AUDA - NEPAD
AFRICAN UNION DEVELOPMENT AGENCY

STANDARD TEMPLATE

TERMS OF REFERENCE	
Title of the Consultancy:	**Procurement of Consultancy services for RISE-RAP Regional Geospatial & Data Analytics (Remote Sensing, Hydro-Informatics & Dashboard Data Products)**
Consultancy type: (individual or firm)	Firm
Procurement Number (from procurement plan)	656/AUDA/DITIR/GEN/QCBS/2026
Background	The Africa Resilient Irrigation for Sustainable Economies Multiphase Programmatic Approach (Africa RISE MPA) is a regional program designed to increase access to irrigation, improve irrigation service performance, and enhance agricultural productivity and climate resilience across Eastern and Southern Africa. Within Phase 1, the Regional Acceleration Project (RISE-RAP) implemented by AUDA-NEPAD serves as a catalytic regional initiative to improve the planning and delivery of irrigation policies, investments, and services, primarily through regional knowledge management, benchmarking, policy alignment, and targeted technical assistance (TA). RISE-RAP is structured under three complementary components: (i) Accelerating Regional Learning and Knowledge, including establishment of an Africa RISE Gateway and a regional dashboard/benchmarking system; (ii) Accelerating Regional Alignment and Cooperation, including agreement on benchmarking definitions and interoperability protocols; and (iii) Accelerating Regional Implementation and Innovation, including on-demand TA supported by scaling partners. A central pillar of the program is the establishment of robust digital water intelligence and geospatial analytics capabilities—including remote sensing, IoT-enabled monitoring interfaces, standardized QA/QC protocols, and interoperable data pipelines—to support evidence-based planning, performance monitoring, and regional benchmarking.
Rationale	Despite significant irrigation potential in the region, countries face persistent constraints related to fragmented data systems, limited water accounting and hydro-informatics capacity, inconsistent standards, and weak mechanisms to benchmark performance and share evidence across borders. Further, participating countries lack integrated climate-risk and water security intelligence tools, operational irrigation performance diagnostics grounded in earth observation, and field-to-platform data pipelines capable of linking scheme-level monitoring with regional analytics. These gaps impede evidence-based irrigation investment planning and adaptive management across the Africa RISE MPA. RISE-RAP explicitly seeks to address these constraints by developing and operationalizing the regional "public goods" that countries can adapt locally, including foundational regional

	geospatial layers (e.g., crop/irrigation maps and evapotranspiration datasets), shared benchmarking indicators, and digital platforms (Gateway and dashboards). This consultancy is therefore required to: (i) produce and maintain priority regional geospatial data products that provide an independent, satellite-derived validation layer for country-reported benchmarking indicators and directly support the Africa RISE MPA Program Development Objective (PrDO) by tracking progress on access to new or improved irrigation and drainage services, adoption and sharing of regionally agreed benchmarking indicators, and climate resilience, food and nutrition security, and jobs outcomes; (ii) design and operationalize repeatable analytics workflows that feed the Africa RISE Gateway and regional dashboard and underpin TA delivery; and (iii) enable interoperability and data governance so that national systems can exchange and reuse data securely and consistently, supporting drought and flood resilience planning, irrigation performance assessment, regional benchmarking, and investment prioritization.
The objectives of the assignment	The overall objective of the assignment is to design, operationalize and institutionalize RISE-RAP's regional geospatial and data analytics function as a fully interoperable data production and validation workstream supporting the Africa RISE Gateway, the Regional Benchmarking Dashboard and the Africa RISE Regional Benchmarking System. The assignment shall generate trusted geospatial, remote-sensing, hydro-informatics and dashboard-ready data products that enable evidence-based irrigation planning, performance benchmarking, water-security monitoring, climate-risk intelligence, peer learning and adaptive management across Africa RISE participating countries. **Specific objectives are to:** 1. Produce foundational regional geospatial layers and analytics products, including crop and irrigated-area maps, evapotranspiration datasets, water productivity proxies, water-availability layers, drought/flood exposure layers and climate-risk composites required for regional benchmarking and decision support. 2. Establish a repeatable data pipeline covering data ingestion, quality assurance, metadata documentation, version control, validation, publication and periodic update workflows for use by AUDA-NEPAD and participating country focal points. 3. Align all data products and analytics outputs with the Africa RISE Regional Benchmarking System, including agreed indicators, baseline values, data readiness levels, peer-group comparison logic, traffic-light risk classifications, publication workflows and country validation requirements. 4. Ensure technical interoperability with the Africa RISE Gateway through API-ready services, common metadata standards, structured data exchange formats, agreed dashboard publication specifications and staging tests undertaken jointly with the Gateway workstream. 5. Support the design and operationalization of the Regional Irrigation Intelligence and Decision Support Platform, including the Irrigation Performance Assessment module, Water Security and Climate Risk modules, Digital Field Monitoring Toolkit, Regional Benchmarking analytics module and dashboard-ready decision-support package.

