RESILIENCE FOR SOCIAL SYSTEMS

ARTISANAL FISHERY SYSTEM
WESTERN AREA, SIERRA LEONE

GOAL

JANUARY 2024

EXECUTIVE SUMMARY

In Sierra Leone, the artisanal fishery is vital for the nation's sustenance and economy, accounting for approximately 12% of the Gross Domestic Product (GDP) and being an important source of essential nutrients such as protein, minerals, long chained omega 3 fatty acids and vitamin D. This sector is a lifeline for coastal communities, employing up to 600,000 people, and is a cornerstone of food and nutrition security with 53% depending on it as their main source of animal protein. (Thorpe 2005). Yet, it faces crucial challenges: overfishing, unsanitary processing conditions leading to post-harvest losses, destruction of mangrove habitats critical for fish spawning, and rampant marine pollution.

In this context, GOAL's Resilience of the Blue Economy programme steps forward with a holistic approach to strengthen the artisanal fishery sector. Drawing on extensive experience from Latin America and the Caribbean, the initiative in the Western Area of Sierra Leone targets small-scale fisheries to foster economic growth and livelihood opportunities, improve food and nutrition security and bolster ecosystem health and resilience.

The essence of this report lies in the utilization of the R4S approach to dissect and enhance the artisanal fishing system's resilience. This encompasses a detailed mapping of the intricate web of interactions within the sector, spanning capture, processing, distribution, and consumption, and the major supporting and regulatory functions. primary risks of economic crisis and infectious disease outbreak and their subsequent impact on the system is analysed and the resilience of the system in response. Our findings detail a complex transactional network with critical deficiencies in cold chain logistics, smoking ovens, hygiene standards, and regulatory enforcement. Yet, the potential for resilience shines through; certain Determinant Factors of Resilience (DFRs) are near optimal levels, and our recommendations aim to leverage these to fortify the sector's socio-ecological fabric. Women, key actors in the transaction chain, face notable disparities, and our strategy prioritizes their empowerment as an axis for progress.

Our analysis indicates that the artisanal fishery system's resilience currently hovers at a precarious level, with a score of 2 out of 5 when faced with the risks of economic crisis or a infectious disease outbreak. However, the potential for improvement is tangible. Thus, we propose a suite of strategic actions focused on the economic, social, and environmental pillars to nurture a more resilient and equitable sector which supports access to affordable, nutritious food and livelihood opportunities in a way that can withstand crises and thriving in the long term.

This report serves not just as a diagnostic tool but also as a beacon for actionable change, aiming to galvanize support from all sectors involved in the development of Sierra Leone's fisheries, ensuring a thriving Blue Economy for future generations.

METHODOLOGY

Using the "Resilience for Socioeconomic Systems (R4S)" approach GOAL developed a comprehensive and strategic analysis of the small-scale fishing subsector in the rural and urban sectors within the Western Area (or Freetown Peninsula) of Sierra Leone (figure 1). Main outcomes were a deep understanding of the functioning of the artisanal fishing system, key gaps, barriers, and opportunities in the sector were identified and used to inform a set of strategic recommendations that aim to strengthen the resilience, functionality, and inclusivity of the small-scale fishery system. Accordingly, this report is not just a diagnosis but also a proactive proposal for a more resilient and sustainable future for small-scale fishing communities.

