

Project title:	Processing number/
Sustainable Development of the Mining Sector in Uganda (SDMU)	cost centre:
Country:	G-012144-011
Uganda	G-012144-001 (Option 3)
Burundi (Option)	Tender number:
Subject of the tender procedure:	10013716
Development of a National Minerals Database	

0	List of abbreviations	4
1	Context.....	5
1.1	The company.....	5
1.2	Project background.....	5
1.3	GovStack approach	6
1.4	Context within the ICGLR	7
1.5	Objective of the commission/subject of the procurement	8
2	Requirements for the IT Solution	8
2.1	Existing IT Solutions	9
2.1.1	NMDB Prototype	9
2.1.2	DGSM	9
2.2	General conditions and Architecture vision	10
2.2.1	Technical Working Group (TWG) Uganda	11
2.2.2	Description of the application/use of the IT solution	11
2.3	General Requirements.....	12
2.3.1	Onboarding, architecture validation, testing and QA approach.	12
2.3.2	Development Environment	12
2.3.3	Code, Test, Deployment and Hand over.....	13
2.3.4	Documentation	14
2.3.5	Continuous user support and operation.....	14
2.4	Functional requirements and Epics.....	15
2.5	Usage of Standardised solutions	15
2.5.1	Software extending the functionality of NMDB.....	16
2.5.2	Software supporting the implementation processes of NMDB	16
2.6	Non-functional requirements.....	16
2.7	Use of open-source software (OSS)	21
2.8	Hosting	21
2.9	Further specifications/general conditions	21
2.10	Other Requirements	21
3	Responsibilities of the contractor	21
3.1	Use of Agile Methodology	21

3.1.1	Sprint.....	22
3.1.2	Iteration/Product Increments (PI).....	22
3.1.3	Feature/User Story	22
3.1.4	Backlog	22
3.1.5	Daily Stand-ups.....	22
3.1.6	Retrospective, Review & Planning.....	23
3.1.7	Scrum team.....	23
3.1.8	Product owner	23
3.1.9	CI/CD Environment	23
3.1.10	Continuous tasks for each sprint (Definition of Done)	23
3.1.11	Testing and quality assurance.....	24
3.2	Continuous project management	25
3.3	Planned Product Increments (PI) and Schedule	25
4	Granting of rights of use.....	25
4.1	NMDB and its components	25
5	Data protection	26
6	Language	26
7	Technical-methodological concept.....	26
7.1	Requirements for the technical-methodological concept (section 1 of the assessment grid)	27
7.1.1	Assessment of the requirements:	27
7.1.2	Project management and development methodology:	27
7.1.3	Operational plan/personnel assignment plan:.....	27
7.1.4	Test and documentation concept:.....	27
8	Human resources	27
8.1	Human resources concept	27
9	Costing requirements	32
9.1	Assignment of experts	32
9.3	Hosting	34
9.4	Materials and equipment 1 - Procurement for Plugins.....	35
9.5	Materials and equipment 2 - License Costs for IT Project Management Tools	35
9.6	Flexible remuneration	35
10	Requirements on the format of the tender	36
11	Options.....	36
11.1	Option 1: Extension of the Uganda Pilot towards full scale solution	36
11.1.1	Type and scope.....	36
11.1.2	Planned Product Increments (PI) and Schedule	36
11.1.3	Requirements.....	37

11.1.4	Quantative requirements for the optional services	37
11.2	Option 2: Extension of solution for Uganda	39
11.2.1	Type and scope.....	40
11.2.2	Planned Product Increments (PI) and Schedule	40
11.2.3	Requirements.....	40
11.2.4	Quantitative requirements for the optional services	40
11.3	Option 3: Extension of Pilot to Burundi.....	43
11.3.1	Type and scope.....	43
11.3.2	Context of Burundi.....	43
11.3.3	Objective of the commission/subject of the option	44
11.3.4	Existing IT Solution within BMO.....	44
11.3.5	Requirements.....	46
11.3.6	Quantitative requirements for the optional services	47
12	Annexes	49

0 List of abbreviations

API	Application Programming Interface
ASM	Artisanal and small-scale mining
BMZ	German Federal Ministry for Economic Cooperation and Development (Bundesministerium für wirtschaftliche Zusammenarbeit und Entwicklung)
BRASM	Biometric Registration of Artisanal and Small-scale Miners
CV	Curriculum Vitae
CoC	Chain of Custody
DGSM	Department of Geological Survey and Mines
EU	European Union
GIS	Geographic Information System
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH
GMIS	Geological and Minerals Information System
ICGLR	International Conference on the Great Lakes Region
ICT	Information and Communication Technology
IT	Information Technology
JSON	JavaScript Object Notation
LMIS	Laboratory Management Information System
MCRS	Mining Cadastre Registry System
MEMD	Ministry of Energy and Mineral Development of Uganda
MoICT	Ministry of ICT and National Guidance
MPCP	Minimum Policy Compliant Product
NITA-U	National Information Technology Authority-Uganda
NMDB	National Minerals Database
REST	Representational State Transfer
RCM	Regional Certification Mechanism
ToR	Terms of Reference
TWG	Technical Working Group

SDMU Sustainable Development of the Mining Sector in Uganda

1 Context

Investment in Uganda's mining sector has remained relatively low over the past decade. According to the Fraser Institute's Annual Survey of Mining Companies, Uganda received a score of 39 out of 100 and ranked 68th out of 86 mining destinations in the 2023 investment attractiveness index. Similarly, the 2021 Resource Governance Index by the Natural Resource Governance Institute scored Uganda's mining sector at 55 out of 100 points, placing it in the "weak" performance band, particularly highlighting insufficient licensing processes and the effective governance of local impacts. Major challenges faced by mining companies include limited access to geological data and unclear legal requirements, which create unfavourable conditions for investment. Access to comprehensive geological data is crucial for mitigating risks associated with investments in the mining sector. Additionally, digitalisation and inter-agency coordination present both challenges and opportunities for improvement. Compliance with regional and international due diligence standards on conflict and human rights is vital for ensuring market access. Furthermore, investor support services in Uganda are still in the early stages of development, lacking centralization, strategic direction, and effective outreach.