	6. Define and implement data governance, interoperability, data-sharing, QA/QC and institutional authorization protocols that enable secure, standardized and formally validated country-to-regional data exchange. 7. Build the capacity of AUDA-NEPAD, national focal points and relevant technical institutions to interpret, update, validate, publish and sustain the geospatial and benchmarking analytics outputs beyond the consultancy period.
Scope of work, activities and Tasks	The Consultant/Firm will work under the AUDA-NEPAD RISE-RAP PMU and in close coordination with the Africa RISE Gateway workstream, national focal points, the World Bank technical team and relevant regional partners. The scope is structured to mirror the Gateway ToR logic: joint inception, requirements and institutional readiness, technical design and data production, interoperability and Gateway integration, benchmarking analytics, capacity building, sustainability and handover. **A. Joint Inception, Institutional Readiness and Workplan Confirmation** 1. Participate in a joint inception phase with the Africa RISE Gateway team to prepare a unified delivery schedule, shared data model, API architecture note, staging plan, approval pathway and milestone acceptance process. Where the same firm delivers both workstreams, separate teams, named leads, reporting lines and acceptance checkpoints shall be maintained. 2. Confirm priority use cases, benchmarking indicators, baseline data needs, country validation workflows, dashboard publication requirements, data access levels, data sovereignty considerations and formal authorization pathways for country engagement. 3. Map relevant national GIS units, irrigation authorities, hydrological agencies, agricultural research institutions and MPA focal points, documenting their mandates, datasets, formats, technical readiness, institutional permissions and data-sharing requirements. 4. Prepare a country institutional readiness and data-readiness matrix identifying counterpart institutions, data availability, validation responsibilities, legal basis for data sharing, gaps requiring MoUs or endorsements, and sequencing for phased data onboarding. **B. Regional Geospatial Data Products and Benchmarking Inputs** 1. Produce priority regional geospatial layers aligned with the Africa RISE Regional Benchmarking System, including crop and irrigated-area maps, evapotranspiration and water productivity datasets, vegetation and biomass indicators, surface-water extent, groundwater-stress proxies where feasible, drought/flood exposure and climate-variability composites. 2. For each dataset, provide methods notes, assumptions, uncertainty and limitations notes, metadata, baseline year, update frequency, version-control records and publication readiness status. 3. Ensure that each geospatial product is mapped to relevant Africa RISE PDO-level or intermediate indicators and can support cross-country, cross-scheme and peer-group comparisons using normalized definitions and agreed benchmarking typologies. **C. Analytics Workflows and Decision-Support Outputs**