The qualitative research methodology involves a comprehensive analysis to understand and describe the system's dynamics. It is carried out through interviews, focus groups, workshops, and observation with key actors in system functions such as capture, processing, distribution, and consumption. See Figure 2 for the step-by-step process. The study spanned from October 2023 to January 2024 and included a field visit by the GOAL LAC team in November 2023, culminating in a strategic overview of the region's small-scale fishing dynamics. Complementary additional pieces of research were carried out in 2024 including a gender gap analysis and postharvest losses analysis which further informed the recommendations.
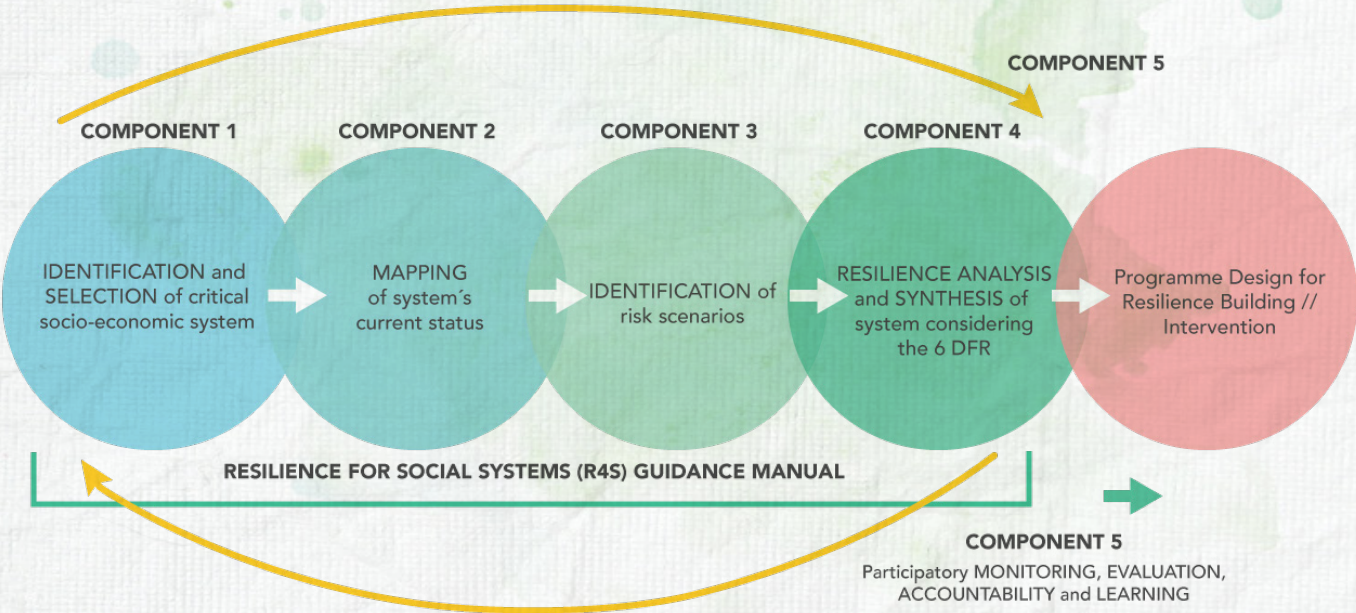
SYSTEM MAP

In this section, we present an overview of the current state of the small-scale fisheries system located in the Western Area of Sierra Leone. The transactional chain of the subsystem is illustrated, where crucial activities carried out by primary actors are identified and described. It is in this segment where the capture, collection, processing, distribution, and consumption of various marine species flow along the chain until reaching the system's end-user (the consumer). Positioned in the upper segment of the central component are the actors and entities whose functions are supportive. These support functions are indispensable for the smooth and efficient operation of the system, providing essential inputs, logistical backups, financial support, technical assistance, and training opportunities, among others. The lower segment of the scheme is reserved for entities and actors with regulatory and normative functions. This group comprises a body of laws, regulations, and agreements that establish and condition the operational parameters of both the central transactional and support functions, for the operation of the entire system.

COMPONENT 5

COMPONENT 1	COMPONENT 2	COMPONENT 3	COMPONENT 4	
IDENTIFICATION and SELECTION of critical socio-economic system	MAPPING of system's current status	IDENTIFICATION of risk scenarios	RESILIENCE ANALYSIS and SYNTHESIS of system considering the 6 DFR	Programme Design for Resilience Building // Intervention

RESILIENCE FOR SOCIAL SYSTEMS (R4S) GUIDANCE MANUAL

COMPONENT 5
Participatory MONITORING, EVALUATION, ACCOUNTABILITY and LEARNING

Key Components of the Social Systems Resilience Approach (R4S). Source: GOAL 2019.

GOAL

RESILIENCE FOR SOCIAL SYSTEMS 'R4S' APPROACH
CURRENT SYSTEM MAP

System: Artisanal fishing system in the Western Area of Sierra Leone

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Reviewed by:

The 'R4S' Current System Map specifically illustrates the artisanal fishery sector in the Western Area of Sierra Leone. This sector forms a segment of the estimated total of around 15,000 boats that annually fish approximately 150,000 metric tonnes off Sierra Leone's coast. The data presented in this map were collected over a period from August 2023 to January 2024.