1.1 The company

As a service provider of international cooperation for sustainable development and international education, the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH is committed to a future worth living for all people worldwide. With more than 50 years of experience in a wide range of fields, from economic and employment promotion to energy and environmental issues to the promotion of peace and security, GIZ applies its expertise as a federal enterprise in around 120 countries with various clients - from the German Federal Government, institutions of the European Union, the United Nations, the private sector, and governments of other countries. GIZ cooperates with companies, civil society actors and scientific institutions. In this way, it contributes to the successful interaction of development policy and other fields of policy and action. The main client of GIZ, which is based in Eschborn, Berlin and Bonn, is the German Federal Ministry for Economic Cooperation and Development (BMZ).

Gender equality is one of the key values of our company and of the work we do. It is a prerequisite for and driver of sustainable development and a viable future for society. That is why we take a gender-sensitive and wherever needed gender-differentiated approach within all our programs. GIZ fosters equal rights and opportunities for everyone, regardless of their gender, sexual orientation, and gender identity.

1.2 Project background

The Sustainable Development of the Mining Sector in Uganda (SDMU) project is co-financed by the European Union (EU) and Germany's Federal Ministry for Economic Cooperation and Development (BMZ) and is implemented by GIZ in collaboration with Uganda's Ministry of Energy and Mineral Development (MEMD) and its Departments of Geological Survey and Mines (DGSM). The project aims to enhance the business environment and attractiveness of Uganda's mining sector to support socio-economic development and align with the EU's Global Gateway strategy, particularly the Critical Raw Materials Act. It focuses on five key outputs: 1) Investment promotion, 2) ASM formalization, 3) Mineral value addition and processing, 4) Strengthening oversight, and 5) Responsible sourcing.

DGSM through the support of the SDMU project is developing a National Minerals Database (NMDB) to enhance management of mining sector and ensure compliance with the Mining and Minerals Act 2022 and subsidiary regulations such as Mining and Minerals (Licensing) Regulations 2023 and ICGLR Regulations 2023. The implementation of the NMDB will enhance oversight, transparency, and regulatory compliance within the mining sector.

The NMDB is an electronic registry for mineral rights information, geoscientific data, traceability data and is also an integrated, secure digital platform managing the entire mineral lifecycle from licensing to export. The digitalisation of DGSM processes is important for improving revenue collection, attracting responsible investment, and ensuring that the exploitation of mineral resources contributes towards social and economic development of Uganda.

Recognizing the complexity of implementing the NMDB, the SDMU project is planning on a phased implementation of the NMDB using agile methodologies and aligning with GovStack framework.

It is against this background that the SDMU project on behalf of Department of Geological Survey and Mines (DGSM), is seeking to procure consultancy services to develop, test and deploy the NMDB.

This IT implementation is split into 3 phases:

1. As an initial phase, a pilot of the NMDB will be implemented to validate and de-risk the implementation of the NMDB. The aim of the pilot phase is to validate key assumptions, gather valuable early feedback from key stakeholders and establish a foundational understanding of the NMDB's core functionalities.
2. In the second phase (Option 1), after successful implementation and validation of a Minimum Viable Product (Architecture validation phase + Product Increment 1), the extension of the pilot (Architecture validation + Product Increment 1 -3) and implementation of a full set of capabilities of the NMDB is planned and implemented.
3. Based on the success of the full scale implementation the SDMU project and DGSM are seeking for further funding (top up) extending the functionality of the full scale solution (Option 2).

In addition to the Uganda NMDB, and contingent on the pilot's success, an optional rollout of an NMDB in Burundi—building on the pilot solution—is planned (Option 3).

1.3 GovStack approach

The adoption of GovStack plays an important role during the implementation of this initiative (**Annex 1: GIZ Govstack fact sheet**). It builds capacities throughout the digitalisation of Government services – on the governmental as well as non-governmental side and focuses on:

- **Awareness building:** across public and private stakeholders by trainings, participation in conferences, and workshops, especially with:
 - Local private implementation partners
 - Government clients
 - Government institutions
- **Capacity Building:** enabling civil servants to understand and use the GovStack approach for improved service implementation

- **Operationalise** the adoption of the GovStack approach by establishment of implementation capacity.
- **Technical support:** support of government agencies to adopt the GovStack approach by using four building blocks (**Digital Registries, Content Management, Workflow and Information Mediator**) and supporting in the implementation of use cases to create evidence for the rapid adoption rate.

Utilizing the approach described, Govstack adheres to seven core principles during the stages of design, development, and roll-out:

- User-Focused
- Openness
- Sustainability
- Security
- Accessibility
- Flexibility
- Robustness

For comprehensive specifications and more detailed information about Govstack, please refer to the following link: <https://govstack.gitbook.io/specification/>

1.4 Context within the ICGLR

The International Conference for the Great Lakes Region (ICGLR), established in 2006, is an intergovernmental organization aimed at promoting peace, security, and development in the Great Lakes region.

The ICGLR Regional Certification Mechanism specifically focuses on the responsible sourcing of minerals, particularly tin, tantalum, tungsten, and gold (3TG). These minerals are commonly referred to as conflict minerals, as their extraction has been linked to funding armed conflicts in the region. The certification mechanism is designed to ensure that minerals from the Great Lakes region are sourced and traded responsibly, without contributing to conflict or human rights abuses.

Key components of the ICGLR Regional Certification Mechanism include:

1. **Certification Process:** The mechanism involves a certification process that includes traceability and due diligence to verify that minerals are sourced responsibly. This is intended to prevent the trade of conflict minerals.
2. **Cooperation and Collaboration:** The ICGLR mechanism encourages collaboration among governments, the private sector, and civil society to address the challenges associated with responsible sourcing of minerals.
3. **Capacity Building:** Efforts are made to enhance the capacity of local governments, mining communities, and industry stakeholders to implement and comply with responsible sourcing practices.
4. **Monitoring and Reporting:** The mechanism includes monitoring and reporting mechanisms to track progress and address any issues that may arise in the implementation of responsible mining practices.