	1. Develop and operationalize an analytics suite comprising: Irrigation Performance Assessment; Water Security analytics; Climate Risk analytics; Digital Field Monitoring Toolkit; Regional Benchmarking analytics; and Decision Dashboard publication package. 2. Generate dashboard-ready indicator feeds, map services, analytical summaries, traffic-light risk flags, country profiles, peer-group comparison tables and technical notes suitable for publication through the Africa RISE Gateway. 3. Define, for each analytics module, which products are produced under this consultancy, which products are ingested by the Gateway, how they are validated, how they are updated and how they appear to public users, national focal points, AUDA-NEPAD and approved partners. **D. Data Governance, Interoperability, QA/QC and Publication Controls** 1. Prepare and operationalize a practical Data Governance, QA/QC and Interoperability Pack covering validation rules, uncertainty documentation, metadata standards, dataset lineage, version control, access controls, API/interface specifications and data privacy requirements. 2. Develop a minimum interoperability package that includes data submission templates, exchange schemas, country endorsement templates, data-sharing agreement templates, publication workflow and a country uptake register showing formal adoption status, approved data elements, focal points and update obligations. 3. Undertake at least two integrated staging and user-acceptance tests with the Gateway workstream demonstrating end-to-end data flow from geospatial production to Gateway ingestion, validation, publication and dashboard display under live or simulated conditions. **E. Capacity Building, Sustainability and Handover** 1. Design and deliver a tiered capacity-building programme for AUDA-NEPAD technical staff, national data focal points, programme managers, policy users and field teams, including practical exercises and on-the-job support linked to actual analytics products and Gateway staging outputs. 2. Prepare an Annual Update Cycle Protocol specifying steps, tools, person-hours, data inputs, QA/QC checks, metadata requirements and publication procedures required for AUDA-NEPAD staff to execute routine seasonal or annual updates. 3. Complete at least one supervised staff-led end-to-end update cycle before contract close and provide a transition/backstopping plan for continued troubleshooting, quality assurance and operational guidance after core delivery.
Capacity Building Program	A structured capacity-building programme shall be delivered to ensure sustainability beyond the assignment and to strengthen both regional-level users and national-level actors. Because data will be generated, validated and submitted at country level, the programme shall build national capacity so that the platform functions as a sustainable data production and validation system, rather than depending on repeated follow-up with country teams for routine submissions, validation and issue resolution.

	1. **Training Module 1 – Geospatial Products for Irrigation Planning and Benchmarking:** interpreting crop and irrigation maps, evapotranspiration datasets, methods notes, uncertainty statements and limitations. 2. **Training Module 2 – QA/QC and Metadata:** applying SOPs, version control and minimum documentation requirements for publication, reuse and integration into the Africa RISE Gateway. 3. **Training Module 3 – Dashboard Data Use for Regional and National Users:** extracting insights for regional learning, TA targeting and reporting through the Africa RISE Gateway and dashboard, including role-based use of benchmarking views and approved country submissions. 4. **Training Module 4 – National Data Focal Point Training:** applying national data submission protocols, data quality validation workflows, the minimum interoperability pack and escalation procedures where data quality issues arise. 5. **Training Module 5 – Strategic Training for Policymakers and Programme Managers:** interpreting regional benchmarking indicators, irrigation performance diagnostics, climate-risk intelligence and water-security analytics to support investment decisions and adaptive management under Africa RISE. 6. **Training Module 6 – Operational Training for Field Teams:** using digital field monitoring toolkits, data collection standards and procedures for uploading field observations to the analytics platform. Training shall be delivered in-country in at least one participating country, such as Zambia or Ethiopia, and remotely for other participating countries. Lessons from the pilot shall be incorporated into the final training package and digital toolkit user guide. **Technical clinics and office hours:** Periodic technical clinics shall be held with the AUDA-NEPAD PMU and nominated country focal points to resolve implementation issues, support adoption and refine training materials. Capacity-building outputs shall include training slides, practical exercises, user guides and focal-point reference materials, with attendance records and post-training evaluations for regional and national participants.
Expected results and deliverables	The Consultant/Firm is expected to deliver the following results and outputs: 1. A fully documented and operational **regional geospatial data production pipeline**, covering ingestion, QA/QC, metadata, version control and publication, that feeds the Africa RISE Gateway, regional dashboard and benchmarking system. 2. A prioritized set of **foundational regional geospatial datasets**, at minimum including crop and irrigated-area maps and evapotranspiration datasets, delivered with metadata, methods notes, version control and update guidance. 3. A package of **dashboard-ready analytics outputs** aligned with the Africa RISE Regional Benchmarking System, including indicator calculations, map layers, technical notes and publication-ready data services for Gateway and dashboard ingestion. 4. A practical **data governance, QA/QC and interoperability package**, including SOPs, metadata templates, exchange standards, API/interface specifications and