The Transaction Chain, in the middle of the map, demonstrates the volume of production that goes through the different distribution channels (or actors), from the producers all the way to the end consumers (it has been assumed nothing goes to waste). The Supporting Functions are in the top section of the map and the Regulatory Functions are in the bottom section; each containing 3 different levels of connectedness to the Target Group: Direct, Indirect or Absent Interrelationship.
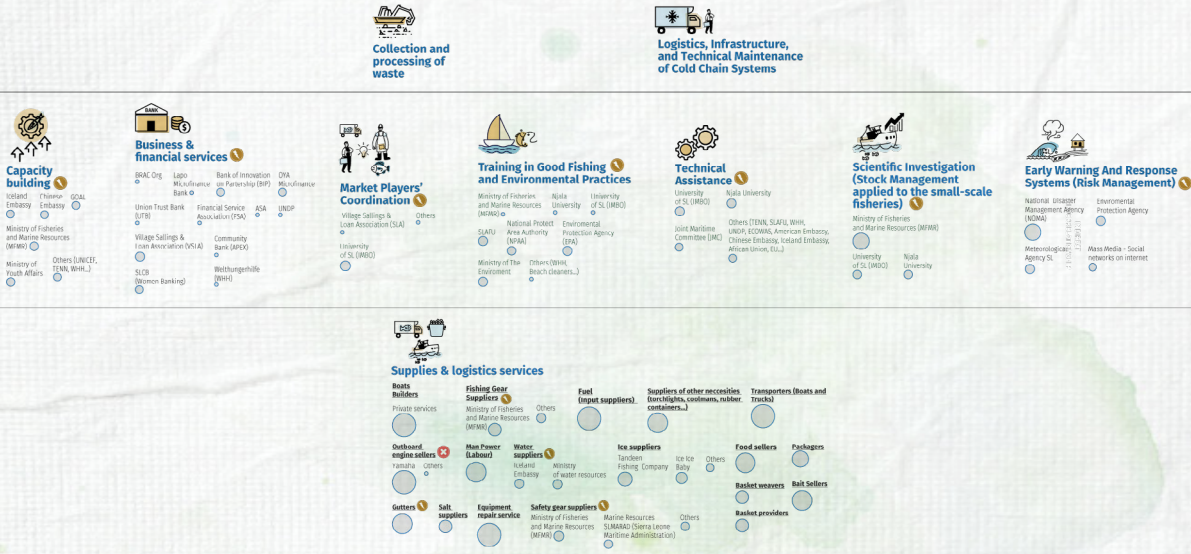
LEGEND

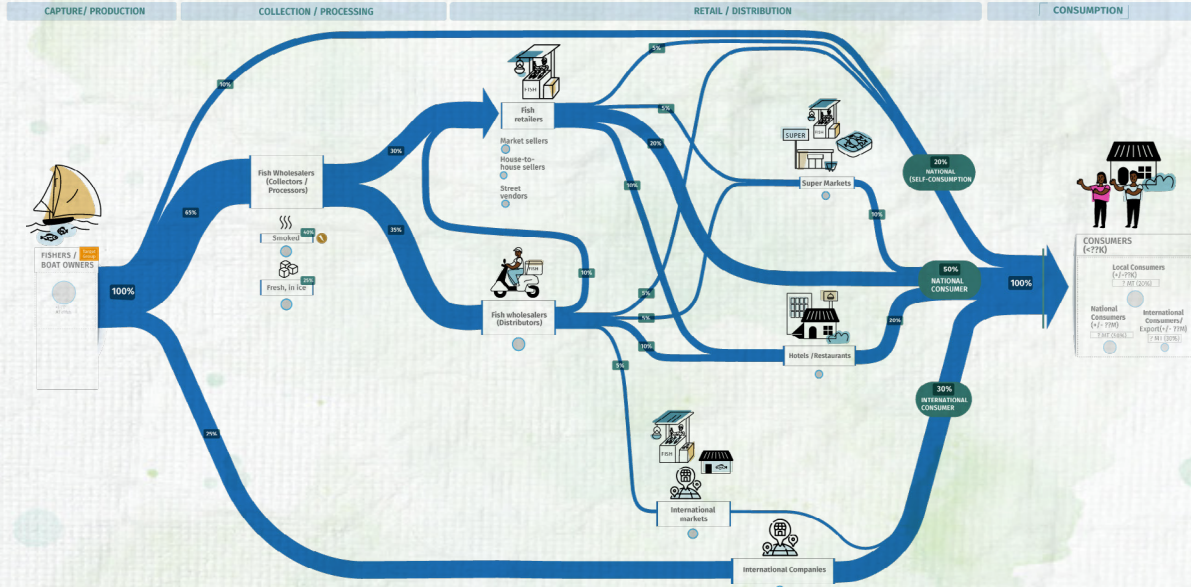**RELATIONSHIP Quality**

- GOOD
- STRESSED
- FRAGILE

SUPPORTING FUNCTIONS

- Collection and processing of waste
- Logistics, Infrastructure, and Technical Maintenance of Cold Chain Systems

Capacity building
Iceland Embassy, Chinese Embassy, GOAL, Ministry of Fisheries and Marine Resources (MFMR), Ministry of Youth Affairs, Others (UNICEF, TENN, WHH...)

