owners, and fishers] is mainly commercial. ... How much wood: that is their relationship. They will say it is about safety, but no, most of the people who sell canoes are there for business. But they know, they create them in a way that follows safety [guidelines], meaning it is supposed to be this wide, and this height. They know. It is the boat owners ... who are the ones who say how their canoe will be. – Ward Fisheries Officer, MLF, Mwanza City, Mwanza Region [DI_15]

3.1.3. Beach Management Units and other local leaders

Beach Management Units were created by government directive through an amendment of the 2003 Fisheries Act and enactment of 2009 Fisheries Regulations. However, BMUs are not officially part of the government. BMU members are elected by their local fishing community as part of government co-management policy, and they fill a challenging role in trying to represent both government and community interests. BMU responsibilities are broadly outlined in the 2009 Fisheries Regulations and 2003 Fisheries Act (Appendix/Annex 1: A1-9; A1-16); see Box 2 for more information. However, BMUs take on different official and unofficial capacities specific to their communities, e.g. they may have more responsibility for monitoring fishing activities in remote areas that government authorities do not visit often, or they may focus on particular issues related to fishing in their area (e.g. type of fishing and type of net used).

Box 2. Functions of the Beach Management Unit

- (1) The functions of the Beach Management Unit shall include, but not be limited to-
- (a) develop a Beach Management Unit; constitution, fisheries management plan, and fish landing station development plan, in accordance with higher level fisheries management plans;
 - (b) develop annual and quarterly work plans and budgets to implement the management and development plans;
 - (c) collaborate in fisheries Catch Assessment Surveys, and frame surveys;
 - (d) in collaboration with village council, develop by-laws and engage in monitoring, control and surveillance in such a way as to reduce the incidence of illegal fishing and fish trading practices and environmental degradation within the Beach Management Unit areas;

- (e) ensure sanitary and hygienic conditions at the fish landing stations within the Beach Management Unit area, in accordance with standards set by the Competent Authority;
- (f) ensure good leadership;
- (g) participate in selection processes for the issuance of fishing vessels licence and fishing within the Beach Management Unit jurisdictional area to ensure equitable access to resources;
- (h) ensure fisheries licence fees are paid by Beach Management Unit members in a timely manner to the officer in charge of fisheries in the local government authority;
- (i) arbitrate to settle fisheries disputes amongst Beach Management Unit members, between Beach Management Units, and between the Beach Management Unit and other institutions;
- (j) fill in a standard tally book indicating fish weight, value, and price of fish, and submit the data to an authorized officer in their locality by second day of the following month; and
- (k) keep an updated register and submit quarterly reports on fisheries management and development activities to an officer in charge of fisheries in the local government authority.

(2) Every officer in charge of fisheries in the local government authority shall be required to submit quarterly reports delivered by Beach Management Unit on fisheries management and development activities to the Director.

Source: URT 2009 (Fisheries Regulations)

BMUs affect and are affected by changes in drowning policies and practices because they are directly involved in monitoring and enforcing water safety and other fisheries regulations at the local level. Most government authorities reported that BMUs are at least partially effective in their work, although they were perceived as having limited ability to enforce regulations because they were not part of the government. For example:

BMUs are very useful when they have good leadership. They are in the fishing areas so it is easier to coordinate activities, if they have good leadership. I think almost 90% of the areas have many coasts [so it is difficult for government to patrol them all]. In areas by the lake and islands, there are small challenges, especially bribes that really affect the work in the lake. But from my experience in Kagera, if the BMU is led well, then they have the ability to perform very well. There were BMUs that were very solid that worked with us in SUMATRA [the former transport authority] ... we were very close. They would report incidents that threatened safety through letters. If they were strengthened, they could help a lot in overseeing fishing communities. [Meaning] strengthened with capacity, a special allowance, or they direct inclusion in the government system. – Senior Inspection Officer, TASAC, Mwanza Region [IDI_22]

The relationship [between resident and immigrant fishers] is good. Most of the time it is regulated by a BMU. BMUs direct the visitors, because according to the national guide of BMUs, when a [travelling] fisherman reaches a place he must report at the BMU's report office. They also give them guidance, [for example,] "Here we have these bylaws and you are supposed to contribute this amount in migrant fees". And they have to go and see where the fisher is living. A BMU has that routine. ... Immigrant and resident fishers participate differently ... An immigrant is allowed [to vote for the BMU] after fulfilling all the requirements. For example, they must have lived there for at least three years. That is when they have the right to choose leaders of a BMU. – Ward Fisheries Officer, Mwanza City [IDI_15]

In contrast, fishers in FGDs often reported that BMU effectiveness in enforcing water safety policies and regulations is limited. They reported that BMUs sometimes seem disinterested in fisher safety, and they do not offer support to fisher families after a drowning. Some also said that BMU members have conflicts of interest (e.g. BMU members being boat owners and/or other fishing business owners). Examples follow:

R1: *For people in these leadership positions, be it BMU members or fisheries officers, there is too much “me-ism” (umimi). That is how I can respond to this. Too much “umimi”.*

I: *Would you please elaborate? “Umimi” - I see that in this village you have your own slang.*

R1: *[group laughter]*

R1: *Selfishness (ubinafsi).*

I: *Respondent 2, you wanted to share something.*

R2: *Ah, no. ... I think the first respondent helped by explaining “umimi” as selfishness (ubinafsi). “Umimi” means being selfish.*

– Community members at Chifufu beach, Chekundu Ward, Mwanza Region [FGD_8]

R1: *[Related to problems with emergency communication systems:] The local leaders do not work on this at all, we do not know why. It has never happened that they called a meeting to set better methods of getting information [about a drowning]. It is just something like a person went to the lake, and it has been four days since he was last seen, so people start having doubts that he is alive. That is when it starts. That is when we go to the island where he was supposed to be, to try to find out if he has truly drowned.*

R2: *If a person is missing and may have drowned, it is only his friends who take it seriously. Friends like those of us here. You will hear, “Some people have drowned - bring the canoes and contribute money for fuel”. But you will hear nothing from the leaders.*

R3: *Yes, I agree. Honestly, our leaders do not deal with any issues to do with drowning. If any person is missing in the lake or drowns, the leaders do not act. [They believe] the person should be found by the grace of the almighty God. But they are not involved, they are dealing with their own issues.*

I: *Why do you think that they are not concerned?*

R3: *That we honestly do not know. If today you find that your relative has drowned in the lake, you will make efforts to look for the person. And once you find them, the leaders will ask for money to transport them back. ... Now, if I have lost a loved one, I need help. Why do they ask money? They are the leaders, but they continue to ask me for money, for what?*

R4: *We have different views. Today a fisherman can drown and die, everyone will come with their thoughts ... the leaders also take it the same way. I mean, they are on our side, on the side of the community.*

– Community members at the port of Kasenyi Ward, Sengerema District, Mwanza Region [FGD_7]

[After a drowning], what’s worst is that [BMU members] don’t usually tell us, “The canoe owners have contributed this much money, and the fishers this much, and the BMU this much”. They don’t provide that information. ... Some amount of the money may be left over and [the BMU members] use it for their needs, not even directing it to help the bereaved. – Community member at the port of Kayenze Ward, Ilemela District, Mwanza Region [FGD_4]

3.2. Government (Ward, District, Regional, National levels)

3.2.1. President's Office, Regional Administration and Local Government

In the URT, sectors are represented by different ministries, which establish policies and regulations at the national level (e.g. the Ministry of Livestock and Fisheries). These ministries work in partnership with the President's Office - Regional Administration and Local Government (PO-RALG), which manages regional and district councils and delivers district and regional services (e.g. health care; schools; water and sanitation). The PO-RALG oversees regional development management and administration by coordinating rural and urban development management policy and strategies and the activity of Regional Secretariats. PO-RALG helps to build the administrative capacity of local governments and to strengthen channels of communication between national and sub-national bodies to further devolve power to the local level in Tanzania.

The sections below outline the policies and regulations by national sectoral ministries, but these are funded and managed by PO-RALG from the regional to local levels.

3.2.2. Ministry of Livestock and Fisheries

The Ministry of Livestock and Fisheries sets policies and enforces regulations related to the fishing industry, and as such as it affects drowning policies and practices. Fisheries officers at all levels are responsible to enforce the different fisheries acts and policies (See Appendix 1 for details). These mainly pertain to the fishing industry, aquaculture, and fishery products, including protecting fish quality and the environment, promotion of fish keeping, stopping illegal fishing, and collecting revenues. Fisheries guiding documents also detail the responsibilities of the BMUs, and boat and safety equipment requirements required to get a fishing license (Appendix/Annex 1: A1-6, A1-9, A1-16).

One of the main responsibilities of fisheries officers is to prevent illegal fishing. In an IDI, a regional fisheries officer provided several examples of common illegal fishing practices:

One of our main roles is to ensure that this resource [the Lake Victoria fish stock] does not get depleted by preventing the use of illegal fishing methods. So that resource can benefit generations to come. There are many illegal methods I can mention, for instance bottom trawling, but also fishing with chemicals or illegal fishing nets. Some nets do not degrade for more than 100 years, so if a net break and falls in the lake, it will continue to catch fish during that entire time. ... There are also [small-scale] fishermen who use fishing nets with small holes that kill young fish that have not yet matured. Doing that destroys the next generation of fish, so the law forbids people from using small nets. For instance, fishing for Nile perch using nets with holes under six inches across, or fishing for Nile perch that are smaller than 50 cm is not allowed. There is also another fishing method in which people use explosives in areas where fish hide to lay eggs. When the explosives go off, the fish are scared and confused and scatter, becoming afraid to go back to their habitats. Fish use external fertilization, unlike other beings that have an internal reproductive system. So if the explosives detonate, and the fish were courting other fish, the fish scatter and the eggs that were about to be fertilized and mature are destroyed. And the fingerlings that are left become orphans. Fish have the habit of raising their children, so when the fingerlings lose their mother and father, they may not be able to withstand the unfamiliar lake environment. So dealing with such illegal fishing methods is one of our main tasks. - Regional Fisheries Officer, MLF, Kagera Region [IDI_10]

Generally, the Fisheries Department is not involved in boat or safety equipment inspection, but fishers need to show evidence that these have been inspected and approved by TASAC to obtain a fishing license. For example:

We, the fisheries officers, are not in an institution that is concerned with inspection of marine vessels. Honestly, that is not our work. ... Despite the fact that we emphasize and promote the use of these safety equipment, that is really the responsibility of [TASAC]. – Ward Fisheries Officer, MLF, Mwanza City, Mwanza Region [IDI_15]

A fisheries officer has his responsibilities to supervise fishing activities. When a fishing vessel is made and it is supposed to be inspected and issued with a license, a fisheries officer knows that he is not concerned with that issue, so he passes the information to the concerned [TASAC] officer, who comes to conduct inspections. When this fisher later comes to register his vessel for fishing, the fisheries officer will ask for the certificate certifying its quality from TASAC. ... Most times the fisheries officer is the one that stays in the lake and meets fishermen periodically, more so than the TASAC officers do. So it is his responsibility to continue to provide education, to let the citizens know the importance of taking safety precautions, and to make sure all of their equipment meet the conditions of entering the lake. – Research Coordinator, LVFO, Dodoma [IDI_34]

In FGDs, fishers also reported that the main authorities they work with are BMUs and fisheries officers. Among government officials, fishers are most likely to see fisheries officers with some frequency, and much less often TASAC officers or marine police. Although fisheries officers, TASAC officers, and marine police have clearly delineated official roles, these differences sometimes were

not clear to fishers. In practice, the fisheries officer is the one more likely to observe any kinds of violation, and then choose to ignore it, raise it directly with fishers, and/or report it to other authorities. This can result in some confusion about the responsibility of different authorities on the part of fishers. For example, TASAC officers have the primary responsibility for boat inspection, but when asked which authority has that responsibility one fisher replied, “The main person responsible for inspecting all the marine vessels, and the one who decides which vessels meet the [safety] standards and which one does not, is the fisheries officer of an area.” (Community member at Chifufu beach, Chekundu Ward, Mwanza Region [FGD_8]). In the event of a fisher drowning, the local fisheries officer also works together with the BMU and marine police, and logs the information in a monthly report.

In addition to fisheries officers, FETA officers fall under the Ministry of Livestock and Fisheries. They mainly seem influence drowning policies and practices by providing water safety education as part of a slow craft vessel operator curriculum. Only a very small minority of fishers in southern Lake Victoria have participated in this course, which can be prohibitive because of contribution fees and time away from work and family.

Finally, some broader ministry services may also be relevant to drowning reduction efforts. For example, one respondent mentioned that the Ministry can assist fishers to obtain loans, which might be helpful in buying or maintaining a boat safely:

We have a special desk here at the Ministry of Livestock and Fisheries called the Private Sector Desk. This desk helps coordinate matters between the government and fishermen. It helps them to get loans. - Acting Centre Director, TAFIRI, Dodoma [IDI_33]

3.2.3. Ministry of Works, Transport and Communications

The Ministry of Works, Transport and Communications is a key actor affecting and affected by changes in drowning policies and practices due to dual roles in administering the Merchant Shipping Act and the Tanzania Meteorology Authority Act (Appendix/Annex 1: A1-15 and A1-1, respectively). Until 2017, responsibility for both land and water transportation fell under the Surface and Marine Transport Regulatory Authority (SUMATRA), but since 2017 the water transportation has been managed by the Tanzania Shipping Agencies Corporation (TASAC). Under the Merchant Shipping Act, TASAC is responsible for regulation and approval of marine services providers and safety equipment, coordination of maritime search and rescue operations, and dissemination of information and awareness creation on matters related to maritime environment, safety and security.

At the local level in southern Lake Victoria, the most common role TASAC officers have in fisher drowning prevention is formal inspection of new boats and required safety equipment, as well as follow-up inspections on approximately a yearly basis. For example:

According to the guidelines, if you want to make a boat, once you have it completed it and before it is taken on the lake for fishing, it has to be approved by TASAC officers. They examine it. If it meets the standards - meaning the materials used and the dimensions used - then you pay a fee and you are good to go. – Community member at Chifufu beach, Chekundu Ward, Mwanza Region [FGD_8]

TASAC is the only government institution that has the mandate [to manage marine safety], with help from the marine police force. – Senior Inspection Officer, TASAC, Mwanza Region [IDI_22]

We used to do patrols of the islands to find [fishers/boaters] who did not buy [safety equipment]. We used to do this together with TASAC and when we caught them, they were fined. We fine those who did not have the safety and rescue equipment and also those who did not register their boats, because every boat should be registered. - Corporal of the Marine Police / Captain of the Marine Unit, Mwanza Region [IDI_52]

Some fishing community members reported that TASAC's enforcement of the regulations related to boat and fisher safety was inadequate. Generally, this was attributed to insufficient coverage of the area by TASAC officers, but sometimes to fishers or boat owners intentionally avoiding TASAC licensing or monitoring. For example:

What I see is that there is no thorough law enforcement on fishing. Even when SUMATRA [TASAC] comes, laws are not followed. They just tell every boat owner to have the ratio of life jackets per person, but the owners don't bother buying them. That is why I say laws are not enforced. – Community leader at the port of Kayenze Ward, Ilemela District, Mwanza Region [FGD_5]

I am the village executive officer. You previously if there are organizations [unions] in the village. The first one is of boat owners, and the second one of the boat makers who make boats and test them before they are inspected by TASAC. There is a loophole for boat makers to escape [inspection]. You might find an unregistered fisherman tests the boat with the boat maker and owner, but then forgets to address the legal issue, where the government is concerned. - Community leader at Chifufu beach, Chekundu Ward, Mwanza Region [FGD_6]

3.2.4. Ministry of Home Affairs

The Ministry of Home Affairs affects drowning reduction practices through the marine police's enforcement of water safety regulations through fines, arrests, and detaining boats and equipment. IDI and FGD respondents reported that these threats or experience of a fine motivated many boat owners to register their boats and also ensure they had safety equipment. For example:

In the Fisheries Act, there is a clause that gives us [the marine police] the authority to make arrests in cooperation with fisheries officers, if there are any issues involving fishing. ... for example, if it is about [illegal] fishing nets. ... The Merchant Shipping Act has its own laws that explains marine safety and what the marine vessel owners should follow ... their experts are TASAC. When a mistake has been made, and we are the only ones who are present, then we make the arrest and bring them here, and then check if the issue concerns the Fisheries Department or TASAC. If there is a fine to be paid, then they pay their fine and bring us the yellow government paper to show that they have paid and then we can release the boat. - Corporal of the Marine Police / Captain of the Marine Unit, Mwanza Region [IDI_52]

What the soldiers [police] do is to make sure that fishers wear those life jackets. They do not do anything other than that. You wear it here while they see you. Even the boss buys them just so that he is not fined. – Community member at the port of Kasenyi Ward, Sengerema District, Mwanza Region [FGD_7]

The marine police have responsibility to conduct patrols in southern Lake Victoria to respond to emergencies and criminal incidents, but both police and community members reported that they had far fewer boats than needed to do this effectively. For example:

R1: *We have had patrols ... but there are only two patrol [speed] boats in the entire region of Mwanza. And one of those boats might be in [distant] Ukerewe island. ... So there is only one boat nearby, not more than that. That one boat cannot patrol the whole of Lake Victoria, it is huge. ...*

R2: *They come to this area, but not often. Not until you encounter a problem and give them a call. But [before the marine police respond] they will also ask you to send money for fuel. Then you have to start raising money and they fuel the boat. [Theoretically] it takes them very few minutes to get here - just five to ten minutes - but while you are doing all of the arrangements, the pirates will have gone further into the lake and will hide in rocky places where they are sure policemen cannot park their boats.*
– Community members at Chifufu beach, Chekundu Ward, Mwanza Region [FGD_8]

3.3. Tanzanian NGOs and CSOs

Currently, few non-governmental organizations (NGOs), civil society organizations (CSOs) community-based organizations (CBOs), or faith-based organizations (FBOs) seem to be affecting changes in policies and practices related to fisher drowning in southern Lake Victoria. Most respondents said they had not heard of any such agencies involved in working with fishers. For example:

The government policy is that, when someone dies, the first to be informed is the police. They then come, investigate, and issue a government statement. At our beach we have no one to work with except the [fisheries] officers and fishermen. When someone drowns, we use the whistle and all assemble to see who it is. If he's drowned and we can't rescue him, we have to wait a day or two to locate his body. ... But we don't have any NGOs helping us. ... We have never seen that nor any government agency'. - Community leader at the port of Kayenze Ward, Ilemela District, Mwanza Region [FGD_5]

The exceptions were small Tanzanian organizations that, to date, have worked on issues that are indirectly relevant to fisher water safety, but have not worked directly on drowning prevention. For example, the Fishers Union Organization (FUO), a CSO, has broad interests in environmental, social and economic challenges facing the Lake Victoria region, e.g. infectious disease prevention. Similarly, the Environmental Management and Economic Development Organization (EMEDO), an NGO, has broadly worked on the promotion of sustainable, small fisheries. EMEDO has been working with FAO towards implementation of the 2015 FAO *Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the Context of Food Security and Poverty Eradication* and the 2012 FAO *Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security*. The interviewed FAO representative reported:

A first meeting was held and identified areas needing improvement in sustainable small-scale fisheries and possible strategies. ... EMEDO participated and they are currently developing strategies and ways to help small-scale fishermen, [for example,] how to make a more friendly environment so that fishers can get help, not only with the issue of drowning, but also in other areas. ... EMEDO is helping to develop a national action plan on sustainable small-scale fisheries. So that has been started. ... When we started this process, EMEDO relied on low ranking staff – interns - to work on the forestry issues. EMEDO has worked faithfully, not only on the action plan, but also on raising awareness of issues related to sustainable small-scale fisheries for a long time, way before the work they are currently doing. – Food and Agriculture Organization staff, Dodoma [IDI_41]

3.4. International agencies

The United Republic of Tanzania is a member state in different global (United Nations) agencies, including the Food and Agriculture Organization (FAO), the International Labour Organization (ILO), the International Maritime Organization (IMO), the International Monetary Fund (IMF), the World Bank, and the World Health Organization (WHO). Regionally, it is also a member of the African Development Bank Group, the African Union, the Southern African Development Community (SADC), and the East African Community (EAC). The other countries that border Lake Victoria – Kenya and Uganda – are members of the EAC but not SADC. Important regional organizations that fall under the EAC are the Lake Victoria Fisheries Organization (LFVO) and the Lake Victoria Basin Commission (LVBC).

Currently, the major international effort that may have the most direct impact on fisher water safety in southern Lake Victoria is the Lake Victoria Maritime Communications and Transport Project, which was initiated by the LVBC and is being funded by the African Development Bank. This project has a goal to significantly improve safety of life and transport planning issues on Lake Victoria (African Development Bank 2016). Box 3 details the project's key activities.

Box 3. Key activities of the Lake Victoria Maritime Communications and Transport Project

1. Establishment of a maritime communications system for safety on Lake Victoria, including:
 - A Maritime communication network
 - Maritime rescue coordination centres
 - Search and rescue centres
 - Weather alerts and value-added services

2. East African Maritime Transport Strategy for the East African Community Lake Victoria Study:
 - An East African maritime transport strategy
 - A Lake Victoria transport development programme

3. Project management, operational cost, and capacity building:
 - Project implementation unit
 - Technical assistance and user capacity building
 - Operational costs and awareness, monitoring and evaluation
 - A project audit

Source: African Development Bank 2016

All of the agencies above have the potential to affect drowning prevention policies and regulations in southern Lake Victoria. Currently, SADC and the regional bodies that work in southern Lake Victoria - such as LVFO and LVBC - have political influence and an active role in the region. The URT has signed the SADC Protocols on Fisheries, Health, and Transport, Communications and Meteorology. (Appendix/Annex 2: A2-15, A2-17, A2-19). In addition, the URT participates in the LVFO and LVBC at a high level (e.g. LVFO and LVBC, including in the East African Legislative Assembly's current consideration of the Lake Victoria Basin Commission Bill, 2019 (Appendix/Annex 2: A2-1). Details of these agreements and other potentially important international guidance will be detailed in the next chapter, which describes the potentially relevant binding international agreements with SADC, EAC LVBC, and EAC LVFO), non-ratified international agreements (with ILO and IMO), and voluntary international guidance (WHO, FAO, ILO, IMO).

CHAPTER 4: What are the water safety policies?

What is the existing policy and regulatory framework governing safety on the lake for fishers in southern Lake Victoria?

This chapter describes the findings of the policy and regulatory document review. Specific national acts, rules, regulations, policies and plans are described in Section 4.1, followed by specific binding international agreements, non-ratified international agreements and voluntary international guidance documents in Section 4.2. The strengths and limitations of these guiding documents in addressing fisher water safety in Lake Victoria are also discussed.

4.1. National regulatory and policy documents

Table 5 lists the national regulatory and policy documents that contain content most relevant to water safety and drowning reduction among fishers in southern Lake Victoria. For each of those documents, Appendix 1 summarizes sector, URT ministry author, type of document (e.g. policy, act of parliament, regulations, development plan, strategic plan), status (e.g. passed, ratified, endorsed), and a brief description of relevant content. Annex 1 compiles relevant excerpts from those documents.

Table 5. National regulatory and policy documents included in review because they are relevant to water safety and drowning reduction among fishers in southern Lake Victoria

See Appendix/Annex 1 for more detail.

National (URT) regulatory and policy documents
A1-1. 2019 Tanzania Meteorological Authority Act
A1-2. 2019 & 2014 Merchant Shipping Act: Accident Reporting and Investigation Rules & Distress Signals and Prevention of Collisions Regulations
A1-3. 2018 & 2017 Tanzania Shipping Agencies: Regulations & Act
A1-4. 2017 National Health Policy (Draft 6)
A1-5. 2017 Education Sector Development Plan (2016/17-2020/21)
A1-6. 2015 National Fisheries Policy
A1-7. 2015 Health Sector Strategic Plan, July 2015 – June 2020 (HSSP IV)
A1-8. 2012 National School Health Strategic Plan 2013 – 2017 (DRAFT)
A1-9. 2009 Fisheries Regulations
A1-10. 2009 Public Health Act
A1-11. 2009 National Occupational Health and Safety Policy
A1-12. 2008 National Employment Policy
A1-13. 2007 National Youth Development Policy
A1-14. 2004 Employment and Labour Relations Act
A1-15. 2003 Merchant Shipping Act
A1-16. 2003 Fisheries Act
A1-17. 2003 National Occupational Health and Safety Act
A1-18. 2003 National Transport Policy

4.1.1. Acts, rules, and regulations

Most of the relevant regulatory documents are acts that have been passed by Parliament and the President. The most recent examples from different sectors, and related rules and regulations, are:

- **2019 Tanzania Meteorological Authority Act** (Appendix/Annex 1: A1-1): Functions of this Authority include: providing weather and climate services for the safety of life and property;

issuing severe weather-related warnings and advisories; and cooperating with other national and international institutions in search and rescue relating to maritime accidents by providing relevant weather information.

- **2019 Accident Reporting and Investigation Rules; 2014 Distress Signals and Prevention of Collisions Regulations; and 2003 Merchant Shipping Act** (Appendix/Annex 1: A1-2; A1-15): The 2019 and 2014 guiding documents are two of dozens of sets of Merchant Shipping Act Regulations and Rules. They build on the 2003 Merchant Shipping Act and outline when a distress signal should and should not be used (for any vessel), and what is involved in investigation and reporting after accidents (ships only).
- **2009 Fisheries Regulations and 2003 Fisheries Act** (Appendix/Annex 1: A1-9; A1-16): These 2009 regulations build on the 2003 Fisheries Act to detail registration, inspection, and licensing for vessels and fishers, and the functions of a Beach Management Unit. They also identify safety essentials for a fishing vessel (e.g. fire extinguishing devices, life rings, life jackets). Box 4 lists the information required in the “Pre-License Inspection of an Artisanal Fishing Vessel” form (G.N. No. 308 FORM 2(c)), as detailed in the 2009 Fisheries Regulations.
- **2009 Public Health Act** (Appendix/Annex 1: A1-10): This Act specifies that medical officers and environmental health officers have the duty to prevent and remedy the cause and occurrence of any nuisance likely to be injurious, hazardous or dangerous to health, including taking legal proceedings and acting against any person causing or responsible for it. It also specifies that a person shall not cause or suffer from a nuisance existing on any land, premises, air or water.
- **2004 Employment and Labour Relations Act** (Appendix/Annex 1: A1-14): This Act applies to seafarers who work on fishing vessels. If there are conflicts, it prevails over the Merchant Shipping Act. It addresses trade union representation, occupational health and safety (OHS), and conditions for 14-18-year-old children working or training on ships.
- **2003 National Occupational Health and Safety Act** (Appendix/Annex 1: A1-17): This Act specifies: needs for risk assessment and prevention, e.g. ensuring safe access to a workplace, fire prevention, and the provision of protective equipment; requirements and functions of health and safety representatives in workplaces; and responsibilities of inspectors to investigate circumstances of any incident that has occurred at or originated from a workplace in connection with the use of a plant or machinery that resulted, or in the opinion of the inspector could have resulted, in the injury, illness or death of any person.

Box 4. Content of a Pre-License Inspection of an Artisanal Fishing Vessel Form (G.N. No. 308 FORM 2(c))

The content of this form is listed below. Write-in space is available after each item, but more specification is not given, e.g. on how to assess/describe sea worthiness.