	implementation templates required to support secure, standardized country-to-regional data exchange. 5. An operational **Irrigation Performance Assessment module**, with user documentation and indicator reference sheets for routine monitoring of irrigated-area extent, crop water consumption, crop water productivity and scheme performance diagnostics. 6. An operational **water-security and climate-risk analytics package**, with risk-classification outputs supporting drought and flood resilience planning, irrigation investment prioritization and publication through the Africa RISE Gateway and dashboard. 7. **Digital field monitoring toolkits**, tested and deployed in at least one participating country, with user manuals and protocols to support FLID monitoring, O&M diagnostics and integration of field observations with regional analytics. 8. A completed **capacity-building and handover package** covering AUDA-NEPAD and country focal points, including training materials, user guides, supervised update sessions and evidence that designated staff can execute at least one end-to-end update cycle. 9. A consolidated **system operations, sustainability and continuation package**, including source code and workflows where applicable, the Geospatial Sustainability and Continuation Plan, post-contract operating model, update-cycle requirements, indicative follow-on resourcing needs and formal final handover materials.
Location	The assignment will be conducted primarily on a remote basis, with the firm working closely with the AUDA-NEPAD Project Implementation Unit, the Division of Management of Information Systems, the International Water Management Institute (IWMI), the World Bank technical teams, MPA country focal points and other relevant stakeholders through virtual consultations, coordination meetings and technical review sessions. The remote modality is appropriate given the digital nature of the assignment and the need to engage stakeholders across the participating Eastern and Southern African countries. Limited in-person engagement may be required where necessary for key consultations, validation, handover or capacity-building activities, including possible sessions at AUDA-NEPAD headquarters in Centurion, South Africa, IWMI, and selected participating countries, subject to prior agreement with AUDA-NEPAD.

Timeframe of the assignment	The assignment shall be implemented in close synchronization with the Africa RISE Gateway implementation schedule. Core delivery is expected to run for approximately twelve (12) months from contract signature, followed by a structured transition and backstopping period of four (4) to six (6) months, as agreed in the contract. This sequencing recognizes that geospatial analytics products, benchmarking outputs and publication-ready data services depend on the Gateway architecture, staging environment, API specifications and dashboard publication readiness. The implementation approach shall therefore follow a phased model: joint inception and architecture alignment; data governance and interoperability readiness; Release 1 geospatial datasets; Release 1 analytics and benchmarking outputs; Gateway staging and dashboard

publication package; capacity building and supervised update cycle; final handover; and transition/backstopping support. No dashboard-facing data product shall be considered finally accepted until it has passed the agreed QA/QC checks, metadata completeness requirements, country validation process where applicable, and Gateway staging or publication-readiness review.

Phase / Milestone	Indicative Timing
Joint Inception Report, Work Plan, Institutional Readiness Matrix and Gateway Integration Schedule	T0 + 2 weeks
Data Governance, QA/QC, Country Data Sharing and Interoperability Pack	T0 + 6 weeks
Foundational Regional Layers – Release 1 with metadata, methods notes and baseline values	T0 + 12 weeks
Analytics Outputs – Release 1 aligned with the Regional Benchmarking System	T0 + 20 weeks
Dashboard Publication Package prepared to Gateway specification and tested in Gateway staging environment	Prepared by T0 + 32 weeks; staging test by T0 + 36 weeks; live publication after Gateway readiness, expected around Week 40
Capacity Building Preparation, AUDA-NEPAD PMU Review and Training Material Approval	T0 + 36 to 40 weeks
Capacity Building Delivery, supervised update cycle and Gateway-aligned user support	T0 + 40 to 54 weeks
Foundational Regional Layers – Release 2 and Change Log	T0 + 48 weeks
Final Report, Handover Package and Sustainability/Continuation Plan	End of core contract
Transition and Backstopping Support	4–6 months after core delivery, as agreed in the contract

Deliverables / Reports / Milestones Schedule

Deliverable / Report	Minimum Content and Acceptance Requirements	Delivery Period
Joint Inception Report, Work Plan and Integration Schedule	Methodology, staffing, risks, joint delivery schedule, Gateway dependencies, staging requirements, institutional readiness matrix, data-readiness matrix, authorization pathway and separate workstream governance arrangements where applicable.	T0 + 2 weeks