Business & financial services
BRAC Org, Lapo Microfinance Bank, Bank of Innovation in Partnership (BIP), OYA Microfinance Bank, Union Trust Bank (UTB), Financial Service Association (FSA), ASA, UNDP, Village Sailings & Loan Association (VSLA), Community Bank (APEX), SLCB (Women Banking), Welthungerhilfe (WHH)

Market Players' Coordination
Village Sailings & Loan Association (SLA), Others, University of SL (IMBO)

Training in Good Fishing and Environmental Practices
Ministry of Fisheries and Marine Resources (MFMR), Njala University, University of SL (IMBO), SLATU, National Protect Area Authority (NPAA), Environmental Protection Agency (EPA), Ministry of The Environment, Others (WHH, beach cleaners...)

Technical Assistance
University of SL (IMBO), Njala University, Joint Maritime Committee (JMC)

Scientific Investigation (Stock Management applied to the small-scale fisheries)
Ministry of Fisheries and Marine Resources (MFMR), Others (TENN, SLAFU, WHH, UNDP, ECOWAS, American Embassy, Chinese Embassy, Iceland Embassy, African Union, EU...), University of SL (IMBO), Njala University

Early Warning And Response Systems (Risk Management)
National Disaster Management Agency (NDMA), Environmental Protection Agency, Meteorological Agency SL, Mass Media - Social networks on internet

Supplies & logistics services
- Boats Builders — Private services
- Fishing Gear Suppliers — Ministry of Fisheries and Marine Resources (MFMR), Others
- Fuel (Input suppliers)
- Suppliers of other neccesities (torchlights, coolmans, rubber, containers...)
- Transporters (Boats and Trucks)
- Outboard engine sellers — Yamaha, Others
- Man Power (Labour)
- Water suppliers — Iceland Embassy, Ministry of water resources
- Ice suppliers — Tandem Fishing Company, Ice Ice Baby, Others
- Food sellers
- Packagers
- Basket weavers
- Bait Sellers
- Gutters
- Salt suppliers
- Equipment repair service
- Safety gear suppliers — Ministry of Fisheries and Marine Resources (MFMR), Marine Resources SLMARAD (Sierra Leone Maritime Administration), Others
- Basket providers

Transaction Chain

| CAPTURE/ PRODUCTION | COLLECTION / PROCESSING | RETAIL / DISTRIBUTION | CONSUMPTION |

INPUT — FISHERS / BOAT OWNERS — 100%

- 65% → Fish Wholesalers (Collectors / Processors)
- Smoked, Fresh, in Ice
- 35% → Fish wholesalers (Distributors)
- 30% → Fish retailers (Market sellers, House-to-house sellers, Street vendors)
- Super Markets
- Hotels / Restaurants
- International markets
- International Companies
- 20% NATIONAL (SELF-CONSUMPTION)
- 50% NATIONAL CONSUMER
- 30% INTERNATIONAL CONSUMER

OUTPUT — CONSUMERS (<??K) — 100%
- Local Consumers (+/-79K)
- National Consumers (+/-77M)
- International Consumers/ Export (+/- 77M)

REGULATORY FUNCTIONS

Regulation of Fishery Resources
Ministry of Fisheries and Marine Resources (MFMR), Joint Maritime Committee (JMC), Professional Organizations of Artisanal Fisheries, Ministry of Planning and Economic Development, Local Council, Community Management Association (CMAs), Sierra Leone Standard Bureau (SLSB), Ministry of Tourism and Culture

Regulation of Fisheries Association Cooperatives
Consortium Fishers Unions, Women in Fisheries (Fish Processors, Fish Mongers, others), Environmental Organizations, Sierra Leone Boat Owner Association (SLUBOA), Enviromental Protection Agency (EPA), National Protection Area Authority (NPAA)

Governance
Local and National Authorities — Community Management Association (CMAs), Harbor Master, Master Fisherman, Chair Lady, Community Leaders, Sierra Leone Marine Administration (SLMA), Local Partnership Board (LPPB), Ministry of Fisheries and Marine Resources (MFMR), National Protection Area Authority (NPAA), Local Council, Environmental Protection Agency (EPA)
Social Regulations — Ministry of youth, Ministry of Social Welfare, Ministry of Labour and Social Security, Sierra Leone Association of Non Organizations (SLANUO)

Commerce and Market Rules
Ministry of Planning and Economic Development, Ministry of Tourism and Culture, SLEPA (Sierra Leone Investment and Export Promotion Agency), Ministry of Health and Sanitation, Ministry of Transport & Aviation, Sierra Leone Immigration Department, Ministry of Trade, Ministry of Agriculture, Sierra Leone Standard Bureau (SLSB), Ministry of Fisheries and Marine Resources y entre parentesis las siglas (MFMR)

