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POLICY BRIEF

Strengthening Ecosystem Management for Climate-Resilient Fisheries and Livelihoods in the Lower Zambezi, Zambia – A baseline assessment and community orientation



Community training workshop in the Lower Zambezi

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Note: This policy brief is based on the findings of the ecological and socio-economic baseline assessment and the subsequent community-based training on Nature-based Ecosystems solutions in the Lower Zambezi River, Zambia, held on the 28-30 July, 2026.

The workshop was organized by AU-IBAR in collaboration with the Ministry of Fisheries and Livestock, Zambia under the project "Conserving Aquatic Biodiversity in African Blue Economy", and with financial support from the Swedish International Development Cooperation Agency (Sida). AU-IBAR gratefully acknowledges Sida's continued support towards strengthening aquatic biodiversity conservation, sustainable fisheries management and the development of Africa's Blue Economy.

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Executive Message

The Lower Zambezi is one of Zambia's most important freshwater ecosystems, supporting biodiversity, fisheries, agriculture, tourism and the livelihoods of thousands of people. However, increasing ecosystem degradation, climate change and unsustainable land-use practices are accelerating the decline of fish habitats, reducing fisheries productivity and threatening food security. Immediate investment in ecosystem restoration and Nature-based Solutions (NbS) is required to safeguard the ecological integrity and economic value of the Lower Zambezi.

To this end, under the AU-IBAR/SIDA Aquatic Biodiversity Project, Zambia has been identified for targeted support to restore and conserve these freshwater ecosystems through Nature-based Solutions (NbS) implemented by the Ministry of Fisheries and Livestock in Namoomba and Chalokwa Villages of Siavonga District. Prior to commencement of the restoration activities, an assessment of the impact of climate change on fisheries and livelihoods was conducted followed by training of the two communities in collaborative fisheries management and tree planting, utilizing nature-based solutions. The training applied an action-oriented approach, moving from theory to practices, towards operationalization of the AU Continental Strategy on Nature-based solutions for conserving, restoring aquatic ecosystems and fish stocks and their sustainable use. The general objective of the training workshop was to strengthen capacity of the two communities in Chalokwa and Namoomba for restoration of degraded riverine ecosystems through participatory Nature-based Solutions that enhance aquatic biodiversity conservation, rehabilitate fish habitats and improve sustainable livelihoods. The **50 participants**, from the two villages were trained; comprising of **28 males** and **22 females**.

1.0 Background and Context

Why this intervention on Nature-based Solutions in the Lower Zambezi River is important

The African Union Inter-African Bureau for Animal Resources (AU-IBAR) is implementing a five-year project on "Conserving Aquatic Biodiversity and Ecosystems in the Context of African Blue Economy Strategy' towards the implementation of African Union African Blue Economy Strategy (ABES). The Project is supported by the Swedish International Development Cooperation Agency (SIDA)

The overall objective of the project is to enhance the Policy Environment, Regulatory Frameworks, and Institutional capacities of AU Member States and Regional Economic Communities to sustainably utilize and conserve aquatic biodiversity and ecosystems. One of the activities envisioned within this key objective is to support ongoing initiatives on ecosystems restoration, strengthening conservation and climate change mitigation efforts, and promote sustainable economic activities and livelihoods in AU member states. Consequently, AU-IBAR commissioned studies to document the negative impacts of climate change on aquatic biodiversity and ecosystems in Africa and to recommend mitigation strategies. A follow-up action based on the recommendations of the study report was to support selected ongoing initiatives to strengthen conservation and climate change efforts mainly by utilizing nature-based solutions for ecosystem restoration. The Republic of Zambia was identified as one of the AU Member States to receive targeted support under the scope of the Aquatic Biodiversity Project. In this context, AU-IBAR is collaborating with the Ministry of Fisheries and Livestock (MFL) to support two communities in the restoration and conservation of freshwater ecosystems and associated biodiversity, including fish stocks, in the Lower Zambezi region.