	Data Governance, QA/QC and Interoperability Pack	SOPs, validation rules, metadata templates, versioning protocol, uncertainty notes, data-sharing template, country uptake register, API/interface specifications and minimum interoperability requirements for Gateway ingestion and benchmarking publication.	T0 + 6 weeks
	Foundational Regional Layers – Release 1	Priority crop and irrigated-area maps, ET datasets, water productivity proxies, water availability layers and climate-risk products with methods notes, baseline values, metadata, limitations and update guidance.	T0 + 12 weeks
	Analytics Outputs – Release 1	Benchmarking-support analytics package, indicator calculations, traffic-light risk logic, peer comparison tables, map layers, validation notes and API-ready data services aligned with the Africa RISE Regional Benchmarking System.	T0 + 20 weeks
	Dashboard Publication Package	Dashboard-ready datasets, metadata, publication workflow, access-control assumptions, Gateway staging test results and evidence of end-to-end data flow from analytics production to Gateway display.	Prepared by T0 + 32 weeks; staging by T0 + 36 weeks; publication after Gateway readiness
	Capacity Building, Supervised Update and Handover Package	Training materials, practical exercises, user guides, focal-point reference materials, attendance records, evaluations, supervised AUDA-NEPAD-led update cycle, sustainability plan, handover records and transition/backstopping arrangements.	T0 + 40 to 54 weeks; transition 4–6 months as agreed
Submission & approval of reports	The Consultant/Firm will report to the AUDA-NEPAD Project Coordinator for RISE-RAP, who will coordinate technical review and approval of all deliverables in consultation with the Africa RISE Gateway team, AUDA-NEPAD technical units, relevant country focal points and the World Bank technical team, as appropriate. Deliverables that affect Gateway ingestion, staging, benchmarking publication, dashboard visualization or country-level data disclosure shall be reviewed jointly by the PMU and the Gateway workstream before formal acceptance. The Consultant/Firm shall submit sufficient supporting documentation to demonstrate data lineage, QA/QC completion, metadata compliance, validation status, publication readiness and consistency with the Africa RISE Regional Benchmarking System. Monthly progress meetings shall be held with the Project Coordinator. Joint synchronization sessions with the Gateway team shall be held at minimum during inception, API specification, data governance pack finalization, staging tests, dashboard publication readiness, capacity-building preparation and final handover. Where the same firm delivers both the Gateway and		

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<tr><td></td><td>geospatial assignments, separate progress reporting and independent milestone acceptance may be required to maintain accountability across both workstreams.

All reports shall be submitted electronically in MS Word and PDF formats, with datasets, code, metadata, APIs, scripts, templates and other technical annexes submitted in editable and reusable formats acceptable to AUDA-NEPAD. Final acceptance shall be subject to PMU approval and, where applicable, confirmation that outputs are technically compatible with the Gateway staging or publication environment.</td></tr>
<tr><td>Language requirements:</td><td>All deliverables and communications shall be in English. Proficiency in French or Portuguese would be an added advantage given the regional nature of the assignment.</td></tr>
<tr><td>Person Days / Months</td><td>The following is an indicative estimate of key expert person-days:

<table>
<tr><th>Key Expert</th><th>Person-Days</th></tr>
<tr><td>Key Expert 1: Team Leader / Lead Geospatial & Data Analytics Specialist</td><td>35</td></tr>
<tr><td>Key Expert 2: Remote Sensing / GIS & Spatial Data Analyst</td><td>30</td></tr>
<tr><td>Key Expert 3: Hydro-Informatics & Water Monitoring Specialist</td><td>25</td></tr>
<tr><td>Key Expert 4: Data Engineer / Dashboard Data Pipeline & Integration Specialist</td><td>30</td></tr>
<tr><td>Key Expert 5: Data Governance, QA/QC & Metadata Specialist (Interoperability Lead)</td><td>20</td></tr>
<tr><td>Total</td><td>140</td></tr>
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<tr><td>Governance, support and facilities to be provided by AUDA-NEPAD</td><td>AUDA-NEPAD shall provide:
• Participant roster and communication facilitation
• RISE-RAP MPA operational documents and background reports
• Access to regional institutional partners (IGAD, SADC)
• Venue and logistics for the in-person training workshop
• Virtual platform access for online training sessions
• Letters of introduction to Member States and other stakeholders as requested

The AUDA-NEPAD Project Coordinator shall serve as the primary interface between AUDA-NEPAD and the Consultant/Firm. A Project Advisory Committee comprising representatives from relevant AUDA-NEPAD directorates and key regional partners shall provide strategic oversight, review progress and support coordination with participating countries and regional institutions.

