



TERMS OF REFERENCE

FOR

**CONSULTANCY TO UNDERTAKE CAPACITY BUILDING
ARISING FROM IDENTIFIED (MHEWS) GAPS AND NEEDS
FROM MEMBER STATES**

1.1. Background of vulnerability in SADC region

SADC Member States¹ are prone to a wide range of natural disasters such as torrential rains, floods, strong and devastating winds, tropical cyclones and tropical depressions, droughts and earthquakes. Hydro-meteorological extreme events such as Tropical Cyclone Dineo in 2017, that traversed and affected several countries stretching from Madagascar all the way to Botswana going through Mozambique, South Africa and Zimbabwe. Similarly in 2019 Tropical Cyclones Idai and Kenneth affected Comoros, Madagascar, Malawi, Mozambique, South Africa, and Zimbabwe. In early 2023, Tropical Cyclone Freddy the longest lasting tropical system in history, affected Madagascar, Malawi and Mozambique with Malawi bearing the heaviest brunt of its impacts.

El Nino driven droughts in the periods (1982–1984, 1991–1993, 2014–2017, 2019–2021 and 2023–2024) have had devastating human, social, economic and environmental impacts. Coastal countries, including South Africa, Angola, Namibia, Madagascar, Mauritius, Mozambique, and Seychelles experience frequent extreme climate events ranging from drought, floods, tropical cyclones, storm surges, coastal inundation and coastal erosion, including sea level rises. Landlocked countries like Botswana, Eswatini, Lesotho, Malawi, Zambia and Zimbabwe, also experienced frequent mild to severe droughts.

While a significant part of the region experienced severe drought conditions (e.g., South-western SADC), some parts of the region (e.g., North-eastern SADC and the region's island states) experienced a lot of rainfall in the year 2023/24. The heavy rains in parts of Madagascar, Mozambique, Malawi, and Tanzania caused flooding which displaced populations and caused damage to property and infrastructure. In Tanzania, heavy rains in Manyara and Dar es Salaam region caused landslides and damage to crops and critical infrastructure. Malawi reported flooding in Nkhosha district in central region and Karonga district in the north, displacing about 7,000 people and damaging crop fields. In southern Mozambique 48,000 people were affected by Severe Tropical Storm Filipo in mid-March, while further flooding occurred in southern Mozambique in late March due to continued heavy rainfall.

1.2. Current Situation in the Sector

The SADC Region is exposed to a complex and evolving multi-hazard risk landscape characterized by recurrent and intensifying tropical cyclones, floods, droughts, heatwaves, epidemics, wildfires, food insecurity and other hydrometeorological, biological, geological, environmental and technological hazards. Many of these hazards are transboundary in nature and can generate cascading and systemic impacts across multiple Member States. Climate change, environmental degradation, rapid urbanization

¹ Angola, Botswana, Comoros, Democratic Republic of Congo, Eswatini, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa, United Republic of Tanzania, Zambia and Zimbabwe.

and persistent socio-economic vulnerabilities are further increasing the exposure of communities, infrastructure and economies to disaster risks.

Recognizing these challenges, SADC has progressively established a regional policy, institutional and operational architecture for strengthening disaster risk management and early warning. This architecture is anchored in the SADC Regional Indicative Strategic Development Plan (RISDP) 2020–2030, the SADC Disaster Risk Reduction Strategy and Action Plan 2022–2030, the SADC Disaster Risk Management Strategy and Action Plan 2022–2030, the SADC Disaster Preparedness and Response Strategy and Fund 2016–2030, and other relevant regional and continental instruments. Collectively, these instruments promote a shift from reactive disaster response towards risk-informed development, anticipatory action, strengthened preparedness and coordinated management of transboundary and systemic risks.

Building on these instruments, SADC has developed the Framework for Regional guidance in support of MS' Multi-Hazard Early Warning System (MHEWS) to provide a coherent institutional, technical and operational architecture for an interoperable and people-centred early warning system. The Framework is structured around the four internationally recognized pillars of end-to-end early warning systems: (i) disaster risk knowledge; (ii) detection, observation, monitoring, analysis and forecasting; (iii) warning dissemination and communication; and (iv) preparedness and response capabilities. It establishes interoperability, regional coordination, transboundary information exchange, anticipatory action and continuous capacity strengthening as fundamental principles for the regional guidance to support MHEWS.