1. Name of fishing vessel; Registration Number
2. Name of owner; Male/Female*
3. Postal address
4. Name of Captain
5. Means of propulsion:
 - Engine make; Type (Inboard/Outboard)
 - Engine serial number
 - Engine Horse-Power
 - Others
6. Fire-safety equipment: Available/Not available
7. Life-saving equipment: Available/Not available
8. Sea worthiness
9. Fishing gear on board

- Type (gillnets, traps, hooks and lines, long lines, purse seines); Others
 - Quantity for each type
10. Cold storage facilities:
- Icebox (numbers)
 - Type of ice used
11. Availability of Food and drinking water storage facilities:
- Available/Not available
 - Adequacy
- Condition (state their condition)
12. Remarks
13. Recommendations:
14. Approval/Disapproval (To be filled in by Authorized Officer)
- Full name of Captain; Signature; Date
- Full name of Lead Inspecting Officer; Signature; Date
- Full name of Inspecting Officer; Signature; Date
- Full name of Inspecting Officer; Signature; Date
- Official Stamp; Date

Source: URT 2009 (Fisheries Regulations)

4.1.2. Policies and plans

In addition to the legal documents above, several national policy and planning documents have content that is relevant to fisher safety in southern Lake Victoria, including:

- **2017 National Health Policy (Draft 6)** (Appendix/Annex 1: A1-4): One objective of this policy is to reduce the burden of intentional and unintentional injuries (including those due to occupational causes) through prevention, surveillance, enhanced pre-hospital care, improved care and management at all levels of health facilities, and rehabilitation.
- **2017 Education Sector Development Plan (2016/17-2020/21), and 2018 update** (Appendix/Annex 1: A1-5): One objective of this plan is to provide schools with necessary guidelines and resources to facilitate extra-curricular activities, such as sports. The plan also specifies that sports are also to be integrated into the school timetable.
- **2015 National Fisheries Policy** (Appendix/Annex 1: A1-6): Two objectives of this policy are to achieve decent work in fisheries for sustainable development, and to strengthen capacity for effective participation in regional and international obligations.
- **2015 Health Sector Strategic Plan, July 2015 – June 2020 (HSSP IV)** (Appendix/Annex 1: A1-7): Two strategic objectives of this plan are: (a) improving equitable access for areas with higher disease/injury burdens and vulnerable groups in populations with higher risks; and (b) collaborating with other sectors to address social determinants of health and advocate for health-promoting and health-protecting measures in other sectors' policies and strategies. It specifies that OHS programmes should involve: (i) measures to prevent injury, and (ii) workplace inspections to enforce legislation, with prioritization of high-risk industries where exposure to hazardous situations is high.
- **2009 National Occupational Health and Safety Policy** (Appendix/Annex 1: A1-11): This policy sets OHS standards, including: enactment of laws; promotion of OHS at work; strengthening of workers' participation through health and safety committees at workplaces; promotion of OHS in small- and medium-scale enterprises and informal sectors; and addressing cross-cutting issues of gender, vulnerable groups, and HIV and AIDS.
- **2008 National Employment Policy** (Appendix/Annex 1: A1-12): This document includes a policy statement that the government will continue to provide guidelines and enforce

legislation on health and safe working environments that are conducive to physical, psychological and social well-being of the workforce.

- **2007 National Youth Development Policy** (Appendix/Annex 1: A1-13): This policy acknowledges that many youth (defined as aged 15-35 years) are engaged in fishing and other small-scale activities, but lack equipment and necessary skills, and may work under hazardous conditions / at great risk, without protective gear. Policy statements include that: (a) the government will enforce laws and regulations regarding youth OHS; and (b) stakeholders such as NGOs and CBOs shall educate youth on protective measures. Further legislation related to child and youth work in the URT can be found in the 2009 Law of the Child Act.
- **2003 National Transport Policy** (Appendix/Annex 1: A1-13): The aim of this policy is to develop safe, reliable, effective, efficient and fully integrated transport infrastructure. It has policy statements focused on improving basic infrastructure, navigation aids, and meteorological information in planning, particularly for inland water transport.

Strengths and limitations of the national policy and regulatory documents related to drowning prevention among fishers in southern Lake Victoria are summarized in Box 5.

Box 5. Strengths and limitations of the national policy and regulatory framework

See also Appendix 1 and Annex 1.

STRENGTHS: Multiple sectors (i.e. fisheries, shipping, meteorology, labour, youth, and health) have passed acts, and sometimes rules and regulations, which address issues related to fisher safety in southern Lake Victoria. Specific strengths include:

1. Active collaboration between the fisheries, transport, and police sectors.

2. The meteorology sector is becoming stronger: The 2019 Act, in combination with the Lake Victoria Maritime Communications and Transport Project, is likely to lead to much higher coverage of accurate weather forecasting in Lake Victoria in the coming years.

3. The fisheries and shipping sectors generally have clear policies, rules, and regulations: Small-scale fisher and boating water safety rules and regulations are clear, e.g. registration and licensing regulations; requirements of vessel seaworthiness and safety equipment; provision of weather information for the safety of life; prevention of collisions and safety of navigation; provision of search and rescue services for accidents; and inquiries into and reports on deaths and injuries.

4. The health and labour sectors have broadly relevant policies: Existing health and labour policies have strong, albeit indirect, relevance to small-scale fisher water safety, e.g. unintentional injury prevention and care; needs of high-risk groups; occupational health and safety; union representation for seafarers; conditions for 14-to-18-year-olds working on ships.

5. The youth sector has a specifically relevant policy: The 2007 policy specifically that youth ages 15-35 years working in high-risk fishing activities warrant special OHS protective measures, and that NGOs can play a role.

WEAKNESSES: Current weaknesses and gaps of the national regulatory and policy framework include:

1. No national water safety plan or strategy: Such a drowning reduction strategy is recommended by WHO and FAO (FAO 2015; FAO 2016; WHO 2017; WHO 2018) (Appendix/Annex 2: A2-2, A2-3, A2-6, A2-9). This would coordinate, identify and align efforts of stakeholders, including those not yet engaged in the issue. For example, while the fisheries, transport, and police sectors have collaborated in policy development, there does not seem to have been any collaboration with the health, labour, and youth sectors, which have produced national guiding documents that are directly or indirectly relevant to drowning reduction among fishers in southern Lake Victoria.

2. Few national documents directly address water safety among fishers on inland waters.

For example, many fisheries documents focus on seas (not inland waters); large-scale, commercial business (not small-scale, subsistence, or artisanal fishers); and/or fish quality or environmental safety (not fisher safety).

--- **Fishing is hardly acknowledged as a high-risk profession**, with a uniquely high OHS unintentional injury burden (i.e. drowning), resulting in fishers being a vulnerable group.

--- **The special needs of small-scale, subsistence fishers are not addressed**, e.g. a system for training and certifying fishers in swimming and water survival; standards for extremely small/informal vessels; community awareness-raising and drowning prevention initiatives.

3. Little attention to water safety education and training needs: The fisheries and transport sector largely address water safety through enforcement of rules and regulations, e.g. patrols and fines. Basic water safety education is hardly mentioned, let alone large-scale, skills-based, behaviour change interventions that might be most effective in changing fishing community norms and behaviours.

4.2. International regulatory, policy, and voluntary guiding documents

Table 6 lists the international regulatory, policy, and guiding documents which contain content that is most relevant to water safety and drowning reduction among fishers in southern Lake Victoria. Documents included in this list are either: (a) Conventions which have been ratified by the URT; or (b) voluntary guidance documents produced by international bodies within which the URT is a Member State. Appendix 2 summarizes each document’s sector, international agency, type, status, and relevant content, while Annex 2 compiles relevant excerpts from these documents.

Table 6. International regulatory, policy, and voluntary* guidance documents included in review because they are relevant to water safety and drowning reduction among fishers in southern Lake Victoria

See Appendix 2 and Annex 2 for more detail.

International regulatory, policy, and voluntary* guidance documents
A2-1. 2019 EAC EALA Lake Victoria Basin Commission Bill
A2-2. 2018 WHO Preventing Disease through a Healthier and Safer Workplace*
A2-3. 2017 WHO Preventing Drowning: An Implementation Guide *
A2-4. 2017 & 2003 SADC Regional Indicative Strategic Development Plan 2005-2020 & 2017 Revision 2015-2020
A2-5. 2016 EAC LVFO Fisheries Management Plan III (FMP III) for Lake Victoria Fisheries, 2016-2020
A2-6. 2016 FAO Fishing Operations: Best Practices to Improve Safety at Sea in the Fisheries Sector*
A2-7. 2016 ILO WASH@Work: A Self-training Handbook*
A2-8. 2015 FAO Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the Context of Food Security and Poverty Eradication, and 2012 FAO Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security
A2-9. 2014 FAO, ILO, & IMO Implementation Guidelines on Part B of the Code, the Voluntary Guidelines and the Safety Recommendations*
A2-10. 2013 SADC Decent Work Programme 2013-2019
A2-11. 2011 FAO, ILO, & IMO Safety recommendations for decked fishing vessels of less than 12 metres in length and undecked fishing vessels*
A2-12. 2005 FAO, ILO, & IMO Code of Safety for Fishermen and Fishing Vessels (Parts A and B)*
A2-13. 2005 FAO Increasing the Contribution of Small-Scale Fisheries to Poverty Alleviation and Food Security*
A2-14. 2004 EAC LVFO Regional Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated (IUU) Fishing on Lake Victoria and its Basin
A2-15. 2001 SADC Protocol on Fisheries
A2-16. 2001 FAO, ILO, & IMO Document for Guidance on Training and Certification of Fishing Vessel Personnel*
A2-17. 1999 SADC Protocol on Health
A2-18. 1997 FAO Inland Fisheries: FAO Technical Guidance for Responsible Fisheries*

International regulatory, policy, and voluntary* guidance documents
A2-19. 1996 SADC Protocol on Transport, Communications and Meteorology
A2-20. 1995 FAO Code of Conduct for Responsible Fisheries*

4.2.1. Binding international agreements (SADC, EAC LVBC, EAC LVFO)

The most relevant binding documents are SADC protocols that were signed by URT President Mkapa 20-25 years ago. Each of these broadly addresses issues related to fisher water safety and drowning reduction:

- **2001 SADC Protocol on Fisheries** (Appendix/Annex 2: A2-15): focuses on the security, health, and livelihoods of fishing communities and outlines multiple ways that State Parties should consider the needs of artisanal, subsistence and small-scale commercial fisheries, including improving infrastructure and support services, enhancing training, promoting welfare, work conditions, empowerment and upliftment, and transfer of best practice skills.
- **1999 SADC Protocol on Health** (Appendix/Annex 2: A2-17) calls for: strategies to address the needs of vulnerable groups; formulating and implementing policies and guidelines for health promotion and education; developing and delivering integrated occupational health services; cooperating as State Parties in reducing the prevalence of occupational injuries and disease; and assisting each other in the co-ordination and management of disaster and emergency situations.
- **1996 SADC Protocol on Transport, Communications and Meteorology** (Appendix/Annex 2: A2-19) calls for development of harmonized international and regional transport policies for inland waterways which promote a safe and clean environment, including training and certification of seafarers.

Two other relevant SADC documents – a strategic development plan, and a programme – may also be binding, but they are limited in the extent to which they address fisher water safety:

- **2003 SADC Regional Indicative Strategic Development Plan 2005-2020, and its 2017 Revision for 2015-2020** (Appendix/Annex 2: A2-4): The 2003 plan does not address the specific needs of artisanal fishermen, except related to fish handling and conservation. However, the 2017 revision notes that progress has been made in the Codes of Conduct to guide Member States, including OHS standards.
- **2013 SADC Decent Work Programme, 2013-2019** (Appendix/Annex 2: A2-10): This programme does not address fisher safety but broadly seeks to formulate, implement, and monitor systematic and detailed OHS programmes at the national level.

The East African Community (EAC) LVFO has produced a number of plans which might be relevant to drowning reduction among fishers in southern Lake Victoria. Generally, these documents focus on protecting the environment or preserving fish quality, rather than promoting fisher safety. However, the **2016 Fisheries Management Plan III for Lake Victoria Fisheries, 2016-2020** (Appendix/Annex 2: A2-5) acknowledges that there is a great social inequality between fishers and boat owners or fishery agents. In addition, the **2004 LVFO Regional Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated (IUU) Fishing on Lake Victoria and its Basin** (Appendix/Annex 2: A2-14) lists one “management measure” as implementing the 1995 FAO International Code of Conduct for Responsible Fisheries and its accompanying Technical Guidelines. See more on that FAO Code and its Technical Guidelines below.

As already noted in Chapter 3, the LVBC initiated the Lake Victoria Maritime Communications and Transport Project, which has a goal to establish a centralized maritime communications system for safety on Lake Victoria. In addition, the East African Legislative Assembly (EALA) is considering the

Lake Victoria Basin Commission Bill, 2019 (Appendix/Annex 2: A2-1). Currently the LVBC reports to Sectoral Council of Ministers on Lake Victoria (SECOM), which is made up of ministers from the five LVBC member states (Burundi, Kenya, Rwanda, Tanzania, and Uganda). However, if the LVBC Bill were passed, then LVBC would be provided for as an institution within the East Africa Community. If this act is passed, the new Commission will be responsible for the harmonization of policies, laws, regulations and standards concerning the Lake Victoria Basin. It will provide capacity building and institutional development within the basin and facilitate and co-ordinate security and safety of navigation on Lake Victoria. Its objectives include equitable economic growth; measures aimed at eradicating poverty; and compliance with safety and navigation. While the regional development of fishing will continue to fall under the mandate of LFVO, marine safety will fall under the new mandate of the LVBC.

4.2.2. Non-ratified international agreements (ILO, IMO)

In addition to the international policy documents listed in Table 6, there are many ILO and IMO Conventions that have limited potential specific to drowning reduction among fishers in southern Lake Victoria, because:

- (a) the Conventions are ratified and enforced by the URT but only apply to seafarers, not fishers in inland waters (Table 7); and/or
- (b) the Conventions have not (yet) been ratified by the URT, although the URT is an ILO/IMO Member State (Table 8).

Despite such limitations, these documents are included here for their potential relevance in future advocacy, e.g. (a) adaptation/transferability of language of ocean-specific Conventions for similar documents targeting inland waters; and/or (b) advocacy efforts with the URT government to ratify and endorse relevant Conventions. Annex 3 provides one example in category (b), i.e. excerpts from the 2017 ILO Work in Fishing Convention. That Convention has an objective to ensure fishers have decent conditions of work on board fishing vessels, such as OHS protection and medical care. It applies to all fishing vessels engaged in commercial fishing operations except for subsistence fishers. However, Member States may choose to extend it to fishers working on small vessels.

Table 7. International conventions that are NOT included in document review because they do not apply to inland waters

No.	Conventions that are ratified and enforced by the URT but do not apply to inland waters
1.	2006 ILO Maritime Labour Convention, and 2014 and 2016 amendments
2.	1979 IMO International Convention on Maritime Search and Rescue
3.	1979 IMO International Convention for the Safety of Life at Sea
4.	1978 IMO International Convention on Standards of Training, Certification and Watchkeeping for Seafarers
5.	1972 IMO Convention on the International Regulations for Preventing Collisions at Sea
6.	1970 ILO Prevention of Accidents (Seafarers) Convention (denounced 3 April 2020)

Table 8. International conventions that are NOT included in document review because currently they are not ratified by the URT

No.	Relevant Conventions / Regulations not ratified by the URT
1.	2017 ILO Work in Fishing Convention (Annex 3, A3-1)
2.	2012 IMO International Regulations for the Safety of Fishing Vessels (consolidated 1993 Torremolinos Protocol and 2012 Cape Town Agreement)
3.	2002 ILO Protocol of the 1981 Occupational Safety and Health Convention
4.	1996 ILO Seafarers' Hours of Work and the Manning of Ships Convention
5.	1996 ILO Protocol of the 1976 Merchant Shipping (Minimum Standards) Convention
6.	1996 ILO Labour Inspection (Seafarers) Convention

No.	Relevant Conventions / Regulations not ratified by the URT
7.	1995 IMO International Convention on Standards of Training, Certification and Watchkeeping for Fishing Vessel Personnel (STCW-F)
8.	1987 ILO Health Protection and Medical Care (Seafarers) Convention
9.	1981 ILO Occupational Safety and Health Convention

4.2.3. Voluntary international guidance (WHO, FAO, ILO, IMO)

In addition to the Conventions and other agreements described above, some relevant voluntary guidance has been produced by international bodies within which the URT is a Member State. They include implementation guides, technical guidelines, training handbooks, recommendations, and codes of safety and conduct. These provide practical information that is relevant to water safety and drowning reduction among fishers in southern Lake Victoria. Most of these have been produced by a collaboration of FAO, ILO, and IMO, often in collaboration with each other. However, WHO also has produced relevant guidance documents. A few examples follow:

- **2018 WHO Preventing Disease through a Healthier and Safer Workplace** (Appendix/Annex 2: A2-2): This report highlights fishermen as at increased risk of drowning, and lists strategies to prevent drowning in the workplace, e.g. increased awareness, appropriate policies and legislation, the development of national water safety plans, and the involvement of different sectors. In addition, it provides examples of interventions, including: safe boating; shipping and ferry regulations; availability of flotation devices, avoidance of overcrowding, and appropriate travel routes and rules for boats; worker education and training on swimming skills and water safety; and personal protective equipment, such as personal flotation devices.
- **2017 WHO Preventing Drowning: An Implementation Guide** (Appendix/Annex 2: A2-3): This guide details interventions and strategies to prevent drowning, including: teaching school-age children swimming and water safety skills; training bystanders in safe rescue and resuscitation; setting and enforcing safe boating, shipping and ferry regulations; strengthening public awareness of drowning through strategic communications; promoting multisectoral collaboration; and developing a national water safety plan.
- **2016 FAO Fishing Operations: Best Practices to Improve Safety at Sea in the Fisheries Sector** This guidance document has the objective to improve safety and health of those persons working in the fisheries sector through the development of national strategies and their implementation. It addresses fisheries management and operations, and change management within planning and policy legislation. Other relevant topics include: training in small-scale fisheries; fishing vessel safety; self-assessment of vessel conditions; boat drills and fire drills; vessel inspection; search and rescue service; and accident investigation and analysis.
- **2016 ILO WASH@Work: A Self-training Handbook** (Appendix/Annex 2: A2-7): This training handbook identifies offshore and onshore fishing as a work sector that poses unique OHS risks. It specifies that these must be assessed and mitigated to protect worker safety and health, including drowning prevention. This handbook further identifies appropriate workplace measures to reduce water-related risks, including posting appropriate warning signs and providing safety equipment such as life jackets.
- **2015 FAO Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the Context of Food Security and Poverty Eradication** (Appendix/Annex 2: A2-8): This guide recommends that States: (a) address occupational health issues and unfair working conditions of all small-scale fishers and fish workers by ensuring that the necessary legislation is in place; (b) develop and implement coherent and integrated national strategies, with the active participation of the fishers themselves and with elements of regional coordination, as appropriate; and (c) provide support to maintenance of national

accident reporting, provision of sea safety awareness programmes and introduction of appropriate legislation for water safety in small-scale fisheries.

Strengths and limitations of the international policy, regulatory, and voluntary guidance documents related to drowning prevention among fishers in southern Lake Victoria are summarized in Box 6.

Box 6. Strengths and limitations of the international policy and regulatory framework

See also Appendix 2 and Annex 2.

STRENGTHS: Multiple sectors (i.e. fisheries, health, labour, transport, development) have, directly or indirectly, addressed fisher safety in international guiding documents. Specific strengths include:

1. The URT has endorsed several relevant SADC protocols in which State Parties agree to:

- Actively work towards the enhancement of training in fisheries.
- Encourage and guide the fishing industry to promote the welfare and working conditions of all employees.
- Work towards the development, acquisition and dissemination of tested means and methods of promoting education, empowerment and upliftment of artisanal and subsistence fisheries communities
- Provide for regional co-operation and harmonization of the training and certification of seafarers based on an optimal use of available resources, optimizing training resources and the exchange of personnel.
- Develop and deliver integrated occupational health services.
- Cooperate in reducing the prevalence of occupational injuries and disease, and also in the co-ordination and management of disaster and emergency situations.

2. The URT is a member state in agencies (FAO, WHO) that provide detailed, voluntary guidance on fisher water safety. These voluntary and/or non-ratified documents address many of the topics that are already regulated by URT law (e.g. licensing and registration; flotation devices on boats), but they also address some other water safety issues, e.g.:

- Promotion of a preventative OHS culture.
- Worker education and training on swimming skills and water safety.
- Teaching school-age children swimming and water safety skills.
- Training bystanders in safe rescue and resuscitation.
- Strengthening public awareness of drowning through strategic communications.
- Developing a national water safety plan.
- Data collection and analysis to improve safety
- Fisheries management and operations, as well as change management within planning, policy legislation.

WEAKNESSES: Current weaknesses and gaps of the international regulatory and policy framework include:

1. Many, if not most, of the international fisheries documents do not address small-scale fishers in inland waters. Instead they focus on: seas; large-scale, commercial businesses; and/or fish quality or environmental safety (not fisher safety).

2. Very few relevant international Conventions have been formally passed or ratified by the URT, so very few are binding.

This chapter drew on the literature review to outline what is currently specified in policy related to water safety among fishers in southern Lake Victoria. The next chapter will draw on the FGD and IDI findings to examine the current status of water safety knowledge, attitudes, and activities, and why efforts to increase water safety have been successful or unsuccessful.

CHAPTER 5:

Why have efforts to increase lake safety been successful or unsuccessful?

Why have efforts to increase lake safety among fishers in southern Lake Victoria been successful or unsuccessful?

This chapter examines factors contributing to the success or limitations of efforts to increase safety among small-scale fishers in southern Lake Victoria. Factors influencing water safety efforts are broadly categorized under general implementation of rules and regulations, weather forecasting services, search and rescue services, promotion of safety knowledge and attitudes, and promotion of safe practices. Table 1 provides an overview of these findings on the successes and limitations of water safety efforts in southern Lake Victoria.

Critically, at a broad level, progress has been made in increasing lake safety for fishers in southern Lake Victoria in recent decades, but there is still much potential for improvement. More specifically, many important efforts can be considered both partially successful and partially unsuccessful, e.g. implementation of rules and regulations, safety education, and adoption and monitoring of safety equipment and practices.

5.1. General implementation of policies and regulations

This section relates to implementation of the main current policies and regulations related to boat and fisher registration, licensing, and inspection.

5.1.1. Successes

Successes in the general implementation of policies and regulations include: stakeholder understanding of policies and regulations; and government capacity for registration, licensing, and inspection.

Stakeholder understanding of policies and regulations:

In FGDs, fishers and other fishing community members generally demonstrated a basic understanding of licensing safety requirements. In IDIs, most government representatives reported that policies and regulations related to fisher water safety are well understood by authorities and fishers, and are adequately implemented and monitored by collaborative efforts of fisheries officers, TASAC officers, and Beach Management Units (e.g. the 2003 Merchant Shipping Act and 2009 Fisheries Regulations – see Appendices/Annexes A1-9 and A1-15). They reported that local authorities are informed of the water safety rules and regulations and routinely carry them out by inspection and licensing of new boats and fishers, as well as intermittent (e.g. annual) fisheries/TASAC inspections, and more frequent monitoring and follow-up by BMUs. For example:

[The 2003 law and 2009 regulations] are the foundation of the implementation of any tools of work of fisheries officers. Every fisheries officer supervises fishers [using] the rules and regulations. That is every fisheries officer's guide. – Ward Fisheries Officer, MLF, Mwanza City, Mwanza Region [IDI_15]

Before registering and giving [a boat] a registration number so it can conduct fishing activities, it must be inspected by an expert in water transportation. That is the person who authorizes that the boat is safe to carry fishermen in the lake. They check if the wood being used to make the boat is safe, and its stability, meaning what capacity it can carry. But also, there are signs that should be on the boat for those using water vessels to protect the safety of the people on water. And part of the water laws is that a person is

not allowed on any fishing boat without a life jacket. - Regional Fisheries Officer, MLF, Kagera Region [IDI_10]

There are small passenger vessels, small cargo vessels, and fishing vessels ... and they follow a similar trend of inspection. When a vessel is being built, an inspector will go check that it is up to standard ... that there are no leakages and that there is life-saving equipment for the capacity it can carry. ... Once they fulfil these requirements, the boat is registered and safety documents are issued which are used every year to ensure the vessel has compliance ... for every financial year there are areas we go educate and we carry out inspection in higher risk areas. – Senior Inspection Officer, TASAC, Mwanza Region [IDI_22]

There is a law that guides fishermen called the Fisheries Act.. ... There is a clause that a person must have a license if their boat is to be used for fishing activities. ... And after completing that, one should also get a license from TASAC, which will allow the person to operate on water. If they adhere to all that, they will reduce and avoid these incidents [of drowning], because the TASAC license states the [safety] equipment that one should have. - Corporal of the Marine Police / Captain of the Marine Unit, Mwanza Region [IDI_52]

There are laws that clearly explain what the quality of a vessel should be before it enters a lake or ocean. And there are legal bodies to inspect and issue licenses to vessels that are worthy of going into the water. And in the same way the fishermen know all these procedures. ... These laws have been set to protect life and to protect the needs of citizens. The government is trying to set procedures and bodies for supervision. ... It has done its work very well. – Research Coordinator, LVFO, Dodoma [IDI_34]

Most boat owners, boat builders, and fishers who participated in FGDs also understood the basic requirements needed for boat and fishing licenses, although they sometimes confused the roles and responsibilities of different government officers. Government authorities were not present in most fishing villages on a daily basis, so fishers and boat owners instead usually interacted with the BMU for licensing, payments, and inspections. For example:

The BMU is performing their work to check the safety of vessels as they should. If they arrive on a particular day, they start inspecting vessels. If they find there is a problem, they will call the owner aside and tell them, "Your vessel is damaged. We ask you to repair it." For example, I am a canoe owner. My canoe was damaged and just recently they called me and explained to me that it has worn out. I saw that myself, but I could not repair it or call a mechanic, so the BMU pulled it out of the lake until I repaired it. Truly, the BMU is working. - Community members at the Shadi Fish Landing Site, Mwanza City, Mwanza Region [FGD_14]

[If] a person came to the area and starts fishing [without reporting to the BMU], after a couple of days the BMU will receive reports that some unfamiliar boats have been seen here. From such comments, the BMUs start their job of strict patrol. When they get to the fishers, they ask them, "Why have they not reported to us?" – Community member at Chifufu beach, Chekundu Ward, Mwanza Region [FGD_8]

Government capacity for boat and fisher registration, licensing, and inspection:

Several government authorities reported that the government capacity for boat and fisher licensing is limited but adequate and improving. They particularly praised the collaboration of fisheries officers, TASAC officers, marine police officers, and BMUs. For example:

TASAC has been around for approximately one year. ... For the president to separate the marine department from the land transportation department is a very big effort. It ensures that the institution that oversees water transport gets to perform its duties more appropriately. We therefore believe that, as time goes by, the institution will continue to be stronger, and manpower and equipment to perform their duties, especially patrol boats, will increase. And when it comes to search and rescue equipment, we will have modern equipment to reach citizens more easily and closely. ... At the moment we are in the process of constructing the biggest search and rescue centre in East Africa. It is will be built in Mwanza and it will have high-speed vessels that can reach areas where accidents take place. ... And [we are] streamlining

communication centres. ... The equipment is already in place, it is just a matter of installation and for a risk assessment expert to make assessments. We have faith that there are good things to come. – Senior Inspection Officer, TASAC, Mwanza Region [IDI_22]

You have to create a BMU constitution based on common [local] interests. Creating a BMU is a gradual process. Yes, first strengthen its capacity, and then inform others that we have formed the BMU. Other things can then be included in aspects of co-management, by-laws, etc. So, we started BMUs, and now there are many, about 800-900 [nationally]. At least now when you go somewhere, and they know that you will be talking about fishing issues, you must seek the audience of the BMU leadership. They are now the organizers of [local] fisheries. - Fisheries Education and Training Officer, FETA, Mbegani, Bagamoyo Town [IDI_24]

BMUs are protection committees ... [the government] cannot afford fisheries officers on each shore, so BMUs help collect revenue, record information about boats that dock there, and educate fishermen. ... If there were no BMUs, many people would not have knowledge. The BMUs are right there [at the lake shore], and they confront people who fail to follow the rules. If a person harasses others, and the BMUs cannot control them, they call us and we go deal with them. – Regional Fisheries Officer, MLF, Kagera Region [IDI_10]

5.1.2. Limitations

Limitations in the general implementation of policies and regulations include: insufficient progress in implementing water safety measures; limited government coordination and guidance; inadequate government capacity and resources; some government conflicts of interest, negligence, and/or corruption; many unsafe boats used for fishing; poverty inhibiting fishers' abilities to meet licensing and safety requirements; and no stakeholders focused on fisher safety and welfare, and particularly on drowning reduction.