The operational base for the assignment is Centurion, South Africa (AUDA-NEPAD Headquarters). The online training phase will be delivered remotely to participants across Eastern and Southern Africa. The in-person intensive workshop will be held at a venue in the region to be confirmed by AUDA-NEPAD, with possible locations including Johannesburg, Nairobi, or Addis Ababa.</td></tr>
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Proposed Payment Schedule	**1st Payment:** Ten (10) percent of the lump-sum amount upon submission and approval of the Joint Inception Report, Work Plan and Gateway-aligned integration schedule. **2nd Payment:** Twenty-five (25) percent upon approval of the Data Governance, QA/QC and Interoperability Pack and delivery of Foundational Regional Layers – Release 1. **3rd Payment:** Twenty-five (25) percent upon approval of Analytics Outputs – Release 1 and the Dashboard Publication Package prepared to the agreed Gateway specification and tested in the Gateway staging environment. **Final Payment:** Forty (40) percent upon completion of capacity building after AUDA-NEPAD PMU approval of training materials, submission and acceptance of the Final Report and Handover Package, and confirmation of Gateway-aligned publication or publication readiness.
Experience of the Firm	The Consulting Firm shall demonstrate proven, verifiable experience delivering comparable assignments that combine geospatial/remote sensing analytics, hydro-informatics and water monitoring, and dashboard-ready data pipelines for regional or multi-country programs **in the irrigation, agricultural water management, or water resources sector**. In particular, the Firm must demonstrate: (i) capacity to deliver **remote sensing products at regional scale**, including irrigated area mapping and evapotranspiration datasets, with clear documentation of methods, assumptions, accuracy limits, and known limitations; (ii) experience designing and implementing **repeatable, cloud-based geospatial data pipelines**, including API-based interoperability between the platform, national systems, and regional repositories; and (iii) experience working in **Eastern and/or Southern Africa**, including knowledge of regional data ecosystems, national GIS institutions, irrigation sector stakeholders, and the ability to operate across multiple Member States, RECs, and institutional counterparts. Specifically: The Firm must have a minimum of eight (8) years of demonstrated experience designing and delivering geospatial analytics and/or data systems for development programmes, including multi-country or regional initiatives. 1. The Firm must demonstrate established capacity to deliver digital monitoring solutions that integrate a central dashboard environment and a geospatial verification stack (consistent with RISE-RAP Tool-2 and Tool-3 approach). 2. Proven experience producing and operationalizing **remote sensing products** relevant to irrigation and water monitoring (e.g., irrigated area mapping, cropping intensity proxies, ET/actual ET products, drought/flood exposure layers), including clear documentation of methods and limitations. 3. Demonstrated experience using satellite imagery and open geospatial workflows consistent with program verification needs (e.g., Sentinel and Landsat or equivalent open imagery workflows). 4. Demonstrated ability to implement **ground-truthing/validation approaches** (e.g., integrating survey validation and field verification to triangulate reported outputs with observed conditions). 5. Proven experience integrating hydro-informatics or water monitoring inputs into analytics products (e.g., hydrological station status, abstraction registries, groundwater/aquifer-related indicators, or similar monitoring datasets) and packaging them into decision-support outputs.