The MHEWS Framework coordinated at the regional level recognizes that effective early warnings in Southern Africa require national systems to function as part of an interconnected regional architecture rather than as isolated systems. It therefore provides for harmonized approaches to the collection, analysis and exchange of risk information; standardized protocols for warnings and advisories; interoperable information systems; Common Alerting Protocol (CAP)-enabled warning generation and dissemination; and coordinated management of hazards with cross-border and cascading impacts. The Framework further emphasizes a "First-Mile" approach, through which communities and users are actively involved in the co-production of warnings, thereby bridging scientific forecasts with local risk knowledge and ensuring that warnings are relevant, trusted, understandable and actionable.

At the centre of the regional coordinated framework/architecture for MHEWS is the SADC Humanitarian and Emergency Operations Centre (SHOC), which serves as the regional hub for consolidating and synthesizing national and regional risk information, generating regional coordination guidance and supporting anticipatory action and operational decision-making as needed. The architecture also recognizes the complementary roles of the SADC Climate Services Centre (CSC), National Meteorological and Hydrological Services (NMHSs), National Disaster Management Authorities (NDMAs), Regional Specialized Meteorological Centres (RSMCs), River Basin Organisations (RBOs), sector institutions and other specialized technical agencies. At continental level, the this framework is intended to align and interface with the Africa Multi-Hazard Early Warning and Early Action System (AMHEWAS), creating a coherent flow of information and early warning between national, regional and continental levels.

The regional architecture is further operationalized through the SHOC Standard Operating Procedures for Early Warning and Monitoring Systems, which establish operational processes for receiving and consolidating official risk information from Member States and recognized technical sources, monitoring multi-hazard developments, verifying and analysing information, producing watches, situation reports and regional coordination advisories, and supporting anticipatory action. The SOPs establish clear decision triggers, escalation pathways, information flows, institutional responsibilities and coordination protocols, while maintaining the respective mandates of national and specialized forecasting authorities. In particular, the SOPs clarify that SHOC does not replace national or specialized forecasting authorities; rather, it consolidates, synthesizes and contextualizes officially issued technical information to support regional coordination, anticipatory action and informed decision-making by Member States.

The SHOC SOPs also establish interoperability as a core operational principle, requiring data standards and information systems to remain compatible with national, regional and recognized international platforms. They reference the WMO Common Alerting Protocol (CAP) 1.2 as an informative standard for structured advisory messaging and align SHOC monitoring parameters with AMHEWAS. The SOPs further establish workflows covering data collection and analysis, multi-hazard monitoring, verification with Member States, synthesis and interpretation, advisory issuance and dissemination, anticipatory action coordination and continuous improvement.

These regional instruments therefore provide an established foundation upon which national MHEWS capacities can be progressively harmonized and connected. The SADC Regional Framework for MHEWS will provide the overarching institutional and technical architecture for interoperability; the SHOC Early Warning and Monitoring SOPs will provide the regional operational workflows, coordination and information-exchange processes; national MHEWS/EW4All Roadmaps will identify country-specific capacity gaps and investment priorities; and relevant international and continental standards, including CAP and AMHEWAS, will provide the basis for standardized information exchange and interoperability across national, regional and continental levels.

Under Component 1 of the World Bank-financed Regional Climate Resilience Programme (RCRP), SADC is supporting the operationalization of SHOC and strengthening national MHEWS capacities and regional coordination and harmonization. The intervention seeks to enhance the capacity of Member States to anticipate, prepare for and respond to climate- and disaster-related risks while facilitating effective linkages and interoperability between national early warning systems, SHOC and AMHEWAS.

To enhance efficiency, avoid duplication and leverage implementation of the global Early Warnings for All (EW4All) Initiative, SADC has adopted a two-phase approach to implementation. Phase 1 will support national MHEWS capacity assessments and the development, updating or finalization of national MHEWS/EW4All Roadmaps. The process will be coordinated by the SADC Secretariat in collaboration with Member States and the international EW4All Pillar Lead Agencies—UNDRR, WMO, ITU and IFRC—with an individual consultant providing technical support and serving as the principal penholder for development of the roadmaps.

Phase 2, which is the subject of this consultancy, will translate selected priority capacity gaps identified through Phase 1 and existing national roadmaps into practical capacity-

strengthening interventions. The consultancy will be guided by the Regional Framework for MHEWS and SHOC SOPs and will focus particularly on strengthening the ability of national systems to operate within a coherent and interoperable regional architecture. Priority interventions will include capacity development and training; harmonization and operationalization of SOPs; development of standardized methodologies, protocols and tools; CAP-enabled interoperability and information exchange between national systems, SHOC and, where applicable, AMHEWAS; co-production of guidance; responsible application of emerging technologies, including Artificial Intelligence and Machine Learning; and recommendations for strengthening institutional arrangements and sustainability.

