FEDERAL REPUBLIC OF SOMALIA

SOMALI DISASTER MANAGEMENT AGENCY (SoDMA)

Multi-National Climate Disaster Risk Financing Project (CDRF-ADRiFi Project - Somalia)

TERMS OF REFERENCE

CONSULTING SERVICES – FIRMS

Quality- and Cost-Based Selection (QCBS)

Design and Development of a Practical

Impact-Based Forecasting Framework and Prototype System for Climate Risks in Somalia

Item	Details
Country	Federal Republic of Somalia
Project	Multi-National Climate Disaster Risk Financing Project (CDRF–ADRiFi Project – Somalia)
Component	Component 1: Enabling environment for the adoption of climate risk financing instruments in Somalia
Financing Agreement	Grant No. 5550155002203 (GEF)
Project ID	P-Z1-K00-165
Implementing Agency	Somali Disaster Management Agency (SoDMA)
Assignment Title	Design and Development of a Practical Impact-Based Forecasting Framework and Prototype System for Climate Risks in Somalia
Reference No.	SO-SODMA-ADRIFI-QCBS-02-2026
Selection Method	Quality- and Cost-Based Selection (QCBS)
Contract Type	Consulting firm contract
Duration	Six (6) months
Duty Station	Mogadishu, Somalia, with limited travel to agreed test areas where feasible and secure
Working Languages	English and Somali

1. Background

Somalia faces recurrent climate-related hazards, particularly drought, riverine and flash flooding, extreme heat, water scarcity, and rainfall variability. These events affect lives and livelihoods, food security, displacement, public services, markets, infrastructure, and the wider economy. Although national and partner institutions produce a growing range of climate and early warning information, many products remain hazard-focused and do not consistently explain the likely consequences for people, assets, services, and priority locations.

The Federal Government of Somalia has received financing from the African Development Bank Group for the Multi-National Climate Disaster Risk Financing Project (CDRF–ADRiFi Project – Somalia). The Somali Disaster Management Agency (SoDMA) is the Executing Agency and has established a Project Implementation Unit (PIU) to coordinate implementation. This assignment supports Component 1 of the Project by strengthening climate risk knowledge, early warning, anticipatory action, and institutional decision-making.

Impact-Based Forecasting (IBF) combines hazard forecasts with exposure, vulnerability, coping-capacity, and historical impact information. It helps decision-makers understand what may happen, where impacts may occur, who or what may be affected, how serious the impacts may be, and which early actions should be taken. The assignment will help SoDMA and its partners move from general hazard information toward practical, action-oriented forecasts and warning products.

2. Objective and Intended Result

The overall objective is to engage a qualified consulting firm to design and demonstrate a practical, scalable, and locally manageable Impact-Based Forecasting framework and prototype analytical package for priority climate-related disaster risks in Somalia.

By the end of the assignment, SoDMA and relevant partners should have an agreed national IBF framework, documented data and institutional workflows, hazard-to-impact matrices and trigger logic for selected hazards, prototype maps and forecast products, operating procedures, trained users, and a realistic roadmap for gradual operationalization and scale-up.

The specific objectives are to:

1. Review existing forecasts, early warning systems, data sources, institutional mandates, and decision-making arrangements relevant to IBF;
2. Identify practical use cases and prioritize drought and flood for the initial prototype, subject to available data;
3. Develop a transparent framework linking hazard information with exposure, vulnerability, coping capacity, likely impacts, risk levels, and early actions;
4. Define proposed impact categories, thresholds, warning levels, triggers, institutional roles, and approval workflows;
5. Produce and test prototype IBF products, including maps, bulletins, matrices, alerts, and decision-support templates;

6. Strengthen SoDMA's capacity to interpret, update, quality-assure, and gradually operationalize the prototype; and
7. Provide a phased, costed roadmap for institutionalization, digital development, maintenance, and expansion.

3. Guiding Scope and Boundaries

Scope principle: The assignment is intentionally focused. It will deliver a practical framework and prototype package using available data and existing forecast products. It is not a contract to build a fully automated national real-time forecasting platform.