The Lower Zambezi is a critical freshwater ecosystem in Zambia, sustaining rich biodiversity and supporting fisheries, agriculture, tourism, and the livelihoods of numerous local communities. However, ecosystem degradation, climate change, and unsustainable land-use practices are increasingly undermining fish habitats, reducing fisheries productivity, and placing food security at risk. There is therefore an urgent need to invest in ecosystem restoration and Nature-based Solutions (NbS) to protect the ecological health and long-term socio-economic value of the Lower Zambezi. As part of this effort, two pilot sites were identified in Namoomba and Chalokwa Villages in Siavonga District.

2.0 Objective

The overall objective of the implementing the programme was to strengthen capacity of the Chalokwa and Namoomba communities for restoration of degraded riverine ecosystems in the Lower Zambezi through participatory Nature-based Solutions that enhance aquatic biodiversity conservation, rehabilitate fish habitats and improve sustainable livelihoods.

3.0 Rationale

The participatory socio-economic and ecological assessment conducted in July, 2026, confirmed that climate change is already affecting communities in the Lower Zambezi. During participatory stakeholders' consultations, community members reported the following observations:

- Declining fish catches;
- Shrinking and degraded fish breeding habitats;
- Increased river siltation;
- Reduced river flows and water availability;
- Declining forest resources;
- Lower agricultural productivity;
- Increasing food insecurity;
- Increasing poverty and livelihood vulnerability.



Figure 1: *Community engagements in Namoomba and Chalokwa villages along the Lower Zambezi River Basins, during the baseline assessment*

4.0 Project Activities Implemented

Prior to commencement of the restoration activities, an assessment of the impact of climate change on fisheries was conducted from 8th to 12th July 2026. This was followed by training of the two communities in collaborative fisheries management, nature-based solutions in fisheries management, and ecosystem restoration and tree planting techniques, from 28th to 30th July 2026.

4.1 Ecological and socio-economic assessment of impacts of climate change

The ecological and socio-economic assessment was conducted from 8th to 12th July, 2026 using Focus Group Discussions, Transect Walks and interviews using questionnaires or personal engagements.

The assessment confirmed that climate change is already affecting communities in the Lower Zambezi. Community members reported: Declining shrinking fish catches; degraded fish breeding habitats; increased river siltation; reduced river flows and water availability; declining forest resources; lower agricultural

productivity; increasing food insecurity; increasing poverty and livelihood vulnerability.

The assessment further identified deforestation, land degradation, riparian vegetation loss, use of illegal and destructive fishing methods, habitat destruction and climate variability as the principal drivers of ecosystem decline, affecting approximately 1,200 fishers and their dependent households.

Summary of the findings of the assessment are as follows:

- Riparian vegetation has been extensively cleared for agriculture, charcoal production and settlements.
- Riverbank degradation has accelerated erosion and siltation.
- Fish spawning and nursery habitats continue to decline.
- Several commercially important fish species have reduced in both abundance and size.
- Illegal fishing is increasing pressure on already stressed fish stocks.
- Women and youth, and the aged are disproportionately affected because of declining fisheries, increasing food insecurity and reduced livelihood opportunities.
- Communities possess strong indigenous knowledge and are willing to participate in ecosystem restoration if provided with technical support and incentives.

These challenges threaten fisheries, biodiversity conservation objectives and climate resilience in the two communities.

The two communities started implementing some initiatives to address some of the above environmental and socio-economic challenges with support from cooperating partners such as Conservation Lower Zambezi (CLZ), but faced challenges of both technical know-how and financial resources to scale-up and continue; and as a result, these efforts have had no impact. Some of the initiatives that included planting trees within the village and planting of grasses in fish breeding sites and adoption of alternative livelihoods were seemingly succeeding at the time of the visit in terms of establishing irrigation schemes.



Figure 2: *Land degradation in Chalokwa Village (A) and deforestation in Namoomba Village (B)*

The support by AU-IBAR, through the SIDA funded project, to the Ministry of fisheries and livestock has therefore come at a right time to address some of the challenges faced by the two communities and to contribute to scaling up to some of the past and ongoing related initiatives by partners.