The second phase will prioritize high-impact, scalable and replicable regional public goods and capacity-strengthening interventions, rather than capital-intensive infrastructure or large-scale equipment procurement. The assignment will therefore seek to establish a common operational foundation that enables Member States, while retaining national mandates and sovereignty, to progressively harmonize their MHEWS processes and exchange risk and warning information seamlessly across national, regional and continental systems.

In this regard, the consultancy represents an important step towards operationalizing the SADC Regional Framework for MHEWS by moving from a common regional architecture to practical harmonization and interoperability. The intended result is a more connected regional ecosystem in which national systems can exchange standardized information with SHOC; SHOC can effectively consolidate, contextualize and support regional coordination based on authoritative national and specialized technical information; and the SADC regional framework can progressively interface with AMHEWAS, thereby strengthening the continuum from risk knowledge and monitoring to early warning, anticipatory action, preparedness and coordinated response.

2. OBJECTIVE, PURPOSE & EXPECTED RESULTS

2.1. Overall Objective of the Assignment

The project aims to strengthen institutional, technical and operational capacities of SADC Member States to operationalize harmonized, interoperable, people-centred and end-to-end Multi-Hazard Early Warning Systems (MHEWS) and of the SADC Humanitarian and Emergency Operations Centre (SHOC) to coordinate and harmonize early warning practices across the region, through targeted implementation of priority capacity gaps identified in national MHEWS/EW4All Roadmaps and aligned with the SADC Regional Framework for MHEWS and SHOC Early Warning and Monitoring SOPs. The consultancy will particularly strengthen interoperability and information exchange between national systems, SHOC and AMHEWAS, ensuring that timely and actionable risk information supports anticipatory action, preparedness and coordinated response.

2.2. Specific Objectives

The specifically the consultancy will undertake two main tasks:

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- (i) **Strengthen national MHEWS capacities** and regional framework by implementing selected common and high-priority capacity-strengthening interventions identified through national MHEWS/EW4All Roadmaps, with emphasis on technical assistance, training, Training-of-Trainers, peer learning and sustainable knowledge transfer.
 - (ii) **Harmonize MHEWS operational processes and procedures** by reviewing, adapting and developing standardized methodologies, SOPs, protocols, templates and tools that facilitate consistent approaches to multi-hazard monitoring, risk analysis, information exchange, warning dissemination, anticipatory action and operational coordination across SADC Member States.
 - (iii) **Strengthen interoperability between national MHEWS and coordination at regional and continental levels** by developing and operationalizing appropriate standards, methodologies and protocols for seamless information exchange between Member States, SHOC and AMHEWAS, with particular emphasis on the **Common Alerting Protocol (CAP)** and other relevant open and internationally recognized standards.
 - (iv) **Strengthen the co-production of people-centred, impact-based and actionable alerts and advisories** by developing methodologies and building capacities at MS that enable collaboration among forecasting and technical institutions, National Disaster Management Authorities, sector ministries, SHOC, communication actors and end users in translating hazard information into understandable, trusted and actionable early warning products.
 - (v) **Promote the responsible application of innovation, Artificial Intelligence and Machine Learning in MHEWS** by identifying practical and cost-effective use cases and developing guidance and demonstration applications, where feasible, to strengthen risk analysis, hazard monitoring, impact forecasting, decision support, warning generation and dissemination, while ensuring appropriate data governance, transparency and human oversight.
 - (vi) **Strengthen institutional arrangements and regional coordination for sustainable MHEWS** by identifying and recommending measures to clarify institutional roles and responsibilities, strengthen coordination and information-sharing arrangements, enhance cross-border cooperation, and institutionalize linkages between national MHEWS structures, SHOC and relevant regional and continental mechanisms.
 - (vii) **Enhance the operationalization of the SADC Regional Framework for MHEWS and SHOC Early Warning and Monitoring SOPs** by translating the regional architecture into practical, harmonized and replicable operational tools

and capacity-strengthening interventions that Member States can adapt and institutionalize according to their national contexts.

3. RISKS AND ASSUMPTIONS

3.1. Scope of Work

The consultancy will cover all SADC Member States and selected River Basin Organisations (RBOs) for EWS and forecasting capacity development in line with the scope outlined objectives.

3.2. Geographical area to be covered

The consultancy will cover the SADC Region, encompassing all 16 SADC Member States. The assignment will adopt a regional approach with targeted national-level support, recognizing that Member States are at different levels of MHEWS capacity and implementation. The specific capacity-strengthening interventions provided to individual Member States will be informed by the priority gaps identified through the national MHEWS/EW4All Roadmaps and Phase 1 capacity assessment process.