The ICGLR published in 2019 the Manual of the Regional Certification Mechanism of the ICGLR that describes the minimum requirements of the International Conference of the Great Lakes Region (ICGLR) Regional Certification Mechanism (**Annex 2: RCM Manual**) and how they should be implemented in Member States. It includes specifically requirements to track

and share the data related to the chain of custody of minerals (**Annex 3: ICGLR Data Management Sharing Policy 2025**).

Core components for the tracking and data sharing mechanism will be:

- National Chain of Custody (CoC) tracking solutions
- National Minerals Databases with full sovereignty of data within the member states

1.5 Objective of the commission/subject of the procurement

The objective of the procurement is to define the target architecture based on the DGSM environment and to develop, deploy, and evaluate a pilot of the NMDB that complies with Uganda's mining legal and regulatory framework for a Minimum Policy Compliant Product (MPCP). The fully functional pilot of the NMDB will demonstrate the core functionalities of the NMDB, validate user journeys, and facilitate early feedback from a limited set of users.

The specific objectives for the pilot of the NMDB are:

- **Develop of NMDB pilot:** implement the core functionalities of the NMDB, that include mine site inspection and monitoring management and Chain of custody (CoC) modules.
- **Design and technical architecture:** Provide practical insights that will refine and finalise the overall system architecture and technology stack.
- **Alignment with e-government framework:** Ensure that implementation is aligned with MoICT and NITA-U framework for digitalisation of government processes (e.g., hosting, integration, cybersecurity, data protection, information security etc.)
- **Technical feasibility validation:** testing core functionalities of the NMDB pilot in production environment, assessing performance under realistic workloads, identifying integration challenges with existing systems, and evaluating hosting infrastructure options, security, compliance, and data handling requirements in alignment with the development guidelines of the Ugandan Government.
- **Refine implementation strategy:** adjust timelines or resources, and define success criteria for full-scale implementation based on pilot learnings.
- **Early user feedback:** Engage end-users to test the usability, functionality, and overall experience of the proposed system.
- **Stakeholder alignment:** Foster shared understanding and buy-in among all relevant stakeholders through tangible demonstrations and discussions around data sharing and ownership, integrations, roles and responsibilities.
- **Mitigate risks and Identify gaps:** Identify and address potential usability or functional issues at an early stage, reducing rework in the full-scale implementation of the NMDB.

2 Requirements for the IT Solution

The NMDB as defined in the legal and regulatory framework for mining sector in Uganda, is a comprehensive digital platform managing the entire mineral lifecycle from licensing to export. The NMDB collects, stores and processes mineral rights information, geoscientific data and traceability data. The primary objectives for the National Minerals Database (NMDB) are:

- **Real-time Data Capture and Reporting:** To enable accurate and timely collection, aggregation, and analysis of data related to mineral exploration, production, processing, transportation, and export, providing reliable data on mining sector performance.

- **Enhanced Mineral Traceability and Production Monitoring:** To implement robust mechanisms for tracking minerals from mine site to export, supporting due diligence and combating the illicit trading of conflict minerals.
- **Improved Regulatory Compliance and Enforcement:** To ensure adherence to the Uganda Mining and Minerals Act, 2022, the Mining and Minerals (Licensing) Regulations, 2023, and the International Conference on the Great Lakes Region (ICGLR) Regulations, 2023.
- **Increased Transparency and Accountability:** To provide stakeholders, including government agencies, mining companies, civil society, and the public, with access to relevant and verified information, fostering greater accountability in the management of mineral resources.
- **Data-Driven Decision Making:** To equip policymakers and regulatory bodies with reliable data and analytical tools for informed policy formulation, strategic planning, and resource allocation within the mining sector.

2.1 Existing IT Solutions

2.1.1 NMDB Prototype

Following an initial technical needs assessment at DGSM by GIZ regional project, a [National Minerals Database template](#) (prototype) hosted by GIZ was developed in alignment with the ICGLR architectural vision (**Annex 4: Architecture Vision Minerals Flow Data Vault**). This functional prototype of the NMDB was purposely implemented to meet the Regional Certification Mechanism (RCM) basic traceability functionality.

The prototype of the NMDB (**Annex 5: National Minerals Database Template**) was developed on the low-code web-based workflow software platform Joget. The NMDB prototype currently holds basic capabilities for:

- Minesite management
- Mine Site Inspection
- Chain of Custody
- Export certificates management
- Licenses management

The contractor shall assess the suitability of the existing NMDB template (prototype) as a foundation for the further development of the NMDB pilot. In case the prototype is considered unsuitable, fully or partly, the NMDB pilot shall be developed independently, using an open-source platform.

Additionally, the prototype shall be used by the contractor to determine technology or design approach, improve user experience and usability, gather and refine requirements, facilitate engagement with non-technical stakeholders and identify technical or usability issues early.

2.1.2 DGSM

Currently, no universal system exists that covers all functional requirements for digital mineral traceability. The mineral traceability system is fragmented across different actors, standards, and certification mechanisms, which must be considered when implementing the NMDB.

Regarding mineral traceability in Uganda, the DGSM relies on manual systems, and the NMDB has not yet been implemented as defined in the ICGLR 2023 Regulations. The Bank of Uganda (BoU) is developing a digital chain of custody process for gold trade and plans to establish marketplaces for direct gold procurement from miners. However, these gold markets will only be established once BoU has implemented a fully functional digital traceability system.

Some Ugandan mining companies already use third-party digital traceability systems, but these operate independently without integration into any centralised system. Since mineral traceability in Uganda is predominantly manual, it is prone to human errors and creates difficulties in data analysis and interpretation. The processing and storage of hardcopies or scanned copies is ineffective for evaluating performance and planning future improvements based on mineral production data.