Insufficient progress in implementing water safety measures:

Some respondents reported that, although progress may have been made in implementing the national regulations and policies related to fisher water safety, this has been gradual and limited, particularly in terms of government coordination, guidance, capacity and resources:

The government is not concerned with us. When we report accidents, all they do is come and do a post-mortem, to give a go-ahead for burials. But we are left to collect all of the contributions needed to pay for the fee of searching for dead bodies. Honestly, we do not have anyone: the government has forgotten us. - Community leader at Chifufu beach, Chekundu Ward, Mwanza Region [FGD_6]

[The 2003 law, 2009 regulations, and 2015 policy] are working, but we are not where we need to be yet. Because even an ostrich was not born big. With the steps we have taken, we are making progress, but we are not at 100% efficiency. – Regional Fisheries Officer, MLF, Kagera Region [IDI_10]

Limited government coordination and guidance:

Although different governmental and BMU representatives cooperated with each other, there did not seem to be an overarching coordination of efforts, which contributed to confusion, gaps, and inefficiencies. Fisher reports of this specifically related to search and rescue efforts will be detailed later in this chapter. Other examples follow:

I think a big issue is people throwing responsibilities at each other. It is a big problem if there is no synchronization with laws, regulations, and procedures. ... Because everything that is done has to be done according to procedures, and if one law does not complement the other, problems arise. A [fisheries]

worker will tell you that his responsibility ends someplace from which TASAC must take over. - Acting Centre Director, TAFIRI, Dodoma [IDI_33]

There are some fishermen who use life-saving equipment [incorrectly]. They construct the vessel from bamboo ... and add buoyant materials. So you may find a person seated on the buoyant safety material as he fishes unsafely. We cannot even grant registration for such a vessel. So it has become common for everyone to construct a vessel suitable for them without taking into account matters of safety. I think this is also a very great point as to why people drown hopelessly in the lake. There isn't enough clarification, as there is for bigger boats and ships. Any big boat or ship must be inspected before it begins to carry travellers or passengers. It must meet specifications that this boat or ship can carry not more than, say, 10 or 20 tonnes. But there is no such thing in the small boats or canoes. This is why I think it's a waste of time, even for TASAC. Basic research has not even been done, but then you go and tell a person to come forward so that you can inspect their safety equipment when their vessel does not even meet canoe specifications. It then seems like you are looking to get their money [from fines]. So first we need standards. If we really want to make progress, we should have standards for the [small] vessels and canoes. ... This is for all the vessels: paddle vessels, machine vessels, vessels that carry passengers and even vessels that only carry fish. There should be specific instructions on the number of people who should get on a vessel that is 10 meters long. For a vessel that carries only two fishermen: how long and what size should it be? – District Fisheries Officer, MLF, Ilemela District, Mwanza Region [IDI_7]

Inadequate government capacity and resources:

In FGDs, fishers reported that they need more government and/or BMU support specifically for (a) water safety training and (b) financial and logistical assistance after a drowning; these are described more later in the chapter. Other examples of insufficient government capacity and resources follow:

We have been very strict with them [fishers]. ... [Stating for example,] "If you don't have five life jackets, then we will not allow your canoe to enter into the lake". ... But when he gets into the lake, it comes down to his will to put it on or not. ... Because we are not so many officers that we have time to go on the lake and check every canoe. And after all, the fishing activities are mostly done at night. Night is not a time for me to do my duties, that is always when I am off duty, resting. - Ward Fisheries Officer, MLF, Chekundu Ward, Mwanza Region [IDI_16]

SUMATRA [TASAC] only comes once a year to this beach, or not at all. It makes it difficult for boat owners, because most of us do not have the education to know that we are not allowed to send fishers in the water without life jackets. – Community leader at the port of Kayenze Ward, Ilemela District, Mwanza Region [FGD_5]

There are challenges. First of all, in our [marine police] department we have very few workers, Nonetheless, we ensure that - whenever we go for rescue work - we do it efficiently, as we are obligated to do. Another challenge is that we still have very few boats. There are three boats here, but right now only one is operational. – Police Officer and Captain of Rescue Boat, Marine Department, Mwanza Region [IDI_20]

The [lake's] area is large, and there are many vessels. Our manpower is not sufficient. Another challenge we face is the change in weather, because we are not able to reach people to give them information on the weather. We want to ensure that all the people who perform marine activities get weather information quickly and within a short period of time, so they know the changes, because the weather is unpredictable. – Senior Inspection Officer, TASAC, Mwanza Region [IDI_22]

Some BMU or government conflicts of interest, negligence, and/or corruption:

Many respondents reported that authorities sometimes have conflicting roles and responsibilities. For example, when a TASAC officer or a fisheries officer is both a boat owner and the investigator investigating a boat's accident, or a BMU member is responsible to represent fisheries management

as well as the community in a difficult decision. Negligence and corruption were also reported, although sometimes it was not clear whether authorities who expected payment were collecting required fees or a demanding a bribe.

R1: *A challenge related to BMUs is ... most of the time they concentrate on the issue of licenses, that is when you see them a lot. But if fishers get a problem while in the lake, it is not simple [to get BMU help]. They just come some days to inspect licenses. ... For instance, if someone has drowned, every camp is supposed to contribute a certain amount of money, or maybe fuel. The person responsible is usually the one who got the problem, not the BMU. What the BMU does it to check for licenses, or maybe do an inspection, or maybe follow up if there is a new canoe in the area or illegal fishing nets.*

...

R2: *My views about the BMU are the same. Honestly, they don't provide support in this port. There are other external things that they follow up, like licenses. That's when they will pass through and check [fishers and boats]. But for the issues of someone drowning, I have never seen them following up. The BMU will follow up on you to get a license because there is a license that allows one to fish here, and others that allow you to fish in other places. That means [if an unlicensed fisher] comes here, he will take [local people's] incomes. ...*

R3: *Another thing, the BMU should check what [new] canoes need in order to conduct their work in the area. The BMU should stick to [the regulations], but most canoes that arrive from outside that are inspected are not [expected to meet the same standards] as local canoes. Why don't they also check that this canoe is fit to go to the lake, and this one is not?*

– Community member at the port of Kayenze Ward, Ilemela District, Mwanza Region [FGD_4]

R1: *We have one problem here, as we do not have a BMU in this port. We just have a building. The entire BMU leadership was disbanded after a [certain] fishing operation. They had tried to involve the councillors in the operation, and they were perceived as encouraging illegal fishing. That is rubbish [not true]. But the higher ranks of BMU [presumably government authorities] issued orders that the BMU should be disbanded and a new BMU be elected. But the election order has not come out yet. ... A long time has passed since then [almost two years] ...*

R2: *Most fishers originally came here from elsewhere. If new fishermen come, then [unspecified local authorities] follow up if it is a canoe with an outboard engine. If it is just a rowing canoe, they let it come without collecting any information. There is no procedure. It is just that when they see a canoe with an outboard motor, they know it is valuable, so the leaders run around, saying those fishers have come here without any information.*

R3: *They get a little [money]. Which phrase did you use, sister, for giving bribes? You use a certain phrase when we go to Mwanza.*

R4: *"To give the wind" (kutoa upepo, a common expression for paying a bribe).*

R4: *Yes, they ask for a bribe when a person is just trying to make a living. [They even ask] new fishers who are strangers to us.*

R: *[Group laughter]*

– Community members at the port of Kasenyi Ward, Sengerema District, Mwanza Region [FGD_7]

You find fisheries [officers] sitting there waiting, and you know your fish have fulfilled the requirements. When you get there, you show them your licence and your permit, but they still tell you that it is not enough. You should bribe them a little. Now, I ask myself, "Why I should bribe them when I have a licence and permit and have paid the revenue?" I cannot really understand. – Community member at the port of Kasenyi Ward, Sengerema District, Mwanza Region [FGD_7]

Our political leaders are also a challenge. ... Politicians asks for votes from these people [who are fishing illegally]. And for them to get the people's votes they cannot limit the activities they do in those areas: it brings a contradiction. The political leaders have a lot of power. Remember, the officer at the sub-village [kitongoji] level is under the director, who is his employer. The director leads the council of councillors. So, if the fisheries officer is serious about dealing with [people who are fishing illegally], and these people have interests in that matter, you can find that the councillor or the council chairperson has interest in fishing or is involved in fishing. In the areas that we live, the councillors are the ones doing the fishing, the area leaders are the ones doing the fishing, and sometimes also the members of parliament are in the fishing

business. Now the leader could be aiming to fish legally, but his people in the lower ranks at the lake shores are involved in illegal fishing without the leader knowing they do this. At the end of the day, when they are caught, they do not tell him the truth. They lie and say the officer is mistreating them and eventually what ensues is enmity with the officer. Or you find that his safety in fulfilling his duties will be uncertain. So that is one of the challenges the fisheries officers face. - Regional Fisheries Officer, MLE, Kagera Region [IDI_10]

When policies are not implemented it is due to carelessness of the people concerned. For instance, overloading - loading more than the required limits of the vessel. That is being careless. And the fisheries officers or inspectors do not care most of the time. They just ignore this behaviour ... maybe [because] they own some of the boats. Or maybe they have some sort of investment in those fishing vessels. - Retired Senior Officer, TAFIRI, Dar es Salaam [IDI_23]

The truth is that not all canoes are in good condition. At least, they [government representatives] should come [to inspect boats] every month when they come to pick up their taxes, when a canoe comes to get/pay for its license. Every year, it should be required to have work done on a canoe and then it should come for a license. But the reality is, even if the canoe is leaking, the government just collects the money and then leaves the fishermen. It is at this point that I lose energy to fix that canoe. I am forced to continue pushing on with the boat and struggling with hunger to get money to purchase wood. Now, I don't have the money yet, and the boat has holes. Fishermen have drowned, but if we complain too much, the owner and the government themselves [tell us] to I. We continue to complain because there isn't any oversight of the boat owner, saying, "Hey man, this boat should not go [into the water]. It is worn out from staying in the water. Take it out and you will see." They need to get to a point when they really supervise this. – Community leader at the port of Kayenze Ward, Ilemela District, Mwanza Region [FGD_5]

Poverty inhibiting fishers' ability to meet licensing and safety requirements:

Fishers reported that poverty and subsistence living inhibited some from meeting all of the costs needed for boat and fishing licensing requirements. For example:

- R1: *About these [water safety] laws you mentioned, our government does not consider even one. Fishermen are always oppressed. ... The fisheries officers from the district, province, ward, division, or constituency – they just look for money. If you do not have money, especially if you do not have a big vessel, if they reach your small vessel they will just tie up the engine and keep it. They are looking for money and they will give you any reason. For example, you may have made a canoe [mitumbwi], yes, and you are still trying to bring together enough money to go and pay for the licence, but they come first and find the vessel does not yet have a licence. They have young men who jump into your canoe, turn off the machine, and keep it unless you pay 500,000 TZS by the end of the day. ...*
- I: *So, for clarification, is it possible to complete the whole process of getting a licence and all required supplies before putting the boat in water?*
- R1: *It is not possible. ... When you are making a canoe and you finish it, you cannot leave it out of the water. When you do, you are destroying it before even using it. Remember that it has been made by a human being and it is not made of iron, it is made of wood, and wood can start rotting, it can start breaking. It might break because the wood starts stripping when it is hit by sunlight. And so you are forced to push it into the water. The greatest challenge is the licence. How do you get a license when the licence offices are not here? You are forced to travel to [a distant town]. The licence of a large vessel is about 120,000 TZS. Sometimes you do not have that money. Buying the required torch and bouyants are not a major challenge, because you will buy them out of free will. A torch only costs 2,500 TZS. You will buy it for your own safety, and you will also buy life jackets, because we have life jackets in this area. But getting a licence is hard, you have to travel far for it.*
- R2: *Legally, when you make a fishing vessel, we all know you should go and pay for its licence before you put it in the water. ... But there is poverty. A person can struggle to make a vessel that costs 200,000 TZS and then they are stuck and unable to get the other 100,000 TZS for the licence and everything else. They need to work first so that they can pay for them.*
- Community members at the port of Kasenyi Ward, Sengerema District, Mwanza Region [FGD_7]

Many unsafe boats used for fishing:

Despite the policies and regulations intended to ensure that fishing boats are safe, many boats – especially those used by small-scale, subsistence fishers – have holes and other maintenance problems that are unsafe. In FGDs, many fishers reported that the boats they used were too small, poorly maintained, and dangerous, sometimes because of a boat owner prioritized cost saving over safety. Alternatively, some fishers reported that the boats were safe when used in certain conditions (calm weather, shallow shorelines), but the risk increased substantially because fishers used them in unsafe conditions. For example:

There are fishermen with huge capital and there are those with small capital. Those with small capital also have small boats. ... The measurements for those small boats are okay [they are not inherently unsafe]. The height is okay, but the problem comes when they try to go to deeper waters. ... Now, if fish are mainly available at a distant place from the shore, those fishermen just push themselves to reach that place. ... When they are in deep waters they might come across storms. If the lake is calm, you can see it, and you are okay to go, but when the storm comes the one with a small boat will surely sink. – Community member at Chifufu beach, Chekundu Ward, Mwanza Region [FGD_8]

Importantly, several different kinds of fishing vessels are commonly used by small-scale or subsistence fishers in southern Lake Victoria. The Swahili term “*mtumbwi*” (plural *mitumbwi*) in this context generally refers to locally built wooden boats which can take the form of a canoe or small boat that is approximately 3-4 meters long, or a larger boat that is approximately 7-8 meters long, or larger. Fishers typically use oars to propel these boats. Large *mitumbwi* are made of hewn wooden planks and are built by local tradesmen who construct fishing boats following a fairly standard, basic design. These boats may have outboard motors. Smaller *mitumbwi* may similarly be built of hewn wooden planks, but may instead be built by fishers in local communities, and the structure may re-use scraps of other types of wood or materials. Far less frequently on Lake Victoria today, given limited forestation, *mitumbwi* may be a dugout canoes. It is not uncommon for working *mitumbwi* to be worn, damaged, and patched together with different materials, so that fishers may sometimes need to scoop out water. Very poor and/or remote fishers might use even less secure vessels, e.g. small rafts made up of any material (e.g. bamboo; buoys) that floats. For example:

I believe that the laws, guidelines, and acts relating to fishing are not being adhered to. Because some fishers go to the lake for fishing with very small boats. A small boat like that cannot withstand a huge storm, and as a result it sinks. But another issue is when fishers go in the lake without any life jackets. If they are in a small boat with life jackets, at least they could keep floating until some people came to rescue them within a certain period of time after the boat is struck and sinks. – Community member at Chifufu beach, Chekundu Ward, Mwanza Region [FGD_8]

Having a law is one thing and enforcing it is another. There are things that need to be done so that the law can be enforced. For example, we prepared a modern design of a very good, safe fishing vessel for SUMATRA, but they did not invest in building the boats we designed for them. ... The local boat builders are the providers and builders of those boats, so they were supposed to have been prepared and given trainings, but that did not happen. We found that we had wasted our time. - Fisheries Education and Training Officer, FETA, Mbegani, Bagamoyo Town [IDI_24]

Most respondents reported that cost and convenience were the overriding consideration when cheap and unsafe materials were used to build and maintain boats. Many participants in FGDs said that ‘fibre’ (fibreglass) speed boats would be their ideal boat, rather than wooden boats, but acknowledged that these were expensive and unlikely to be purchased without government intervention (e.g. incentives for fibreglass boats, deforestation penalties). For example:

R: If you wanted to make a boat [mtumbwi] long ago, they suggested the kind of wood that should be used to make a 100% wooden boat. Today you may take any kind of board and make it into a boat.

Before, legally, the board that you were supposed to use to make a canoe needed to at least float, in case the boat capsized. Today they just use material we call stubborn/wayward [mtundu]. You make a boat, and when it capsizes, it sinks directly like a stone, so there is no safety for the fisherman.

I: And who is supposed to supervise that boats are made properly?

R: I don't think there is any law for that at all. Because when you make boats, maybe you are just making it at your home. There is no law that will force you make the boat using a specific type of wood. So, because you have [financial] problems, you just make it with whatever you can get. But the results lead to death. Yes, because of problems you say, "Let me make a canoe, so that I can succeed," when in fact you make a boat that has no direction and cannot withstand the lake. - Community leader at the Shadi Fish Landing Site, Mwanza City, Mwanza Region [FGD_13]

R: [Mtumbwi] wood is weak ... But if you put in more wood, that means the costs will increase. ... You are supposed to reinforce them so that their stability increases. Also, boats will last a longer time, and sinking incidents will be reduced. ... But the side effect is that costs will slightly increase. When the costs increase, then people that will be able to pay for it will decrease. ...

I: The costs will rise to how much? And also what type of wood is used?

R: Most times hardwood. When making dhows or canoes [kanuzi] they use hardwood. At Nyegezi, we tried to make boats out of fibreglass, but we found that it cost around seven to eight million TZS, while the boats that the fishermen use are hardly three million TZS. That means the price rises ...

I: There is a type of wood that sinks and some float, correct?

R: The way you make it is what matters. We make them here and we use bloodwood. Bloodwood has become scarce these days, that is why its costs has risen. In order to mitigate that problem, people now use softwood. But softwood is weak. To reduce costs, you can also use plywood. But it is also not stable, so you can use bloodwood, mangrove or acacia tree. But acacia tree is more expensive. But when it comes to fishermen, to mitigate costs even a mango tree can be used.

- Fisheries Education and Training Officer, FETA, Mbegani, Bagamoyo Town [IDI_24]

No stakeholders focused on fisher safety and welfare, and particularly drowning reduction:

Although policies and regulations address water safety related to boat seaworthiness and required equipment, and government authorities address this to a limited extent in their work, IDI and FGD respondents reported that the main focus was on other issues, such as taxation, over-fishing, and fish quality. No respondents had any knowledge of a stakeholder or institution that was specifically focused on drowning prevention in Lake Victoria, either in general or among fishers specifically. For example:

Most of the time, [drowning] is seen as an irresponsible thing. What is the reason why you die in water? You did not wear a life jacket. So a person is seen as irresponsible. Maybe if they wore the life jacket, then it would not have happened. ... Yes, so there is no stakeholder or institution that deals with this directly. - Ward Fisheries Officer, MLF, Mwanza City, Mwanza Region [IDI_15]

5.2. Weather forecasting services

5.2.1. Successes

Successes in weather forecasting services include weather information being available and improving in quality and coverage.

Weather information is available and improving in quality and coverage:

Some government and zonal stakeholders reported that the weather forecasting services in southern Lake Victoria are functioning and accessible (e.g. via radio or mobile phone apps) and will soon be greatly improved. This expectation of substantial improvement of weather forecasting

systems is in keeping with the on-going Lake Victoria Maritime Communications and Transport Project mentioned earlier.

The Tanzania Metrological Agency (TMA) provides information ... about changes in weather conditions. Because weather can't be anticipated, because it is unpredictable, it is best to provide marine vessel users with information from time to time, especially to the ones operating the vessels. [For example,] "Today the weather condition is not great due to presence of unfriendly winds". ... There are various radios that announce weather forecasts. The Tanzania Telecommunication Company (TTCL) signed a contract with the TMA [to improve the situation]. For instance, people from Geita, Sengerema, and elsewhere were even given phones, so people with TTCL mobile phones will receive weather forecast messages. ... Even here [in Dodoma], we receive such information and we send it to other stakeholders for further announcement through mass media. There also in an office located in Mwanza for weather forecasting. It provides the fisherman with data about weather conditions. – Interim Assistant Director, Transport Services, MWTC, Dodoma City [IDI_30]

Sometimes the weather can be terrible. Forecasting information can be sent to us, information can even be sent via mobile phones. Nowadays a lot of people have smartphones, so this could be implemented well. ... Fishers should use their mobile phones to request information on the weather conditions in different localities. - Retired Senior Officer, TAFIRI, Dar es Salaam [IDI_23]

There is a project that is being supervised by another zonal organization [the Lake Victoria Basin Commission]. Among various projects, the LVBC also has one that focuses specifically on marine safety. It has been able to get help to set up centres. ... And it will help us to get more weather report information to fishermen before they go fishing. Every day, fishers will have enough information on weather conditions that they can decide whether or not it is safe to work. – Research Coordinator, LVFO, Dodoma [IDI_34]

5.2.2. Limitations

Limitations in weather forecasting services include that some fishers are unable to access weather information, and some disregard weather forecasting.

Some fishers are unable to access weather information:

Most respondents stated that unpredictable weather conditions were a major cause of drowning, and many said that fishers had little to no access to reliable weather forecasts. Some fishers knew of weather forecasting services, but said they did not have mobile phones, or the mobile phone coverage was so weak that they could not easily access weather information. For example:

I think we still don't have an agency that tells us how the weather will be, whether it will be windy or there will be strong currents ... There isn't one that warns us, for example, "It will be windy, don't go fishing". – Community leader at the port of Kayenze Ward, Ilemela District, Mwanza Region [FGD_5]

Another challenge that we face in some areas concerns the mobile phone network. It is not friendly, so it is difficult to pass on information in urgent or emergency situations. – Senior Inspection Officer, TASAC, Mwanza Region [IDI_22]

Some fishers disregard weather forecasting:

Some fishers reportedly have access to weather forecasting but do not trust it or use it, especially small-scale or subsistence fishers. Some fishers disregarded weather forecasting because they trusted their own ability to assess weather conditions and/or they had an alternate belief system (e.g. supernatural powers related to weather), which will be described more later. In addition, some did not trust weather forecasting because they had experience of it being incorrect, and they believed that meant it was unreliable or inaccurate. For example:

R1: *About weather forecasts, I do not listen to the radio, but there was a day when I found myself listening to it, and they said the degrees Centigrade that they usually say. I'm not sure what it is, they said something like, "The weather conditions of Lake Victoria tomorrow will be calm". But what I came across the next day was not calm. Sometimes they tell you that there will be strong winds -*

R2: *And then it does not happen.*

R1: *- and there is no wind, there is nothing. So that is what happens with weather forecasts. They are not sharp/accurate (makini).*

– Community members at the port of Kasenyi Ward, Sengerema District, Mwanza Region [FGD_7]

Most [fishers] get the information, but some may get the information and delay to react or respond. ... It happens frequently that we already gave a warning, but they ... do not take into consideration. Therefore, we professionals need to work on making sure that the provided education reaches everyone, and emphasize the whole community should follow up. ... There is a system to spread the information and it is functioning well. But we still need to improve it.' – Researcher, Weather Forecasting Authority, TMA, Dar es Salaam [IDI_27]

Sometimes you see that the weather is fine, but then after a while the weather condition changes. Small-scale fishermen who use small boats do not usually follow the weather forecast and reports, and that is a problem sometimes. ... This means that when the news provides the day's weather forecast - for example, that there will be a storm on that day, you will still find them in the lake. So when they go out to fish, they encounter bad weather conditions that they should have known about, because the information was provided. ... They have very little understanding and knowledge of weather reports. - Corporal of the Marine Police / Captain of the Marine Unit, Mwanza Region [IDI_52]

5.3. Search and rescue response

5.3.1. Successes

A success of search and rescue (SAR) efforts is the collaboration of government and private stakeholders.

Collaboration of government and private stakeholders in search and rescue:

Some government and community representatives reported that different stakeholders readily work together to provide a fast search and rescue response when they receive news of an accident in the lake. This can include anyone with an available vessel, both government and private. For example:

R1: *If people capsize in the lake, mostly we learn about it when they start to make noise. If there are others nearby, then they bring information to the dry land. ... We gather the locals and quickly get a canoe and start rowing towards them. ...*

R2: *The good thing about us is that we do not leave our mobile phones. As soon as we experience a tragedy, it is not as if everyone hears at that same time. If some people are near [the accident], they quickly take their mobile phones to call us here on land and tell us, "We have had an accident - come and help us". Among them, two or three might be safe. That is the best they can do to help us, so that we can help them. - Community members at the Shadi Fish Landing Site, Mwanza City, Mwanza Region [FGD_14]*

When such incidents happen, fishers communicate that piece of information. For example, if a boat is headed to Bukoba and it capsizes on its way there, the fishers of Bukoba will find the boat and realize it was coming their side of the lake for fishing activities. The good thing is that our boats have owner's phone numbers written on their side, so when the Bukoba fishers see it they would send messages to that number, stating that they have found a boat with no people in it. When we receive that message we communicate it to the local government, and they have their way of communicating up to regional level. – Community member at Chifufu beach, Chekundu Ward, Mwanza Region [FGD_8]

In Lake Victoria, we [TAFIRI] have fishing boats at our Mwanza institute. The regional government has a boat, and when any problem arises, they get a phone call. They say that that boat should have fuel at all times since it could be used for a rescue mission at any time. Not only the Mwanza regional government, but TAFIRI and other places have rules set in place, ... and are supposed to have a vessel which can be used [immediately] when information is received about a drowning incident. - Acting Centre Director, TAFIRI, Dodoma [IDI_33]

We [FETA] are a government institution. When the fishers tell us that one of the fishers has not returned, then we have to go out with our vessel to check. ... Some do that through voluntary organizations, especially those who have retired. Those who were in the fisheries department for a long time, or marine [transport/police], you find that they are touched. So, they provide that service on a voluntary basis. - Fisheries Education and Training Officer, FETA, Mbegani, Bagamoyo Town [IDI_24]

5.3.2. Limitations

Limitations of search and rescue efforts include inadequate centralization, communication, concern, and/or resources on the part of authorities.

Inadequate centralization, communication, resources and/or concern from authorities:

As noted earlier in this report, one common complaint among fishers and other community members was that search and rescue efforts largely fell to those people who were close to the fishers who were believed to have capsized or drowned. Friends and family of the at-risk fishers reportedly conducted the immediate search and rescue themselves with little logistical support and no financial assistance from authorities. Instead, they were expected to come up with enough money to pay for the boat(s) of authorities to reach the site of the emergency. BMU and government authorities then might arrive to record the accident after many hours or several days, and they might expect additional payment if they helped to transport the body.