4.2 Community Training Workshop

Based on the findings from the field, a 'Community Training Workshop on Nature-based Solutions for Conserving and Restoring Freshwater Water Ecosystems and Fish Stocks in the Lower Zambezi River', was held from the 28-30 July, 2026.

The general objective of the training workshop was to strengthen capacity of the two communities in Chalokwa and Namoomba for restoration of degraded riverine ecosystems through participatory Nature-based Solutions that enhance aquatic biodiversity conservation, rehabilitate fish habitats and improve sustainable livelihoods.

The workshop had a total of 63 participants comprising 50 community members from both Chalokwa and Namoomba villages and 13 participants were from AU-IBAR, Ministry of Fisheries and Livestock, consultants (trainers), Conservation Lower Zambezi and Media. Of the 50 community members, 28 were male and 22 were female. The group also had a mixture youth and old members of the community and comprised on traditional leaders, teachers, agricultural extension workers, workers in the tourism industry, businessmen and women, farmers and fishers.

The training had three components. The first training component was on Fisheries Management and Nature-based Solutions in Fisheries Management. The second component was on Ecosystem Restoration and Tree Planting. The third part of the training was on development of an integrated Action Plan to address the environmental and socio-economic challenges of the Lower Zambezi Fishery. The following is a summary of the two components:



Figure 3: *Community training in fisheries management and Nature-based Solutions*

b) Ecosystem Restoration and Tree Planting

The training utilized outdoor interactive, participatory and practical learning, with the facilitator guiding the participants by presenting them with pictorial visual aids that required them to think and find solutions

to environmental problems which they were familiar with. The interactive sessions allowed the trainees to actively solve problems and build knowledge directly using a two-way communication and feedback process. Core characteristics included Focus groups discussions and debates to ensure active participation by trainees and hands-on training as a practical method of learning by doing and direct experience. The trainees participated in species selection, seed extraction, and identification of suitable sites for reforestation and afforestation.



Figure 4. *Community training in Ecosystem restoration and tree planting*

c) Action Planning

At the end of the training, the two communities developed an integrated action plan, showing what activities will be conducted to address the socio-economic and ecological challenges encountered, which have negatively affected their livelihoods. The action plan highlights the issues to be addressed; actions to be taken; timelines for implementation of the actions; and responsible stakeholders. The action plan is presented in Annex 2. This action plan will be actualized at the onset of the 2026/2027 rainy season.

5.0 Expected outcomes of the implementation of the interventions in Lower Zambezi

Why Nature-Based Solutions for Ecosystem Management Should Become a Priority Policy for the Ministry of Fisheries and Livestock in Zambia

Healthy ecosystems are the foundation of sustainable fisheries and hence sustainable contribution to food security, livelihoods and income. Restoring riverbanks and riparian forests through implementing these interventions will improve fisheries productivity in Lower Zambezi. The community training workshop resulted in the following outcomes:

5.1. Capacity enhanced on Nature-based Solutions for restoration of ecosystems and fish stocks, highlighting the following aspects:

- Improved health and resilience of the Lower Zambezi riverine ecosystem.
- Restoration of fish spawning and nursery habitats.
- Reduced riverbank erosion and sedimentation.
- Improved aquatic biodiversity conservation.

- Enhanced participation of women and youth in ecosystem restoration initiatives.
- Strengthened community stewardship of fisheries resources.
- Increased evidence to support scaling up of Nature-based Solutions within Zambia and other African Union Member States.

5.2. Capacity enhanced on nature-based solutions for afforestation, reviving vegetation:

- Community stakeholders trained on Nature-based Solutions for riverine ecosystem restoration, including habitat rehabilitation, aquatic species return, soil health and revegetation.
- Increased awareness of the relationship between watershed health, riverine vegetation and fisheries productivity.
- Community action plans developed for afforestation and restoration of degraded shoreline and riverbank.
- Community tree and grass nurseries established and managed to support restoration activities in Chalokwa and Namoomba sites.
- Best practices, lessons learned and success stories documented for knowledge sharing and policy uptake.