The current IT environment at DGSM consists of multiple fragmented systems operated within separate departments. These systems require integration into one comprehensive platform to achieve the benefits of DGSM's ongoing digital transformation.

Beyond mineral traceability systems, several other important IT solutions serve the mining sector and surrounding ecosystem in Uganda. The following systems are directly operated by DGSM:

- **Mining Cadastre Registry System (MCRS):** Used for licensing applications, communication, and management. MCRS provides online access through a public cadastre portal where registered users and stakeholders can submit license applications, make payments, and view the mining cadastre map. The system is built on the Landfolio software suite, a commercial-off-the-shelf (COTS) land management solution owned by Spatial Dimension.
- **Geological and Minerals Information System (GMIS):** An online geo-portal featuring an interactive map of Uganda that visually displays mineral license information, geo-economic data, and topography. The portal was developed primarily to provide potential investors with current and accurate mineral information about Uganda.
- **Biometric Registration of Artisanal and Small-scale Miners (BRASM):** A comprehensive database for registering Artisanal and Small-scale Miners (ASM) in Uganda, enabling the government to better plan for the ASM sector.
- **Laboratory Management Information System (LMIS):** Implemented to handle request management for DGSM's laboratory team

2.2 General conditions and Architecture vision

DGSM has an IT department who, with the support of NITA-U should actively participate in the initiation, development, deployment, and knowledge transfer processes for the entire project deliverables. DGSM's management and IT Officer together with the GIZ-ICGLR regional project developed an architectural vision for the idea of an overarching mineral traceability system. This architectural vision must be the basis for all measures within the framework of the development of the service tendered in this contract. The architectural vision which is aligned with DGSM's management and IT Officer and is presented in detail in Annex 4.

The contractor should ensure that the DGSM remains well-informed and clearly approves and signs off deliverables about each module's development and improvements. The contractor should facilitate a smooth handover and training procedure. Upon project completion, DGSM and NITA-U should possess the capability to readily troubleshoot, maintain, and expand upon the modules that have been developed.

2.2.1 Technical Working Group (TWG) Uganda

DGSM has established a Technical Working Group (TWG) as a core component of IT governance to support the implementation of the SDMU project digital solutions.. This working group serves as a strategic measure to address DGSM's limited technical capacity and human resources, ensuring sustainable support for the NMDB pilot implementation.

The core TWG comprises the DGSM management, IT officer and process owners, NITA-U, MolCT. Other relevant stakeholders will be consulted based on project requirements. This diverse composition of the TWG ensures comprehensive technical expertise and institutional support for a sustainable implementation.

The Technical Working Group will actively participate throughout the entire project lifecycle, including initiation, development, deployment, and knowledge transfer processes. Their involvement across all project deliverables ensures continuity, technical oversight, and effective governance throughout the NMDB pilot implementation.

2.2.2 Description of the application/use of the IT solution

The National Minerals Database is a fundamental architecture component of the overarching architectural vision (**Annex 4**) designed to cater to specific requirements of each member state within the International Conference on the Great Lakes Region (ICGLR), aligning with national legislation and emphasizing data sovereignty.

The architecture vision for the implementation of the epics of this tender is captured below in **figure 1: Vision for DGSM: Integrated solution**. It provides the foundation for all components to be implemented under this tender.

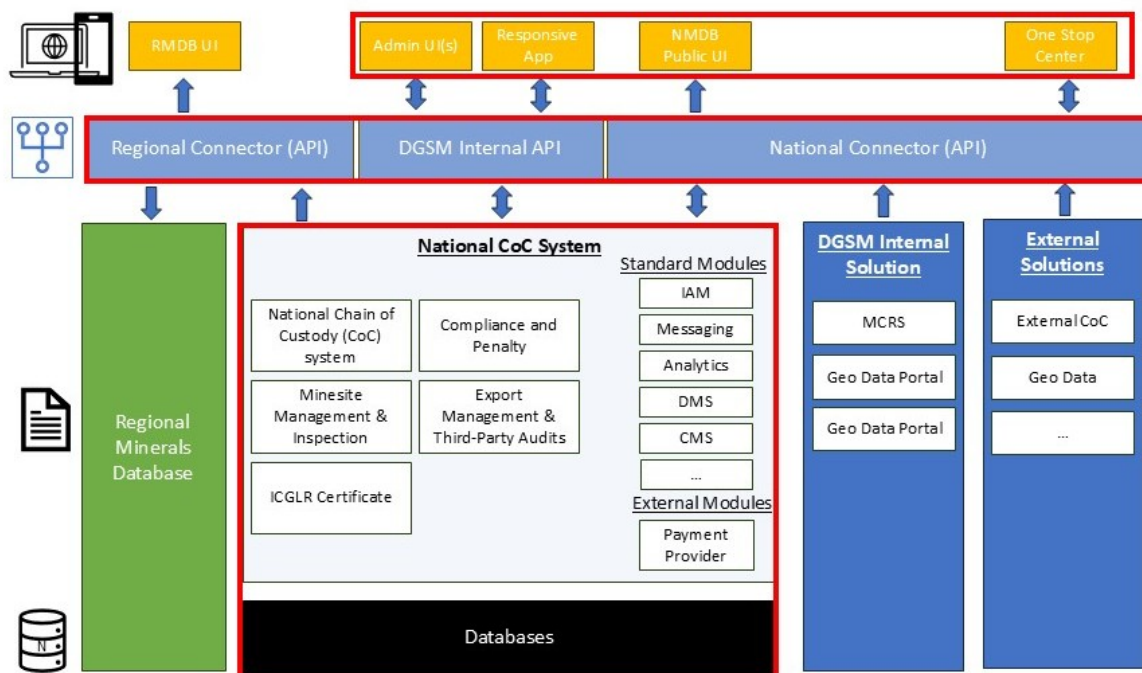


Figure 1: Vision for DGSM: Integrated solution

The image and especially the red marked sections represents the full scale capabilities and modules of the NMDB.