Other limitations of the existing search and rescue efforts were limited centralization/coordination; delays in communicating an emergency; unreliable availability of search and rescue boats; and slow responses because of the distances to accident sites. For example:

R1: *About capsizing, even if you give the information to fisheries officers, honestly, they delay in coming. Meaning that you can give them the information at 10 pm at night and they will show up at 10 am the next day. ...*

R2: *Yes, on the topic of vessels of government workers or fisheries officers ... those boats are far away, which is an issue that causes us to have trouble. Because even if you call them, by the time they get here, it is has been hours. And things have already become bad. Maybe sometimes they have to refuel their fibreglass boat in town to get here. By that time, we have already suffered. - Community members at the Shadi Fish Landing Site, Mwanza City, Mwanza Region [FGD_14]*

Boat sinking is still an on-going problem. I think it is because we lack fast reporting systems when a fisherman drowns. If there were a designated call center, it would speed up the rescuing process. - Acting Centre Director, TAFIRI, Dodoma [IDI_33]

You know, our formalities are not yet structured well. The process of getting information, getting fuel and going to the scene still takes a long time. You find that, if the site is far, you may arrive there more than ten or fifteen hours after the incident. It is very rare to find people still alive. – Police Officer and Captain of Rescue Boat, Marine Department, Mwanza Region [IDI_20]

It is confusing sometimes. ... For example, there was a person who drowned at Bwiru, and the ones who reported the incident went to report it at the upper station. However, the marine police did not come, so

later they went to report the incident [at another station]. The report was written up there. Later still they came here and reported it to us. Since the report was initially given to the other station, everything had to be done there. We went out to search for the body, but we did not find it. As you know, when a person drowns, the body floats after two or three days. So, on the third day after he drowned, we searched again and realized that they had already found the body. They found the body on the other side and they laid the body down there until we arrived. Then the family took the body away. When these tragic events happen, there are some who report directly to us, and others report to higher stations. - Corporal of the Marine Police / Captain of the Marine Unit, Mwanza Region [IDI_52]

For [search and rescue programs] to be sustainable, there is a need to make [routine] contributions. Some sort of percentage [of fisher income] as contribution. [Otherwise] it might start and fail after a short while. If calculations are done that every fisherman or every vessel will contribute a certain amount to sustain a rescue [system], it would be great. - Fisheries Education and Training Officer, FETA, Mbegani, Bagamoyo Town [IDI_24]

5.4. Promotion of water safety knowledge and related attitudes

5.4.1. Successes

Successes in water safety education include basic education provided to fishing communities by fisheries officers, TASAC, and marine police, as well as specialized training for small vessel operators by FETA.

Basic education by fisheries, TASAC, and marine police officers:

Several government representatives reported that fishers receive adequate water safety education in the process of licensing their boats and/or themselves, and follow-up inspections. This does not seem to involve an educational programme per se, but rather authorities providing fishers with relevant information when they tell them how many people or goods can be carried on a boat, how many life jackets and buoys are required, and how these should be used, and/or when they issue fines or punishments later if these conditions are not met. For example:

- R1: *I think that it is the lack of education among the people. To most people, the issue of rescuing lives is not a serious issue. They take it as a normal thing, because in the previous times the law was not being implemented as much as it is during this period. You will try to educate fishermen today, but tomorrow you will find the fishermen have moved to another place. Our fishermen do not settle in one place, they always move around. You will find that leaders in this area are implementing the laws, but others in other areas are not doing their work properly. ...*
- R2: *The problem of drowning comes from either using worn out vessels, which can cause people to drown, or the challenge that fishermen are not educated ... you find someone just gets in the water [to learn fishing and related skills]. ...*
- R3: *There is an organization called TASAC, when they come here, they give seminars about water deaths and how to prevent them. They are the ones who follow up by imposing fines. Even taking into consideration that fishermen are uneducated - and that if you educate them, they will repeat the same thing tomorrow - I still think deaths have reduced greatly, by a high percentage.*
- R4: *I think TASAC comes once a year because it is time for them to collect boat license payments. That is why they come, but when they come, they also provide education to people about lake accidents and deaths, and they encourage people to wear life jackets.*
– Community leaders at the port of Kasenyi Ward, Sengerema District, Mwanza Region [FGD_11]

Currently there are many departments that go and educate people on water safety. For instance, there is TASAC, the authority for water transport. There is the Fisheries department. There are the police. - Regional Fisheries Officer, MLF, Kagera Region [IDI_10]

If people follow instructions, if they strongly adhere to the safety instructions, then we will forget this issue [of drowning]. ... Every financial year we go educate and carry out inspections in high-risk areas, mainly in inner islands. ... And we see that the education is helping. We educate people that: a new vessel should be inspected, registered, and have life-saving equipment; when the weather becomes a challenge, people should not go into the lake and do fishing activities; and water vessels should not be over-filled with passengers or cargo. We feel that when you give education sternly in that manner, it helps a lot. So currently [drowning] incidents happen due to people's negligence, but the majority understand and are motivated [to prevent it]. – Senior Inspection Officer, TASAC, Mwanza Region [IDI_22]

We do patrols from time to time. We have major patrols and minor patrols. When we go for big patrols, we usually also educate fishermen about marine safety. - Corporal of the Marine Police / Captain of the Marine Unit, Mwanza Region [IDI_52]

Currently we travel to the fishers, trying to help them understand [the importance of wearing life jackets]. ... You know, when even five of them understand, it will help us to convince another 15 or 20. We frequently provide them [with education], whenever it is necessary. Many times when we set meetings with them, like meetings to restrict illegal fishing, we also touch on safety. - Ward Fisheries Officer, MLF, Chekundu Ward, Mwanza Region [IDI_16]

The problem is that, even if vessel owners have their organisations, and we call them together and educate them, they are not the ones going with the vessels into the lake. That is done by fishermen who never attended any stakeholders' meetings and do not know what procedures to follow. You educate the owner of the vessel and the owner gives his vessel to someone else to go into the lake with it. – Interim Assistant Director, Transport Services, MWTC, Dodoma City [IDI_30]

[It is important] to keep on educating fishers, reminding them from time to time of the importance of having a stable vessel that can endure different weather conditions. Also, fishermen should be trained in how to rescue themselves. For example, they should know how to swim, and how to use buoyant equipment to rescue themselves. Almost all fishermen know the importance of having buoyant equipment. We have a saying, "Sometimes people do not follow procedure, and this results in death". Yes, I think the government and the zonal organization have tried adequately enough. They are usually there; they explain the importance [of water safety]. – Research Coordinator, LVFO, Dodoma [IDI_34]

Specialized training by FETA:

In addition to water safety information provided to fishers in the course of inspections and licensing, the FETA representative reported that a small minority of fishers learn in-depth information through a slow craft vessel operator course. It is not clear from the description whether this course covered canoes (mitumbwi), with or without an outboard engine:

Many vessel operator deaths occur... we realized they do not have enough skills in operating such vessels, especially compared to the past, when people learned how to operate vessels from their parents. ... But after a lot of changes, now youths go to formal schools to receive training, so they have more knowledge. ... A special course on safety was our contribution to reducing the problem. It has been given since 2015. ... There is in-centre training, that is, people come from nearby places. Or we go to them, for example, in the case of Mwanza, we had to follow some of them to Ghana islands in Ukerewe. ... Currently we have trained at least 570 people. You can't ask them to pay, but we tell them to contribute a participation fee of 100,000 TZS. We started with 150,000 TZS, but the response was low, so we reduced it to 100,000 TZS [~USD 43]. ...

[In the slow craft vessel course,] we consider first, for example, that a person should not go into the water to fish if he does not know the art of swimming or the art of floating. If you do not know how to swim or how to float, and the boat happens to capsize, it means that you are most likely to die. So, we must provide swimming training. But swimming is not enough, because if you are far away, you will die. You will have to float so that, if there is help, it will find you. And the second thing is the use of modern equipment like the Global Positioning System [GPS], in order to identify your position. Because if the engine has been

compromised by water and tides, you cannot tell the direction. In the olden days they used stars, but these days that knowledge is no longer used. So if you are unable to identify direction even by using a smartphone, then you are in danger. And then thirdly, because most people these days use engines, there should be basic maintenance and repair in order to reduce the chances of the machinery getting stuck. And let's say you get two tons of fish, but your vessel can only handle one ton. That kind of wealth is mouth-watering, it makes you want to fill your boat, but when you keep filling it, it goes above the load line and it sinks. So, we teach such things, and things like how to put out a fire. ... It would not be an issue if the old system still prevailed, but now the apprenticeship system is dead. - Fisheries Education and Training Officer, FETA, Mbegani, Bagamoyo Town [IDI_24]

5.4.2. Limitations

The FGDs and IDIs identified many limitations in water safety education, including: education and law enforcement conflict of interest; limited quality and coverage of water safety education/training; many fishers having negative attitudes about wearing life jackets; some fishers having conflicting religious or traditional beliefs; and some fishers underestimating risk.

Education and law enforcement conflict of interest:

In addition to the possible authority conflicts of interest described earlier, several respondents said that having government authorities provide both water safety education and law enforcement created a conflict of interest. For example:

There is one problem. You know, if the same person oversees everything - policy implementation, law enforcement, tax collection - it would not be fair. One person cannot act as the police and the extension officer at the same time. ... You will speak to the people as an extension officer and give them instructions on what to do, and then assume your role as police and catch them. ... [But] if [the extension officer] does not collect taxes and instead sticks to educating people to adhere to good work practices, he will be viewed [by his superiors] as unworthy, since his output is not physically visible, despite doing a very noble job of educating people. - Retired Senior Officer, TAFIRI, Dar es Salaam [IDI_23]

When it comes to overseeing the laws, it is mostly advised that the people in incident and accident investigation be independent. For example, [at a national level] that there should be an independent Bureau or Department reports to the Ministry, Minister Prime Minister, or President, so the people concerned with the law do not interfere with them. For us it is only TASAC. [At the local level] it is possible that they have not provided enough education to fishermen, so people drown. ... The one responsible for dispensing education is TASAC. TASAC also implements laws. [After a drowning,] they investigate to see whether the law was implemented correctly. Might you cover up [wrongdoing] because the one who sent you is your boss? There are aspects makes them independent, but they are all still under TASAC. - Interim Assistant Director, Transport Services, MWTC, Dodoma City [IDI_30]

Limited quality and coverage of water safety education/training:

Many respondents, particularly fishers and other community members, said that the information fishers received about using safe equipment was not enough. Many suggested that fishers need more consistent and in-depth education and training on water safety, to go beyond information provision to also address negative attitudes and social norms. Some also recommended going beyond education that is focused on compliance and inspection to provide skills-based trainings in water safety and survival. For example:

R1: I have done [fishing] work and I have slept in the lake, and that is how I know fishermen do not have enough education. That is why they go to the lake and sleep on life jackets. ... I mean, you give them a life jacket and when they reach there it becomes a mattress, it becomes a pillow to sleep on. ...

R2: *What is troubling us is the way we have become used to this. There is a saying, “How you raise children is exactly how they will turn out to be when they are fully grown”. These people have already built strong beliefs that they can do it all. So when they are given life-saving equipment, they have them inspected but then take them off and stop using them. If it were clear enough to everyone, if we built on the science, it would help us. They should participate in education, and there should be consistency in the provision of education. ...*

R3: *In my opinion, the one who is responsible for fishers is the fisheries officer. Let me congratulate you for not including him in this meeting, because I know we would have publicly confronted him. Ever since I came to [to this village], I have never seen him provide education to the fishermen, so that, if they went against regulations afterward, he could hold them accountable and punish them based on the education he already gave to them. ... [This would] eventually reduce cases and incidents of drowning. The government should also generate a budget that is mainly directed at education and enlightenment through the fisheries officers at district level. ... Most of the laws that relate to fishing are written in English. So, you can imagine, very few fishers have gone to school; most of them find it very difficult to understand English. Even among the BMU members, very few know English, and they are the protectors of fishermen property.*

– Community leaders at the port of Kasenyi Ward, Sengerema District, Mwanza Region [FGD_11]

I want to emphasize that the biggest problem is we do not have education. It would be best to do it 100 times, with many groups every time, so that each person can participate in seminars on the issues of bouyants and life jackets and inspecting vessels which go to the lake. A person can be arrested for not using safety equipment, but no one has ever come here and asked for a meeting about them. ... That is very important because there are some deaths that are caused by people drowning due to irresponsibility. We should stop putting it on God. When we look at the vessel, if the vessel is really damaged, we should see it. The seminar should be for fishermen and boat owners. So that if a boat owner tries to give you a worn-out boat, you as the fisherman know not to climb in it and go on the lake with it. – Community member at the port of Kasenyi Ward, Sengerema District, Mwanza Region [FGD_7]

R1: *There are those who go fishing with life jackets, and there are those who don't. ... The fisheries officer has not created enough awareness that all of them have to carry life jackets with them.*

R2: *I think we [boat owners] have been given enough education about this. There was a time when we were all summoned and we were told that we should always carry a certain number of life jackets according to the carrying capacity of the boat. If it is four people, then the boat must always have four life jackets. We followed that, but there is a problem with fishers. These people are not understanding. You buy life jackets for them, only to find that they have packed them in a plastic bag and have loaded them in a boat like a luggage, and off they go fishing with life jackets in – what? - a plastic bag. That means if there is a storm coming they will not have time to locate and put on the life jackets. For me, I have one request. These people need education. They have not been educated to the level of internalizing it. They have to understand the importance of life jackets to their lives. There is a lesson that is missing.*

- Community members at Chifufu beach, Chekundu Ward, Mwanza Region [FGD_8]

Very few boat operators are able to participate in the FETA slow craft vessel operator course. The FETA Officer above explained that people may experience several obstacles to participation, including cost and loss of income:

The [financial] contribution itself is a challenge ... Even if you have 100,000 TZS, you need to take care of your family, it becomes a challenge. ... And if you don't go to fish that day, then there will be a lot of trouble at home. ... If you attend a training for two weeks, the costs limit you. ... We have not been able to make it mandatory ... [but it might work] if it were made into law. It would be hard because we have fishermen all over the country. 200,000 fishermen, right? So, if training [to date] has been less than 1,000 [participants], that means we are not there yet. If we were to enforce it, there should be a specific curriculum. It should be practical, with high standards, to cover many people in a short time. - Fisheries Education and Training Officer, FETA, Mbegani, Bagamoyo Town [IDI_24]

Many fishers have negative attitudes about wearing life jackets:

Both government authorities and fishing community members reported that many fishermen in southern Lake Victoria have negative attitudes about wearing life jackets. Many said that fishers found life jackets hot and uncomfortable, hampering the activities they needed to do while fishing. Several respondents believed that some fishermen are embarrassed to wear life jackets, because it makes them look weak or fearful. For example:

- R1: *Life jackets are worn here [at the shore], but when fishers get to the corner, everyone takes them off. They feel like they are exhausting themselves wearing them, because of the sun [heat] and irritation.*
- R: *[Group laughter]*
- R1: *It is not that boat owners like buying life jackets, or that they do it because they love you very much and do not want you to drown. They do it because they know when [the police] come to the canoe they will seize the engine otherwise. So you [the fisher] wear one so that you will not be fined and the boss will not see you, but after passing the corner it won't be 30 seconds before you take it off. What is it for? Can you even work with it on?*
- R2: *It is for sleeping on at night, like a mattress. People put them down at night when they sleep on wood. Something that you may not know is that we sleep in the lake sometimes. At the end of the day you change out of it, and mostly it is used as a pillow. You put your head on it for good sleep.*
- R3: *As my fellow participants have said, we have life jackets but they are just for show. It is just to show the police officers that we have worn a life jacket. First of all, we do not wear life jackets for the sake of our own safety, we wear them so that we will not be arrested. ... Life jackets are not safe. Can we please tell each other the truth? We all go to the lake here. ... When the wind comes and it is big like this house ... when the wave hits, that whole mountain goes under it. Now tell me if you wear a life jacket how will that help you? Even if you have worn a life jacket, if it is not for God, then you will not make it. Sometimes we lie to ourselves, because in some situations only God can help us. These life jackets are just so that the police can gain a little money.*
- Community members at the port of Kasenyi Ward, Sengerema District, Mwanza Region [FGD_7]

Walking around wearing a life vest is not something a normal fisherman would do. Fishermen are some of the toughest [jeuri] people I know. They do not want to show that they are fearful. - Retired Senior Officer, TAFIRI, Dar es Salaam [IDI_23]

If one fisher wears a life jacket, he is likened to a woman in a boat, because what could he be scared of? Changing that is not about providing boats and life jackets. ... No, we have to change their mindset that going into the water is [not] dangerous. - Fisheries Education and Training Officer, FETA, Mbegani, Bagamoyo Town [IDI_24]

Some fishers have conflicting religious or traditional beliefs:

In several IDIs and FGDs, participants reported that some fishers have fatalistic beliefs that it is beyond their power to prevent or avoid bad weather, accidents, and/or drowning. Sometimes this was stated as simple superstition; other times it was presented alongside beliefs in the power of God, or local, traditional beliefs in supernatural powers. For example:

- R1: *If I decide to make a boat, I will talk to the mechanic about the specifics of how to make the vessel. We will not talk about [spiritual] beliefs, because in the front of your canoe they will put something so that, if a strong wind or hurricane (kimbuga) comes ... you will avoid it and it will not harm you.*
- I: *Boat builders have that?*
- R1: *Yes, mostly the mechanics.*
- R2: *I also believe this is good.*
- R3: *Me too, I believe in this because I can see that it has been good [protective] for all the years of our grandparents' lives. ...*
- I: *When they do these things to your boat, are you safe?*

R: *We are safe, no matter where the wind is. Even if it is coming towards you, you will see it turning around and then it will calm down, even in the air.*
– Community members at the port of Kasenyi Ward, Sengerema District, Mwanza Region [FGD_7]

God is the only one that will help you. ... If the storm comes, then you will have to consider God first. I cannot say that there are any preventive measures. No, we have not had those yet in this area. – Community member at the port of Kayenze Ward, Ilemela District, Mwanza Region [FGD_4]

R1: *For help, maybe we should have an angel who will tell us that we should not go to the lake the following day because the winds will be strong. If it happens that you are in the lake when it happens, there is no way you will be able to go anywhere. You will pray to your forefathers if you can, or say the Muslim prayers, or the Catholic prayers, if you can. ... A life jacket will just help if you die, so your corpse will be found earlier. ...*

R2: *There are different beliefs [about drowning]. Some say that it is an accident. Sometimes three people go in a rowing canoe to set double traps, and the canoe capsizes and one person dies. When other people get this information they start asking why only one person died, saying that maybe his death was written already. Or when one person goes in a canoe with an outboard engine to set single traps alone, maybe he falls into the water accidentally, or the rain was heavy, or he was hit by lightning and died. ... Beliefs are different, and even I, in my normal mindset, I cannot blame the leadership. When they get the information [that someone has drowned], they take it easy in the belief that the person has died because God called him.*

– Community member at the port of Kasenyi Ward, Sengerema District, Mwanza Region [FGD_7]

[Some fishers] are guided by beliefs that are more traditional, [for example], “If a storm of strong wave or a wind comes, I can do such and such and I will survive”. ... These traditional things have power. They are strong enough to make someone believe that they are 100% accurate. And when it happens that even those beliefs fail to work, they will just say there is a [malicious] hand of someone on that. – Police Officer and Captain of Rescue Boat, Marine Department, Mwanza Region [IDI_20]

Fishers say that they believe in spirits, for example, related to storms and strong winds. They believe that there is a water spirit called Kamugasha. They believe that, if they come across Kamugasha, then they will have troubles. And they also have beliefs in how to overcome and protect themselves against it. It is a spirit that allegedly comes from Bukoba, and when it awakens, they experience storms and tornadoes. So they do not look at it as a modern concept, or that it is just bad weather conditions. When that happens, they believe in pouring sand into the water and such things, so that they can calm the spirit. And that is why I mentioned earlier that these people do not follow weather reports and forecasts. - Corporal of the Marine Police / Captain of the Marine Unit, Mwanza Region [IDI_52]

Some have [superstitious] beliefs. Meaning that if they put on those things [life jackets], the fish run away. Yes, some will tell you, “These things of yours chase away the fish. When we put them on, we don’t get fish, but when we go there without the life jackets, we get many fish”. Those are their perceptions. - Ward Fisheries Officer, MLF, Chekundu Ward, Mwanza Region [IDI_16]

Some fishers underestimate risk:

Related to inadequate water safety education and training, as already discussed, some government representatives believed some fishers do not wear life jackets because they do not understand the risks involved. For example:

Our fishers are astonishing people. They can have vessels and [safety] equipment available and still not use them. ... Most of the time this happens because of the mentality of the fishermen who have been fishing for 5-6 years but have never experienced any problems in the lake. So every day they experienced a calm lake. Or another one says, “I know how to swim, so I have no worries about [accidents] ... Even if it happens, I will just swim”. – Ward Fisheries Officer, MLF, Mwanza City, Mwanza Region [IDI_15]

[Fishers] are usually over-confident. Let's say they don't see the importance of a life jacket. Because even when you are fitting their jackets for them, they tell you, "Our fathers did this work until an old age, but they did not put on life jackets. Now you have come to dress us". - Ward Fisheries Officer, MLF, Chekundu Ward, Mwanza Region [IDI_16]

A life jacket is good for security, but most of the time fishers don't use them. They just go fishing. I don't know the reason. Maybe it's because they are used to the environment in the lake. ... Being in the lake environment for a long time makes them feel they are safe. Sometimes, having that long of an experience in fishing, they have their own way of understanding how to take care of themselves, meaning how to secure themselves even if they don't have life jackets. – Police Officer and Captain of Rescue Boat, Marine Department, Mwanza Region [IDI_20]

The laws are clearly preventative ... fishermen know all of these procedures. But there are times when fishers will see they are not going far that day, [and believe] they have no reason to carry buoyant equipment to rescue themselves. But at the end of the day the weather condition changes in a way that causes destruction. – Research Coordinator, LVFO, Dodoma [IDI_34]

5.5. Promotion of safe practices

5.5.1. Successes

Different theoretical models of behaviour change or health service coverage outline essential steps towards the adoption of safe practices, including the needed products (e.g. life jackets and other safety equipment) being available (Tanahashi 1978; WHO 2019 AHSBA). In this study, successes in the availability and use of safety equipment included: equipment often being accessible and affordable for boat owners and fishers at the local level; many boat owners maintaining their boats adequately and providing safety equipment; and a minority of fishers using life jackets.

Available and affordable equipment:

Government authorities reported that safety equipment, especially life jackets, were available for purchase in fishing communities, and that fishers generally make a good enough income to afford them. For example:

You find most of the shops sell fishing equipment, such as fishing nets and engines. You will find that they sell [life jackets] at around 57,000 TZS, which is a very affordable price. It is very possible for every fisherman to buy one, considering the earnings that they get from fish products. So, I see no problem in [life jacket] availability, they are available in large numbers. ... All those areas that have big islands ... that have many people and shops that sell these equipment. Maybe not on smaller islands close to Mwanza [City], where people can get to town to buy them. ... So, in short, there is no reason for any fisherman to go out on the lake without rescue equipment. – Research Coordinator, LVFO, Dodoma [IDI_34]

Some of the fishermen would blame [tax avoidance] on their hard-knock lives, and low standards of living. I did the research and found that the normal monthly income of a standard fisherman is way more than that of government employee who earns a mere 300,000 TZS or 400,000 TZS per month. But also, they earn their income daily, and they may have higher expenditure, mostly for alcohol and a lavish lifestyle. Let's leave it at that. So fishermen view themselves as poor, and question if poor people should be taxed. They classify themselves as poor, but that is never true – they are not. ... If they were poor, they could never have afforded their fishing gear. The normal fishing net would cost 1-2 million TZS. If they can afford that, they are not poor, are they? If you compare fishermen to farmers, fishermen are way better off; they are richer than the farmers. - Retired Senior Officer, TAFIRI, Dar es Salaam [IDI_23]

Many boat owners maintain their boats and provide safety equipment:

Although there were many reported instances of boat owners not maintaining their boats adequately, or not providing fishers with safety equipment, there were still many boat owners who did follow these practices:

- R1: *Our by-laws are to check our vessels and the equipment we use to go to the lake. They should be stable. That is the major issue we have set here. Without that, a person might go there with a worn-out canoe. When they step in it, it would break and they would drown. ...*
- R2: *A vessel is supposed to be supervised by its owner. If any community leader sees that a vessel is unfit, and the owner is forcing it in the water, the owner must be stopped and told to wait until they repair their property. Yes, that is how it is. ... If [the owner] sees that a boat is worn out but still takes it out on the lake and gets an accident, it will be us here in dry land who have to go through the trouble of going to rescue him. Yes, it means that when we reach there ... we will return him to land, but then we will be forced to apprehend him according to the law.*
- I: *Do you think the owners are performing their duties of inspecting their vessels before going to the lake?*
- R2: *Yes. Yes, they usually do.*
- Community members at the Shadi Fish Landing Site, Mwanza City, Mwanza Region [FGD_14]

When we educate the boat owners, some of them respond fast and buy safety equipment. And they believe that they have participated in protecting their fishermen. - Corporal of the Marine Police / Captain of the Marine Unit, Mwanza Region [IDI_52]

A minority of fishers use life jackets:

Similarly, although there were many reports of fishers rejecting life jackets, and also some reports of fishers not being able to access life jackets, there were some fishers who said they used them. For example:

From my perspective, I can see that [wearing a life jacket] is helpful. Because I can be sitting by myself in a canoe when a wave hits me, and all of a sudden I fall into the water. If I do not know how to swim but I have worn a life jacket, then I can keep floating and any people who might be nearby can rescue me. - Community member at the port of Kasenyi Ward, Sengerema District, Mwanza Region [FGD_7]

5.5.2. Limitations

Limitations in the availability and use of safety equipment include: many fishers cannot swim; underage fishing is common on the lake; equipment is not affordable for some; some boat owners do not provide equipment; some fishers do not use available equipment; carelessness and/or risk-taking while fishing in the lake, including intoxication; and danger of drowning due to crime (e.g. pirating).