The following boundaries apply:

- The mandatory hazard focus is drought and flood. Additional hazards may be considered only where data, time, budget, and institutional demand support their inclusion.
- Demonstration and testing will cover one or two hazards and no more than two agreed test areas, selected during inception based on risk relevance, data availability, security, and feasibility.
- The firm shall propose a realistic and cost-effective level of effort using a small multidisciplinary team, combining compatible expert functions where appropriate, making maximum use of existing data, limiting travel, and undertaking focused demonstration and testing. The assignment does not include development of a fully automated platform, extensive primary data collection, nationwide validation, permanent infrastructure, or long-term system operation
- The IBF framework shall operate as the forecasting and impact-analysis component of Somalia's developing national Multi-Hazard Early Warning System. It shall build on existing government and partner services and shall not create a parallel warning system, data platform, or communication channel.
- The prototype may be implemented through documented analytical workflows, GIS products, spreadsheets, scripts, open-source tools, or a lightweight dashboard concept. A production-grade web platform is not required.
- The consultant will build on existing meteorological, hydrological, exposure, vulnerability, food security, population, infrastructure, and disaster-loss information. The creation of new national datasets is not required.
- Official warning issuance and operational forecasting authority will remain with the legally mandated government institutions.

The following are outside the scope of the assignment:

- Procurement, installation, or maintenance of permanent ICT or hydrometeorological hardware;
- Development of complex meteorological, hydrological, or climate-impact models from first principles;
- Establishment of a national real-time forecasting centre or 24/7 operational service;
- Nationwide field validation, community drills, or large-scale primary data collection;

- Replacement of existing forecasting, hydromet, early warning, or emergency-management systems; and
- Long-term operation or maintenance of the prototype after completion of the consultancy.

4. Scope of Services

Task	Minimum requirement
1. Inception and mobilization	Review project documents; confirm the interpretation of the assignment; agree the methodology, work plan, quality-assurance arrangements, reporting protocol, stakeholder engagement plan, risk register, data-access plan, proposed hazards, and proposed test areas.
2. Institutional and systems review	Map relevant mandates, existing forecasts, early warning products, approval and dissemination workflows, data-sharing arrangements, decision processes, and operational gaps across SoDMA and partner institutions.
3. Stakeholder engagement and use-case definition	Consult national and Federal Member State institutions, technical agencies, humanitarian and development partners, local authorities, and representative user groups. Define priority decisions and user needs that the IBF prototype must support.
4. Data inventory, quality assessment, and integration	Prepare a documented inventory of available hazard, forecast, exposure, vulnerability, coping-capacity, historical impact, disaster-loss, population, livelihood, infrastructure, food-security, health, water, and service-access data. Assess quality, ownership, access, scale, update frequency, licensing, limitations, and suitability. Clean and harmonize agreed datasets where feasible.
5. National IBF framework design	Design a practical forecast-impact-action framework, including institutional roles, data flows, hazard-to-impact pathways, vulnerability and coping-capacity considerations, impact categories, risk levels, decision points, quality control, approval, dissemination, and archiving arrangements.
6. Thresholds, triggers, and hazard-to-impact matrices	For drought and flood, develop proposed hazard thresholds, impact thresholds, alert levels, risk categories, trigger logic, likely impact statements, priority groups and assets, and recommended early actions. Clearly document evidence, assumptions, uncertainty, and validation requirements.
7. Prototype analytical package and forecast products	Develop a reproducible prototype package capable of combining agreed hazard, exposure, and vulnerability inputs to generate decision-support outputs. Produce editable templates for maps, impact bulletins, risk matrices, alert summaries, SMS/radio messages, local-language summaries, and short decision notes.