Within the implementation of the pilot the following components as per the architecture vision shall be developed with priority:

- **A national Chain of Custody (CoC) system:** this application will be used to support the business processes to collect the CoC data (e.g. processes related to CoC, export certificates, inspections). It is planned to use this solution in cases no private entity CoC solution is available. Furthermore it is planned to implement this solution as a module of the NMDB to reduce the integration overhead.
- **Database (National Minerals database) :** this application consolidates relevant data (e.g. CoC data from several CoC systems, export certificates, inspections, mine site data, license information, geoscientific data)
- **Minesite Management and Inspection:** this application will maintain a registry of all mine sites, support digital inspections against RCM criteria, assign minesite status classifications (Green/Yellow/Red/Blue), and track compliance over time.
- **Data Connector (National Connector API):** At least API integration with MCERS to access mine site licensing information.

2.3 General Requirements

2.3.1 Onboarding, architecture validation, testing and QA approach.

The Contractor will be onboarded by DGSM and GIZ, to understand the context, goals, approach, and results of the analysis done already. This will happen in several workshops, possibly with the involvement of example users. At the start of the project, the contractor, GIZ and a representative of DGSM will clarify the expectations for the cooperation arrangement, the technical platform for cooperation, the relevant responsibilities, and the project schedule. The first meeting also allows substantive questions to be clarified regarding the issues, objectives to be defined, requirements to be established and other contextual information to be presented. All parties will set up the necessary recurring meetings for planning events. In these workshops the vision for the project, a high-level product roadmap and corresponding assumptions dependencies etc. will be shared.

Also, the overall target architecture and resulting technical decision, especially regarding possible dependencies will be shared by the contractor in cooperation with DGSM and GIZ. The Contractor is expected to lead these efforts and bring deep technical expertise, an independent outside view, and a focus on maintainable and sustainable operation.

The detailed testing approach for the user stories will be defined.

- i. Report assessing target architecture, including proposed changes (pros, cons, etc)
- ii. Agreed upon final target architecture.
- iii. Shared understanding and formalised product roadmap and vision
- iv. Formalised and agreed upon testing approach.
- v. Well-groomed backlog with enough content for first sprints (items for sprint 2 can be detailed out in sprint 1, as they would normally).

2.3.2 Development Environment

The Contractor will provide the following two environments:

- i. Development environment on their own IT infrastructure

ii. Testing, integration, and staging environment.

The production environments will be provided by NITA-U and upon availability the development and staging environment will be migrated to NITA-U

The contractor ensures that at least on the stage of the testing and integration environment installations are done through automated deployments where applicable including a set of automated tests that ensure at least that no broken build is deployed into the stage. The Contractor will help in automatic test data generation following the guidance of DGSM and NITA-U where applicable.

The Contractor will define and set up respective deployment and integration processes taking into consideration DGSM and NITA-U processes. The deployment pipeline as well as environments need to be transferred or replicated to the DGSM or NITA-U at the end of the project. The above environments shall have the same set up and configuration.

The implementation concept is drafted together with the contractor and other relevant stakeholders, and includes:

- Development methodology, schedule, and release plan
- Revised and prioritized functional requirements
- (Provisional) system architecture
- Depending on the methodology: description of the areas of application and system specifications or backlog, for instance with user stories
- Visualizations and outlines (e.g., mock-ups, user journeys, process outlines, ER and use case diagram)
- A documented “Definition of Done”
- A documented definition of production readiness
- Implementation concept
- Fully set up system environments
- Documentation about all environments

As part of the project the contractor will deploy the solution to the production environment at NITA-U in a national datacenter.

2.3.3 Code, Test, Deployment and Hand over

Testing requirements encompass a range of activities designed to validate that the system functions correctly and meets specified requirements. This includes unit testing, where individual components are tested for correct operation; integration testing, which ensures that combined components work together as intended; system testing, which validates the complete and integrated software system; and user acceptance testing (UAT), where actual users verify that the system meets their needs and is ready for production. Additionally, performance testing assesses the system's responsiveness and stability under load, while security testing identifies potential vulnerabilities. System resilience testing as well as fault tolerance testing are further necessary tests. Comprehensive documentation of test plans, cases, and results is essential to provide a clear audit trail and support future maintenance and troubleshooting efforts.

Deployment requirements involve the processes and procedures necessary to move the tested system into the production environment. This includes creating deployment plans that outline the steps for installation, configuration, and integration of the system. Automation tools are often utilized to streamline deployment processes and reduce the risk of human error. Pre-

deployment testing in a staging environment that closely mirrors the production environment is critical to identify any last-minute issues. Rollback procedures should be clearly defined to allow for the system to revert to its previous state in case of deployment failures. Post-deployment, monitoring tools should be in place to ensure the system is functioning as expected and to quickly identify any issues.

Handover requirements involve transferring the ownership of the project from the development team to the operations or maintenance team, ensuring a smooth transition. This process typically includes the delivery of all relevant documentation, such as user manuals, system architecture designs, and maintenance procedures. Adequate training for the end-users and support staff is also critical to ensure they can effectively use and maintain the system. Additionally, the handover phase should include the establishment of a support framework, detailing how issues will be managed post-deployment, including escalation procedures and support contact details. The sign-off from DGSM (entity which is accountable for the production of the solution) for the respective hand over user stories signifies that the system is ready for operational use. DGSM will perform these sign-offs in their role as product owner (see reference project methodology).

2.3.4 Documentation

The contractor must provide detailed documentation of the functionalities and the source code annotation in good time and an appropriate manner. The contractor is obligated to make the latest documentation available for inspection at any time.