Traditional and Cultural Norms

Natural Resources Regulation
Ministry of Environment and Forestry, University of SL (IMBO), Njala University, Ministry of Agriculture Food Security (MAFS), Ministry of Lands, Housing and Country Planning, Ministry of Tourism and Culture

Sanitary Regulation
Ministry of Health, Local Council, Sierra Leone Standard Bureau (SLSB)

Tourism Regulation
Tourist board, Local Authorities, Monuments and Relics Commission, Ministry of Tourism, Hotels Owners Association

Navigation and Transportation Regulation
Hotels Owners Association, Metological Agency, SL United Boat Owners Association, Joint Maritime Committee (JMC), SL Port Authority, SL Marine and Administration

Regulation on Traceability

Regulations of Waste Management

Right margin labels: ABSENT INTERRELATIONSHIP, INDIRECT INTERRELATIONSHIP, DIRECT INTERRELATIONSHIP

RISK ANALYSIS

Sierra Leone is prone to infectious disease crises, such as the COVID-19 pandemic and the Ebola virus epidemic that started in 2014, due to its climate, dysfunctional health, and WASH systems. Simultaneously, the country is affected by a global economic crisis, which is partly triggered by the aforementioned health emergency. For instance, the COVID-19 pandemic generated a global economic recession, further aggravated by different conflicts such as the Russo-Ukranian War.

Stressors and negative impacts on the performance of the socio-economic system during the risk scenario

The "lockdown" and movement restrictions enforced during the Ebola crisis and COVID-19 pandemic led to a significant paralysis of the artisanal fishing value chain. As the people involved in the artisanal fishery sector usually depend exclusively on this sector as their economic source, this crisis not only destabilized their financial situation, reducing purchasing power and access to foods available in markets and services but also affected their overall quality of life. Moreover, there was a ripple effect for the wider coastal community, as the diminished availability of fish on the local market for consumption and the increase in price exacerbated food and nutritional insecurity significantly.

Across the transaction chain, the R4S risk analysis found that fishers, boat owners, and consumers would be highly affected in the event of an infectious disease outbreak (such as Ebola or COVID-19). Key impacts on fishers and boat owners include reduced fishing trips due to illness and mobility restrictions and increased operational costs, resulting in lower catch volumes, intensified competition and conflict, and increased labour burdens. For consumers, increasing prices and barriers to accessing selling points lead to reduced consumption of fish, affecting food and nutrition security. Other key actors in the system – fish wholesalers, gutters, and retailers – also experienced medium impacts related to reduced demand, increased costs, and reduced and unstable incomes. Supplies and logistical services would also be highly impacted by reduced demand, constrained supply channels, and increased costs. The absence of effective waste management and regulatory functions also means that the whole system would experience significant impacts.

RESILIENCE ANALYSIS

The in-depth analysis of small-scale fishing in the Western rural and urban areas of Sierra Leone presents different challenges in terms of resilience. The allocation of values to each of the 6 Determinant Factors of Resilience (DFRs) is justified below, based on the current context of the system and our workshop, where we evaluated with the participants these factors under the risk scenario previously outlined. In general, the scores are medium for the DFRs (see Table 5 and Figure 10), indicating the system has a great potential and capacities to cope with the shocks associated to the select and other risk scenarios and the long-term and systemic stressors of the system.

Risk scenario	Connectivity	Diversity	Redundancy	Governance	Participation	Learning
Selected scenario: Infectious disease emergency (such as the COVID-19 pandemic) + Economic crisis	1- No/Minimal	1- No/Minimal	1- No/Minimal	1- No/Minimal	1- No/Minimal	1- No/Minimal
	2- Low	2- Low	2- Low	2- Low	2- Low	2- Low
	3- Medium	3- Medium	3- Medium	3- Medium	3- Medium	3- Medium
	4- Approaching Optimal	4- Approaching Optimal	4- Approaching Optimal	4- Approaching Optimal	4- Approaching Optimal	4-Approaching Optimal
	5- Optimal	5- Optimal	5- Optimal	5- Optimal	5- Optimal	5- Optimal

Impact of the risk scenario on the regulatory functions

CONNECTIVITY

The system demonstrates a connectivity level of 3.5, indicating moderate but progressing interlinkages among its stakeholders. The small-scale fishing sector benefits from robust social and cultural networks within coastal communities, such as fisher and fishmonger associations, which enable risk-sharing, collective decision-making, and mutual support. Collaboration with government and broader organizations fosters inclusive discussions on fisheries management. Additionally, the sector is strengthened by infrastructure such as accessible roads and widespread mobile phone usage, which enhance communication and crisis responsiveness. However, challenges remain, including gaps in long-term strategic planning, product quality disputes, delayed payments, and tensions between artisanal fishers and government regulations. These issues underscore the need for better alignment between policies and the sector's realities.