3.3. Target groups

SADC Secretariat DRR Unit, SADC-CSC, SADC development sectors, SADC Humanitarian and Emergency Operations Centre (SHOC), SADC Water Department, and Member States of the SADC and vulnerable communities.

3.4. Specific Work

Towards the achievement of the above-mentioned objectives, the following tasks are involved in this consultancy:

(i) **Review and Prioritization of Capacity-Strengthening Interventions**

Review national MHEWS/EW4All Roadmaps, Phase 1 capacity assessment findings and relevant regional frameworks to identify and prioritize **common and cross-cutting capacity gaps** suitable for support under Phase 2. The firm shall consult SADC, SHOC and Member States to validate priorities and prepare a detailed implementation plan. The assignment shall not repeat comprehensive national capacity assessments undertaken under Phase 1.

(ii) **Harmonization of MHEWS SOPs, Methodologies and Operational Tools**

Review and develop a harmonized package of **SOPs, methodologies, protocols, templates and operational tools** to enhance interoperability of MHEWS that Member States can adapt to their national contexts. These shall address priority areas including multi-hazard monitoring; data and information exchange; warning thresholds and triggers; impact-based forecasting and warning; warning authorization and dissemination; cross-border notification; transboundary risks; linkages with anticipatory action and preparedness; and mechanisms for feedback and continuous improvement.

The work shall build upon the existing SHOC Early Warning and Monitoring SOPs and support their alignment with national operational processes.

(iii) **Strengthening Interoperability and Common Alerting Protocol**

Develop and support implementation of methodologies, standards and protocols that enable effective information exchange between national MHEWS, SHOC and AMHEWAS. Emphasis shall be placed on the **Common Alerting Protocol (CAP)**, including development of a SADC CAP implementation methodology, standardized CAP-compatible alert templates, minimum information and metadata requirements, and workflows for exchanging alerts and warnings.

The firm shall provide practical CAP training and support testing of interoperability, through at least one desktop regional or sub-regional simulation or demonstration exercise.

(iv) **Strengthening Co-production of Impact-Based Alerts and Advisories**

Develop and pilot a harmonized methodology for the co-production of people-centred, impact-based and actionable alerts and advisories involving NMHSs, NDMAs, sector institutions, and relevant users, supported by coordination and harmonization of approaches under SHOC.

The methodology shall strengthen the translation of hazard information into anticipated impacts, sector implications and recommended actions, while incorporating exposure and vulnerability information, user needs and local knowledge where appropriate. Practical co-production exercises shall be conducted for selected priority hazards to strengthen institutional collaboration and the usability of early warning products.

(v) **Capacity Development, Training and Knowledge Transfer**

Design and deliver a targeted capacity-development programme addressing priority gaps identified through Phase 1. Training shall focus on areas including end-to-end MHEWS; harmonized SOPs; impact-based forecasting and warning; co-production of alerts and advisories; CAP and interoperability; transboundary information exchange; and linking early warning to anticipatory action.

The firm shall apply a **Training-of-Trainers (ToT)** and peer-learning approach, where feasible, and develop reusable training modules, manuals and practical exercises to enable Member States and SADC to replicate capacity-development activities beyond the consultancy period.

(vi) **Strengthening the Regional Digital Platform for MHEWS, Interoperability and Application of Emerging Technologies**

Develop and/or strengthen a **regional ICT/digital platform for MHEWS** or portal for sharing real-time and near-real-time multi-hazard early warning data, information, products, alerts, advisories, tools and learning resources. The platform shall build on and integrate with existing SADC digital platforms and systems, avoiding duplication, and facilitate interoperability and information exchange between Member States, SHOC, AMHEWAS and, where appropriate, other regional, continental and global early warning systems.

The firm shall define the functional, technical and institutional requirements for the platform, including data and information-sharing protocols, standardized formats, APIs and CAP-enabled information exchange, user access, data governance and system sustainability. The platform shall support the co-production, exchange and dissemination of multi-hazard risk information and facilitate regional learning and knowledge sharing, thereby achieving economies of scale in addressing common MHEWS capacity gaps.

The firm shall also assess and integrate, where feasible, cost-effective applications of Artificial Intelligence (AI) and Machine Learning (ML) to enhance the functionality of the regional framework/architecture for MHEWS, including automated data processing and integration, risk analysis, hazard monitoring, impact prediction, decision support, generation and translation of warning information, and identification of emerging risk signals. The firm shall provide practical guidance on the responsible application of AI/ML, including requirements for data quality and governance, transparency, cybersecurity, human oversight and sustainability, and, where feasible, demonstrate selected low-cost use cases using existing or open-source technologies.