Many fishers cannot swim:

Although fishers may work for years on in southern Lake Victoria, it is not unusual for them not to know how to swim. For example:

- R1: *There is that accident that can happen when a person is just relieving themselves [over the edge] of a canoe, and all of a sudden they fall into the water. There are times you have to stay on the canoe but also relieve yourself ...*
- R2: *There is no bathroom or toilet.*

R1: *Sometimes we stay there [in a canoe on the lake] for five days without coming back. You cook there and relieve yourself there, you find fish and then you come back. It is just that you can find a person who went to relieve themselves. ... You finish everything but there is bad luck - you can be hit by a wave slightly, then you fall. If you know how to flap a little bit, it means that you save yourself. But if you are like me and my colleagues [and do not know how to swim], even if there is no wind, you are gone.*

R3: *The issue [is having] a safe place to learn to swim.*

R1: *You know, a large percentage of people do not know how to swim, even though we live in islands. ... We need a safe area where there are no crocodiles, because there are crocodiles and hippopotamus. It is all about learning [to swim], in case it happens. Something like that would help society.*

– Community members at the port of Kasenyi Ward, Sengerema District, Mwanza Region [FGD_7]

It is no surprise that fishermen in fishing vessels may not know how to swim. Most of the time we [non-fishers] believe that somehow all fishermen know how to swim, but that is usually not the case. Most fishermen nowadays do not know how to swim. They usually drown when they fall into the water. - Retired Senior Officer, TAFIRI, Dar es Salaam [IDI_23]

Underage fishing is common:

Although the law states that fishers must be adults (i.e. 18 or older), among small-scale fishers it remains common for youths and even children to participate in fishing activities in the lake. When not in school, small children were reported to engage in fishing-related activities at the lakeshore, e.g. earning money for washing boats, or fishing from shore for their families. However, some older children (e.g. in their mid-teens) were reported to have left school and to be engaged in fishing in boats in the lake. Historically and culturally, youths in the Lake Zone were perceived as adults once they had left school and were working, regardless of their chronological age (Varkevisser 1973; Plummer and Wight 2012). While laws related to schooling and fishing age have likely reduced the percentage of adolescents engaged in fishing and other work over time, this study found that it was still fairly common. For example:

R1: *I have a child of six years who gets drenched/soaked [analowa – meaning to play/swim/fish in the lake].*

R: *[Group laughter]*

R1: *A child of four years. You know, fishing activities in our area, it is our way. ... Children are born and see us doing fishing activities. Sometimes we have nothing to take home, so we go and get soaked at the lakeshore getting fish, so that they can have something to cook and eat at home. ...*

R2: *But, honestly, it is like that. They start when they are very young. But the kind of fishing we are talking about, in boats in the lake, that mostly is not for children under 16 or 17 years of age.*

– Community members at the port of Kasenyi Ward, Sengerema District, Mwanza Region [FGD_7]

R1: *A student is not supposed to be seen [fishing] in the lake. And others should be eighteen years old to start going to the lake. But you find that soaking wet children come to the fish market. ... If you punish another person's child or warn them against going, they refuse [to listen]. If their father comes there, he will start blaming you for stopping them, saying, "Is the lake yours?" ...*

R2: *What my colleague is saying here is true. You find that children in the 3rd or 4th grade are told to go and look for fish. So you find them just down there in the water, and if you ask them why, they tell you that they have been told to get soaked [go fishing]. ...*

R3: *Honestly, children are not supposed to enter in the lake, especially students, even if they are secondary school students. Because children are supposed to go for tuition [tutoring] after coming home from school, but the parent may tell them to go and look for food. ...*

R4: *About the issue of these children who enter the lake, some have refused to go to school. Now if you remember this past century, even a neighbour could teach a child. You would ask them why they have entered the lake and who told you to do so. If they are late [to go to school] then they would be punished. But [today] if a child refuses to go to school and their parent is relaxed, do you think as the*

neighbour you can tell them what to do? - Community members at the Shadi Fish Landing Site, Mwanza City, Mwanza Region [FGD_14]

- R1: *When we talk about the age for joining work on the lake, honestly, you may find children from the age of eight to ten years continuing up to adulthood. ... There is one place where ... many children fish in the lake from the age of twelve or fifteen years onward.*
- R2: *I support what she said. Fishers here are not distinguished by age, because a [boat] owner cannot see whether a child is still in school or not. He just cares that the work gets done. They allow children younger than eighteen to work in the lake, which is a great threat. We would like to request for support from the BMU to solve this challenge, that they should prioritize and protect these children.*
- R3: *I also agree with what madam said. There are children here that, if you look at them, even if you have not had children of that age, your heart feels pain. ... Most of the time they are involved in washing the canoes. Washing and getting work in the lake. ...*
- R4: *Whether they wash canoes or fish in the lake depends on the child's experience. ... They may start by washing a canoe for few days, but later they will be tempted to fish in the lake when a fisher comes with fish. ... [They say,] "Let me also try to fish." So they start the work while very young.*
- I: *Why don't the BMU or the village leader restrict children from engaging in fishing work?*
- R4: *There was a time they tried to do that, but they did not have much power. They tried to some extent, but later just continued with other things. The emphasis to restrict any child from working around the port, to take legal steps, that is not there right now. It has reached a stage that they just leave them. ... At 11 am you may find children in the port working. They just carry fish from a canoe, they take them and then they sell them. You may see the children are soaking wet all over, that they searched for fish far away and exposed themselves to deep water, getting drenched all over their bodies in the process.*
- R5: *I would like for the government to support these children. They are still too young. Most of them are not going to school in order to meet their basic needs. The government should support us in making sure that children younger than ten years old are not working around the lake area.*
– Community members at the port of Kayenze Ward, Ilemela District, Mwanza Region [FGD_4]

The youngest age I have seen was in the local port community. Even at age 5, they can fish. I have witnessed that and prohibited it myself. But for the local community, a small child of 5 or 7 years can go to the lake. They go to fish at seven, eight, nine, ten years old. Ah, they go, they go [fishing in a boat in the lake]. ... And I am not talking about them working on dry land, because that is normal. – Ward Fisheries Officer, MLF, Mwanza City, Mwanza Region [IDI_15]

Safety equipment is not affordable for some:

Contrary to the reports above, some FGD and IDI respondents reported that fishers did not buy safety equipment because the costs were prohibitive, and, similarly, they used poorly constructed and unsafe boats because they could not afford alternatives. This touches on the point made earlier that small-scale fishers are not a homogenous group and were diverse in the extent to which they had financial capital or security. In FGDs, some fishers described themselves as unable to afford not to fish, even if this was unsafe, thus prioritising immediate earnings over safety. For example:

We go to the lake because we have no other source of income. So we decide to go and work there, so that we can earn money for meals. – Community member at the port of Kayenze Ward, Ilemela District, Mwanza Region [FGD_4]

The fisheries officers come to insist that we have life jackets. So that even if a person capsizes while wearing a life jacket, [he can last] for three hours and still not drown. But we do not have the ability for each person to buy a life jacket. For us it is a lack due to difficult living conditions. - Community member at the Shadi Fish Landing Site, Mwanza City, Mwanza Region [FGD_14]

The government doesn't care about fishermen, or even provide them with loans to sustain themselves. For instance, you build your boat for 2 or 3 million TZS. If you run out of funds while completing your boat and

ask for help from the government, they won't help. So you have no choice but to send your boat into the lake without life jackets ... It is because of poverty.' - Community leader at the port of Kayenze Ward, Ilemela District, Mwanza Region [FGD_5]

[If you are a fisher,] maybe you haven't eaten and you only have 3,000 TZS at hand. You haven't spent the money on other needs, so it's really difficult to collect enough to maybe buy a life jacket. – Ward Fisheries Officer, MLF, Kayenze Ward, Ilemela District, Mwanza Region [IDI_13]

Some boat owners do not provide safety equipment:

Some government representatives and fishing community members reported that some boat owners do not provide the safety equipment required by law. Such boat owners did not necessarily experience negative consequences for several reasons, including: fishers were not in a position to demand the equipment; boat inspections were infrequent; inspectors could be bribed; and/or owners pretended to have the equipment by taking it from other boats during the inspection. For example:

The fisherman is the one who will face the situation if anything goes wrong, but he fails to stand up for himself and tell the owner to buy three life jackets for the three people [on board]. And it's not as if the owner cannot afford to buy life jackets' - Community leader at the port of Kayenze Ward, Ilemela District, Mwanza Region [FGD_5]

The one who decides about safety is the boat owner. ... It is the owners who have responsibility to the people who take their boats on the water. ... As you know, the fishermen are people of low [economic] means, so they depend on their boss to buy them safety gear. - District Fisheries Officer, MLF, Sengerema District, Mwanza Region [IDI_17]

We have continued motivating them and providing education that each person with a vessel going on to the lake must have these life jackets, life buoys, and life lines. They must have rescue equipment. But the vessel owner's response is low. They understand and realize that such equipment is very important, and they are supposed to have them. [Nonetheless] the fishers, especially the small-scale fishers, totally do not have [safety] equipment. – Ward Fisheries Officer, MLF, Mwanza City, Mwanza Region [IDI_15]

Another thing [contributing to drowning] is the lack of rescue equipment, such as life jackets and life boats. People are given knowledge about how to rescue victims and how to use rescue equipment - and their importance - but the problem is that vessel owners do not want to buy the equipment. ... Sometimes there are people who defy the law and completely refuse to follow them. [For example,] when a TASAC survey happens, the boat owner may go and borrow equipment from other boat owners who have the equipment. So when TASAC officials inspect the vessel, they see all the required equipment is present and they provide the license. But after getting the license, [the boat owner] returns the equipment to its owner. When we come across people like this in the lake, they show us their license. When we ask to see their life jackets, to know why they have not worn them, they say they have forgotten them back in their camps. If you ask them where the fire extinguisher is, they say they have forgotten it, and you find that they do not have any of the rescue equipment. So they use this trick when they are registering their boats and you find that, among three boats, only one has rescue equipment. It is a big challenge. - Corporal of the Marine Police / Captain of the Marine Unit, Mwanza Region [IDI_52]

Some fishers do not use available safety equipment:

In IDIs, many government and zonal representatives reported that some fishers do not use safety equipment out of negligence or disregard for the risk. They said there is a limit to how much responsibility a government can take in such circumstances, and the responsibility and fault for resultant accidents lies with the fishers themselves. In FGDs, participants sometimes also reported that, while some fishers did not wear life jackets because they were not available or costly, others had access to life jackets but did not wear them because they were too hot and restricted their

ability to fish, as already described. A few also reported that some fishers did not carry life jackets because these were costly items and fishers were concerned about piracy or robbery on the lake. For example:

When you are wearing the big type [of life jacket] and you are rowing, it will obstruct you ... it becomes like you have carried a backpack on your back. ... To wear the big one can obstruct a person and he may even lack the strength to row. - Community member at the Shadi Fish Landing Site, Mwanza City, Mwanza Region [FGD_14]

If a police officer camps here for a month, no one will go fishing without their life jackets on. But honestly, fishers are stupid people. They take off from the beach with their life jackets on, but after a few centimetres they take them off, saying they don't want to be squeezed. So the issue is of being squeezed. - Community leader at Chifufu beach, Chekundu Ward, Mwanza Region [FGD_6]

Sometimes the vessel owners claim that they make the equipment available to fishers, but the fishermen do not carry the equipment when they go to work on the lake. Wearing life jackets is a problem to these people. They don't wear them. You will find them leaving their life jackets back at their camps, or putting them down on the boat. ... These fishermen do not feel the need to take safety precautions or use safety equipment because they are experienced, and that is a problem. ... We go around and among ten fishermen you find only three or four have rescue equipment, and all of the others do not have them. Some fishermen do not have life jackets at all, others have them but have not worn them. They just put them in the boat. - Corporal of the Marine Police / Captain of the Marine Unit, Mwanza Region [IDI_52]

[If] the fishermen have no life-buoys, this is negligence on the part of the fishermen themselves and not the vessel owner, because he has already done his part. ... Vessels that have been inspected and registered should automatically have life-buoys. It is then the responsibility of those using the vessels - be it the captains or workers - to look after [the safety equipment] and ensure it is there whenever they are on the water. – Senior Inspection Officer, TASAC, Mwanza Region [IDI_22]

[Fishermen] are the first ones with the task of protecting their own lives. No one else will come from somewhere else and start struggling [to protect] your life, if you are a grown adult with a sane mind. A person is supposed to take purposeful actions to protect their lives, and you know that you cannot safely start work on the lake without that equipment. But some people do that, it is a very astonishing fact. Maybe it is because a person thinks, "Today I am not going far, I'm just going there," ... [or] they tell themselves, "I have gone there every day without such equipment [and not encountered problems], so why am I being told to do this unfamiliar thing today?" – Research Coordinator, LVFO, Dodoma [IDI_34]

Some fishers have high-risk behaviours while fishing in the lake, including intoxication:

Both fishing community members and government authorities reported that some fishers had careless and even reckless practices while fishing. This included drinking alcohol and/or smoking marijuana [bangi], either individually or as a fishing norm. Some fishers believed that more education was needed to address this, while others felt the only effective action would be greater fines or other punishments. Examples of fisher carelessness or risk-taking discussed in three of the FGDs follow:

R1: *A large percent of fishers go to the lake when they are drunk. When they are rowing, all of a sudden they might feel light-headed from the alcohol and fall into the water. While you are just wondering [what happened,] you turn to see them drowning as they fade into the water. It is because of the alcohol. And there are some people who cannot go to the lake without a little alcohol. That is a challenge.*

I: *What should we do to save ourselves from that situation? ...*

R1: *A law or bylaw [sheria] should be implemented. That is how I see this. ...*

R2: *I know fishermen who cannot go without drinking a little alcohol. ... I mean that, generally, fishermen believe they must use some drugs before going fishing in the lake, especially alcohol.*

- R: *[Or smoking] marijuana.*
- I: *Why do they believe that?*
- R2: *Ah! It takes courage to go in the lake. It makes them brave, yes. Even in our youth it was well known that to get the confidence to talk to a woman you had to drink a little alcohol. That is when you would have self-confidence and believe in yourself.*
- R: *[Group laughter]*
- R2: *When you deal with the discomforts [of fishing] in the lake, then you must use a little stuff from Arusha [a type of alcohol]. Yes, you get self-confidence. No matter what kind of wave you come across, you will see it as normal. Other people would see a big wave coming and sit in a canoe and start crying, but for us [fishers] who have used our stuff [alcohol], we will dismiss them and tell them to stop behaving like women. We see it as small.*
- I: *So, when a big wave comes and you are already drunk, what do you do?*
- R2: *That is when you have confidence and become brave, believing that nothing will happen. ... You are in a canoe - where do you think you will go, when there is nowhere to run? [Alcohol] is what will help you. Now, mind you, it does have negative consequences [madhara], because there are various fishers who have died because of alcohol. There is J. ...*
- R: *And there is W.*
- R2: *Yes, there is W. Even recently, there was the a fisher from [another area]. We went to take him out of the sand. That guy in the sand died because of alcohol, right?*
- R: *Yes.*
- R2: *And even a guy from here who recently drowned at the lake port, it was because of alcohol.*
– Community members at the port of Kasenyi Ward, Sengerema District, Mwanza Region [FGD_7]
- R1: *There is something that changes in fishermen if they ... go to the lake wearing life jackets but also bring marijuana or alcohol with them, and then become intoxicated. When they are drunk, they tell you that they face a challenge if one of them jumps into the water after they have finished setting traps. ...*
- R2: *We should reduce marijuana smoking. ... After smoking marijuana, one is not in the right state of mind to go into the lake. ... I would like to give an example. I heard a story recently about [name of a local fisher]. He went fishing in the lake, and while he was there, he [smoked marijuana] and then thought of climbing off the vessel to dive into the water. He was thinking that the water was a road. There was also a time when we witnessed a fisherman who was run over by a boat engine [and marijuana was involved]. So marijuana confuses them in some way. And those who become intoxicated in fishing camps also should not go in the lake.*
- R3: *In [remote/informal] fishing camps, it is difficult to know who to inspect for marijuana or who is carrying alcohol or who has already used alcohol. It is very difficult. Some buy the substances and hide them, and then carry them to use them when in boats on the water.*
- I: *How can we involve them so as to minimize drowning?*
- R: *I think we should involve the leaders. They should call for meetings of all those in camps and provide educational seminars for the fishermen.*
– Community leaders at the port of Kasenyi Ward, Sengerema District, Mwanza Region [FGD_11]
- R1: *I think one way of engaging people is through education. Fishers have a very low level of understanding, so education should be a continuous thing. The fisheries officer and BMUs should keep insisting on this. [Economic consequences could also be harsher, for example] if a fisher is found dead in the water and there was no life jacket, then the owner should be charged a fine of 300,000 TZS, and if a boat is found with life jackets but the fishers do not wear them, then they will pay a fine of 100,000 TZS.*
- R2: *It is difficult for a boat owner such as myself to instruct fishers that they must wear life jackets. They will just put it on while at the beach, but when they get in the midst of the water they take them off, most of the time they say because they are hot and sweaty. But if they truly understand the importance of life jackets, they will simply put them on, and death rates will go down.*
- R3: *I am a fisher, and personally I do not think there is any other education needed. By nature, fishers have hard heads [are stubborn]. ... They are just very difficult people to understand. They surely know that life jackets are for their own life's sake, but they will always give weak reasons not to use them, like they are sweaty. I think the government - and I am referring to the BMU here - should take strict steps and have more patrols. For example, just pick a random day, stand at the shores of the lake and all the*

boats that arrive must be inspected. Boats without life jackets should pay fines and fishers with no life jackets on should also be fines, even if it is 300,000 TZS. You will see what happens, everyone will start have life jackets on all the time.

– Community members at Chifufu beach, Chekundu Ward, Mwanza Region [FGD_8]

In IDIs, government authorities also reported that negligence or carelessness by some fishers were barriers to drowning prevention efforts. For example:

Carelessness may occur when fishermen want to fill their boats with lots of fish, regardless of the limits of the weight they can carry without endangering their lives. Overloading could cause the boat to capsize in harsh weather. Bringing a boat that is not in a good enough condition to sail on the sea would be another sort of recklessness. A sub-standard boat would capsize when a big wave hits the boat. Another form of carelessness is arranging fishing gear poorly inside the fishing boat. ... Incorrectly tossing a fishing net, during fishing could accidentally wrap someone's leg and cast that fisherman in water. Alternatively, a poorly tossed fishing net could wrap the engine blades in the back of the boat, and capsize the vessel upon sudden forward movement. - Retired Senior Officer, TAFIRI, Dar es Salaam [IDI_23]

The challenge with drowning begins when [fishers] are told to carry no more than five tons of goods, and maybe two people. But they carry more than the five tons and more than the recommended number of people. So the vessel becomes overloaded, and when they are hit with a large wave, they cannot handle it. So the vessel capsizes and they drown. - Corporal of the Marine Police / Captain of the Marine Unit, Mwanza Region [IDI_52]

Fishermen know a lot about weather conditions. ... normally fishermen know which winds will not allow them to go to the lake. Drowning may happen if [weather change] happens suddenly, and also other times, a lot of times, because some of the fishermen are drunkards. They go to the lake while they are drunk or when they have drunk alcohol ... If you check the records, they will show that some drowned because they had drunk alcohol. ... So they fell into the water and they could not rescue themselves and they drowned. ... That you cannot control. – Ward Fisheries Officer, MLF, Mwanza City, Mwanza Region [IDI_15]

We have many challenges with the use of mobile phones, especially with illegal fishing [e.g. the use of nets with small holes]. If an operation is done on one side of the lake shore, people call each other wherever they are, so at the end of the day the information spreads from one lake shore to the other. You find that people have already been tipped off and scattered and hidden. ... Before, we had the ability to conduct an operation without the other side of the lake shore knowing, so it was easier to catch those conducting illegal activities. - Regional Fisheries Officer, MLF, Kagera Region [IDI_10]

Danger of drowning due to crime (e.g. robbery, or pirating):

In most of the FGDs conducted with fishers, participant reported that small-scale fishers were sometimes attacked, robbed, and left stranded and helpless in the lake water, contributing to drowning. For example:

Having torches on a fishing boat at night has advantages and disadvantages for safety. Disadvantages are that robbers can come and raid the fishers, because see know something is there. If robbers are looking for a canoe, they cannot see at night unless you light a torch. – Community member at the port of Kasenyi Ward, Sengerema District, Mwanza Region [FGD_7]

R1: *There are other issues, like pirates. Because when fishermen go to the lake they go for fishing, and they do not carry any arms for their own security. But all of a sudden a group of pirates may come from the shores fully armed. And there are pirates who go and sink the boats. It happens in those islands which are furthest from the shore. Armed people come and take all the fish. ...*

R2: *There should be frequent patrols, but I want to also request that the government stabilizes [expands/improves] the communication networks. There are some places in the midst of the lake where there is no connectivity. You know, if you are connected, then in an emergency people will easily come to your rescue in a timely manner. For example, some pirates invaded our place and took all the*

fish and disappeared. It is a place that had no connectivity, so when they finally got a network signal, it was already late.

– Community members at Chifufu beach, Chekundu Ward, Mwanza Region [FGD_8]

The next chapter will primarily draw on FGD and IDI findings to answer analyze how current and potential stakeholders could become more engaged in advocacy and agenda-setting to reduce fisher drowning in southern Lake Victoria.

CHAPTER 6: How can water safety stakeholders become more engaged?

How could current and potential stakeholders become more engaged in advocacy and agenda-setting to reduce fisher drowning in southern Lake Victoria?

This chapter will build on Chapters 3-5 and draws on further FGD, IDI, and policy findings to analyze how different stakeholders can become more engaged in drowning reduction efforts, and particularly advocacy and agenda-setting, from local to national levels.

6.1. Fishers and their families

Increasing the engagement of fishers and their families in water safety advocacy and agenda-setting will require complex interventions that address attitudes, social norms, skills, and resources. Suggestions related to these include improving the quality and coverage of water safety education and training for fishers and their communities; subsidizing safety equipment and emergency services; increasing protection for fishers; promoting alternative sources of income for fishers; and supporting organization or unions of fishers. Each of these is explained below.

Improved quality and coverage of water safety education and training:

Currently, water safety education consists of government authorities and BMUs giving fishers very basic information in the course of licensing and/or patrolling fishing practices. More complex, evidence-based awareness-raising and training programs are needed with fishers and broader fishing community members to change negative attitudes and reduce risk behaviours. Interventions to address this include:

- ***Provide clear, fact-based information*** that addresses misconceptions and misunderstandings about drowning risk and preventive practices.
- ***Address social norms***, e.g. challenging perceptions of risk-taking as “masculine”, possibly contrasted with other, positive ways that fishers may pride themselves in their masculinity, e.g. adopting safe practices will enable them to provide for and protect their families long-term.
- ***Promote behaviour change*** by moving beyond information education communication (IEC) to evidence-based, behavior change communication (Tombor and Michie 2017).
- ***Foster skills development*** through targeted skills-development training, e.g. swimming, water survival skills, resuscitation skills, use and understanding of weather forecasting services.
- ***Provide training through a non-enforcing agency***, to reduce conflicts of interest and promote quality and coverage of delivery.
- ***Implement low-cost (or free) trainings with wide coverage and repetition***, particularly to meet the needs of poor and/or migrant fishers. ***training agent*** to carry out high quality, large-scale, skills-based interventions, as described above. This could fall under the remit of the Fisheries Education and Training Agency (FETA), if capacity and resources are substantially strengthened; alternatively, NGOs and civil society organizations (CSOs) could be engaged to take on this role on a large-scale.
- ***Educate fishers’ families and other community members***, to raise awareness of drowning risk and preventive measures, to change negative social norms, and to reduce the acceptability of risk practices (e.g. use of alcohol or marijuana while fishing).

- **Develop other interventions as appropriate to the community**, e.g. alcohol and drug treatment and recovery programs where this is an endemic issue.

Subsidized safety equipment and emergency services:

The poorest fishers reported difficulty purchasing safety equipment, and all fishing communities reported that they struggled to respond quickly to drowning emergencies because government agencies required them to first purchase fuel for patrol boats. In addition, fishing communities were expected to compensate authorities who assisted them to transport bodies after a drowning death. Interventions to address this include:

1. **Provide subsidized or free safety equipment** at a cost that will enable even the poorest fishers to obtain required gear.
2. **Develop and implement a more efficient search and rescue system** that does not require fishers to buy fuel or pay for the transport of bodies. Ensure patrol boats are already fueled and authorities are ready to assist fishers immediately when an emergency happens.

Increased protection of fishers:

Some fishers reported that unsafe conditions on the lake (e.g. robbery; piracy; alcohol and drug use in remote camps) increased their risk of drowning. One approach to address this is:

1. **Increase marine police patrols to protect fishers** should target high-crime areas and prioritize the welfare of fishers.
2. **Increase police, TASAC, and fisheries patrols to enforce fishing water safety regulations** also be carried out to monitor and enforce boat owner and fisher compliance to safety regulations.

Promotion of alternative sources of income for fishers:

Many fishers reported that they took risks because they had no alternative to unsafe fishing practices (e.g. use of damaged boats) and they needed to earn a subsistence income. Interventions to address this include:

1. **Implement a microcredit loan system** so that fishers have sufficient capital to not only build a boat but also pay for needed licensing and/or safety equipment.
2. **Promote alternative livelihoods for fishers**, so they have alternatives when confronted with unsafe conditions and/or a boat owner who will not improve them.

Support for organizations or unions of fishers:

Fishers reported that there were no organizations that advocated on their behalf or increased their social security, e.g. through insurance or loan schemes. To support fishers' abilities to advocate for their water safety needs, and set the agenda in this area:

1. **Foster/facilitate creation of small-scale fisher unions locally and nationally**, to give them increased bargaining power and security, and to amplify their voices within the sector.
2. **Actively seek out and consult representative groups of fishers in national initiatives** to improve water safety measures, e.g. in the development of a national water safety plan or strategy.

6.2. Boat owners and builders

As for fishers and their families, increasing the engagement of boat owners and builders in water safety advocacy and agenda-setting would require complex interventions that address attitudes, social norms, skills, and resources. Specific suggestions follow:

1. **Improve the quality and coverage of general water safety education and training**, providing clear, fact-based information, addressing negative attitudes and social norms (e.g. blaming fishers for unsafe behaviours rather than working with them to improve behaviours), and promoting behaviour change and skills development, similar to trainings for fishers and other community members.
2. **Introduce low-cost or free trainings in how to build safe small boats with wide coverage**, e.g. training in the building boats using the modern, safe vessel design that the FETA officer described developing. Additional incentives could be considered, such as local competitions to build the best boat using a new, safe design (e.g. awarded for overall quality, or decoration).
3. **Consider implementing a conditional microcredit loan system and/or providing subsidies**, so that boat builders and owners are motivated and able to upgrade boats to higher safety standards.
4. **Define and enforce minimum safety requirements for small-scale fishing vessels** in southern Lake Victoria. This includes authorities clarifying vague terms like “sea worthiness”, and ensuring a system is in place so that safety equipment are clearly labelled and cannot be used multiple times to obtain safety certification for multiple boats. It is important that such regulations specifically address the artisanal or subsistence fishers who use home-made, rough rafts and other vessels that fall outside of the existing boat regulations and inspection process, so that currently local authorities feel they can only warn the fishers of the risk and otherwise ignore them.
5. **Actively seek out and consult boat owners and builders** in local drowning prevention initiatives.

6.3. Beach Management Units

Currently, Beach Management Units are quasi-governmental authorities that are supposed to monitor and help enforce government regulations, while also representing community interests and by-laws. BMUs seem to function in variable ways in different settings, but in practice their main work seems to be law enforcement and fee collection (e.g. boat and fishing licenses; fines for not following regulations; fees for assistance after a drowning). Most fishers reported that BMUs were not concerned with their welfare, and that BMUs had little transparency or accountability to fishers.

Increasing the engagement of BMUs in water safety advocacy and agenda-setting would require a multi-pronged effort. Suggestions include:

1. **Improve the quality and coverage of general water safety education and training**, providing clear, fact-based information, addressing negative attitudes and social norms (e.g. blaming fishers for unsafe behaviours rather than working with them to improve behaviours), and promoting behaviour change and skills development, similar to trainings for fishers and other community members.
2. **Standardize BMU responsibilities across villages**, increasing transparency and accountability to fishing communities as well as government authorities. This should include anti-corruption efforts (e.g. confidential corruption reporting hotlines), to reduce the possibility that BMU members exploit their positions and demand bribes.

3. **Reduce BMU conflicts of interest**, including possibly separating BMUs into two organizations for local regulation enforcement and representation of fishers' interests and rights. This might include formalizing the enforcement arm as part of the government, so that it is more effective in independently following through on compliance issues, while also enabling representation of fisher interests (e.g. safety negotiations with boat owners; rapid and free SAR response).
4. **Expand the BMU structure to fishing camps on remote shores and islands**, with strong support of government authorities, and a primary goal to reduce crime and better protect fisher safety in such settings.
5. **Actively seek out and consult BMU members** in local and national drowning prevention initiatives.

6.4. Government authorities

6.4.1. President's Office, Regional Administration and Local Government

The sections below outline policy, regulatory, and programming work by national sectoral ministries, but these are funded and managed administratively by PO-RALG from the regional to local levels. It thus may be useful to engage with PO-RALG early on in the process of advocating for fisher water safety at national and regional levels. For example, identify a strong point person at the national level within PO-RALG, particularly one who may be responsible for the southern Lake Victoria area, and invite them to participate in the development of a national and/or regional multisectoral water safety plan.

6.4.2. Ministries of: Livestock and Fisheries; Works, Transport and Communications; and Home Affairs

These three ministries currently provide enforcement of boat and fishing safety regulations through collaboration between fisheries officers, TASAC officers, and marine. They are also responsible for informal, ad hoc water safety education, in the course of issuing licenses and later inspections. This study found such education to be inadequate, however, and moreover that there is a conflict of interest between being the educator and enforcer of regulations.