Resilience Analysis of the Small-Scale Fishery System
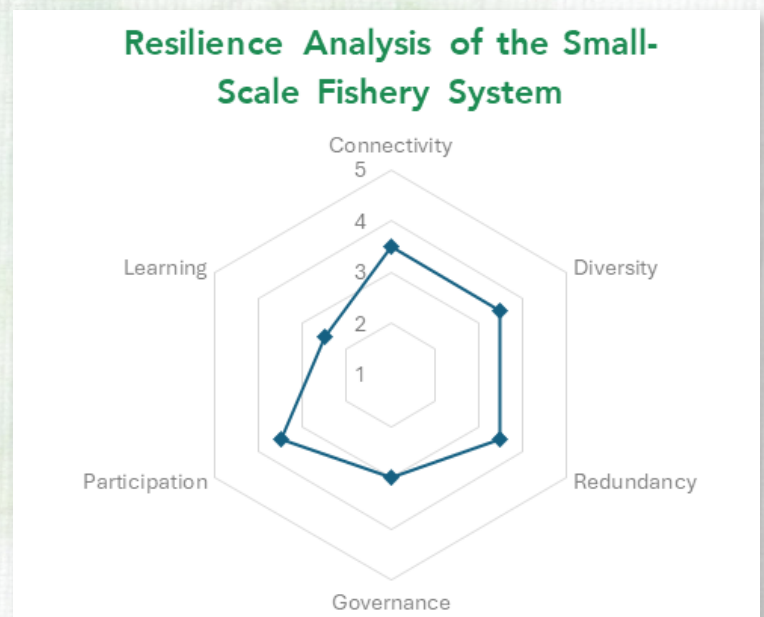
DIVERSITY

The system demonstrates a diversity level of 3.5, reflecting moderate but advancing diversity that supports resilience to shocks and stressors. The sector has a varied product catalogue, including a wide range of pelagic and demersal species, and diverse processing methods such as ice storage, smoking, and drying. This flexibility allows for quick adaptation to changes like market fluctuations and mobility restrictions. Additionally, the system has a range of actors—fishers, boat owners, processors, wholesalers, and distributors—many of whom take on multiple roles to enhance operational versatility. For example, some fish mammies serve as both fishmongers and boat owners, while organizations like SLAFU contribute to resource management and technical support. The system also demonstrates strong adaptive capacity, with actors modifying roles and strategies to address shocks. However, there is a gap in linking these actions to cohesive long-term strategies. Strengthening this connection would enhance resilience and sustainable resource management.

REDUNDANCY

The system demonstrates moderate redundancy, with a score of 3.5. While the system shows adaptability, with actors like fishmongers taking on additional roles during crises and alternative individuals stepping in for key roles such as harbour masters, it still relies heavily on certain pivotal actors, making it susceptible to disruptions. Support redundancy is evident through the involvement of multiple organizations, which can compensate for operational or financial challenges faced by others. However, specific areas show dependency risks, such as Yamaha's dominance in the outboard engine market. Regulatory functions, though present, often lack effective implementation, particularly in traceability and waste management, creating gaps in the system's long-term resilience.

GOVERNANCE

The system demonstrates medium-level governance, reflecting growing structure and an understanding of system risks and functions. Decision-making increasingly balances short- and medium-term impacts with emerging long-term strategies, maintaining functionality during crises despite reduced capacity. Leadership within the system is evolving to mitigate disturbances, strengthening its influence over resilience and functionality. National government initiatives have been critical, with the Ministry of Fisheries and Marine Resources (MFMR) implementing long-term plans like the Management Plan of Sierra Leone (2021). During crises such as COVID-19 and Ebola, the Ministry of Finance rapidly introduced financial support measures, while health guidelines promoted community resilience. Local-level governance complements national efforts, with community leaders and associations driving decision-making. Co-management systems, supported by NGOs and international donors, have established Territorial Use Rights in Fisheries (TURFs) through Marine Protected Areas (MPAs), enhancing governance and sustainability. Semi-autonomous agencies like NaCSA and international partnerships further bolster governance by enabling social, economic, and crisis-response support. However, there is a need for increased training at community levels to build more robust and resilient governance structures. These advancements at both national and local levels are vital for improving the resilience and sustainability of Sierra Leone's small-scale fishing system, particularly in the face of recurring risks and challenges.