The assignment shall prioritize strengthening and linking existing systems rather than developing a new stand-alone platform, ensuring that investments contribute to a scalable, interoperable and sustainable digital ecosystem connecting national MHEWS with SHOC and AMHEWAS, consistent with the SADC Regional Framework for MHEWS.

(vii) **Institutional Strengthening, Testing and Sustainability**

Develop actionable recommendations to strengthen the institutional arrangements required for sustainable and interoperable MHEWS, including clarification of institutional roles and responsibilities; national MHEWS coordination mechanisms; data-sharing arrangements; linkages between national institutions and SHOC; cross-border coordination; CAP governance; partnerships; and sustainable financing and capacity development.

The firm shall support practical testing of selected SOPs, interoperability arrangements and co-production methodologies and consolidate lessons into a **Regional Institutional Strengthening and Sustainability Framework for MHEWS**. All methodologies, SOPs, tools, templates and training materials developed under the assignment shall be validated and formally handed over to SADC for continued adaptation, replication and use across Member States.

3.5. Assumptions and Risks underlying the project.

Table 1: Assumptions and Risks

#	Risks	Risk level. (H/M/L)	Mitigating measures	Assumptions
1.	Differences in institutional arrangements, technical capacities and MHEWS maturity across Member States may limit adoption of harmonized regional SOPs, methodologies, tools and standards.	M	Develop adaptable regional minimum standards, SOPs and tools that allow contextualization to national legal, institutional and technical environments; engage relevant national institutions throughout development, testing and validation.	Member States will participate actively in the development and validation of regional tools and will support their adaptation and institutionalization at national level.
2.	Insufficient information received to inform sector specific risks and early warning aspects	M	Ensure timely dissemination of the overall objective of the assignment and assignment plans with Member States DRM, Climate Change and National Meteorological and Hydrological Services.	Member States, sector specific projects, development partners and ICPs provide information to inform the Member States needs assessment report
3	Internet connectivity at all SADC Member States to facilitate virtual collection of data and information for the assignment	M	Ensure that the necessary stakeholders have connectivity and have data online	Member states and the consultant agree on alternative ways for the provision of data and information
4	Limited interoperability between existing national, regional and continental digital systems, including differences in data standards and levels of CAP readiness, may constrain seamless information exchange with SHOC and AMHEWAS.	H	Prioritize open standards and CAP-compatible approaches; undertake targeted interoperability analysis; develop common data and information-sharing protocols; build on and link existing platforms rather than creating parallel systems; and test interoperability through practical demonstrations or simulation exercises.	National institutions, SHOC, AMHEWAS and relevant partners will provide the necessary technical cooperation and access to information required to define and test interoperability arrangements.

4. QUALIFICATION AND EXPERIENCE

4.1. Service providers.

The assignment is expected to be undertaken by a Consultancy Firm with the necessary expertise to include at least the experts below. The firm is allowed to propose additional expertise if deemed relevant for the assignment. The following are the minimum qualifications and time input for Consultant's key personnel required to carry out the services:

No.	Key Personnel	Minimum Qualification	Minimum Professional Experience
1.	Team Leader Senior MHEWS and Disaster Risk Management Specialist.	Master's or PhD in the field of disaster risk management, natural resources, atmospheric science, climate, or related field	a) At least 15 years' experience in the relevant field with over five years at the Managerial level; b) Good project management skills; c) Expertise with different early warning systems, hydrometeorology (meteorology and/or hydrology) d) Disaster risk management experience, with an understanding of the early warning, humanitarian response and development nexus will be an added advantage; e) Demonstrated experience in working with governments, partners, and other stakeholders in public policy development, especially around hydromet and Disaster Risk Management; f) Experience in conducting assessments; and h) Demonstrated experience in similar assignments will be a plus General Professional Experience: (a) Must be result-oriented, a team player, exhibiting high levels of enthusiasm, tact, diplomacy, and integrity. (b) Demonstrate excellent leadership, interpersonal and professional skills in interacting with government and development partners. (c) Excellent report writing and editing capabilities.