Recommendations for increasing the engagement of these government authorities in water safety advocacy and agenda-setting follow:

1. **Create and implement higher standards of small boat building, required safety equipment, and dissemination of weather forecasting**, involving the sectors responsible for licensing and inspections, e.g. TASAC, TMA, and the Fisheries Department.
2. **Expand efforts to monitor and enforce safety regulations**, but towards that end also clarify roles and increase accountability to fishers and fishing communities. This should include anti-corruption efforts (e.g. confidential corruption reporting hotlines), to reduce the possibility that government authorities exploit their positions and demand bribes.
3. **Develop and fund a strong, separate training agent** to carry out high quality, large-scale, skills-based interventions, as described above. This could fall under the remit of the Fisheries Education and Training Agency (FETA) that is not involved in enforcing regulations, if capacity and resources are substantially strengthened.
4. **Engage MLE, MWTC and MHA representatives in drowning prevention initiatives at all levels (local to national)**, e.g. development of a national water safety plan; support for and implementation of drowning prevention interventions.

6.4.3. Ministry of Health, Community Development, Gender, Elderly and Children

Currently, the Ministry of Health, Community Development, Gender, Elderly and Children (MOHCDGEC) is not seen perceived as an actor that can affect changes in policies or practices related to fisher drowning in southern Lake Victoria. However, based on Tanzanian health sector strategies (Appendix/Annex 1: A1-4, A1-77, A1-8, A1-10, A1-11, A1-17) and international health guidance (Appendix/Annex 2: A2-2, A2-3, A2-17), the health sector has the potential to become a strong actor. Specifically, among the national policy and regulatory documents reviewed in this study (Appendix 1):

- The **2017 National Health Policy (Draft 6)** addresses unintentional injuries, including those due to occupational causes, as an important contributor to the national disease and injury burden that requires due attention.
- The **2012 Health Sector Strategic Plan, July 2015 – June 2020 (HSSP IV)** has objectives to improving equitable access for vulnerable groups in populations with higher risks, collaborating with other sectors to address social determinants of health, and instituting OHS programs in high-risk industries.
- The **2009 Public Health Act** authorizes Medical Officers and Environmental Health Practitioners to address anything which is in such a condition, used, disposed of, situated, constructed or is unclean as to be dangerous to human life and limb, or injurious to human health.
- The **2009 National Occupational Health and Safety Policy** sets OHS standards, including promotion of OHS in small and medium scale enterprises and informal sectors.

Similarly, among the international policy and regulatory documents reviewed in this study, two specifically address drowning prevention (Appendix/Annex 2):

- The **2018 WHO Preventing Disease through a Healthier and Safer Workplace highlights** fishermen as at increased risk of drowning. Strategies to prevent drowning in the workplace include increased awareness, appropriate policies and legislation, the development of national water safety plans, and the involvement of different sectors.
- The **2017 WHO Preventing Drowning Implementation Guide** provides detailed guidance on interventions and strategies to prevent drowning, including training bystanders in safe rescue and resuscitation; setting and enforcing safe boating, shipping and ferry regulations; strengthening public awareness of drowning through strategic communications; promoting multisectoral collaboration; and developing a national water safety plan.

The MOHCDGEC is a large, powerful ministry in the URT, but it also has vast, complex responsibilities that would compete with water safety initiatives for limited capacity and resources. Key initial steps would be:

1. **Identify a strong point person** within the ministry who could be a champion of this issue.
2. **Provide health stakeholders with clear evidence** of the drowning prevalence and risk factors among fishers in southern Lake Victoria, how this burden aligns with national health priorities to meet the needs of vulnerable populations, reduce injury burdens, and address OHS; and international guidance on best practice water safety interventions, as shown above.
3. **Explore the possibility that the MOHCDGEC health sector co-lead development of a multisectoral national water safety plan**, as recommended by WHO and FAO (Appendix/Annex 2: A2-2, A2-3, A2-6, A2-9).

6.4.4. Prime Minister's Office - Labour, Youth, Employment and Persons with Disability (PMO-LYEPD)

Currently, the Prime Minister's Office - Labour, Youth, Employment and Persons with Disability (PMO-LYEPD) is not perceived as an actor that can affect changes in policies or practices related to fisher drowning in southern Lake Victoria. However, based on Tanzanian labor and youth sector strategies (Appendix/Annex 1: A1-12, A1-13, A1-14, A1-17) and international labor guidance (Appendix/Annex 2: A2-7, A2-10), this ministry could be a very useful collaborator. For example, among the national policy and regulatory documents reviewed in this study:

- The **2003 National Occupational Health and Safety Act** details the responsibilities of inspectors to investigate circumstances of any incident which has occurred at or originated from a workplace in connection with the use of a plant or machinery which resulted, or in the opinion of the inspector could have resulted, in the injury, illness or death of any person.
- The **2007 Youth Development Policy** acknowledges that many young people aged 15-35 years are engaged in small-scale fishing, but lack equipment and necessary skills, and may work under hazardous conditions without protective gear. It states that the government will enforce laws and regulations regarding youth OHS, and stakeholders such as NGOs and community-based organizations (CBOs) can educate youth on protective measures.

Similarly, among the international policy and regulatory documents reviewed in this study, several by FAO and ILO specifically address OHS and drowning prevention among fishers (Appendix 2). For example:

- The **2016 FAO Fishing Operations: Best Practices to Improve Safety at Sea in the Fisheries Sector** addresses change management within planning and policy legislation, training in small-scale fisheries, fishing vessel safety, search and rescue service, and accident investigation and analysis.
- The **2015 FAO Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the Context of Food Security and Poverty Eradication** recommends that States develop and implement coherent and integrated national strategies, provide support to sea safety awareness programmes, and introduce appropriate legislation for water safety in small-scale fisheries.

The government youth sector is very weak in Tanzania, but nonetheless it may be a useful collaborator in national water safety plan development because the 2007 Youth Development Policy is directly relevant to it. The government labor sector is somewhat stronger than the youth sector, but focuses mainly on regulations within government, NGOs, and formal businesses, not the informal economy. Nonetheless, the labor sector also may open to engagement on the issue of drowning prevention among fishers in southern Lake Victoria, as this relates to the 2003 National Occupational Health and Safety Act and is supported by ILO and FAO guidance documents. As with the health sector, key initial steps to engage the government labor and youth sectors would be:

1. **Identify a strong point person** in both sectors who could be a champion of this issue.
2. **Provide labor and youth stakeholders with clear evidence** of the drowning prevalence and risk factors among fishers in southern Lake Victoria, how this burden aligns with national labor and youth priorities to address OHS and ensure young (15-35 year old) fishers have the skills and equipment to work safely.
3. **Explore the possibility that PMO-LYEPD youth and labor sectors participate in development of a multisectoral national water safety plan**, as recommended by WHO and FAO (Appendix/Annex 2: A2-2, A2-3, A2-6, A2-9).

6.4.5. Ministry of Education, Science and Technology

Currently, the Ministry of Education, Science and Technology (MOEST) is not perceived as an actor that is affecting or affected by changes in drowning policies or practices. In addition, education policy documents are only very broadly relevant to water safety initiatives for fishers in southern Lake Victoria, e.g. the 2017 Education Sector Development Plan (2016/17-2020/21) mentions that sports should be integrated within the school timetable and also are a possible extracurricular activity.

However, the 2017 WHO Preventing Drowning Implementation Guide recommends teaching school-age children swimming and water safety skills. As a long-term strategy in southern Lake Victoria, systematically teaching children swimming and other water safety and survival skills could not only reduce childhood drowning but also fisher drowning, for those who go on to work as small-scale fishers. The school system might be the most efficient way to reach children with a large-scale swimming intervention program, so the education sector could be approached about possible collaboration in this initiative in southern Lake Victoria.

Like the health sector, the government's education sector is one of the largest and most powerful sectors in the URT, but also supports the country's education system with very limited capacity and resources. Key initial steps to engaging the education sector in drowning prevention advocacy and agenda-setting would be:

1. **Identify strong point people** in the MOEST and the PO-RALG Education Sector at the national level who could champion this issue.
2. **Provide education stakeholders with clear evidence** of the drowning prevalence and risk factors among fishers in southern Lake Victoria and the international guidance on teaching school-age children to swim and other water safety skills to prevent drowning.
3. **Explore the possibility that MOEST and PO-RALG develop and implement a swimming and water safety training course for school-age children in southern Lake Victoria.**

6.5. NGOs, CSOs, CBOs, and FBOs

6.5.1. Tanzanian NGOs and CSOs

As noted in Chapter 3, no NGOs, CSOs, CBOs, or faith-based organizations (FBOs) seem to be working directly on fisher water safety. However, two small, Tanzanian NGOs (Fishers Union Organization and EMEDO) are working in areas (e.g. sustainable, small-scale fisheries) that are relevant to drowning prevention efforts. These NGOs seem to have good potential to become engaged in fisher drowning reduction advocacy and agenda-setting.

In addition, a representative of the Tanzania Meteorological Authority suggested that faith-based organizations offer a network that could be involved in drowning prevention efforts, such as disseminating important information related to weather conditions or drowning:

If a calamity is happening, if a person has the information, what has he done with it? Has he spread it others? ... We wish every citizen should have that passion. ... We should make use of whatever system is available. That includes religious institutions. Like we could talk to a mosque and church. They could be good centers for giving out information, and they could insist their community educate others too. – Researcher, Weather Forecasting Authority, TMA, Dar es Salaam [IDI_27]

6.5.2. International NGOs and FBOs

International NGOs (INGOs) have the potential to become engaged in advocacy or agenda-setting on fisher water safety depending on how the question of fisher drowning is framed. For example, this issue could be framed as a public health concern, a labour rights issue, and/or an OHS problem. This is illustrated by a comment from the ILO representative:

Safety of people at work is everybody's concern. I don't believe any person should be left behind. ... [If] we are targeting fishermen by looking at their working environment, there are so many people who would be interested. For example, there are people with interest in doing economic empowerment, or developing people economically. All such stakeholders could be involved, because they would like people to work in a safe environment. – International Labour Organization staff, Dar es Salaam [IDI_40]

Several large, well-established international INGOs and international FBOs (IFBOs) in Tanzania have health and development mandates that could be broadly relevant to fisher drowning initiatives in southern Lake Victoria; Box 7 provides some examples. Such organizations could be approached to explore possible engagement and collaboration in advocacy and agenda-setting on this issue.

Box 7. Examples of NGOs and FBOs in Tanzania with areas of interest relevant to fisher water safety in southern Lake Victoria

1. National non-governmental organizations:

--- **EMEDO:** Interests include environmental, social and economic challenges facing the Lake Victoria region, and specifically sustainable, small-scale fisheries.

--- **Fishers Union Organization:** Interests include children's and fishers' rights; infectious disease prevention; good governance; and gender, social, and economic development.

2. International non-governmental organizations:

--- **Plan-Tanzania:** Interests include child protection, youth economic empowerment, and responding to emergencies.

--- **Action Aid:** Interests include politics and economics, land and climate, youth, and women.

--- **Advocacy Accelerator** (based in Nairobi): Provides an innovative platform for grassroots and national advocates in Africa by equipping them with the information, tools and resources they need.

3. International faith-based organizations:

--- **World Vision:** Interests include health system strengthening, livelihoods, resilience, behaviour change communication (BCC) (e.g. gender-based violence; COVID-19).

--- **IMA World Health:** Interests include health system strengthening. This IFBO is networked with many Christian (Catholic and Protestant) churches and services in the Lake Zone and supports the faith-based hospital system at the regional and district levels in southern Lake Victoria (i.e. Bugando Medical Centre as Mwanza Region's tertiary care facility, and district hospitals at the secondary care level).

Key initial steps to engaging such NGOs, CSOs, and/or FBOs in fisher drowning prevention advocacy and agenda-setting in southern Lake Victoria include:

1. **Meet to discuss possible collaboration** with the NGOs and FBOs listed in Box 7. This includes:
 - a. **Providing them with clear evidence** of the drowning prevalence and risk factors among fishers in southern Lake Victoria and the international guidance related to best practice interventions.

- b. **Exploring the possibility of collaboration at local and/or national levels**, e.g. BCC interventions with fishers and their communities; development of a national water safety plan.

6.6. International agencies

6.6.1. Regional (EAC and SADC)

As already described, a major EAC Lake Victoria Basin Commission initiative, the Lake Victoria Maritime Communications and Transport Project, is already underway with goals to establish a maritime communications system for safety on Lake Victoria and create an East African Maritime Transport Strategy. This will include establishment of a maritime communication network, maritime rescue coordination centres, search and rescue centres, and accurate and accessible weather alert systems. Importantly, the on-going development of this project may offer an important opportunity to shape policy and programming and secure resources for small-scale fisher drowning prevention initiatives in southern Lake Victoria.

SADC and the regional bodies that work in southern Lake Victoria - such as LVFO - have potential to affect changes in drowning policies and practices because of their political influence and an active role in the region. The URT has signed the SADC Protocols on Fisheries, Health, and Transport, Communications and Meteorology. (Appendix/Annex 2: A2-15, A2-17, A2-19). In addition, the URT participates in the LVFO and LVBC at a high level (e.g. LVFO and LVBC, including in the East African Legislative Assembly's current consideration of the Lake Victoria Basin Commission Bill, 2019) (Appendix/Annex 2: A2-1).

6.6.2. Global (FAO, ILO, IMO, and WHO)

Global agencies currently have less potential to affect drowning policy and practices in southern Lake Victoria than regional international agencies. However, if advocacy efforts succeed in securing URT endorsement and ratification of relevant FAO, ILO, and IMO guiding documents (e.g. Table 8), this could greatly affect drowning-related policies and practices on Lake Victoria. In addition, the URT could choose to adopt part or all of the voluntary guidance recommendations on water safety and drowning prevention published by FAO, ILO, IMO, and WHO (Appendix/Annex 2).

The FAO representative interviewed in this study was broadly aware of small-scale fisher water safety issues and FAO's international guidance documents related to this. (FAO 2012; FAO 2015). However, he said that, in Tanzania, FAO primarily was trying to facilitate those guidelines being implemented in the land and forestry sectors, not in the fisheries sector; the only fishing project they were involved in was in Zanzibar. He explained that FAO would be interested and could be guided in future efforts by the results of this fisher drowning prevention policy and stakeholder analysis:

- I: *From your experience, what do you think about this issue of fishermen drowning in Lake Victoria? ...*
- R: *I hear about it in the media. ... It is one of the problems in the fishing sector, [especially] for small scale fishermen. ... It is one of the areas where work can be done. ... I have shared my personal knowledge of this matter, how I understand it personally. But drowning incidents have not really been tackled in the [FAO] forestry sector. ... [This study] will be very important. I think this research is coming at a very opportune moment because of EMEDO's work, and the national action plan on sustainable small-scale fisheries that they are preparing, and there are the [FAO voluntary guidelines]. Those steps have begun. So this [research] information will help inform FAO on what necessary steps and strategies to take, and how to use the research to offer recommendations. – Food and Agriculture Organization staff, Dodoma [IDI_41]*

The ILO and WHO representatives who were interviewed in this study did not seem to have been previously aware of fisher water safety in southern Lake Victoria as a public health issue or a labor concern. They expressed interest in the issue but stressed that, in order to become engaged in advocacy and agenda-setting in this area, they would need to review the evidence base and also obtain direction from the URT and donors. For example:

We don't do anything in relation to drowning [in Tanzania] because drowning is not technically viewed ... as a serious public health agenda. I mean that we don't have statistics which show how big the problem is, so that an intervention can take place. So far there are no funds for such a thing. Drowning is not a priority with WHO because it is not a public health concern, and there are no people yet to take it ahead as an important issue to be tackled. It is still silent. I don't know if there is even a policy or law that guides issues like trainings on rescue. The government itself does not have even curriculums for swimming in the schools. ... Even the skills of using saving gadgets, people don't know. – World Health Organization staff, Dar es Salaam [IDI_32]

The challenge is, most of the time our channel is through associations, such as employers' associations, workers associations. This [ILO] office is like the Secretariat, and the organization is formed by workers' associations, governments, and the responsible Ministry. ... We are not an organization that provides money; we provide technical support. It is a global organization, and ... most of the time, there is a little money to facilitate such work. Sometimes the money can be good depending on the response from a donor, if he has interest on such things. – International Labour Organization staff, Dar es Salaam [IDI_40]

Steps which could be taken to engage international agencies in fisher drowning prevention advocacy and agenda-setting in southern Lake Victoria include:

1. **Explore possible collaboration in programming, advocacy and agenda-setting** with the international agencies listed above.
2. **Prioritize stakeholders whose work already closely relates to small-scale fisheries and water safety**, e.g. FAO, but also focus on WHO and ILO as their international guidelines offer strong, practical guidance on fisher water safety programming advocacy, and agenda-setting.

6.7. Stakeholder mapping matrix

Table 9 draws on a stakeholder mapping tool (<http://www.tools4dev.org/resources/stakeholder-analysis-matrix-template/>) to provide an overview of the current and potential stakeholders engaged in fisher water safety in southern Lake Victoria. This includes estimates of current interest and influence, potential influence, what is important to them, how they might contribute to an intervention, and how they could weaken or block an intervention.

The next chapter will briefly discuss this study's strengths and limitations and then outline detailed fisher drowning prevention recommendations at four levels: national and international policy and programming, regional to local enforcement, community engagement and training, and research.

Table 9. Fisher water safety in southern Lake Victoria: Stakeholder mapping matrix

Stakeholders	How much CURRENTLY interested in /affected by drowning	How much CURRENT influence	How much POTENTIAL influence	What is important to them	How they could contribute to an intervention	How they could weaken or block an intervention
COMMUNITY						
Fishers and their families	High	Medium	Medium	<ul style="list-style-type: none"> Earning a decent income from labour, and providing for their families Safety education and training to reduce risk Safe vessels and/or responsible boat owners Affordable, comfortable safety equipment, including life jackets Overcoming fear of dangers in lake work (e.g. by using alcohol/drugs) Reducing discomfort in lake work Masculine self-image and peer opinions Accurate, accessible weather forecasting Protection from crime (e.g. robbery, piracy) Fast, free search-and-rescue response Support/assistance (not only regulation enforcement) from authorities Agency/voice (e.g. fishers' union) 	<ul style="list-style-type: none"> Participate in free/subsidized, skills-based, BCC water safety trainings Set example and motivate peers by practicing safe behaviours (e.g. wear life jacket; not use alcohol in lake) Report unsafe boat condition or insufficient life-saving equipment to relevant authorities, e.g. BMU Organize (e.g. unions) to negotiate safe conditions with boat owners, and better treatment and support from authorities, etc. Representatives participate in national water safety plan development 	Disregard safety rules, not use safety equipment, etc. E.g. due to poverty, low risk perception, social norms, conflicting beliefs, discomfort
Boat owners	High	Medium	Medium	<ul style="list-style-type: none"> Earning income from fishing and/or boat rentals Affordable and effective materials for boat construction Meeting legal requirements for safety of boat and its equipment 	<ul style="list-style-type: none"> Participate in safety trainings Provide sufficient safety equipment in boats (e.g. lifejackets, fire extinguisher, life rings) Make/purchase/maintain safe boats 	Not provide adequately safe boats, safety equipment, or boat maintenance, e.g. to save money
Boat makers	Medium	Medium	Medium	<ul style="list-style-type: none"> Earning a decent income from labour Good building materials, e.g. timber Timely payment by boat owners Making a boat to meet local standards (craftsmen) Making a structure (e.g. small raft) that enables them to float while fishing (very poor fishers) 	<ul style="list-style-type: none"> Participate in training on building safe boats Build safe boats 	Not build safe boats, e.g. due to insufficient knowledge or motivation
Beach Management Units	Medium	Medium	Medium	<ul style="list-style-type: none"> Fisher and boat registration and licensing payments Authority to make beach management decisions Successful local commerce Safe practices within their community 	<ul style="list-style-type: none"> Participate in safety trainings Raise awareness and advocate for fisher drowning prevention measures with all local stakeholders Monitor safety regulations and intervene (e.g. with fishers or authorities) when they are not followed 	Not monitor, support, or follow-through to ensure boat owners and fishers use safe vessels, equipment, and practices, e.g. due to insufficient

Stakeholders	How much CURRENTLY interested in /affected by drowning	How much CURRENT influence	How much POTENTIAL influence	What is important to them	How they could contribute to an intervention	How they could weaken or block an intervention
					<ul style="list-style-type: none"> Support fishers and their families with education and assistance during a crisis Representatives participate in national water safety plan development 	capacity/resources, disinterest, corruption, or conflict of interest
GOVERNMENT*						
Ministries of: (1) Livestock and Fisheries, (Fisheries Officers, FETA, TAFIRI); (2) Works, Transport and Communications (TASAC, Meteorology); (3) Home Affairs (Marine Police)	Medium	Medium	High	<ul style="list-style-type: none"> MLF: Fisheries management, including BMU monitoring and enforcement of laws at the local level MWTC: Transportation and communications management, from national to local levels MHA: Prevention and response to crime Lake patrols Regulation enforcement and fees collection Protecting and promoting strong, sustainable fisheries Environmental protection Safety of fishing vessels, and their operators/passengers Maritime communications (e.g. communication network, rescue coordination centres, search and rescue centres, and weather alerts) Education and awareness of (a) fisheries and transport laws and regulations; (b) use of weather information; (c) small vessels operation Water safety education and survival at sea Phone network coverage Boat standards, and improving fishing vessel design Search and rescue centres and operations Accident and incidence investigation Fisheries research Increasing capacity and resources Multisectoral collaboration 	<ul style="list-style-type: none"> Provision of basic water safety education and use of weather information Support for, or provision of, large-scale, free or subsidized, skills-based, BCC water safety trainings (e.g. involving FETA or another non-enforcing agency) Law enforcement, including patrols and inspections, including high-risk, remote areas, to better support fishers and protect them from crime Drowning prevention intervention evaluation (e.g. involving TAFIRI) Fast, free search and rescue responses At the ministry level, participate in development and implementation of water safety plan 	Not monitor, support, or follow-through to ensure fishers use safe vessels, equipment, and practices, e.g. due to insufficient capacity/resources, disinterest, corruption, or conflict of interest
(1) Ministry of Health, Community Development, Gender, Elderly and Children;	Low	Low	High	<ul style="list-style-type: none"> MHCDGE: Policy and programming at all levels of health system nationally PMO-LYEPD: Policy and programming related to labour and/or youth rights, and occupational health and safety MHCDGE policies address: unintentional injuries, including those due to occupational causes as important contributors to national 	<ul style="list-style-type: none"> Co-leadership at national level (e.g. national water safety plan development) Awareness raising Advocacy Program development through an injury burden / public health perspective 	Not identify fisher drowning prevention as a concern in their sector, or not participate

Stakeholders	How much CURRENTLY interested in /affected by drowning	How much CURRENT influence	How much POTENTIAL influence	What is important to them	How they could contribute to an intervention	How they could weaken or block an intervention
(2) Prime Minister's Office - Labour, Youth, Employment and Persons with Disability				burden; equitable access for vulnerable groups in populations with higher risks; need to address the social determinants of health; and OHS programs in high-risk industries, including small and medium scale enterprises and informal sectors <ul style="list-style-type: none"> • PMO-LYEPD labour policies address: occupational health and safety; and investigation of workplace injury or death • PMO-LYEPD youth policies address: 15-35 year olds engaged in small-scale fishing lack equipment and skills; proposing NGOs and CBOs can educate youth on protective measures 	(MHCDGE) or occupational health / decent work perspective / youth rights perspective (PMO-LYEPD)	meaningfully in collaboration
Ministry of Education, Science and Technology	Low	Low	Medium	Policy and programming at all levels of the education system nationally	In southern Lake Victoria fishing community schools, develop and implement evidence-based water safety education for school-age children, including swimming (e.g. as part of curricular or extracurricular sports)	Not identify school-based water safety education as within their remit, or not carry out program effectively
OTHER ORGANIZATIONS						
(1) Tanzanian NGOs and CSOs (e.g. EMEDO, FUI); (2) INGOs and IFBOs (e.g. Plan, Action Aid, World Vision, IMA World Health)	Low	Low	Medium	<ul style="list-style-type: none"> • EMEDO: Environmental, social and economic challenges facing the Lake Victoria region, and specifically sustainable, small-scale fisheries • FUI: Children's and fishers' rights; infectious disease prevention; good governance; and gender, social, and economic development • Plan: Child protection, youth economic empowerment, and responding to emergencies. • Action Aid: Interests include politics and economics, land and climate, youth, and women. • World Vision: Health system strengthening, livelihoods, resilience, BCC • IMA World Health: Health system strengthening 	<ul style="list-style-type: none"> • Participate in program development and implementation at the local level • Participate in national water safety plan development 	Not identify fisher drowning prevention as within their remit, or not carry out program and advocacy work effectively
INTERNATIONAL AGENCIES						
Regional (e.g. EAC, SADC)	Medium	Medium	High	<ul style="list-style-type: none"> • EAC LVBC: The Lake Victoria Maritime Communications and Transport Project, is including establishment of a maritime communications system for safety on Lake Victoria and an East African Maritime Transport Strategy. • SADC: The URT is a signatory on three relevant SADC Protocols: <ul style="list-style-type: none"> - Fisheries: addresses on the needs of artisanal, subsistence and small-scale commercial fisheries and fishers 	Collaborate in advocacy and agenda-setting to reduce fisher drowning in southern Lake Victoria	Not engage in or prioritize fisher water safety initiatives

Stakeholders	How much CURRENTLY interested in /affected by drowning	How much CURRENT influence	How much POTENTIAL influence	What is important to them	How they could contribute to an intervention	How they could weaken or block an intervention
				<ul style="list-style-type: none"> - Health: addresses the needs of vulnerable groups; policies and guidelines for health promotion and education; integrated occupational health services; and international management of disaster and emergency situations - Transport, Communications and Meteorology: addresses safe and clean inland water environments and training and certification of seafarers. 		
Global (e.g. FAO, ILO, WHO)	High (globally) Low (Tanzania)	Low	Medium	<p>In global voluntary guidance documents:</p> <ul style="list-style-type: none"> • FAO recommends legislation for water safety in small-scale fisheries, coherent and integrated national strategies, support to sea safety awareness programmes, training in small-scale fisheries, fishing vessel safety, search and rescue service, and accident investigation and analysis. • ILO recommends that the unique OHS risks of fishing must be assessed and mitigated to protect worker safety and health, including drowning prevention. • WHO recommends development of national water safety plans; setting and enforcing safe boating, shipping and ferry regulations; strengthening public awareness of drowning through strategic communications; fisher drowning prevention awareness-raising, policies and legislation; and training bystanders in safe rescue and resuscitation. <p>In Tanzania, these agencies support different projects and programs related to forestry, land and fisheries issues; labour rights; and public health.</p>	<ul style="list-style-type: none"> • FAO, ILO, and WHO global guidance documents could be adapted for fishers in southern Lake Victoria, e.g. evidence-based drowning prevention interventions; decent work and OHS programmes. • The FAO, ILO, and WHO Tanzania offices can participate in funding mobilization, national and regional awareness-raising, advocacy, and intervention development, if invited by the government and funded to do so. 	Not engage in or prioritize fisher water safety initiatives

Adapted from: <http://www.tools4dev.org/resources/stakeholder-analysis-matrix-template/>

* Assumes that President's Office, Regional Administration and Local Government (PO-RALG) is managing the work of each sector from the local to the regional level.