6.0 Policy Recommendations

In light of the above, following policy recommendations are hereby made:

Table 1: *Policy recommendations*

Theme	Recommendation	Lead actor(s)
Fisheries governance	Formally strengthen and resource Village Fisheries Management Committees (VFMCs) and establish protected fish breeding sanctuaries at priority sites identified through the ecological assessment.	MFL / District Fisheries / VFMCs
Fisheries regulations	Strengthen enforcement against illegal fishing methods, paired with dialogue mechanisms to resolve competition-driven conflict over fishing grounds.	MFL / District Council / Traditional leadership
Ecosystem restoration	Scale up riparian afforestation and buffer-zone protection using locally adapted native species such as Acacia, Afzelia, Combretum, Khaya, Tamarindus, Trichilia, Sesbania, and Ziziphus around homesteads and on degraded land, in clusters to rebuild canopy cover.	AU-IBAR / MFL / CLZ / Forestry Dept.
Mapping critical habitats	Formally map and gazette flood plains, breeding grounds and other ecologically sensitive zones to anchor land-use planning decisions.	District planning authorities
Livelihoods	Promote climate smart and alternative livelihoods such as Sustainable aquaculture; Irrigated gardening; Conservation agriculture; Community tree nurseries; Ecotourism and; Non-timber forest products as buffers against declining fish catches, prioritising women and youth.	MFL / NGOs / District Council
Institutions & finance	Provide operational support, identification and legal recognition to community natural resource management committees so they can function as durable local institutions.	MFL / District Council
District-level capacity	Build district-level capacity for climate risk mapping, GIS and access to climate/conservation finance, addressing any capacity gaps departments may have.	AU-IBAR / MFL / cooperating partners

Theme	Recommendation	Lead actor(s)
Inclusivity	Strengthen women and youth participation in decision-making roles — not just participation roles — in fisheries and natural resource governance structures.	MFL / Traditional leadership / VFMCs
Landscape-level governance	Improve coordination among government and quasi-government organisations; Traditional Authorities; Non-Governmental Organisations (NGOs) and; Community institutions in order to ensure efficient implementation.	MFL/District Council/ Traditional leadership/ NGOs
Financing for Nature-based Solutions	Establish dedicated financing mechanisms for: Ecosystem restoration; Community nurseries; Catchment rehabilitation; Community forestry; fisheries management and; Climate adaptation initiatives, to scale up implementation	MFL/District Council/ NGOs

6.1 Additional Policy Recommendations:

1. Mainstream ecosystem restoration into fisheries policy and planning

Government should integrate ecosystem restoration as a core fisheries management strategy by protecting riparian zones, restoring degraded habitats and incorporating Nature-based Solutions into fisheries development programmes.

2. Scale up restoration of degraded riverine ecosystems

Increase investment in:

- Riparian afforestation;
- Rehabilitation of fish breeding habitats;
- Restoration of wetlands;
- Protection of aquatic vegetation;
- Riverbank stabilization using indigenous or native vegetation.

7.0 Conclusion

The evidence from the Lower Zambezi demonstrates that fisheries sustainability cannot be achieved without healthy ecosystems. Policymakers, development partners, traditional leaders and local communities should collectively prioritize ecosystem restoration and Nature-based Solutions as central components of fisheries management and climate adaptation. Increased investment, stronger institutional coordination and community-led ecosystem stewardship are urgently needed to reverse ecosystem degradation, restore fisheries productivity and secure resilient livelihoods for present and future generations.

The Lower Zambezi case demonstrates a pattern common across AU Member States targeted under the Aquatic Biodiversity Project: climate change and ecosystem degradation are already translating into measurable livelihood loss, but affected communities possess both the local knowledge and the willingness to be partners in restoration. The policy task is not to introduce Nature-based Solutions from outside, but to formalise, resource and scale the adaptive practices communities have already started — through stronger legalized fisheries co-management, gazetted protection of breeding habitat, climate-smart livelihood diversification, and institutional backing for the community structures that will ultimately sustain these gains beyond the life of any single project.

Building linkages for collaboration with partners working on the same objectives of aquatic ecosystems restoration for livelihoods enhancement of the communities is also a prerequisite for continuity and sustainability of this ongoing support to the Ministry of Fisheries and Livestock in Zambia.