			(d) Fluent in spoken and written English. Working knowledge of French and/or Portuguese is an added advantage. (e) Computer literate with good working knowledge of the standard Microsoft Office suite of programmes. (f) Proven experience with virtual conferencing systems (ZOOM, WEBEX, Microsoft Teams, Google meet etc.) g) familiarity with web developer technologies and ecosystems
2.	Early Warning, Impact-Based Forecasting and Co-production Specialist	Master's in the field of meteorology, hydrology, GIS, disaster risk management, or related field	a) At least 10 years' post-graduate experience working on disaster risk and hazard early warning systems meteorology, climate change modelling and early warning systems; b) Familiarity and experience with early warning systems; c) Disaster risk management experience with an understanding of and knowledge and experience with the humanitarian landscape in the region. d) Knowledge and experience with early warning systems at the national level; e) Demonstrated experience dealing with complex engagement as a dialogue facilitator. f) Demonstrated experience in working with various government partners and other stakeholders in public policy development, especially around Disaster Risk Management. j) Demonstrated experience in similar assignments. General Professional Experience: (a) Must be result-oriented, a team player, exhibiting high levels of enthusiasm, tact, diplomacy, and integrity. (b) Demonstrate excellent interpersonal and professional skills in interacting with government and development partners. (c) Experience in workshop facilitation and stakeholder engagements. (d) Excellent report writing capabilities.

			(e) Fluent in spoken and written English. Working knowledge of French and/or Portuguese is an added advantage.
3.	Hydrological Expert (could be in combination with the Team Leader role)	Masters or PhD in Hydrology, Hydrogeology, Water Resources Engineering or related discipline, with strong transboundary water resources planning skills.	(a) At least 15 years' experience in water resources management or planning (b) At least 10 Years' experience in hydrological and hydraulic modelling work (c) Experience in the use of GIS and flood risk mapping (d) Knowledge of drought preparedness plans and their use (e) Experience in climate information interpretation and its use in flood forecasting and early warning information generation (f) Knowledge of SADC Protocol on shared water courses and SARCOF and related products is an added value. (g) Fluency in English. French and Portuguese are added advantage. General Professional Experience: (a) Must be result-oriented, a team player, exhibiting high levels of enthusiasm, tact, diplomacy, and integrity. (b) Demonstrate excellent interpersonal and professional skills in interacting with government and development partners. (c) Experience in workshop facilitation and stakeholder engagements. (d) Excellent report writing capabilities. (e) Fluent in spoken and written English. Working knowledge of French and/or Portuguese is an added advantage.
4.	Capacity Development and Institutional Strengthening Specialist	Masters or PhD in Disaster Risk Management, Institutional Development, Organizational Development, Education/Training, Development Studies or related field.	a) Minimum 8 years of experience in institutional capacity development, b) organizational strengthening and/or professional training. c) Demonstrated experience conducting training needs assessments; d) developing competency-based curricula, training modules and manuals; e) delivering Training-of-Trainers (ToT) programmes; and

			f) facilitating peer learning and practical exercises. g) Experience analyzing institutional mandates, coordination arrangements, SOPs and sustainability mechanisms for DRM or MHEWS institutions is required General Professional Experience: a) At least 5 years general experience in related consultancy work b) Must be result-oriented, a team player, exhibiting high levels of enthusiasm, tact and integrity. c) Ability to impart technical knowledge to others through training d) Excellent analytical skills e) Excellent report writing capabilities. f) Fluent in spoken and written English. g) Good presentation and facilitation skills h) Working knowledge of French and/or Portuguese is an added advantage. i) Computer literate with good working knowledge of the standard j) Experience in interactive modeling platform.
5.	MHEWS ICT, and AI, Machine Learning and Data Analytics Specialist	Masters in ICT or related background	(a) At least 10 years of experience in the field of ICT systems used in meteorology and hydrology, and in the dissemination and communication of data and messages, data management and processing (b) At least 10 years of experience in security management and inter-agency information exchange (c) Expertise in developing regional platforms for integration of data and products (d) Familiarity with risk and resilience related databases and systems (e) Demonstrated understanding of responsible AI, data governance, model transparency, human oversight and cybersecurity. (f) Demonstrate experience in similar assignments General Professional Experience:

			a) At least 5 years general experience in related consultancy work b) Must be result-oriented, a team player, exhibiting high levels of enthusiasm, tact and integrity. c) Ability to impart technical knowledge to others through training d) Excellent analytical skills e) Excellent report writing capabilities. f) Fluent in spoken and written English.

- The firm may mobilize short-term or non-key experts where required, without unnecessarily expanding the core team. These may include specialists in GIS and geospatial analysis, hydrology, meteorology, telecommunications, risk communication, knowledge management, cybersecurity, software development and monitoring and evaluation.
- The firm should demonstrate access to sufficient expertise to address the diverse hazards and institutional contexts of SADC Member States. Where appropriate, the firm is encouraged to include regional experts with knowledge of SADC institutional arrangements and national MHEWS contexts.