Task	Minimum requirement
8. SOPs, data governance, and communication	Prepare standard operating procedures for data updates, analysis, review, approval, dissemination, version control, archiving, feedback, and learning. Define data governance, access levels, responsible institutions, and arrangements for sensitive or restricted information.
9. Demonstration, testing, and validation	Demonstrate the prototype using historical events, available forecasts, and scenario exercises for the agreed hazards and up to two test areas. Compare outputs with observed impacts where data permit, document limitations, obtain technical and user feedback, and refine the package.
10. Capacity transfer	Deliver at least two hands-on technical training sessions and one validation/handover session for SoDMA and selected partner staff. Provide agendas, participant materials, exercises, attendance records, pre/post learning checks, and a concise capacity-transfer report.
11. Operational roadmap and final handover	Prepare a realistic roadmap covering institutionalization, governance, data improvement, financing, maintenance, digital development options, monitoring and evaluation, and phased expansion. Hand over all final documents, editable templates, data catalogues, scripts, formulas, maps, manuals, and source files.

5. Client and Consultant Responsibilities for Data

Responsible party	Responsibilities
SoDMA / PIU	Designate a focal point; provide available project documents and data held by SoDMA; facilitate introductions and formal requests to government and partner institutions; support access to agreed stakeholders and test areas; clarify authoritative sources; and coordinate review and approval of deliverables.
Consulting firm	Identify, request, inventory, assess, clean, harmonize, and document available data; verify provenance and usage conditions; maintain a data catalogue and metadata; protect sensitive information; document gaps, assumptions, uncertainty, and limitations; and hand over agreed cleaned datasets and reproducible workflows in editable form.
Third-party data	Access to data held by other institutions cannot be guaranteed. The firm must plan realistic alternatives and gap-filling options. Material access constraints will be documented promptly and managed through an agreed adjustment to assumptions, sequencing, or test areas, without expanding the scope beyond the contract.
New data creation	The assignment does not require creation of new national datasets or extensive primary data collection. Limited consultations and verification may be undertaken where necessary and feasible.

6. Deliverables, Schedule, and Payment

No.	Deliverable	Due	Payment	Minimum content and acceptance criteria
1	**Inception Report and Detailed Work Plan**	Week 2	10%	Approved methodology, work plan, staffing and mobilization plan, level-of-effort and budget-allocation approach, stakeholder plan, data-access plan, quality-assurance process, risk register, proposed drought/flood focus, and proposed test areas. Acceptance requires a realistic six-month schedule, clear responsibilities, and incorporation of inception comments.
2	**Early Warning Systems, Institutional, and Data Review Report**	Week 6	15%	Institutional and workflow map; review of existing forecasts and products; stakeholder/use-case findings; data catalogue and quality/gap assessment; data-access and governance issues; and recommended prototype inputs. Acceptance requires traceable sources, clear limitations, and an editable data inventory.
3	**Simplified National IBF Framework and Draft SOPs**	Week 12	25%	Agreed forecast-impact-action framework; roles and data flows; impact categories; risk and warning levels; proposed thresholds and triggers for drought and flood; uncertainty treatment; draft SOPs; and prototype specifications. Acceptance requires technical coherence, reproducible logic, stakeholder review, and editable files.
4	**Hazard-to-Impact Matrices and Prototype IBF Product Package**	Week 18	25%	Drought and flood hazard-to-impact matrices; prototype analytical workflow/package; sample maps, bulletins, risk matrices, alerts, decision notes, and communication templates; user guidance; and documented assumptions. Acceptance requires a demonstrable, usable, non-proprietary package and handover of source files/scripts/formulas.
5	**Prototype Demonstration, Validation, and Capacity-Transfer Report**	Week 22	10%	Demonstration for agreed hazards and up to two test areas; comparison with historical or scenario evidence; validation workshop; revised prototype; training sessions and materials; attendance and learning checks; and a comments-response matrix. Acceptance requires documented feedback and evidence that agreed revisions were incorporated.