	6. Proven experience designing and operating **repeatable data pipelines** that cover data ingestion → validation/QA/QC → metadata → publication (including versioning/change logs) for periodic updates. 7. Demonstrated capability in establishing and applying **data QA/QC protocols**, validation dashboards, and automated aggregation mechanisms that reduce manual error and support stewardship. 8. Proven experience in **metadata standards and dataset governance** (cataloguing, lineage, access controls, and release/version management) for operational dashboards and regional repositories. 9. Proven experience supporting **interoperability** across multiple institutions/systems (APIs, exchange formats, schema alignment, and integration), including drafting practical guidance and SOPs for data sharing. 10. Where data governance is included, the Firm must demonstrate substantive experience in **data governance policy/procedures/tools** and capacity-building for stakeholders (evidence of similar assignments, ideally across African institutions). 11. Proven experience delivering secure, scalable **web-based dashboards/portals** with role-based access and structured data submission workflows (including secure upload, validation, and aggregation features). 12. Experience integrating data from multiple sources commonly used in development programs, including national M&E systems, partner reporting portals, and mobile data collection tools such as **ODK/Kobo** (or equivalent). 13. The Firm should have successfully completed at least two (2) similar assignments in the last five (5) years involving (i) remote sensing/GIS analytics and (ii) production of dashboard ready datasets and documentation, evidenced by completion certificates and/or client references. 14. The Firm must demonstrate experience working in African countries and ability to operate across multiple Member States/RECs and institutional counterparts, including remote delivery and targeted missions as required. 15. The Firm must demonstrate practical experience supporting regional programs where data contributions come from multiple actors (e.g., country teams and regional entities) and require structured validation and consolidation. 16. The Firm must demonstrate proven capacity to deliver training, user manuals, and structured handover packages, including training curricula tailored to different audiences and evidence of past delivery of capacity building programs linked to digital tools/dashboards. 18. Proven experience implementing internal **quality assurance processes** for technical outputs (peer review, reproducibility of methods, documentation completeness) and delivering within agreed milestones. (Evidence: examples of QA plans, sample deliverables, or client confirmations).
Qualification and work experience required for Key Experts	For Firms, a minimum of five (5) Key Experts is required. CVs for all Key Experts shall be submitted and clearly mapped to the tasks in the ToR **Key Expert 1: Team Leader / Lead Geospatial & Data Analytics Specialist**

- Advanced university degree (minimum Master's) in Remote Sensing, GIS/Geomatics, Earth Observation, Hydrology/Water Resources (with strong geospatial analytics), Data Science, Environmental Engineering, or closely related field.
- Minimum **10 years** of progressively responsible experience leading geospatial analytics and/or digital monitoring assignments (multi-country or regional preferred).
- Minimum **5 years**' experience working with multilateral/bilateral or comparable development programs requiring coordination across governments/RECs or multi-institution settings.
- Demonstrated experience designing and delivering integrated solutions where a central dashboard is supported by a GIS & Remote Sensing verification system (Tool-2/Tool-3-type model).
- Demonstrated experience producing and operationalizing remote sensing outputs relevant to irrigation/water monitoring (e.g., irrigated area expansion, cropping intensity proxies, ET/actual ET, drought/flood exposure layers) and presenting results in decision-ready formats.
- Previous experience carrying out similar assignments in Africa is required

Core Competencies

- Strong leadership, coordination, and client-facing facilitation skills; proven ability to steer multi-disciplinary teams and deliver milestone-based outputs.
- Excellent technical writing and communication; ability to translate technical outputs into user-ready documentation and guidance for adoption.

Key Expert 2: Remote Sensing / GIS & Spatial Data Analyst (Irrigation & Climate Resilience)

- Master's degree (or equivalent) in Remote Sensing, GIS/Geomatics, Earth Observation, Environmental Science/Engineering, Geography, or related discipline.
- Minimum **7 years** of professional experience in remote sensing/GIS analysis and production of spatial datasets for development or infrastructure/water programs.
- Proven experience working with satellite imagery and geospatial workflows suitable for monitoring irrigated areas and water-use proxies (including use of **Sentinel and Landsat** or equivalent open imagery sources).
- Demonstrated experience generating irrigation-relevant spatial products used for monitoring and verification, and supporting annual/periodic validation approaches (e.g., triangulation of reported outputs with independently observed conditions).
- Demonstrated proficiency in spatial data management and modelling (geodatabases; coordinate reference systems; metadata; reproducible workflows).
- Previous experience carrying out similar assignments in Africa is required

Preferred Skills

Demonstrated proficiency with common GIS platforms (e.g., ArcGIS/QGIS) and spatial databases (e.g., PostGIS) consistent with enterprise monitoring needs.