4.2. Selection Criteria

Selection Criterion	Indicative Weight
1. Firm's General Experience and Institutional Capacity – Demonstrated experience in MHEWS, disaster risk management, climate services, digital risk-information systems and/or institutional capacity strengthening. Evidence of successful completion of assignments of comparable scope and complexity.	10%
2. Specific Experience Relevant to the Assignment – Demonstrated experience in regional or multi-country MHEWS assignments, development and harmonization of SOPs and methodologies, capacity strengthening and training, impact-based forecasting and warning, CAP and digital interoperability, co-production of alerts and advisories, and institutional strengthening. Experience in Africa and preferably the SADC Region will be an advantage.	20%
3. Technical Approach and Methodology – Quality, relevance and feasibility of the proposed methodology for implementing Phase 2, including understanding of the assignment; approach to using Phase 1 roadmaps; prioritization of capacity gaps; harmonization of SOPs and tools; CAP and interoperability; strengthening/linking the regional digital platform for MHEWS; co-production; AI/ML applications; training and	30%

Training-of-Trainers; institutional strengthening; sustainability and knowledge transfer.	
4. Work Plan, Organization and Staffing – Realism and coherence of the proposed work plan, sequencing of activities, allocation of expert inputs and mechanisms for stakeholder engagement, quality assurance, risk management and timely delivery within the available budget and implementation period.	10%
5. Qualifications and Experience of Key Experts – Qualifications and relevant experience of the Team Leader/MHEWS Specialist; MHEWS ICT, Interoperability and CAP Specialist; Early Warning and Impact-Based Forecasting Specialist; Capacity Development and Institutional Strengthening Specialist; and AI/ML and Data Analytics Specialist.	30%
Total	100%

5.0. LOGISTICS AND TIMING

5.1. Start date and period of implementation

The assignment shall commence on the date of signature of the contract by both parties, and the period of implementation of the contract will be twelve (12) months from date of signature of the contract.

5.2. Location

The assignment will involve traveling to Member States.

5.3. Office accommodation

None required

5.4. Facilities to be provided by the contracting authority and/or other parties

The SADC Secretariat, as the Contracting Authority will provide the following.

- Letters of introduction of the Consultant to stakeholders, Member States and RBOs to facilitate access to information.
- Available reports;
- Costs of participation of trainees for regional training workshops to be arranged (travel, accommodation and meals); and
- Venue for trainings

5.5 Facilities to be provided by the contractor

The contractor must ensure is the Team Leader and Technical Experts are adequately prepared and equipped for drafting of deliverables and supporting capacity strengthening

as applicable. Moreover, the Consultancy Firm is expected to be fully self-sufficient in terms of international travel associated expenses in the Member States with laptop and related device connectivity for projector for this consultancy.

5.6 Equipment

No equipment is to be purchased on behalf of the contracting authority / procuring entity as part of this service contract or transferred to the contracting authority / procuring entity at the end of this contract. Any equipment related to this contract that is to be acquired by the procuring entity must be purchased by means of a separate supply tender procedure.

7. REPORTING REQUIREMENTS AND TIME SCHEDULED FOR DELIVERABLES

7.1. Deliverables and Reporting requirements

The Consultant will report to the Deputy Executive Secretary-Regional Integration through the Head of DRR Unit, with the day-to-day support supervision from the SADC Climate and Water Units and RCRP Project Coordinator.

In achieving the above, the service provider is expected to deliver the following (in addition to periodic progress reports):

#	Deliverable	Key Outputs
1	Inception Report and Prioritized Capacity-Strengthening Implementation Plan	Review and synthesis of relevant national MHEWS/EW4All Roadmaps and Phase 1 findings; identification and prioritization of common and cross-cutting capacity gaps; stakeholder engagement plan; detailed methodology, work plan and implementation schedule; and results framework for the assignment.
2	SADC Harmonized Operational Toolkit for MHEWS	Harmonized and adaptable SOPs, methodologies, protocols, templates and tools covering multi-hazard monitoring; information flows; warning thresholds and triggers; impact-based forecasting and warning; co-production of alerts and advisories; warning authorization and dissemination; transboundary information exchange; linkage to anticipatory action; and monitoring and continuous improvement. The toolkit shall build on and complement the existing SHOC SOPs.
3	MHEWS Interoperability, CAP and Regional Digital Platform Package	SADC CAP implementation and interoperability methodology; standardized CAP-compatible alert and advisory templates; minimum data, metadata and information-exchange standards; protocols and workflows linking national MHEWS with SHOC and AMHEWAS; and functional and technical requirements for strengthening and/or linking the regional ICT/digital portal for MHEWS with existing platforms. The deliverable shall include recommendations on data governance, system sustainability and integration of real-time and near-real-time MHEWS data and products.