No.	Deliverable	Due	Payment	Minimum content and acceptance criteria
6	**Final Consolidated IBF Package and Operational Roadmap**	Week 26	15%	Final framework, prototype package, SOPs, user manual, data catalogue, editable products, scripts/formulas, M&E framework, costed sustainability and financing roadmap, scale-up options, handover inventory, and executive summary. Acceptance requires full incorporation of comments, internal consistency, ownership/licensing documentation, practical recommendations that distinguish current resources from future financing needs, and formal written approval by SoDMA and, where applicable, the African Development Bank.

All deliverables shall be submitted in English. Public-facing and community communication products shall include Somali versions or concise Somali summaries, as agreed during inception. Payments will be made only after satisfactory completion and written acceptance of the relevant deliverable.

7. Review and Acceptance Process

- SoDMA will coordinate technical review and will normally provide consolidated comments within ten (10) working days of receipt of a deliverable.
- The consulting firm will submit a revised version and a comments-response matrix within the period agreed for that deliverable, normally five (5) working days unless substantial revision is required.
- A deliverable will be accepted when it is complete, technically sound, consistent with the agreed scope, based on traceable data and assumptions, reproducible, provided in editable form, and responsive to consolidated comments.
- Review or validation by stakeholders does not transfer responsibility for technical quality from the consulting firm.
- Where applicable under the Financing Agreement, deliverables and payments may also be subject to review or no-objection by the African Development Bank.

8. Duration and Location

The assignment will be completed within six (6) months from the effective date of the contract. The primary duty station is Mogadishu, Somalia. Limited travel to no more than two agreed test areas may be undertaken where necessary, secure, feasible, and cost-effective. The firm should combine in-country engagement with remote technical work where appropriate.

9. Reporting and Institutional Arrangements

The consulting firm will report to the SoDMA Project Coordinator through the CDRF–ADRiFi PIU. SoDMA will designate a technical focal point and may establish a small technical review group. The group may include representatives of the Ministry of Environment and Climate Change, relevant hydrometeorological and water institutions, agriculture and livestock authorities, Federal Member State institutions, and other technical partners.

- **Approval authority:** SoDMA, through the designated Project Coordinator/PIU, will issue formal acceptance of deliverables.
- **Technical data providers:** Relevant ministries, agencies, and partners will provide or validate data and technical inputs within their mandates.
- **Dissemination and warning authority:** Official forecasts and warnings will continue to be issued or approved by the legally mandated government institutions.
- **Consulting firm:** The firm will manage the assignment, assure quality, document sources and assumptions, facilitate consultations, and deliver all agreed outputs.

10. Inputs and Facilities to Be Provided by SoDMA

- Available project documents, relevant policies, previous studies, and data held by SoDMA;
- A designated focal point and coordination support for meetings and stakeholder access;
- Letters of introduction or formal data requests where reasonably required;
- Meeting space for agreed in-person sessions, subject to availability; and
- Timely consolidated review comments and decisions on hazards, test areas, and institutional arrangements.

11. Required Firm Experience

The firm, or a joint venture led by the firm, should demonstrate:

- At least seven (7) years of relevant organizational experience in climate services, impact-based forecasting, early warning systems, disaster risk management, hydrometeorological applications, climate-risk analytics, or related fields;
- Successful completion of at least three relevant assignments, including at least one assignment involving impact-based forecasting, forecast-to-impact analysis, early action triggers, or an operational decision-support tool;
- Strong capability in GIS, data integration, vulnerability analysis, risk communication, institutional workflow design, training, and knowledge transfer;
- experience working with government institutions and multi-stakeholder processes; and
- Experience in Somalia, the Horn of Africa, fragile contexts, or arid and semi-arid environments, which will be an advantage.

12. Indicative Key Experts

The final team structure will be proposed by shortlisted firms at the Request for Proposals stage. The following functions are expected. Firms may combine compatible roles where the proposed arrangement is credible and does not reduce quality or availability.