Service to be provided by the contractor:

Documentation preferably based on a conventional standard (e.g., arc42 – arc42 is an example of a documentation standard)

1. The documentation must include the following items in particular:
 - a. Software stack and dependencies
 - b. System requirements, system specifications and system architecture
 - c. Diagrams and outlines (e.g., use case, ERD, process outlines, mock-ups)
2. Other technical documentation (e.g., interfaces, (clearance of) faults)
3. Continuously during each sprint provide updated technical documentation which will facilitate DGSM technical in operating and using it successfully on various phases of NMDB implementation including the deployment, system administration and databases
4. Continuously during each sprint provide updated user manuals which will facilitate the users in operating and using it successfully in various phases of the implementation.
5. Provide frequent technical knowledge sharing with the DGSM technical team in various technical meetings during the implementation of the pilot of the NMDB.

2.3.5 Continuous user support and operation

While the Contractor will not be tasked with operating the pilot of the NMDB, the contractor will be in close contact with the DGSM support and operations team, which will in turn be assisted by the consultant assisting DGSM.

The following duties do not involve access to live systems and do not entail any tasks that could be interpreted as data processing of personally identifiable production data.

2.3.5.1 User-Support

The Contractor shall help resolve 2nd and 3rd level requests after the implementation and deployment of the NMDB pilot in the production environment, where needed. Over time, the Contractor's involvement should decrease, with DGSM and NITA-U having the tools, resources, and knowledge in place to run this support without the Contractor involvement, at the end of the contract. Until that point, Contractor personnel can also be asked to be part of incident response teams.

- 2nd Level Support: Classify and systematically process requests from 1st level support, contact users directly by phone or in writing, maintain a knowledge base on common problems or incidents, and forward/ re-classify unsolvable issues to 3rd level support.
- 3rd Level Support: Processing of inquiries regarding IT-administrative or operational errors or malfunctions, high specialization on respective software and hardware, no direct contact with end users

2.3.5.2 Operations

The Contractor will advise on the organizational and technical operation of the platform.

The Contractor will work together hand in hand with the end-user Technical Team on the operation of the platform.

This includes define processes and roles, as well as giving guidance on improving the technical set up (e.g., deployment pipelines, code repositories etc.) – this shall be done in sync with the respective capacity management.

2.4 Functional requirements and Epics

Epics describe aggregated overarching functionality which consists of features and user stories. Within phase 1 of the assignment (pilot NMDB) the service provider shall implement the following Epics (Annex 6) :

- Epic 1: System Architecture Definition and Validation
- Epic 2: Implementation of the UI and Backend for the Digital Registry for the National Minerals Database
- Epic 3: User roles and Access management
- Epic 4: Chain of Custody Mine site Management & Inspection
- Epic 5: Chain of Custody Traceability Module
- Epic 10: Document Management System
- Epic 14: Knowledge Transfer

2.5 Usage of Standardised solutions

For the set up of the NMDB, the contracting party requires the provision of two categories of standard solutions:

- Software extending the functionality of NMDB
- Software supporting the implementation processes of NMDB

2.5.1 Software extending the functionality of NMDB

For software extending the functionality of NMDB (e.g. Content Management System, Analytics) the service provider is expected to first consider the use of standard Open Source Software (OSS) available free of charge before developing or implementing any new functionality. This requirement is in accordance with the Guidelines and Standards for Acquisition of Information Technology Hardware & Software for Government Ministries, Departments and Agencies (Annex 7). When selecting standard software, the criteria defined in these guidelines must be duly observed.

If the use of freemium or licensed software and functionality is more economical than self development results in additional costs, the service provider must inform the contracting party in advance and obtain written approval before implementation.

2.5.2 Software supporting the implementation processes of NMDB

Additional Components for the implementation processes of the NMDB must be provided by the service provider:.

- IT Project Management Software: Software to ensure collaboration between DGSM, GIZ and contracting party.
- System for Documentation: Provide a system for the publication of the documentation of the platform
- Source Code Repository: Provide a free accessible source code repository for managing code changes

2.6 Non-functional requirements

The following non-functional requirements must be considered by the contractor when implementing the service. The minimum baseline are in line with the Guidelines and Standards for Acquisition of Information Technology Hardware & Software for Government Ministries, Departments and Agencies (Annex 7)

Key Non Functional Requirement which enables the implementation approach must be the modularity of components. This requirement goes through the requirement of Interoperability, Portability, scalability, reusability and maintainability and means the ability of the system components to be developed and operated independently.

- 1) Interoperability:** Solution shall be interoperable with internal systems but also with external systems by implementing Open Standards and using the RCM as data semantic.
- 2) Portability:**
 - Solution shall always be able to run on both Linux and/or windows platforms.
 - Solution should run on the latest Windows and MacOS systems with similar UI experience.
- 3) Scalability:** The solution should handle the increase in requests without significant loss of performance.
- 4) System Availability:** The staging and testing cloud platform must maintain a high level of availability, such as 95% uptime, ensuring the environment is reliably accessible for continuous integration, deployment, and quality assurance activities. This availability must exclude planned maintenance windows and ensure minimal service disruption to avoid delays in the software development lifecycle.

- 5) **Reusability:** Solution-developed modules should easily be reused in the different parts of the solution or future modules.
- 6) **Performance:** The solution should have a fast response time that enables the user to complete tasks quickly.
- 7) **Security:**
 - The implementation of single-sign-on and multi factor authentication enabled feature/module for the solution will be considered in further development of the system to allow users to log in and be redirected seamlessly to any other applications provided in the future by DGSM.
 - Develop the solution with all the standard security such as OWASP 10 web application standards security which can be in-built features to ensure confidentiality, integrity, and availability of data.
 - Ensuring that the solution has user access roles through which the DGSM technical team especially with administrator's rights can assign or revoke rights of a specific user to a function, data, element, action, or activity.
 - Implement measures to protect collected data from unauthorized access, manipulation, or disclosure. This includes encryption of data during transmission and storage, user authentication mechanisms, and adherence to relevant data privacy regulations such as the Uganda data protection and privacy law and cybersecurity.
- 8) **Maintainability:** The solution will easily be updated, modified, or maintained over its lifecycle. It should easily be adapted to changing requirements with minimal effort, reducing downtime and costs associated with updates and enhancements.
- 9) **Reliability:** The solution should consistently and accurately perform its intended functions without failures or errors. A monitoring system should be put in place to track errors in real time.
- 10) **Flexibility:** The solution is developed with the mind of REST/JSON or any other API-based approach to enable future integration of the solution with other systems
- 11) **Compatibility:**
 - Solution Web Applications (front and backend) shall be cross-browser compatible and cover at least the following browsers:
 - Chrome (>version 88)
 - Firefox (> version 90)
 - Edge Chromium (> version 2020)
 - Safari (> version 17)
 - The solution web Applications, including both frontend and backend components, shall provide mobile-responsive functionality across all supported devices and screen resolutions