4	Regional Capacity Development and Training Programme for MHEWS	Modular training curriculum and materials covering priority MHEWS capacity gaps; delivery of targeted regional/sub-regional training and practical sessions; Training-of-Trainers (ToT); CAP and interoperability training; co-production and impact-based warning exercises; and reusable training manuals, presentations and practical exercises for continued use by SADC and Member States.
5	Innovation, AI/ML and Co-production Guidance and Demonstration Package	Practical guidance for co-production of people-centred, impact-based and actionable alerts and advisories; framework and guidance for responsible application of AI/ML in MHEWS; identification of priority AI/ML use cases; and, where feasible, demonstration of one or two low-cost proof-of-concept applications using existing or open-source technologies.
6	Regional Institutional Strengthening and Sustainability Framework for MHEWS	Actionable recommendations for strengthening institutional mandates and coordination; national MHEWS coordination mechanisms; data-sharing and warning authorization arrangements; national-SHOC linkages; transboundary coordination; CAP governance; partnerships; sustainable capacity development and financing; and institutional arrangements for maintaining the regional digital platform and interoperability architecture for MHEWS.
7	Interoperability Testing, Simulation and Validation Report	Documentation of practical testing of selected harmonized SOPs, CAP-compatible information exchange, co-production methodologies and interoperability arrangements through a regional or sub-regional simulation/demonstration exercise; lessons learned; identified gaps; and recommendations incorporated into the final tools and methodologies.
8	Final Consultancy Report and Consolidated SADC Capacity-Strengthening Package for MHEWS	Consolidated report documenting activities undertaken, results achieved, Member State participation, lessons learned and recommendations for sustainability and scale-up. Final validated versions of all SOPs, methodologies, protocols, tools, templates, training materials, digital interoperability specifications and institutional recommendations shall be formally handed over to the SADC Secretariat in editable and reusable formats.

7.2. Project management

The assignment shall be coordinated through a technical working group including the Head of the DRR Unit, the Director of the SADC Humanitarian and Emergency Operations Centre, the Head of the SADC Climate Services Centre and the Head of the Water Department, with support from the RCRP Project Coordinator. Outputs referred to the above activities shall be submitted to the Deputy Executive Secretary responsible for Regional Integration (DES-RI) through the Disaster Risk Reduction Unit for final approval.

Periodic progress meetings will also be held, at which the consultant will make presentations on progress. From time to time, representatives of participating Member States and RBOs and other important stakeholders will also be invited to participate in the project steering meetings. Outcomes and guidance from the meetings will be used to inform the quality of outputs highlighted above.

All activities conducted under this assignment, including studies, stakeholder engagement, training and capacity building, must align with the World Bank's Environmental and Social Framework (ESF) and its applicable Environmental and Social Standards (ESSs), ensuring that recommendations consider potential environmental and social risks and align with best practices in transboundary water resource management.² Work under this consultancy is also expected to incorporate gender-sensitive approaches as relevant.

7.3. Management Structure

The Consultant shall report directly to the Head of the Disaster Risk Reduction Unit.

8.0 MONITORING AND EVALUATION

8.1. Definition of indicators

The indicators to be used are deliverables, timeliness, technical scope and analytical quality of the deliverables as detailed in section 7 above. In addition, assessment of the quality of the deliverables will be based on validation by SADC Member States and effectiveness of capacity strengthening through pre-post training assessments.

8.2. Special requirements

The Consultancy Firm must declare any potential conflict of interest between the provision of the requested services, and other activities in which a member of their consortium of group(s), or any expert proposed in their offer is engaged.

9. FINANCIAL PROPOSAL

9.1 Financial proposal

The financial proposal should include all fees and relevant costs associated with the implementation of assignment and all incidentals.

9.2. Payment Schedule

Payment schedule is related to reports and their approvals, as reflected in Table 2.

Table 2: Duration of the Assignment and Schedule of Payments

#	Payment milestone	Payment Schedule (%)
1	Inception and Implementation Planning	10%

² Please see here for World Bank Group ESS: <https://projects.worldbank.org/en/projects-operations/environmental-and-social-framework/brief/environmental-and-social-standards> and here for World Bank Group ESF: <https://www.worldbank.org/en/projects-operations/environmental-and-social-framework>

2	Harmonized Tools and Interoperability Package for MHEWS	25%
3	Capacity Development, Training and Innovation	25%
4	Institutional Strengthening, Testing and Validation	25%
5	Finalization and Handover	15%



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