Function	Minimum expectation
Team Leader / Impact-Based Forecasting Specialist	Postgraduate degree in meteorology, hydrology, climate science, disaster risk management, geospatial science, or related field; at least 10 years of relevant experience; demonstrated leadership of comparable multidisciplinary assignments; strong stakeholder facilitation and reporting skills.
Climate / Hydrometeorology Specialist	Postgraduate degree in meteorology, climatology, hydrology, water resources, or related field; at least 8 years of experience with drought, flood, rainfall, seasonal forecasts, hydromet data, thresholds, and forecast interpretation.
GIS, Data, and Prototype Systems Specialist	Degree in GIS, geoinformatics, data science, computer science, engineering, or related field; at least 7 years of experience in spatial analysis, data integration, reproducible workflows, visualization, and practical decision-support tools.
DRM, Vulnerability, and Early Action Specialist	Postgraduate degree in disaster risk management, development, social science, food security, or related field; at least 7 years of experience in vulnerability and impact analysis, anticipatory action, contingency planning, triggers, SOPs, and institutional coordination.
Risk Communication and Capacity-Transfer Specialist	Degree in communication, education, DRM, social science, or related field; at least 5 years of experience in warning communication, adult learning, facilitation, user-centred products, local-language adaptation, and training evaluation.
National Liaison / Inclusion Expertise	Demonstrated knowledge of Somalia's institutions and operating context; Somali and English proficiency; experience in stakeholder engagement, gender and social inclusion, conflict sensitivity, and field coordination. This function may be combined with another role.

13. Deliverable and Contract Performance Standards

Standard	Required performance
Technical quality	Sound and transparent methods; appropriate use of available data; clear assumptions, limitations, uncertainty, and evidence.
Practicality	Outputs are usable by SoDMA and partners, proportionate to local capacity, and focused on decisions and early actions.
Reproducibility	All data sources, formulas, thresholds, scripts, logic, workflows, and map-production steps are documented and provided in editable form.
Interoperability	Use common and sustainable formats such as XLSX, CSV, GeoPackage, GeoJSON, shapefiles, PDFs, and open or widely supported tools where feasible.

Standard	Required performance
Timeliness	Deliverables and revisions are submitted in accordance with the approved work plan.
Stakeholder responsiveness	Consultations are purposeful, inclusive, and documented; consolidated comments are addressed transparently.
Sustainability	The prototype minimizes proprietary dependency and includes manuals, training, handover, and realistic maintenance and financing options.

14. Ownership, Confidentiality, Safeguards, and Inclusion

- All original deliverables, editable templates, models, scripts, maps, manuals, and documentation developed and paid for under the contract will become the property of SoDMA, subject to the lawful licences of pre-existing or third-party materials.
- The firm must identify all third-party and open-source components and their licence conditions. The final package must not create avoidable proprietary lock-in.
- Sensitive, restricted, or personally identifiable information must be handled securely and only for the purposes of the assignment. No confidential information may be disclosed without written authorization.
- Consultations and products must reflect gender equality, disability inclusion, displacement, age, livelihood, and other relevant dimensions of vulnerability. The methodology must be conflict-sensitive and consistent with applicable environmental and social safeguards.
- Any primary consultation must follow appropriate informed-consent, data-protection, safeguarding, and do-no-harm practices.

15. Annex: Minimum Prototype Components

Component	Minimum content
Hazard inputs	Ability to use available drought indicators, seasonal rainfall forecasts, flood/river information, and other agreed hazard products.
Exposure and vulnerability	Agreed population, settlement, livelihood, infrastructure, service, IDP, cropland, rangeland, water-point, health, road, and market layers, subject to availability.
Impact logic	Documented hazard-to-impact pathways, thresholds, risk categories, uncertainty notes, and differentiated impact statements.
Early action	Recommended actions, lead and supporting institutions, timing, coordination steps, and links to available preparedness or financing mechanisms.

Component	Minimum content
Outputs	Editable maps, matrices, bulletins, alert summaries, decision notes, SMS/radio templates, and Somali-language summaries for selected products.
Governance and quality assurance	Data ownership, update frequency, access rights, review and approval workflow, version control, archiving, and feedback mechanisms.
Handover	User manual, SOPs, data catalogue, source files, scripts/formulas, training materials, M&E indicators, and operational roadmap.