12) Information security:

The Contractor is obliged to take appropriate technical and organizational measures to ensure an appropriate level of security. He is not limited to the security measures that can be found in (**Annex 8: Data Protection standards**) and the guidelines provided by NITA-U. (**Annex 7: NITA-U guidelines**)

The following points must be considered by the contractor and if they are not within the contractor's responsibility or scope of work, they must at least be discussed with the partner's project team in order to close any existing security gaps.

The Contractor must inform the DGSM immediately and in an appropriate form about security incidents that may affect DGSM. If DGSM has appointed an IT security officer or another person to receive such information, the information must be sent directly to this person.

A firewall must be installed upstream of the server (e.g., authorized IP addresses/GEO blocking or address ranges for logging on to the system can be entered here or also excluded for this purpose).

Up-to-date anti-virus software must be used on the server and configured accordingly for automatic updates.

Network communication between the components of the application should be encrypted.

Hard-coded keys (symmetric/asymmetric) should not be included in the application. If this is unavoidable, the handling of the key must be described. The information security risks related to the storage of the key must be evaluated.

The transmission of authentication information (especially passwords) must be encrypted. The storage and transmission of sensitive and/or personal data must comply with current encryption standards.

Session cookies used for logins must be deleted or disabled after logging out from the client.

All infrastructure should be regularly updated.

Separation of application and data is to be provided, i.e. an application server and a separate server for the database and file storage is provided, with communication through a firewall.

A system log is to be implemented in which at least logins and logouts of all users and actions such as updates, backups, uploads and downloads, changes to account data and authorizations, as well as all security-relevant actions and events are to be logged and documented. The inclusion of further log data is still to be discussed in detail with the project. The system log is to be documented in the operating manual.

The error messages generated by the application (especially exception handling/exceptions) must not provide any information that allows conclusions to be drawn about the architecture or software/software versions used.

When configuring the web server, you must pay attention to the following:

- Disable Trace HTTP Request
- Run as a separate User & Group
- Disable signature
- Disable banner
- Restrict access to a specific network or IP
- Use only TLS 1.2
- Disable Directory Listing
- Remove unnecessary DSO modules
- Disable Null and Weak Ciphers
- Periodic updates of the system -> stay current!
- Periodic checks of the system log files

The system must be hardened against SQL injection. In detail, this concerns the validation, filtering and cleansing of user input. The inputs may only have expected properties and characters and may not contain any unauthorized meta characters that are passed to the SQL interpreter.

When implementing API interfaces, it is essential to harden them against malicious code injection (SQL injection, etc.) via the URL.

The system must be protected against Cross-Site Scripting (XSS) on the client side. The server(s) must be protected against reflected or persistent cross site scripting by securing the server source code. All data to be processed by the server must be validated before execution.

Whitelists of permitted data can be used for this purpose. General conversion of certain script characters is also a popular method. It is to be prevented that executable metacharacters of the scripts are read by the server. Cookies should only be read by the server (HttpOnly) and not by JavaScript in the browser.

A password policy must be implemented, which should look like this:

- minimum number of digits e.g. 12
- latin capital letters (A-Z)
- lower case Latin letters (a-z)
- basic digits (0-9)
- non-alphanumeric characters (like !, \$, #, - , &)
- your password must not contain the whole or parts of your login name!
- after 5 wrong entries the account should be locked for 3 minutes
- max. password age 90 days
- password history, at least 5 different passwords in before a previously used password is accepted again, new passwords that differ only by consecutive numbers should not be accepted.

Passwords must not be stored in plain text. Passwords may only be stored as hash values.

The hash algorithm must conform to the current recommendations of the BSI (technical guidelines).

Hard-coded passwords must not be included in the application. The transmission of authentication information (especially passwords) must be encrypted.

A role and authorisation concept must be implemented that includes at least the roles of system admin (full authorization to the entire system), CMS admin (+account management), editor and author (editing content/articles). The application to be developed must be operable with minimal system rights.

Only the following user groups may have access to the backend:

- Developers and administrators of the Contractor as well as employees for editorial maintenance of the Contractor.
- Access to the backend at the operating system level may therefore only be

granted to very limited user groups with the appropriate expertise.

There must be a documented authorization concept for each application (e.g. in the operating manual).

In order to minimize operating errors (human errors), the ergonomics of the application should be designed safely according to the need for protection.

Changes to account data that are required for registration may only be made by the administrators and are to be blocked for the user.

For the upload of files, appropriate file filters are to be provided so that no files with executable content (scripts, programs or SQL codes) can be uploaded and executed.

The regular backups of the complete system are to be carried out by the Contractor and checked accordingly for usability (restore). The backup can be stored on the server, but a copy must always be stored offline to prevent loss through hacker attacks. The intervals for the backups are to be coordinated with the project.

Important backups always belong offline on another system and must be validated.

The deletion procedure must be proven upon request. Legal retention obligations remain unaffected.