Key Expert 3: Hydro-Informatics & Water Monitoring Specialist

- Master's degree in Hydrology, Water Resources Engineering, Hydro-informatics, Environmental Engineering, or a closely related field.
- Minimum **7 years** of professional experience in hydrology/hydro-informatics, water monitoring systems, or water accounting/decision-support analytics.

- Demonstrated experience integrating heterogeneous water-sector datasets into structured analytical outputs (e.g., water monitoring inputs, abstraction registries, hydrological station status, aquifer-related indicators, or comparable monitoring datasets).
- Experience contributing to analytics that support drought/flood resilience and adaptive monitoring in irrigated landscapes (including linking climate shock exposure insights to planning/monitoring outputs).
- Previous experience carrying out similar assignments in Africa is required

Preferred Skills

- Experience working with field/mobile data collection inputs and integrating them into monitoring workflows (e.g., ODK/Kobo or equivalent), aligned to data quality/verification requirements.

Key Expert 4: Data Engineer / Dashboard Data Pipeline & Integration Specialist

- University degree (minimum Bachelor's; Master's preferred) in Computer Science, Software Engineering, Data Engineering, Information Systems, or related field.
- Minimum **8 years** of proven experience designing and deploying secure, scalable data systems and/or dashboards, including database architecture and API integration.
- Demonstrated experience designing and operating end-to-end data pipelines that enable data validation, aggregation, and periodic updates, and preparing "dashboard-ready" datasets with documentation.
- Demonstrated experience implementing secure authentication / role-based access control, and structured submission/validation workflows (secure upload + validation dashboards + automated aggregation).
- Demonstrated experience building and integrating APIs/ETL and ensuring interoperability between systems (e.g., RESTful APIs; structured data exchanges).
- Previous experience carrying out similar assignments in Africa is required

Preferred Skills

- Experience delivering bilingual English/French dashboard interfaces and exportable outputs, including CSV, XLSX and PDF formats, would be an advantage.

Key Expert 5: Data Governance, QA/QC & Metadata Specialist (Interoperability Lead)

- Master's degree in data governance, Information Security, Data Management, Public Policy (with digital/data governance focus), Information Systems, or related field.
- Minimum 10 years of experience in data governance and/or data quality management (policy, procedures, tools, and operationalization) in multi-stakeholder environments
- Demonstrated experience establishing QA/QC protocols for data collection, processing, and analytics outputs, including validation rules and quality assurance processes.
- Demonstrated experience implementing metadata documentation standards and interoperability practices (file naming conventions; folder hierarchies; variable dictionaries; coordinate reference system documentation; version control/change logs).
- Proven experience supporting multi-institution data exchange and interoperability (guidance notes/SOPs, data sharing protocols, and practical templates usable by Member States/RECs).
- Previous experience carrying out similar assignments in Africa is required

	<u>Key Expert 6 (Mandatory): Capacity Building & Handover / Knowledge Transfer Specialist</u> • University degree in Training/Education, Knowledge Management, Information Systems, Data/Analytics, or related field. • Minimum 5 years of experience designing and delivering capacity-building programs linked to digital tools, dashboards, data systems, and user adoption. • Proven experience developing user manuals, training materials, and delivering training workshops for institutional users (including Member States/regional partners) and completing handover packages. • Previous experience carrying out similar assignments in Africa is required **Competencies (all key experts):** • Strong analytical and problem-solving skills; ability to produce high-quality technical outputs under milestone schedules. • Excellent written and oral communication skills; demonstrated ability to work in multicultural, multi-country settings. • Language: Proficiency in **English** is required; **French** is a strong advantage given bilingual platform and regional engagement requirements.
Copyrights	Both data and materials used and produced under this assignment will be submitted to AUDA-NEPAD, who retain copyright. Consultants may not divulge, extract, quote, or make reference to the outcomes of this assignment in other work without the expressed written permission of AUDA-NEPAD. All intellectual property rights in the training materials, toolkit, and other deliverables developed under this contract vest in AUDA-NEPAD upon completion of the assignment.