Terms of Reference (ToR)
Procurement of a Parametric Calculation Agent Cloud-Based Software African Risk Capacity Ltd (ARC Ltd)

Background

Africa remains highly vulnerable to climate change, which is increasing the frequency and severity of natural disasters. The African Risk Capacity Ltd (ARC Ltd), a hybrid mutual insurer and a financial affiliate of the ARC Group, provides parametric insurance and climate disaster preparedness to African Union (AU) Member States and its population. ARC delivers proactive (ex-ante) solutions for droughts, floods, tropical cyclones and other natural disasters while strengthening national capacities.

ARC Limited manages a growing portfolio of parametric insurance contracts covering multiple climate perils, including drought, tropical cyclone, flood, and excess rainfall. These contracts rely on peril-specific parametric indices to monitor seasons, determine trigger events, and calculate insurance payouts. The credibility of ARC Limited's operations depends on the accuracy, reproducibility, transparency, and timeliness of these calculations.

To support its insurance operations, ARC Limited currently relies on several peril-specific monitoring and modelling platforms, including:

- **Africa RiskView (ARV)** for drought risk monitoring (Crop and Rangeland indices)
  - Crop drought index, using agro-meteorological indices such as the Water Requirement Satisfaction Index (WRSI), Standard Precipitation Evapotranspiration Index (SPEI) and Standard Precipitation Index (SPI);
  - Rangeland index, using vegetation condition indices such as the Normalised Difference Vegetation Index (NDVI);
- **Tropical Cyclone Explorer (TCE)** for tropical cyclone hazard monitoring, and
- **Flood Explorer (FLE)** for daily flood monitoring.

These indices rely on data sourced from multiple external providers, including satellite observations, meteorological products and model outputs. Ensuring the integrity of the calculation process therefore requires robust controls for API data extraction, validation, completeness checking, and error handling based on predefined ARC Ltd underwriting protocols.

As ARC Ltd's portfolio expands in scale, geographic coverage and number of active contracts, there is an increasing operational need for a single, flexible parametric calculation agent solution that can:

- Consistently compute and validate parametric indices across all perils and contracts.
- Produce standardised, timely reports to support payout determination, policy reserving, internal decision-making, and contingency planning;
- Reduce operational delays that could affect insurance payouts or early response actions;
- Provide full traceability between input data, index calculations, and final outputs.

The calculation agent solution is therefore expected to support sovereign contracts within a unified technical and governance framework.

ARC Limited intends to procure a secure, cloud-based calculation agent solution, implemented by a qualified service provider, that establishes a centralised, auditable, and reproducible calculation and reporting layer across its parametric insurance portfolio, while interoperating with existing monitoring and modelling platforms.

Objectives of the Assignment

The objective of the selected vendor is to **design, develop, operationalise, and support the rollout of a modular** cloud-based **trusted calculation agent solution** that supports ARC Limited's parametric insurance operations through **robust data management, secure software system, and standardised reporting capabilities**.

The solution is intended to enable ARC Ltd to manage parametric calculations and related outputs in a **consistent, transparent, reproducible, and timely manner**, supporting insurance payout determination, operational decision-making, and contingency planning across its insurance portfolio.

The modular architecture should allow for future integration of new data sources, risk models, and multi-user access.

The specific objectives of this assignment are to:

Establish a trusted cloud-based calculation and reporting capability:

- Provide ARC Ltd with a reliable cloud-based calculation agent solution that functions as a trusted reference for running parametric insurance index calculations for Drought, Tropical Cyclone and Flood products
- Generate standardised reports and visualisation to support company's activities such as loss monitoring, reserving, operational decision-making and external reporting.

Support sound data management practices:

- Enable structured remote sensing data extraction, validation (including automated quality checks), visualisation, and controlled use from multiple internal and external sources (via API), in line with good practices in data quality management and traceability.
- Support configurable spatial, temporal, and resolution parameters and allow ARC Ltd to securely download and archive raw input data, processed datasets and calculation outputs in standard formats.
- The solution shall implement both automated and configurable validation checks, including completeness, consistency, and metadata integrity checks, with transparent logging of validation results and exceptions.

Ensure transparency, reproducibility and audit readiness:

- Ensure that calculations and reports produced by the solution can be reviewed, explained, and reproduced, supporting internal governance, external scrutiny, and audit processes.

- Maintain full traceability and versioning of data sources, parameters, and calculation logic, and support validation of calculation outputs.
- All calculations, data processing steps and validation checks shall be clearly documented and versioned and capable of being reproduced by ARC Ltd or a third party using the same inputs and parameters.

Improve timeliness and operational reliability:

- Support the timely, consistent reproducibility of calculations and reports required for insurance payouts and related processes, as per ARC Ltd's policy obligations, reducing operational delays and reliance on ad hoc or manual workflows.