PARTICIPATION

Participation in Sierra Leone's small-scale fisheries sector is advancing, scoring 3.5 on the assessment scale, which reflects progress toward equitable benefit distribution and increased inclusivity. Men, women, and vulnerable groups are increasingly involved in decision-making and asset control, though certain powerful actors still dominate, and substantial barriers to full gender inclusivity persist. The system fosters freedom of association and expression, allowing most actors to contribute constructively to its functionality. Accountability mechanisms are being established but are not yet fully operational, and leadership is gradually becoming more inclusive, with roles shared among men, women, and vulnerable groups. Active participation is evident, as community members, including women, actively voice their rights and needs in workshops, focus groups, and co-management systems. This engagement supports resilience

during crises, enabling the system to adapt more effectively to shocks and stressors. Women have a significant presence in the post-harvesting value chain and are increasingly involved in boat ownership and food security discussions through organizations like Women in Fisheries. However, decision-making remains predominantly male-dominated due to entrenched cultural norms. Initiatives like the 2018 National Action Plan on Women, Peace, and Security aim to address this imbalance and enhance women's involvement in leadership roles, underscoring the importance of equitable gender representation for the system's functionality and resilience.

LEARNING

The learning process in Sierra Leone's small-scale fishing system is in its early stages, with some progress in leveraging local knowledge and experiences to address shocks and stresses. Communities have basic awareness of past challenges, but significant gaps remain in areas like hygiene standards in fish handling, waste management, sustainable fishing practices, and understanding nutritional needs. For example, food taboos and intra-household food allocation limit fish consumption among women and children during periods of heightened nutritional need. Training programs led by various institutions and organizations, including government agencies, are gradually building awareness and encouraging behavioral changes. These efforts are foundational for long-term learning but have not yet fully integrated local knowledge with scientific research or established comprehensive co-management mechanisms. The system also lacks autonomy, relying heavily on external assistance, and shows limited capacity to learn proactively from other agencies. While capacity-building initiatives are underway, their impact has yet to translate into consistent practices or systemic changes, and a long-term strategic learning framework is almost entirely absent. Notable progress includes the adaptive learning demonstrated during the Ebola crisis, where communities adopted sanitary measures such as hand washing and mask usage, practices that were later beneficial during the COVID-19 pandemic. Such examples highlight the potential for adaptive learning to influence other areas, like hygienic practices in fish processing and handling.

STRESSORS	RECOMMENDATIONS TO STRENGTHEN THE SYSTEM	DFR[1]	TIMELINE[2]
Lack of knowledge, skills and incentive to ensure basic food safety & hygiene throughout value chain results in reduced consumer trust and demand for fish products, particularly for premium customers and export market	**Strengthen food safety practices for fishers, fish processors & distributors** through increased access to technical training, improved food safety standards and enforcement and increase consumer demand for food safety.	Governance	Short Term
Limited evaluation and classification of fisher association capabilities in coordination with the national government hinders associations access to capacity building initiatives and services from the government and private sector.	Accurate **classification of fisher, processor, fishmonger, and other associations based on their function and capacities** to identify their specific technical, financial, and business input needs and support development and implementation of effective and relevant business models.	Connectivity	Short term
Lack of Access to financial services, particularly low interest credit for key stakeholders in transaction chain.	Increase access of formal and informal financial services for fishers, fish processors and distributors.	Connectivity	Short term
Inefficient traditional smoking ovens and lack of access to fuel effecient models resulting in food loss, high fuel demands, minimised profit, mangrove deforestation, smoke pollution increasing risk of respiratory disease. Deforestation of mangroves for fish smoking reduces biodiversity and fish breeding grounds, removes natural barriers to coastal storms and rising sea levels, increasing the vulnerability of coastal communities to the impacts of climate change.	**Increase market and financial access to improved, fuel-efficient fish smoking ovens.** Research, develop and increase market access to alternative energy sources for substituting mangrove wood burning in the fish smoking process	Connectivity	Medium Term
Inadequate access to clean Water, Sanitation and Hygiene (WASH) infrastructure at landing, fish processing, and distribution stages increasing risk of food poisoning, public health issues, and loss of income.	**Facilitate access to WASH services & infrastructure** at fishing landing sites (wharfs), fish processing sites and markets in all fishing communities in Western Area Rural & Urban.	Connectivity	Medium term
Inadequate cold chain during all stages in the transaction chain including capture, landing, market, storage	**Increase market and financial access to cold chain technology & infrastructure** including ice, solar powered technology, individual equipment and market level infrastructure.	Connectivity	Medium term
The structural fragility and limited navigational ability of small wooden boats results in frequent accidents. The small wooden boats also have short lifespan, have high, frequent repair costs and are heavy, which increases fuel consumption.	**Adaptation and improvement of structural design of small boat for offshore fishing including** improved floatation, safety equipment and features, waterproofing with fiberglass, onboard sun shelter for fishers and catch.	Redundancy	Medium term
Excessive use of illegal fishing nets that catch immature and breeding fish undermines fish reproduction. A lack of diversification with alternative capture methods e.g. longlines, harpoons etc. leads to overfishing specific species.	**Encourage fishing of underexploited pelagic and demersal species to** alleviate pressure on over-exploited species, diversify catch methods, increasing catch volume and income. Increase affordable & reliable market access to appropriate, legal nets.	Diversity	Medium term
Weaknesses in fishery stakeholders' financial management, with underleveraged resources and missed opportunities due to a lack of identification of financing sources, investment strategies, comprehensive financial models, and cohesive development plans.	Support different value chain actors in the **Development and Implementation of Sustainable Business Plans (BPs) and Investment Plans (IPs)** to build and manage associative performance in financial, managerial, marketing, and collective social responsibility and access diverse investment opportunities.	Learning	Medium team
Gender based Violence against women. There is prevalence of Gender Based Violence and discrimination against women in Coastal communities, which are under reported due to the lack of formal mechanisms to address gender-based violence (GBV) within many fishing communities coupled with social and cultural norms.	Undertake community sensitization initiatives through awareness-raising campaigns to **challenge existing social and gender norms that perpetuate violence and discrimination against women.** In response, promote community-led advocacy initiatives for the enforcement of existing laws on GBV and gender equality, provision of training programs for law enforcement personnel on GBV issues to ensure they handle cases with sensitivity and professionalism.	Participation	Medium term
Illegal Unregulated and Unreported (IUU) industrial fishing due to insufficient regulation enforcement and fisheries management from predominantly international trawlers.	**Combat illegal fishing and overfishing through** Advocacy and support to regulatory bodies to strengthen law enforcement and Increase knowledge, skills and incentive to reduce and report illegal fishing practices.	Governance	Long term
Women are not sufficiently considered during the decision-making process when developing governance and management action plans. Women are time poor, with responsibility of household activities, childcare and much of the income generation limiting their capacity to engage in new/improved economic opportunities, and personal and family health is compromised.	**Gender transformation: Change gender and social norms that restrict potential of women in the fisheries system to realize their business potential.** This includes creating a wider enabling environment that supports not only women but also key influences (such as men) to feel capable of supporting change and balancing responsibility of household and family care demands, reducing women's time poverty.	Participation	Long term