Key: BCC=behaviour change communication; CSO=civil society organization; EAC=East African Community; EMEDO=Environmental Management and Economic Development Organization; FAO=Food and Agriculture Organization; FBO=faitn-based organization; FETA=Fisheries Education and Training Agency; FUIO=Fishers Union Organization; ILO=International Labour Organization; IMO=International Maritime Organization; LVBC=Lake Victoria Basin Commission; MHA=Ministry of Home Affairs; MLF=Ministry of Livestock and Fisheries; MOEST=Ministry of Education, Science and Technology; MOHCDGEC=Ministry of Health, Community Development, Gender, Elderly and Children; MWTC=Ministry of Works, Transport and Communications; NGO=non-governmental organization; OHS=occupational health and safety; PMO-LYEPD=Prime Minister's Office - Labour, Youth, Employment and Persons with Disability; PO-RALG=President's Office, Regional Administration and Local Government; SADC=Southern African Development Community; TAFIRI=Tanzania Fisheries Research Institute; TASAC=Tanzania Shipping Agencies Corporation; TMA=Tanzania Meteorological Agency; URT=United Republic of Tanzania; WHO=World Health Organization

CHAPTER 7. Discussion and Recommendations

Despite important progress in the development and implementation of water safety regulations in Tanzania in recent decades, this study found that small-scale fishers in southern Lake Victoria are very vulnerable to drowning. Many factors contribute to this situation, including fishers working during adverse weather conditions, with limited early warning signals, in small, poorly maintained vessels, and with insufficient safety equipment and other measures in place. Such circumstances persist despite proven preventive interventions, which points to gaps in policy and programming in this area.

The study suggests that many improvements to policies and regulations and their implementation could increase water safety activities, reduce fisher drowning risk, and improve emergency responses when drowning occurs. Broadly outlined, these include:

- If authorities implement existing policies more consistently (e.g. through improved access to weather forecasting information; improved safety education; or more centralization and coverage of search and rescue efforts).
- If fishers implement existing policies more consistently (e.g. use available safety equipment more consistently; or advocate individually or at an organizational level for better access to safety equipment, education, and services).
- If existing policies are expanded to incorporate other evidence-based drowning prevention approaches with fishers (e.g. large-scale water safety training and certification provided by someone other than law enforcement; provision of low-cost or free safety equipment).

This final chapter will briefly discuss the study's strengths and limitations and then outline detailed fisher drowning prevention recommendations at four levels: national and international policy and programming, regional to local enforcement, community engagement and training, and research.

7.1. Strengths and limitations of the study

Strengths of this study include its multimethod, triangulated approach to data collection and analysis. A large, multisectoral policy and regulatory search, review, and analysis was conducted, going beyond sectors where policy is currently relevant to fisher water safety to also consider sectors which have important potential in this area, both at national and international levels.

In addition, semi-structured in-depth interviews were conducted with government representatives at all levels of the fisheries, transport, and/or police sectors. A small number of IDIs were also conducted with people engaged in or familiar with fishing business at the local level, as well as representatives of relevant international agencies.

Limitations of this study include that the selection of IDI and FGD participants was not optimally diverse or representative. Almost all key informant interviews were conducted with government representatives in the fisheries, transport, or police sectors. The perspectives of representatives of other relevant government sectors (e.g. health, labour, education, youth) that might potentially have an important role in drowning prevention policy are not well represented here. Although the document review identified relevant policy from those sectors, the study was not able to assess the extent to which those policies are actively resourced and enforced.

Other limitations of this study relate to FGD participant selection, for example:

- FGD participants were identified and selected with the assistance of local government authorities and BMU members in fishing villages or trade centers. Those authorities may have been biased in proposing FGD participants who they believed would be favourable to them.
- It is unclear how “community leaders” were selected for FGDs. Most seem to have been appointed or elected authorities (e.g. village executive officer and BMU member, respectively), which may have reduced their candor and the validity of their reports on controversial topics.
- Relatively few of the IDIs and FGDs were conducted with fishers themselves, and very few if any of the research participants are likely to have been in the large subset of small-scale fishers who are young, inexperienced, very poor, and/or migrant fishers. Such individuals may have particularly high risk of drowning, but their perspective is not well represented in this study. For example, most boat owners and fishers who were interviewed in this study had a basic understanding of fishing and boat licensing requirements, but it is not clear whether this is also the case for fishers who live and work in remote, informal fishing camps.
- Few IDIs or FGDs engaged with stakeholders further up the fisheries value chain (e.g. fish processors, sellers, distributors), who might also be interested in and able to influence fisher water safety practices and policies in southern Lake Victoria.

This study was designed to be a small, practical, action research project, so it was not possible to carry out some tasks that are typical of longer, academic research projects (e.g. Swahili transcription and English translation quality control; a lengthy review and analysis period). This is unfortunate as policy and stakeholder analysis is a particularly subtle and complex process that benefits from rigorous analysis, interpretation, and triangulation of data. Further, the entire initial research team left the study after data collection and preliminary analyses, and the new researchers who carried out in-depth analyses and report-writing were hampered by insufficient handover information and time. All of these factors may have contributed to the report findings and recommendations being more broad and superficial than initially intended.

7.2. Recommendations

The following section outlines specific recommendations that can be made at multiple levels to protect and save the lives of small-scale fishers in southern Lake Victoria. Notably, many of these recommendations have already been outlined in chapter 6 in the discussion of how stakeholders might become more engaged in drowning prevention advocacy and agenda-setting. Here, however, they are organized at ecological levels of national and international policy and programming, regional to local level actions, community training and engagement, and research. These recommendations target different determinants of fisher water safety, including political, economic, social, and personal factors.

None of these recommendations offer quick solutions, and almost will require substantial investment of time and resources. Each recommendation is presented with brief considerations of implementation issues that are specific to the Tanzanian and particularly the southern Lake Victoria context. However, many of these recommendations have a broader, global evidence-base, and global implementation guidance documents are cited where they might be adapted in the Lake Victoria context.

7.2.1. National and international levels

At the national and international policy level, broad recommendations include: continue coordinating efforts with Uganda, Kenya, and Lake Victoria regional agencies; promote multilevel, intersectoral collaboration in national drowning prevention efforts; develop a national water safety plan; better support and enforce existing policies and regulations; design new policies, regulations, and action plans to address gaps within the fisheries and transport sectors; design new policies, regulations, and action plans to address gaps within other sectors; and improve national or regional boating incident and injury data collection systems. Each of these is elaborated on below.

Continue coordinating efforts with Uganda, Kenya, and Lake Victoria regional agencies (e.g. LVFO, LVBC) to more effectively prevent and respond to fisher drowning. Importantly, the on-going Lake Victoria Maritime Communications and Transport Project, as initiated by the LVBC and funded by the African Development Bank, is intended to significantly improve many structural factors that influence fisher water safety. This will include establishment of a maritime communications system for safety on Lake Victoria (including a maritime communication network, maritime rescue coordination centres, search and rescue centres, and weather alerts), as well as an East African Maritime Transport Strategy, a Lake Victoria Transport Development Programme, and capacity building, all of which will be critical in addressing some of the water safety concerns highlighted in this report. For example, Appendix 3 shows the planned locations for search and rescue centres around Lake Victoria, including eight along the Tanzanian border which should have a one-hour SAR response time.

Promote multilevel, intersectoral collaboration in national drowning prevention efforts. This should bring together policy makers, enforcement agencies, donors, NGOs, researchers, fishers and other partners to stimulate discussion and coordinate financing and actions on water safety and drowning prevention. This collaboration should include:

- **Multiple sectors:** Develop strategic partnerships of multiple sectors to focus specifically on small-scale fisher water safety. This should include sectors which to date have not focused on this are, but which have relevant policies, most notably the health, youth, and labour sectors. Also explore possible collaboration with the education sector, as it could play an important role in large-scale, sustainable water safety training in southern Lake Victoria. Drowning prevention interventions should also be integrated into relevant sectoral strategies when the opportunity arises.
- **The health, labour, and youth sectors:** While fisheries and transport sectors should continue to play a leading role in drowning prevention initiatives, there is important potential for the health, labour, and youth sectors to share in such efforts. The health sector has a particularly great potential to play a leading, active role in national drowning prevention policy and program development due to increasing evidence of drowning as an important cause of mortality and morbidity among small-scale fishers in Lake Victoria (Sarassett et al. 2019; Whitworth et al. 2019), and the global guidance highlighting drowning prevention as a major goal of the health sector (WHO 2014; WHO 2017; WHO 2018).
- **The education sector:** Engage the education sector to consider potential water safety education through schools in southern Lake Victoria, as this might provide a scalable and sustainable way to promote water safety knowledge and practices at a community level, particularly for the next generation. Schools offer a unique opportunity to implement water safety education at scale for children and adolescents, but requires adequate resources and supportive systems to be implemented safely with quality and at scale in a sustainable way.
- **Engagement with fishers and fishing community representatives:** Actively engage with and consult fishers and fishing community representatives in drowning prevention policy and

program development, to ensure that these efforts are appropriate, acceptable, and feasible.

Develop a national water safety plan to: (a) identify priority areas of drowning risk; (b) identify and align efforts of stakeholders, including those not yet engaged in the issue; (c) identify and allocate resources to areas of greatest need; (d) raise awareness at political, policy and community levels; and (e) inform research agendas, including identifying gaps in data and interventions. A national water safety (or drowning prevention) plan should set out the main principles, goals, objectives, actions and coordination mechanisms for reducing and preventing fatal and nonfatal drowning (WHO 2006). It should also include an advocacy / communications plan to raise the profile of drowning and drowning prevention with targeted messages.

Better support and enforce existing policies and regulations by prioritizing sufficient funding, capacity, and resources for the fisheries, transport and police authorities to fulfil their current water safety enforcement mandates, e.g. sufficient frontline marine and inspection staff, and technology and equipment, to perform required roles.

Design new policies, regulations, and action plans to address gaps within the fisheries and transport sectors, e.g.:

- Develop and enforce safety standards for the manufacture and maintenance of small and/or artisanal vessels (including measures to improve buoyancy and stability) on inland waters, as current standards often only apply to larger vessels and/or seas.
- Require subsidized, intensive water safety training and certification of all fishers as detailed in Chapter 6 and below. Consider separating institutional responsibility for water safety education and enforcement to reduce possible conflicts of interest. Ensure sufficient funding, capacity, and resources for large-scale, evidence-based water safety and education.
- Move beyond boating and fishing regulation enforcement to also prioritize education, protection, and support for small-scale fishers within policy and regulatory documents.
- Review and draw on the relevant voluntary international guidance documents that could inform new policies, regulations, and action plans within the fisheries and transport sectors, e.g. the 2015 FAO *Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the Context of Food Security and Poverty Eradication* outlines requirements for “decent work” conditions of fishers.

Design new policies, regulations, and action plans to address gaps within other sectors, e.g.: targeting small-scale fisher drowning prevention in public health and/or injury prevention policies and strategies in the health sector. Review and draw on the relevant voluntary international guidance documents that could inform new policies, regulations, and action plans within the health, labour, youth, and education sectors, e.g. the 2018 WHO *Preventing Disease through a Healthier and Safer Workplace*, and the 2017 WHO *Preventing Drowning: An Implementation Guide*.

Improve national or regional boating incident and injury data collection systems, and publish the number of boating-related deaths and contributing factors each year.

7.2.2. Regional to local enforcement levels

At the regional, district, ward, village and beach enforcement levels, broad recommendations include: continue improving the accuracy and dissemination of weather forecasting; improve regional and local search and rescue systems; develop and enforce safety standards for the manufacture and maintenance of small vessels; promote and better enforce regulations for proper loading of small vessels; improve enforcement of safe boating regulations; develop and implement

training courses for BMUs and fisheries, transport, and police officers; review and improve current BMU structures and practices; strengthen fishing community awareness of drowning and promote water safety skills through strategic communications and large-scale participatory activities; and improve regional and local boating incident and injury data collection systems. Each of these is elaborated on below.

Continue improving the accuracy and dissemination of weather forecasting, including (a) improved weather alert systems that can inform vessel operators and fishers of local weather forecasts and sudden changes in conditions; (b) increasing boat operator and fisher access to weather reports and alerts (e.g. through improved radio and/or phone coverage); and (c) ensuring that fishing communities are familiar with and comfortable using weather forecasting systems routinely. This may include collaboration with the telecommunications industry to increase signals in remote areas.

Improve regional and local search and rescue systems, including centers to coordinate responses, reliable mechanisms for fishers to contact authorities during a crisis, and much more rapid, coordinated responses by the closest authorities. This may involve collaboration with the telecommunications industry to increase signals in remote areas; wide dissemination of clear information about how to rapidly communicate with authorities; and establishment of a network to coordinate a rapid and efficient response. This should include search and rescue teams using government and private boats that have reliable fuel supplies for emergencies, and specifically should not require fishing community to pay for fuel during an emergency.

Develop and enforce safety standards for the manufacture and maintenance of small vessels, including measures to improve buoyancy and stability, e.g. promote regular vessel maintenance and pre-trip checks by the operator. Measures include: (a) educating operators on routine maintenance, training them to perform pre-trip checks and vessel maintenance tasks; (b) developing and enforcing safety standards for the manufacture of small vessels that include measures to improve buoyancy and stability; and (c) vessel safety checks at launch sites. Provide clear minimum standards for a fishing vessel, beyond categorizing artisanal and semi-artisanal simply as under 11 meters in size. Provide specific artisanal fishing safety equipment requirements beyond life jackets or flotation devices, e.g. possibly water-proof phone cases, whistles, and flares. Develop and implement strategies to more consistently monitor and enforce fidelity to boat safety standards, including small, informal vessels.

Promote and better enforce regulations for proper loading of small vessels, including educating operators on safe vessel loading and stability; establishing rules on safe loading and maximum carrying capacity even of small vessels (e.g. based on vessel length); and spot checks of compliance with manufacturers' and operators' guidelines.

Improve enforcement of safe boating regulations. This includes more frequent scheduled and unscheduled inspection of fisher and boat licenses, boat and equipment safety and worthiness (e.g. with equipment labeled so as not to be shared between boats), and increased boats and staffing to make more frequent spot checks possible. It should also include better monitoring and enforcement related to under-age fishing, and increased monitoring and enforcement in remote, informal fishing camps.

Develop and implement training courses for BMUs and fisheries, transport, and police officers, focused not on regulation enforcement but on other, complimentary ways they might promote fisher water safety in their work. This training could cover strategies to teach water safety information but also should address negative norms and attitudes towards fishers, including authority blame or disregard for fisher risk-taking, and how officers could engage more respectfully

with fishers and protect them better (e.g. from crime), because fisher behaviour change is most likely to happen if they feel their concerns are respected and addressed.

Review and improve current BMU structures and practices. This should include standardizing BMU responsibilities across villages and increasing transparency and accountability to fishing communities as well as government authorities. Anti-corruption activities (e.g. confidential corruption reporting hotlines) could be explored to reduce the possibility that BMU members exploit their positions and demand bribes. Priority should be given to reducing BMU conflicts of interest, including possibly separating BMUs into two organizations for local regulation enforcement and representation of fishers' interests and rights. This might include formalizing the enforcement arm as part of the government, so that it is more effective in independently following through on compliance issues, while also enabling representation of fisher interests (e.g. safety negotiations with boat owners; rapid and free SAR response). BMU representativeness should be examined to consider how different income levels, community status, and genders are represented in BMUs, including poor and/or migrant fishers who do not own boats. The current BMU system should also be expanded and/or modified to encompass informal fishing camps on remote shores and islands, with strong support of government authorities and a primary goal to reduce crime and better protect fisher safety in such settings.

Strengthen fishing community awareness of drowning and promote water safety skills through strategic communications and large-scale participatory activities. These should be free or subsidized, and primarily should be led by an agency other than the enforcement agency. The target group would be fishers, but these efforts would be strengthened if fisher families and broader community members also participated. For example, introduce affordable, accessible, and possibly required fisher water safety training that: includes clear, fact-based information; addresses negative attitudes and social norms (e.g. blaming fishers for unsafe behaviours rather than working with them to improve behaviours); and promotes behaviour change and skills development. Explore the potential to work with the education sector to provide large-scale water safety education and training for the next generation through schools.

Improve regional and local boating incident and injury data collection systems, to ensure accurate documentation and reporting to national authorities, as well as routine dissemination of data to the public.

7.2.3. Community level

At the community level, broad recommendations include: require subsidized or free intensive water safety training and certification of all fishers; explore and implement measures to increase the availability, affordability, accessibility, and quality of safety equipment locally; consider programs to promote alternative or additional sources of income for fishers; explore approaches for fishers and fishing communities to organize and advocate for their interests; reduce or eliminate alcohol and illicit drug use among boat operators or passengers; explore means of ensuring boat builders and boat owners create and maintain safer boats; offer subsidized or free broader fishing community water safety education at scale; and consider developing community-level risk assessments and water safety plans. Each of these is elaborated on below.

Require subsidized or free intensive water safety training and certification of all fishers, by an implementing (non-enforcing) education or training authority. Consider implementing skills-based, behaviour-change interventions to go beyond information provision to also address: (a) inaccurate risk perceptions (e.g. in calm conditions); (b) negative attitudes towards safe practices (e.g. wearing a life jacket is emasculating); (c) positive motivations and social norms to follow safe practices (e.g.

potential impacts of fisher risk-taking on their families); (d) risk behaviours (e.g. boating while inebriated); and (e) appropriate skills development (e.g. swimming and aquatic survival skills; safe rescue and resuscitation; safe boat operation/maintenance/repair; and risk management related to human and mechanical factors, currents, and weather conditions). This could include boat operator licensing schemes, e.g. demonstration of knowledge and practical tests, such as retrieval of man overboard. Such a program should be carefully designed with enough wide coverage and repetition over time that the migrant fishers and young, new fishers working in southern Lake Victoria would be able to participate in a trainings. All written materials – including acts, policies, or regulations, and their summaries – should also be provided in Swahili, to promote comprehension.

Explore and implement measures to increase the availability, affordability, accessibility, and quality of safety equipment locally. Government and partners can collaborate to target barriers to use of safety equipment, e.g. considering subsidizing lifejackets, lifejacket loan schemes, and free lifejacket distribution programmes, including brands and styles which fishers consider to be more comfortable and easy to use, and which they are more likely to wear while fishing.

Consider programs to promote alternative or additional sources of income for fishers, to make them less reliant on fishing, more able to afford safe boats and safety equipment, and more able to negotiate safe boating conditions with boat owners, while incentivizing boat owners to increase safety measures. This could include microcredit schemes and/or shifting to safer ways to fish and work in the supply chain (e.g. aquaculture).

Explore approaches for fishers and fishing communities to organize and advocate for their interests. This could be from the beach level (e.g. negotiating improved equipment with boat owners) to the national level (e.g. a fishers' union to improve fisher welfare and participation in policy development). This could include fishers taking collective action to influence the fishing businesses, boat owners, and/or BMUs to have a stronger focus on safety. In addition to organization of fishers, it ideally would involve empowerment and agency of broader fishing communities, e.g. to identify their own problems and test their own solutions.

Reduce or eliminate alcohol and illicit drug use among boat operators or passengers, e.g. through: (a) public awareness campaigns about drowning risk and prevention, including promotion of social norms of disapproval of boating while inebriated and community accountability to prevent it; (b) improved boater/small boat operator education about existing regulations; (c) regulations that limit or ban alcohol and drug use in fishing environments; and (d) better enforcement of laws or bylaws through random checks on the water or at launch sites.

Explore means of ensuring boat builders and boat owners create and maintain safer boats, involving safer boat design, construction, and maintenance, and improved regulations and enforcement. This would include increased monitoring and enforcement that boat owners perform their safety-related responsibilities (e.g. ensuring on-board safety equipment), such as increased spot-checks, anonymous reporting options for fishers, and labeling of equipment so it cannot be shared between boats.

Offer subsidized or free broader fishing community water safety education at scale, including training: boat builders to build safe boats; bystanders in safe rescue and resuscitation; and school-age children to swim, the latter possibly sustainable and at scale through the school system. Other existing networks and infrastructure could be utilized to maximize the coverage of water safety education at low cost, e.g. churches and mosques. These initiatives can focus both on high-impact community members (e.g. vessel operators, community leaders, health professionals), and also on easily accessible groups (e.g. school children aged approximately 12 years or older) (WHO 2017). For

example, notable people in the community and/or fishers' families could be engaged in awareness-raising programs to modify social norms, encourage less risk-taking, and promoting water safety.

Consider developing community-level risk assessments and water safety plans, to tailor drowning prevention initiatives to the local context. Explore ways to better coordinate local stakeholders (e.g. fishers, fishing communities, BMUs, and fisheries and TASAC officers) to improve knowledge, skills, and compliance with regulations.

7.2.4. Research

This study identified several areas where further research would be beneficial to programming and advocacy to reduce fisher drowning in southern Lake Victoria. Examples include:

1. **Social determinants research:** This includes in-depth examination of fisher, boat owner, and authorities' beliefs and values to consider how they may block or support possible interventions, e.g. gender issues, such as perceptions of masculinity and risk. Anthropological study might be appropriate for some research topics, e.g. fisher beliefs around drowning, magic, and deity; how such beliefs affect their behaviour; and how to effectively address these beliefs and behaviours within interventions.
2. **Intervention research:** Interventions will need to be developed and tested with fishers and other stakeholders, including evaluation of intervention process and impact. For example:
 - Behaviour change interventions that target modifiable risk factors for fisher deaths will be critical, e.g. to address non-use of lifejackets, use of alcohol or marijuana while fishing, and lack of on-board safety equipment. These should directly engage with perceptions, trust, and social norms.
 - Skills-based interventions also need careful development and evaluation. For example, targeted swim skills training of fishers, or wider training of school-age children through a curriculum-based school program (WHO 2014), would be novel initiatives in southern Lake Victoria. Formative research would be needed on how participants could be safely trained (e.g. with no drowning risk, or possible exposure to predators or water and sanitation diseases); best practices for training of trainers; the suitability of teachers, other community members, authorities, or others to serve as swim skills instructors; and the most effective models to provide swim skills training, including integration within the school curriculum or as an extracurricular activity.
3. **Technical research:** Technical innovation and evaluation is critically needed in for drowning prevention initiatives in southern Lake Victoria, e.g. boat designs that are optimally safe and affordable; lifejackets and safety equipment that are effective and also acceptable to fishers; and systems for relaying weather or emergency information (e.g. sending text messages to mobile phones).
4. **Value chain research:** Further research on other key stakeholders in southern Lake Victoria would be helpful, and particularly those working elsewhere in the fisheries value chain (e.g. preparing, distributing, selling fish). What is their interest and potential interest in fisher drowning prevention, and how could they become involved in drowning prevention efforts?
5. **Funding and cost-effectiveness research:** A key question in this area is how safety equipment and trainings, and safe boats, can be made affordable and/or subsidized. Further, more frequent use of cost data in the context of and drowning prevention intervention research will allow for better understanding of cost-effectiveness, even if specific cost-effectiveness studies are not conducted.
6. **Policy research:** Exploratory work with different sectors needs to be undertaken to determine which are able and interested to engage in multisectoral policy and programming work to reduce fisher drowning in southern Lake Victoria. One research question related to this is: What

is the extent to which relevant policies and regulations in non-fisheries/transport sectors are sufficiently resourced, enforced, and active?

7. **Monitoring and evaluation and data systems research:** Two key research topics in this category are how to improve data collection systems to capture the true extent of drowning; and how to better monitor and evaluate existing programs and services.
8. **Scalability and sustainability research:** Once effective drowning prevention interventions have been developed and tested, research demonstrating their scalability and sustainability will be critical prior to possible roll-out.

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Appendix 1. Key NATIONAL regulatory and policy documents related to drowning reduction among fishers in Southern Lake Victoria, Tanzania

No.	Year	Short Name	Sector // URT Author	Type Policy Document	Status (e.g. Ratification/ Enforcement)	Overview / Key Excerpts (see Annex for all excerpts)
A1-1	2019	Tanzania Meteorological Authority Act	Meteorology // Parliament	Act	Passed by National Assembly: 1 st Jan 2019	Functions of the Authority include: providing weather and climate services for the safety of life and property; issuing severe weather-related warnings and advisories; cooperating with other national and international institutions in search and rescue relating to maritime accidents by providing relevant weather information.
A1-2	2019 & 2014	Merchant Shipping Act: Accident Reporting and Investigation Rules & Distress Signals and Prevention of Collisions Regulations	Shipping // MWTC	Act: Specific Rules & Regulations	Rules signed by the Minister for Works, Transport and Communication 14 th Jan 2019 & Regulations signed by Minister for Transport 29 th August 2014	<p>*** 24 sets of Merchant Shipping Act Regulations or Rules are available at tasac.go.tz (e.g. registration of ships; dangerous goods; tonnage). The two sets that seem most relevant are summarized here. ***</p> <p>2019 Rules: These outline the objectives and process of investigation and reporting after accidents involving ships. "Ship" generally seems to refer to vessels larger than a boat used for transporting goods or people, so the rules do not seem to apply to small-scale fishermen. Many different events can be categorized as an "accident", including a marine casualty that occurred directly by or in connection with the operation of a ship, e.g. the death of, or serious injury to, a person; the loss of a person from a ship.</p> <p>2014 Regulations: These apply to any ship, boat, sailing vessel, or other vessel of any description used in navigation in Tanzania. They outline when a distress signal should and should not be used, e.g. it should be used a vessel or person is in serious or imminent danger or requires immediate assistance.</p>
A1-3	2018 & 2017	Tanzania Shipping Agencies: Regulations & Act	Shipping // TASAC & Parliament	2018 Regulations & 2017 Act	Act passed by National Assembly: 16 th Nov 2017	<p>2018 Regulations: These detail specific changes from previous Regulations, e.g. different categories of shipping license; broader range of offenses, and stricter punishment and higher fees for offenses.</p> <p>2017 Act: This makes provisions for the establishment of a shipping agencies corporation and for maritime administration to regulate ports, shipping services, maritime environment, safety and security and related matters. The functions of the Corporation include regulating and approving marine services safety equipment's and marine services providers; coordinating maritime search and rescue operations; and disseminating information and creating awareness on matters related to maritime environment, safety and security.</p>
A1-4	2017	National Health Policy (Draft 6)	Health // MOHCDGEC	Policy	Unclear; only Draft 6 found online.	Unintentional injuries are recognized as an important contributor to the national disease and injury burden, including those due to occupational causes. One Policy Objective is to reduce the burden of intentional and unintentional injuries. Towards that end, Policy Statements are: The government will;

No.	Year	Short Name	Sector // URT Author	Type Policy Document	Status (e.g. Ratification/ Enforcement)	Overview / Key Excerpts (see Annex for all excerpts)
						<ul style="list-style-type: none"> i. Recognize traumatic injuries (intentional and unintentional) as a disease entity which requires due attention; ii. Establish joint national injuries prevention system and surveillance; iii. Enhance pre-hospital injuries care system which will be incorporated in the national health referral system; iv. Improve injuries care and management in all levels of health facilities; and v. Strengthen injury care and rehabilitation services in all tertiary (zone hospitals) levels and at the national hospital.
A1-5	2017; 2018 update	Education Sector Development Plan (2016/17-2020/21)	Education / MOEST	Development Plan	Endorsed by Education Sector Development Committee, 22 nd June 2017	<ul style="list-style-type: none"> • Improved and equitable learning objective includes providing schools with necessary guidelines and resources to facilitate girls' and boys' participation in their own development through extra-curricular activities (e.g. games, sports and school clubs that are both subject-focused and crosscutting). • The School Management Team is responsible for ensuring proper implementation of the ESDP by ensuring a conducive teaching and learning environment, including integrating of sports and games in the school timetable.
A1-6	2015	National Fisheries Policy	Fisheries / MLFD	Policy	Foreword by Minister of Livestock and Fisheries Development	This policy's main focus is on integrating the fisheries and aquaculture industry with the rest of the economy to increase the fisheries sector's contribution to the economy and to alleviate poverty. Two of these objectives are to achieve decent work in fisheries for sustainable development, and to strengthen capacity for effective participation in regional and international obligations.
A1-7	2015	Health Sector Strategic Plan, July 2015 – June 2020 (HSSP IV)	Health / MOHCDGEC	Strategic Plan	Foreword by Minister of Health and Social Welfare	<p>Strategic Objectives include:</p> <ul style="list-style-type: none"> • Improving equitable access to areas with higher disease burdens* and vulnerable groups in populations with higher risks; • Achieving active community partnership (e.g. strengthening community health literacy and engaging population with e-health platforms); and • Collaborating with other sectors to address social determinants of health and advocate for health promoting and health protecting measures in other sectors' policies and strategies. <p>Workplace health programmes will focus on OHS. The Ministry will advise on safety measures to prevent injuries and diseases and will perform workplace inspections to enforce legislation. The MOHSW will prioritise high-risk industries, where exposure to hazardous situations and substances is high, e.g., the mining industry. ... Healthy lifestyles</p>

No.	Year	Short Name	Sector // URT Author	Type Policy Document	Status (e.g. Ratification/ Enforcement)	Overview / Key Excerpts (see Annex for all excerpts)
						will be promoted, including enhancing the growing interest to invest in sports among employers.
A1-8	2012	National School Health Strategic Plan 2013 – 2017 (DRAFT)	Health / Education // MOHSW & MOEVT	Strategic Plan	Unclear: Only version labelled "Draft" found online	<ul style="list-style-type: none"> Adopts the "Health-Promoting Schools" approach, which addresses the significance of the physical environment (e.g. buildings, sanitation, safe water and recreational areas) in contributing to the health of children. It also implements actions to evaluate and improve the health of students, the educational community, families, and members of the community in general, and works with community leaders to ensure access to nutrition, physical activity, counseling, and health and referral services. As part of the strategic objective to strengthen safe and healthy school environments, all Tanzanian schools should provide recreational facilities for physical [activity] and pleasure of school children.
A1-9	2009	Fisheries Regulations	Fisheries / MLDF	Regulations	Came into operation on the date of publication: 10 th Aug 2009	<ul style="list-style-type: none"> This 260-page document details registration and licensing regulations for vessels and fishers, and other regulations for the fishing industry, aquaculture, and fishery products. It also details the functions of a Beach Management Unit. Listed essentials for a fishing vessel include a fishing license, fire extinguishing devices, at least two life rings, and one life jacket or any other approved life-saving equipment for each crew. A Licensing Officer is to require the vessel owner to rectify any observed defects before releasing the vessel. For artisanal fishing vessels, the pre-license inspection form also asks about seaworthiness, while for an industrial fishing vessel it additionally asks about telecommunication equipment, navigation equipment, and a first aid kit.
A1-10	2009	Public Health Act	Health / Parliament	Act	Passed by National Assembly: 27 th Jan 2009	<ul style="list-style-type: none"> The Act authorizes Medical Officers and Environmental Health Practitioners to address nuisances, i.e. anything which is in such a condition, used, disposed of, situated, constructed or is unclean as to be dangerous to human life and limb, or injurious to human health. A person shall not cause or suffer from a nuisance existing on any land, premises, air or water. Every Authority shall have the duty to prevent and remedy the cause and occurrence of any nuisance likely to be injurious, hazardous or dangerous to health, including taking legal proceedings and acting against any person causing or responsible for it; regular inspection by Environmental Health Practitioners; etc.