Support multiple perils and insurance arrangements:

- Enable the calculation agent solution to support parametric insurance products across multiple peril categories and to be used for sovereign insurance programs.

Integrate with existing systems and workflows:

- Allow the solution to integrate with existing ARC monitoring platforms and operational processes, without requiring their replacement, and to fit within ARC Ltd's broader information systems environment.
- Ensure ARC Ltd retains full operational control and access to the deployed solution, including system configurations, workflows, data pipelines, and outputs.

Provide a sustainable and evolvable software solution:

- Deliver a solution that is owned by ARC Ltd and can be operated, maintained, modified, and extended by ARC Ltd or any third-party service provider appointed by ARC Ltd, without restriction, subject to agreed licensing of any third-party components. The solution shall avoid vendor lock-in and support orderly transition to alternative providers if required.
- Support periodic updates to data sources, methodologies, and reporting templates with documented change management and version control.

Support multi-user access and faster payout calculation:

- Ensure multi-user access and the capability to perform efficient bulk policy runs for generating index and payout reports. Incorporate user authentication and protection of sensitive information.

Provide maintenance, training and detailed user guides:

- Provide comprehensive documentation describing system configuration, data flows and step-by-step user guides and train ARC Ltd technical staff. Support future maintenance, enhancement, or transition if required.
- Provide training to ARC Ltd and support future maintenance, enhancement, or transition of the system if required.
- Willingness and ability to provide system ownership, configurations, and source code to ARC Ltd, enabling independent operation, maintenance, or transition to alternative providers without vendor lock-in.

Scope of Work, Deliverables and Timeline

Deliverable	Description	Timeline (indicative)
Inception Report	The service provider shall submit an inception report outlining: • The proposed solution approach and overall delivery strategy; • Key assumptions and dependencies; • An implementation plan, including phases, milestones, and responsibilities; • Governance and coordination arrangements with ARC Ltd; • Identified risks and proposed mitigation measures. This deliverable is intended to confirm mutual understanding of objectives, scope, and delivery approach prior to implementation.	End of Month 1 of contract signature
Platform Design Configuration Overview	The service provider shall provide documentation describing: • The functional design of the calculation agent solution; • Data management and processing concepts at a high level; • How configurability will be used to support existing drought, tropical cyclone and flood, products, and contracts; • How transparency, traceability, and audit readiness are addressed. This deliverable shall remain non-prescriptive and focus on functional and operational aspects rather than detailed technical specifications.	End of Month 2 of contract signature
Testing and Validation Results	The service provider shall support testing and validation activities, including:	End of Month 4 of contract signature

Deliverable	Description	Timeline (indicative)
	• Demonstration of core calculation and reporting capabilities; • Validation of data handling and traceability features; • Support for user review and feedback. Knowledge transfer activities may include workshops, walkthroughs, or training sessions, as appropriate.	
Training Toolkit	User manual, technical documentation, and materials	End of Month 5 of contract signature
Operational Support and Maintenance Services	Where applicable, the service provider shall provide operational support services for an agreed period, which may include: • Ongoing system support and issue resolution; • Maintenance and updates; • Support during critical calculation and reporting periods. The scope and duration of support services shall be defined in the contract.	End of Month 6 of contract signature

Vendor Qualifications and Experience Required

The selected firm or consultant must demonstrate :

• Technical expertise and experience in developing geospatial, climate risk or parametric insurance data platforms preferably using open-source technologies with cloud deployment and secure operational capability;

• Multidisciplinary team including a remote sensing expert, software developer/engineer, and cloud architect and other relevant specialist to cover system deployment, validation and operational support;

• Demonstrated experience in designing, developing or operating parametric insurance or index-based financial products including experience with payout calculation and operational reporting;

• Experience working with data-intensive or analytics-driven systems, preferably in insurance, risk management, climate, or related fields;

- Experience delivering solutions used in operational or decision-critical contexts, rather than purely research or prototype environments.
- Experience in climate risk modelling would be an added advantage.

Evaluation Criteria

Criteria	Weight (indicative)
Technical approach and methodology	30%
Relevant experience and expertise	25%
Feasibility and sustainability	25%
Cost-effectiveness and pricing	20%

Proposal Submission Requirements

Interested firms or vendors must submit:

- Technical proposal (max 10 pages): understanding, methodology, work plan, timeline.
- Financial proposal (in USD)
- CVs of proposed personnel.
- Company profile and references for similar work (with links if available).
- Statement on approach to open data, licensing, and governance.

Submission Deadline: 28 February, 2026

Submit to: info@ltd.arc.int and Cc wchitsike@ltd.arc.int;

ARC Limited reserves the right to:

- Accept or reject any proposal;
- Negotiate with one or more bidders;
- Modify the scope of the assignment prior to contract award;
- Cancel the procurement process without incurring liability
- ARC Limited reserves the right to request clarifications or additional information during the evaluation process.