1 The 6 Determinant Factors of Resilience (Connectivity, Diversity, Redundancy, Governance, Participation, Learning).
2 Timeline definitions: Long term: 10+ years, Medium term 3-9 years, Short term 0-2 years

CONCLUSIONS

Despite the crucial role it plays in Sierra Leone's economy, the small-scale fisheries system faces many challenges including overfishing, inadequate capture, processing, storage, transport and WASH practices and infrastructure, marine and mangrove ecosystem degradation resulting in unsustainably managed fish stocks, high food losses and food safety risks, low economic return.

The artisanal fishery system in Sierra Leone is complex, characterized by a web of interactions among a diverse array of actors within the transaction chain, including those engaged in supporting and regulatory functions. The system is hindered by deficiencies in essential functions such as cold chain logistics, inefficient smoking ovens, hygiene standards, waste management, product traceability, and the enforcement of regulations on environmental and fishing practices.

Women play a pivotal role in Sierra Leone's artisanal fishery sector, with "fish mammies" dominating much of the transaction chain. Despite their critical contributions, gender disparities persist, undermining their potential and marginalizing them from key resources and decision-making processes. Tackling these disparities, improving women's access to essential resources, and enhancing their involvement in decision-making are vital steps toward creating a more inclusive and equitable system.

The risk and vulnerability analysis reveals that identified stressors significantly compromise the system's resilience to outbreaks of infectious disease and economic shocks. Primary impacts are often exacerbated by secondary effects, leading to a cascading deterioration of food security, health standards, environmental integrity, and household incomes. We can conclude that the artisanal fishery system in the country currently stands at level 2 out of 5 in terms of resilience, indicating a fragile state reliant on external support for crisis management. However, the assessment of the Determinant Factors of Resilience (DFRs) also points to considerable resilience potential, with 2 out of 6 DFRs nearing optimal levels and 3 at a medium level, suggesting that targeted interventions could markedly enhance system resilience.

GOAL proposes a comprehensive suite of potential actions and programs grounded in three pillars: economic, social, and environmental sustainability. Under a coherent strategic framework, and with careful adaptation to the specifics of various communities and regions, these initiatives can significantly strengthen the resilience of the artisanal fishery system over the medium to long term (spanning 3-9 years, or longer than 10 years, respectively), creating a system that sustainably improves livelihoods and the food and nutrition security of coastal communities.