No.	Year	Short Name	Sector // URT Author	Type Policy Document	Status (e.g. Ratification/ Enforcement)	Overview / Key Excerpts (see Annex for all excerpts)
A1-11	2009	National Occupational Health and Safety Policy	Health / Labour // MLEYD	Policy	Foreword by Minister for Labour, Employment and Youth Development	Sets OHS standards, including enactment of laws, promotion of OHS work; strengthening of workers' participation through their health and safety committees at workplaces; OHS awareness creation among workers and employers; collection and recording of OHS data; promotion of OHS in small and medium scale enterprises and informal sectors; and addressing cross cutting issues of gender, vulnerable groups, and HIV and AIDS. Several policy issues, objectives, and statements are relevant.
A1-12	2008	National Employment Policy	Labour // MLEYD	Policy	Foreword by Minister for Labour, Employment and Youth Development	One Policy issue is improving employment conditions with respect for labour rights. It has a Policy Statement that the government will continue to provide guidelines and enforce legislation on health and safe working environments that are conducive to physical, psychological and social well-being of the workforce.
A1-13	2007	National Youth Development Policy	Labour / Youth // MLEYD	Policy	Foreword by Minister for Labour, Employment and Youth Development	<ul style="list-style-type: none"> • Policy Statement defines "youth" as 15-35 years old, as is common in Tanzania. • Acknowledges many youth are engaged in fishing and other small-scale activities, but face problems implementing their activities, e.g. lack of working capital, equipment and technical know-how or necessary skills. • Further acknowledges a sizeable number of youth are unskilled and work under hazardous conditions / at great risk, without protective gear. • Policy Statements include: (1) The Government shall continue to take stern measures to ensure that employers comply with laws and regulations regarding Occupation Health and Safety. (2) The Government shall enforce laws and regulations regarding health and safety. (3) Stakeholders such as NGOs and CBOs shall educate youth on protective measures.
A1-14	2004	Employment and Labour Relations Act	Labour // Parliament	Act	Passed by National Assembly: 4 th April 2004	<ul style="list-style-type: none"> • This Act applies to seafarers who work on fishing vessels and if there is conflict between this Act and the Merchant Shipping Act and its regulations, the provisions of this Act shall prevail. • Trade union representatives shall make representations on behalf of members in respect of health, safety, and welfare. • The Minister may make regulations on OHS standards and an appropriate system of inspection. • This Act specifies that a child of 14 years of age may only be employed to do work which is not likely to be harmful to the child's health and development, and on conditions that the health and safety of the child are fully protected and the

No.	Year	Short Name	Sector // URT Author	Type Policy Document	Status (e.g. Ratification/ Enforcement)	Overview / Key Excerpts (see Annex for all excerpts)
						<p>child has received or is receiving adequate specific instruction or vocational training in the relevant work or activity.</p> <ul style="list-style-type: none"> A child under 18 years may work on a training ship as part of the child's training, but shall not be employed in a crew on a ship (defined as a vessel of any description used for navigation), where work conditions may be considered hazardous by the Minister.
A1-15	2003	Merchant Shipping Act	Shipping // Parliament	Act	Passed in National Assembly: 12 th Nov 2003	<p>This Act creates the power of the Minister to establish a maritime safety and security body whose responsibility includes:</p> <ul style="list-style-type: none"> registration and licensing of vessels, regulations of conditions of service (e.g. injury benefits) for seafarers (i.e. every person except master, pilot, or apprentice employed or engaged in any capacity on board a ship); obligation of owners to seaworthiness; training, manning and certification; conduct endangering ships and persons; prevention of collisions and safety of navigation; unsafe ships; inland water transport (e.g. regulations; power to require ship's documents, and inspect ship and equipment); and inquiries into and reports on deaths and injuries.
A1-16	2003	Fisheries Act	Fisheries // Parliament	Act	Passed by National Assembly: 13 th Nov 2003	<p>This Act outlines the same licensing and safety requirements, and other topics (e.g. BMU responsibilities) which are provided in more detail in the 2009 Fisheries Regulations.</p>
A1-17	2003	National Occupational Health and Safety Act	Health/Labour // Parliament	Act	Passed by National Assembly: 13 th Feb 2003	<p>This Act outlines the responsibilities of inspectors to investigate circumstances of any incident which has occurred at or originated from a workplace in connection with the use of a plant or machinery which resulted, or in the opinion of the inspector could have resulted, in the injury, illness or death of any person. It also details the requirements and functions of health and safety representatives in workplaces. It also specifies needs for risk assessment and prevention, e.g. ensuring safe access to a workplace, fire prevention, and the provision of protective equipment.</p>
A1-18	2003	National Transport Policy	Transportation // MCT	Policy	Passed by National Assembly: 13 th Feb 2003	<p>The aim of this policy is to develop safe, reliable, effective, efficient and fully integrated transport infrastructure. It has policy statements focused on improving basic infrastructure, navigation aids, and meteorological information in planning, particularly for inland water transport.</p>

* “Disease burden” is a term that encompasses “disease and injury burden”.

Sector Color Key*:

- Education: GREEN
- Fisheries: DULL BLUE
- Health: YELLOW
- Labour and Youth: NEON BLUE
- Meteorology: PINK
- Shipping and Transport: ORANGE

*Note some documents fall under multiple sectors, especially health, labour, youth, and education; in these cases, health is generally identified as the lead sector.

Appendix 2. Binding and voluntary international regulatory, policy, and guiding documents relevant to drowning prevention among fishers on Lake Victoria.

No.	No.	Year	Short Name	Sector // International Agency	Type Policy Document	Status (e.g. Ratification/ Enforcement)	Overview / Key Excerpts (see Annex for all excerpts)
1.	A2-1	2019	Lake Victoria Commission Basin	Governance // EAC LVCB	Bill	The EALA is currently considering the Bill for an Act	The Commission shall be responsible for harmonization of policies, laws, regulations and standards concerning the Lake Victoria Basin. It will provide capacity building and institutional development within the Basin and facilitate and co-ordinate security and safety of navigation on Lake Victoria. Its objectives include equitable economic growth; measures aimed at eradicating poverty; and compliance with safety and navigation.
2.	A2-2	2018	Preventing Disease through a Healthier and Safer Workplace	Health // WHO	Report with interventions	URT is a WHO Member State: Voluntary	This report highlights fishermen as at increased risk of drowning. Strategies to prevent drowning in the workplace include increased awareness, appropriate policies and legislation, the development of national water safety plans, and the involvement of different sectors. Examples of interventions include: <ul style="list-style-type: none"> • Safe boating, shipping and ferry regulations, such as establishing systems that ensure vessel safety, availability of flotation devices in boats, avoidance of overcrowding, and appropriate travel routes and rules. • Flood risk management and resilience. • Engineering controls, such as guard rails on fishing vessels. • Worker education and training on swimming skills and water safety. • Personal protective equipment, such as personal flotation devices.
3.	A2-3	2017	Preventing Drowning: An Implementation Guide	Health // WHO	Implementation Guide	URT is a WHO Member State: Voluntary	This guide provides detailed guidance on interventions and strategies to prevent drowning, including: <ul style="list-style-type: none"> • Teach school-age children swimming and water safety skills. • Train bystanders in safe rescue and resuscitation. • Set and enforce safe boating, shipping and ferry regulations. • Strengthen public awareness of drowning through strategic communications. • Promote multisectoral collaboration. • Develop a national water safety plan.
4.	A2-4	2017 & 2003	Regional Indicative Strategic Development Plan 2005-2020	Development // SADC	Strategic Development Plan	URT is a SADC member state; unclear if voluntary	This plan focuses on effective management of fish stocks, protect and preserve fish resources, promote aquaculture and mariculture development and promote trade in fish. It does not address the specific needs of artisan fishermen except to promote access to appropriate technologies for handling,

No.	No.	Year	Short Name	Sector // International Agency	Type Policy Document	Status (e.g. Ratification/ Enforcement)	Overview / Key Excerpts (see Annex for all excerpts)
			& 2017 Revision 2015-2020				processing and conservation of fish by artisan fishermen. However, the 2017 revision notes that progress has been made in the form of Codes of Conduct to guide Member States, including OHS standards, and respective monitoring and evaluation tools have been formulated and are being implemented.
5.	A2-5	2016	Fisheries Management Plan III (FMP III) for Lake Victoria Fisheries, 2016-2020	Fisheries // EAC LVFO Secretariat	Management Plan	URT is a LVFO Partner State; unclear if voluntary	This document does not address fisher safety. However, it generally acknowledges great social inequality between fishery agents/middlemen, who are often boat owners; landing site or camp managers and supervisors; and fishers and labourers who receive relatively little financial compensation.
6.	A2-6	2016	Fishing Operations: Best Practices to Improve Safety at Sea in the Fisheries Sector: FAO Technical Guidance for Responsible Fisheries 1 Suppl 3	Fisheries // FAO	Technical Guideline	URT is a FAO Member State: Voluntary	This guidance has the objective to improve safety and health of those persons working in the fisheries sector through the development of national strategies and their implementation. Chapter topics include data collection and analysis to improve safety; problems, solutions and safety strategy development; managing change within planning, policy legislation, and fisheries management and operations. Other relevant topics are accident investigation and analysis; matters concerning the register of ships and fishing vessels; self-assessments of vessel conditions and fishing vessel safety; search and rescue service; boat drill and fire drill; factors governing the development of national rules and regulations for the construction and the equipment of small vessels; training in small-scale fisheries; and vessel inspection.
7.	A2-7	2016	WASH@Work: A Self-training Handbook	Labour // ILO	Training Handbook	URT is an ILO Member State: Voluntary	<ul style="list-style-type: none"> Offshore and onshore fishing is identified as a work sector/task that involves working in or around water, and one that poses unique OSH risks that must be assessed and mitigated to protect worker safety and health, e.g. drowning is identified as a significant concern. States that appropriate workplace measures should be taken, according to the Hierarchy of Controls, to reduce water-related risks and hazards such as drowning. Appropriate warning signs should be posted, and safety equipment such as life jackets should be provided.
8.	A2-8	2015	Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in	Fisheries // FAO	Guidelines	URT is a FAO Member State: Voluntary	<p>Recommends that:</p> <ul style="list-style-type: none"> States address occupational health issues and unfair working conditions of all small-scale fishers and fish workers by ensuring that the necessary legislation is in place and is implemented in accordance with national legislation and international human rights standards and

No.	No.	Year	Short Name	Sector // International Agency	Type Policy Document	Status (e.g. Ratification/ Enforcement)	Overview / Key Excerpts (see Annex for all excerpts)
			the Context of Food Security and Poverty Eradication				<p>international instruments to which a State is a contracting party, such as the International Covenant on Economic, Social and Cultural Rights (ICESCR) and relevant conventions of the International Labour Organization (ILO).</p> <ul style="list-style-type: none"> • All parties should recognize the complexity that surrounds safety-at-sea issues (in inland and marine fisheries) and the multiple causes behind deficient safety. • States should recognize that improved sea safety, which includes OHS, in small-scale fisheries (inland and marine) will best be achieved through the development and implementation of coherent and integrated national strategies, with the active participation of the fishers themselves and with elements of regional coordination, as appropriate. In addition, safety at sea of small-scale fishers should also be integrated into the general management of fisheries. • States should provide support to, among other things, maintenance of national accident reporting, provision of sea safety awareness programmes and introduction of appropriate legislation for sea safety in small-scale fisheries.
9.	A2-9	2014	Implementation Guidelines on Part B of the Code, the Voluntary Guidelines and the Safety Recommendations	Fisheries // FAO, ILO, & IMO	Implementation Guidelines	URT is a FAO, ILO, and IMO Member State: Voluntary	<p>This 217-page guidance provides implementation guidelines for the 2005 FAO Code of Safety for Fishermen and Fishing Vessels, e.g. capacity building, ensuring compliance with national requirements, operational safety, and human elements on board. Its objectives include decreasing the incidence of accidents and loss of life, with particular reference to vessel operations; and achieving higher levels of professionalism and more productive working conditions and safe and healthy work practices. Towards that end it provides detailed information on many relevant topics, e.g. accident investigation and analysis; self-assessments of vessel conditions and fishing vessel safety; search and rescue service; and training of stakeholders in small-scale fisheries approach.</p>
10.	A2-10	2013	Decent Work Programme 2013-2019	Labour // SADC	Programme	URT is a SADC member state; unclear if voluntary	<p>This Programme notes: OHS as a major challenge across the SADC region. Too many workers continue to be injured and die at the workplace due to less than adequate OHS policies, regulations and practices.</p>

No.	No.	Year	Short Name	Sector // International Agency	Type Policy Document	Status (e.g. Ratification/ Enforcement)	Overview / Key Excerpts (see Annex for all excerpts)
							<p>Promotion of a preventative safety and health culture and the relevant OHS Conventions is a useful starting point in enhancing OHS performance in the SADC region.</p> <p>The SADC DWP [Decent Work Programme] intends to address the following needs/challenges:</p> <ul style="list-style-type: none"> (i) for formulation and implementation of systematic and detailed OHS programmes at national level, beginning with a policy commitment to specific, time-bound objectives; (ii) to produce and use data to direct interventions, monitor OHS problems; (iii) to develop a strategy for, and commit resources to, the establishment of OHS programmes for the informal sector; (iv) to train and educate professionals to improve capacity in enforcement and monitoring as well as occupational health service delivery; (v) to develop adequate and effective systems to ensure the management, rehabilitation and social security of workers with occupational illness and injury; (vi) to ensure access to information for all stakeholders- employers, workers, professionals, inspectors, worker representatives, politicians and the media; (vii) to raise public awareness of workers' health and safety issues through strategies that harness and enable public media.
11.	A2-11	2011	Safety recommendations for decked fishing vessels of less than 12 metres in length and undecked fishing vessels	Fisheries // FAO, ILO, & IMO	Recommendations	URT is a FAO, ILO, and IMO Member State: Voluntary	This document outlines safety recommendations related to protection of a fishing crew; emergency procedures; safety training; and manning, training and competence. Specific to boats, it also outlines recommendations related to: construction, watertight integrity and equipment; stability and associated seaworthiness; machinery and electrical installations; fire protection and fire-fighting; life-saving appliances; radio communications; and navigational equipment.
12.	A2-12	2005	Code of Safety for Fishermen and Fishing Vessels (Parts A and B)	Fisheries // FAO, ILO, & IMO	Code of Safety	URT is a FAO, ILO, and IMO Member State: Voluntary	<ul style="list-style-type: none"> • Part A provides skippers and crews with information to promote the safety and health of crew members on board fishing vessels. Part B provides fishing vessel builders and owners with information on the design, construction, and equipment of fishing vessels to promote the safety of fishing vessels and safety and health of the crew.

No.	No.	Year	Short Name	Sector // International Agency	Type Policy Document	Status (e.g. Ratification/ Enforcement)	Overview / Key Excerpts (see Annex for all excerpts)
							<ul style="list-style-type: none"> The Code is not a substitute for national laws and regulations nor is it a substitute for the provision of international instruments in relation to safety of fishing vessels and crew, although it may serve as a guide to those concerned with framing such national laws and regulations.
13.	A2-13	2005	Increasing the Contribution of Small-Scale Fisheries to Poverty Alleviation and Food Security: FAO Technical Guidance for Responsible Fisheries 10	Fisheries // FAO	Technical Guidance	URT is a FAO Member State: Voluntary	This guidance focuses on poverty alleviation but acknowledges other possibly appropriate policy objectives for small-scale fisheries, including ensuring that labour rights apply to small-scale fishers, and increasing their safety on water, as they may be especially at risk of accidents due to the type of vessels used and low levels of profits hindering appropriate maintenance of vessels and the purchase of sea safety equipment.
14.	A2-14	2004	LVFO Regional Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated (IUU) Fishing on Lake Victoria and its Basin	Fisheries // EAC LVFO	Action Plan	URT is a Partner State and Contracting Party; plan adopted by Council of Ministers of LVFO on 27 th May 2004	First listed “management measure” is implementing the 1995 FAO International Code of Conduct for Responsible Fisheries and its accompanying Technical Guidelines.
15.	A2-15	2001	Protocol on Fisheries	Fisheries // SADC	Protocol	Signed by President Mkapa on 14 th Aug 2001	<p>This protocol focuses on the security, health, and livelihoods of fishing communities as well as aquatic resources. It outlines multiple ways that State Parties should consider the needs of artisanal, subsistence and small-scale commercial fisheries, including:</p> <ul style="list-style-type: none"> facilitating the provision of physical and social infrastructure and support services; actively working towards the enhancement of training in fisheries; encouraging and guiding the fishing industry to promote the welfare and working conditions of all employees;

No.	No.	Year	Short Name	Sector // International Agency	Type Policy Document	Status (e.g. Ratification/ Enforcement)	Overview / Key Excerpts (see Annex for all excerpts)
							<ul style="list-style-type: none"> working towards the development, acquisition and dissemination of tested means and methods of promoting education, empowerment and upliftment of artisanal and subsistence fisheries communities; and encouraging national and regional programmes for best practice skills transfer to all levels of practitioners and policy-makers.
16.	A2-16	2001	Document for Guidance on Training and Certification of Fishing Vessel Personnel	Fisheries // FAO, ILO & IMO	Guidance	URT is a FAO, ILO, and IMO Member State: Voluntary	This 307-page document details general training standards and programmes for small and larger fishing vessels, e.g. navigation, fire prevention, personal survival and life saving, first aid, and search and rescue. NB: This document was not available online so is only mentioned here, and not detailed in the Annex.
17.	A2-17	1999	Protocol on Health	Health // SADC	Protocol	Signed by President Mkapa on 18 th Aug 1999	This protocol addresses several topics relevant to fishers and drowning, including calling for strategies to address the needs of vulnerable groups; formulating and implementing policies and guidelines for health promotion and education; developing and delivering integrated occupational health services; cooperating as State Parties in reducing the prevalence of occupational injuries and disease; and assisting each other in the co-ordination and management of disaster and emergency situations.
18.	A2-18	1997	Inland Fisheries: FAO Technical Guidance for Responsible Fisheries	Fisheries // FAO	Technical Guidance	URT is a FAO Member State: Voluntary	This guidance applies the 1995 Code of Conduct for Responsible Fisheries to inland fisheries. It addresses the interests of subsistence, small-scale and artisanal fisheries. It mainly focuses on the importance of environmentally safe fishing practices, but within that stresses the right of fishers to participate in the policy making process; peaceful resolution of conflicts between different types of fishers (e.g. subsistence and professional) fishers; and education and training to allow fishers to participate more fully in the negotiation and decision-making processes. It also notes that, where users groups (often the fishers themselves) have no organized voice, mechanisms should be set up to adequately reflect their views.
19.	A2-19	1996	Protocol on Transport, Communications and Meteorology	Transport, Communications and	Protocol	Signed by President Mkapa on 24 th Aug 1996	An objective of the protocol is for Member States to develop and implement harmonized international and regional transport policies in respect of the seas and inland waterways which ... promote a safe and clean marine, maritime and inland waterway environment.

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				Meteorology // SADC			Member States are also instructed to provide for regional co-operation and harmonization of the training and certification of seafarers based on an optimal use of available resources, optimizing training resources and the exchange of personnel.
20.	A2-20	1995	Code of Conduct for Responsible Fisheries	Fisheries // FAO	Code of Conduct	URT is a FAO Member State: Voluntary	<p>This Code is voluntary, but the 2004 “LVFO Regional Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated (IUU) Fishing on Lake Victoria and its Basin” states that it should be implemented.</p> <p>The Code specifies States should ensure:</p> <ul style="list-style-type: none"> • Fishing facilities and equipment as well as all fisheries activities allow for safe, healthy and fair working and living conditions and meet internationally agreed standards adopted by relevant international organizations. • Health and safety standards are adopted for everyone employed in fishing operations. Such standards should be not less than the minimum requirements of relevant international agreements on conditions of work and service. • Compliance with appropriate safety requirements for fishing vessels and fishers in accordance with international conventions, internationally agreed codes of practice and Voluntary guidelines. States should adopt appropriate safety requirements for all small vessels not covered by such international conventions, codes of practice or Voluntary guidelines. • Fishing is conducted with due regard to the safety of human life and the IMO International Regulations for Preventing Collisions at Sea, as well as IMO requirements relating to the organization of marine traffic, protection of the marine environment and the prevention of damage to or loss of fishing gear.

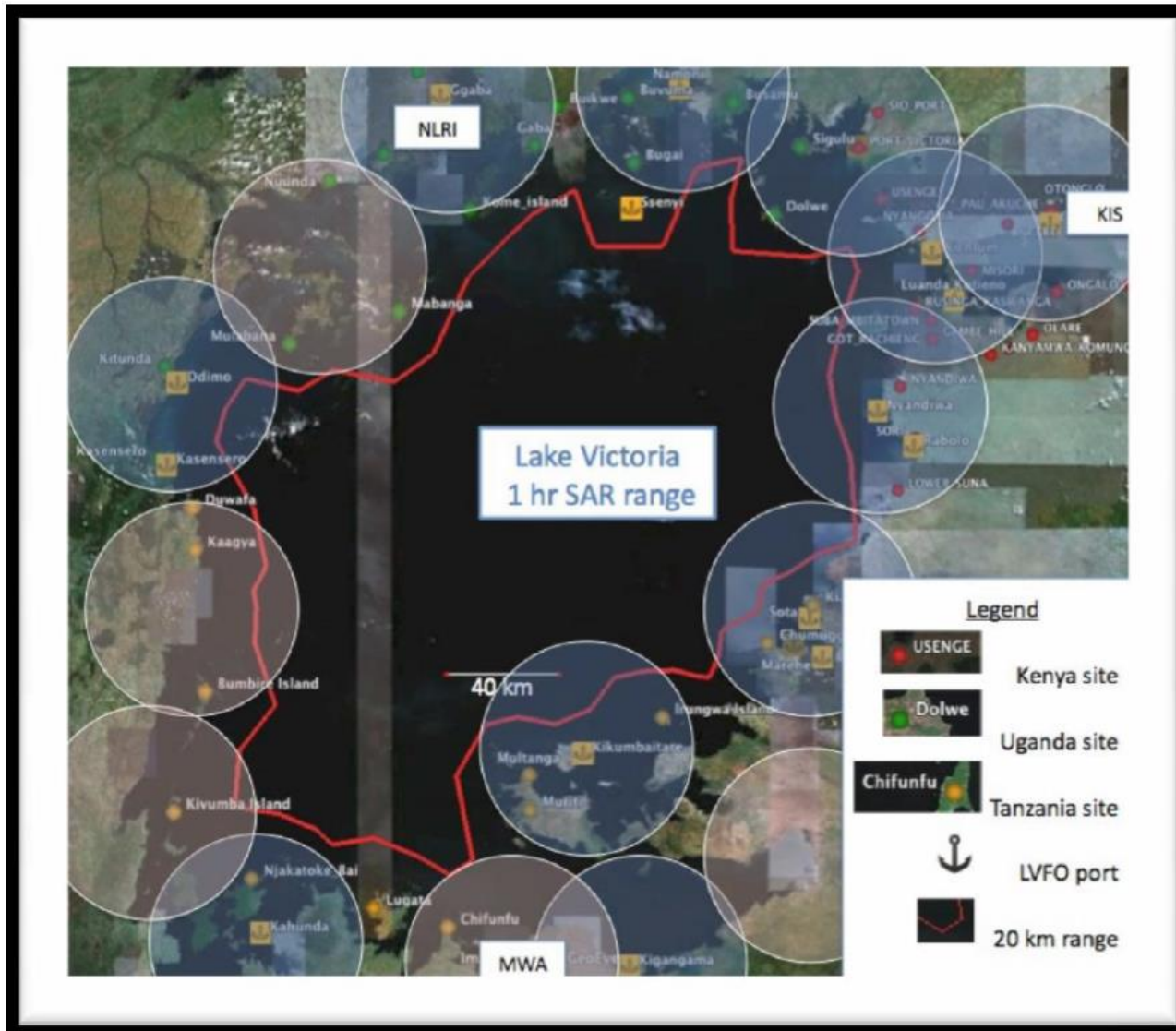
Sector Color Key*:

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- Development and Governance: WHITE

*Note some documents fall under multiple sectors, especially health, labour, youth, and education; in these cases, health is generally identified as the lead sector.

Appendix 3. Planned locations for search and rescue centres around Lake Victoria (Lake Victoria Maritime Communications and Transport Project)



Source: African Development Bank 2016