8.0 References

- Barange, M., Bahri, T., Beveridge, M.C.M., Cochrane, K.L., Funge-Smith, S. & Poulain, F., eds. 2018. Impacts of climate change on fisheries and aquaculture: synthesis of current knowledge, adaptation and mitigation options. FAO Fisheries and Aquaculture Technical Paper No. 627. Rome, FAO. 628 pp
- Central Fisheries Research Institute (2023), Lower Zambezi Fisheries Baseline Survey Report. Department of Fisheries. Chilanga
- Central Fisheries Research Institute, (2015), Lower Zambezi Fisheries Catch Assessment Survey. Department of Fisheries. Chilanga
- Chenje, M. (ed.) (2000). State of the Environment in the Zambezi Basin 2000, SARDC, Zimbabwe.
- Global Water Partnership and International Network of Basin Organizations (2015) The Handbook for Management and Restoration of Aquatic Ecosystems in Rivers and Lake Basins.
- IUCN (2022) Nature-based Solutions in the Post-2020 Global Biodiversity Framework Targets. Policy Brief.
- Musa N, Mhereyenyoka E and Banda K. E. (2026) Vulnerabilities and adaptive capacities of rural communities to climate change impacts on water supply in the Upper Zambezi River Basin. Front. Water 8:1797252.doi: 10.3389/frwa.2026.1797252.
- Tumbare M. (2004). The Zambezi River: Its Threats and Opportunities. Proceedings of the 7th River Symposium. Brisbane, Australia.
- Tweddle, Dennis (2010) Overview of the Zambezi River System: Its history, fish fauna, fisheries, and conservation. Aquatic Ecosystem Health and Management 13(3):224-240. DOI:10.1080/14634988.2010.507035
- UNECA (2016) Blue Economy Policy Handbook for Africa. United Nations Economic Commission for Africa.
- World Bank (2010) The Zambezi river basin: a multi-sector investment opportunities analysis – Modeling, Analysis and Input Data: Basin development scenarios. SN: 58404. The World Bank. Washinton DC
- World Bank (2015) Collaborative Management of the Zambezi River Basin Ensures Greater Economic Resilience. Washington DC.
- Zambia Statistical Agency (ZAMSTAT), (2025). 2023/24 Fisheries Frame Survey Report, Lusaka, Zambia.

9.0 Annexes:

Annex 1. Photos of the Community Training on Nature-Based Solutions in Zambia





Participants at the Training on Nature-based Solutions for ecosystems and fish stocks restoration





Demonstration on tree planting methodologies for restoration of aquatic vegetations





Participatory approach; a female member of the community seeking clarifications on nature-based solutions.

Annex 2. Community Action Plan for the Lower Zambezi

ISSUE	ACTION	TIMELINE	BY WHOM
Inadequate planting materials for restoration of aquatic ecosystems and rehabilitation of degraded forests	Establish nurseries to provide grass and tree seedlings for afforestation	Continuously	• District Forest Office • Fisheries and Livestock Office • Community • NGO
Eroded riverbanks and soil deposition on shoreline	Plant grass along shoreline to restore aquatic ecosystem, plant deep rooted trees on river bank, and install bioengineered structures to stabilize slope.	Twice yearly, during the wet season for tree planting and during the early dry season for management and protection	• District Forest Office • Fisheries and Livestock Office • Community • NGO
Degraded forests on hills and old abandoned fields	Manage and protect natural regeneration, plant trees and shrubs on bare areas to expand forest cover	Continuously	• District Forest Office • Community • NGO
Deforestation	Conduct awareness and sensitization campaigns	Continuously	• District Forest Office • Community • NGO
Bioenergy – firewood and charcoal burning	Promote locally available and affordable alternatives to charcoal	Continuously	• District Forest Office • Private Sector • NGO
Building mud houses with poles and fiber	Promote locally available and affordable burnt bricks for house construction	Continuously	• Government • Community
Inadequate employment and job opportunities	Government and private sector to invest in the area to create	Continuously	• Policy makers • Private Sector



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