13) Development Principles :

The following principles must be followed:

- Digital solutions shall be built in such a way as to ensure handover to the partner organisation
- Solutions shall lead to the strengthening of local economic power and digital resources
- The solution sets global technical standards; positioning DGSM as an "early adopter" in the field of digital solutions
- Increasing efficiency through collaborative innovation processes
- Solutions shall be in compliance with the "Principles for Digital Development" GIZ and Uganda national ICT policy.
- Solutions shall be in compliance with the BMZ strategy "Digitalisation for Development" and Uganda national ICT policy and NITA-U guidelines (**Annex 7: NITA-U guidelines**)

The concept and infrastructure must therefore also be structured in such a way that they can be freely handed over to DGSM and that DGSM can also control support, operation and further development independently.

This shall be achieved if the contractor only uses freely available open-source components for the development of the application and makes it possible to hand over the solution as an open-source-licensed product.

2.7 Use of open-source software (OSS)

Wherever the contracting party uses any open-source software (OSS), the use of such open source software components complies with the objectives laid down under section 2 above and the requirements described in section 2, in particular all components must be governed by licenses suitable for public-sector use.

The use of OSS components shall neither oblige GIZ, nor DGSM to publish any parts of the NMDB as open source.

Where there is a possibility to use OSS, the contractor must explicitly state which OSS is planned to be used and implement this only on explicit prior consent of GIZ. 4

Where an approved OSS is used in the NMDB, the contracting party must document this in Annex 9 – List of OSS-components accordingly and include a plan for the ongoing maintenance of the OSS beyond deployment.

2.8 Hosting

The contractor is responsible for furnishing a dedicated development and staging environment to facilitate all development and testing activities. Please refer to Development Environment (2.3.2).

2.9 Further specifications/general conditions

Not applicable.

2.10 Other Requirements

Not applicable.

3 Responsibilities of the contractor

The contractor must deliver the following services and work packages (along with the corresponding milestones). The work packages have no chronological order and can also be implemented on an integrated basis, depending on the development methodology.

3.1 Use of Agile Methodology

This project will be developed, delivered, and sustained in a consulting contract. The target is to go along agile methodology elements using a framework orienting on the agile frameworks. The proposed methodology seems to be appropriate because:

- general scope is pre-defined, but the periodisation of requirements is not stable over the whole development process.
- learning about user behaviour and preference should be incorporated quickly into the product design.
- incremental development with integrated testing limits risks associated with large IT implementations and allows to achieve value-add quickly.
- it is a well-known and well-described practice framework.

As this is a new way of working for DGSM, the Contractor, together with the GIZ project are expected to act along principles of agile development, while also paying attention to context and organization-specific needs.

Iterative development based on the values of inspection, adaption and transparency will remain key, however if needed there are deviations from pure agile development (e.g., with regards to the stronger need for documentation, or the naming of specific roles).

The following main artefacts/roles will be used.

3.1.1 Sprint

Each sprint is a time boxed development phase which will be used to deliver ready to use products. The intention is, to add small features and user stories in each sprint to deliver an incrementally improved product. Each sprint shall have a two-week time box. The duration of the standard sprints can be adjusted as part of the retrospective.

3.1.2 Iteration/Product Increments (PI)

Each iteration is a collection of sprints, usually timeboxed with 2-month cycles.

3.1.3 Feature/User Story

Features and user stories are the artefacts which define the deliverables inside a sprint. They need to be described and documented. The team must agree on the “definition of done” for an agreement of completion of the respective artefacts. The difference between “user story” and feature for DGSM is mainly the distinction between deliverables with a concrete impact on users (resp. user stories) like the implementation of a specific dashboard or workflow or deliverables with no specific impact on users (resp. features) like the implementation of a core data model.

3.1.4 Backlog

The Backlog covers the list of all features and user stories which are in scope or will be in scope for implementation. It acts as the pipeline for to be implemented artefacts.

3.1.5 Daily Stand-ups

Daily stand-ups are a standard approach as part of the SCRUM methodology. The development team coordinated by the team leader meets at a dedicated fixed and short time slot (usually 15 minutes) and answers one by one the following questions:

- What did I do yesterday?
- What will I do today?
- What are obstacles on my way?

Based on experience we have the DO's and DON'T DO's:

DO's

- Create and support an open environment and atmosphere.
- Schedule follow ups for identified obstacles.
- Be firm, be brief, be open.

Don't DO's

- Don't use it for individual tracking.
- Don't expand the timeslot by going too much into the details (rather schedule follow up)
- Don't blame.

3.1.6 Retrospective, Review & Planning

As the iterations in DGSM are quite short, best practice has been established to combine retrospective, review, and planning sessions. During this session, the following activities are to be performed:

- Review the result of the features planned for the current sprints based on the “definition of done”.
- Accept or reject completion status.
- Review the “definition of done”.
- Review the preparation of features in the backlog.
- Plan features or user stories for the current sprint
- Adjust the approach if necessary.

3.1.7 Scrum team

The scrum team is the team which will deliver the final solution. As per the currently planned (to be revised setup) it consists of members of:

- Implementation team of the consulting team
- Implementation team of DGSM
- Member(s) of the Technical Working Group (TWG)

3.1.8 Product owner

DGSM acts as the product owner for this project. DGSM will provide priorities for the project backlog and finally accept or reject the implemented features or user stories.

3.1.9 CI/CD Environment

The contractor shall use the provided source code management system to share the source codes code for versioning and CI/CD.

3.1.10 Continuous tasks for each sprint (Definition of Done)

In the planning, the development team agrees on a goal together with GIZ and DGSM. The Sprint Goal is the single objective for the Sprint. Although the Sprint Goal is a commitment by the Developers, it provides flexibility in terms of the exact work needed to achieve it. The Sprint Goal also creates coherence and focus, encouraging the Development Team to work together rather than on separate initiatives. The sprint goal will be documented by the contractor as a user story or feature in the defined project management system and signed off for delivery as part of the sprint planning.

All the work necessary to achieve the product Goal happens within the sprint. In each sprint, the following should be done (in addition to the delivery of the respective user stories for this sprint according to best practices)

3.1.11 Testing and quality assurance

For each user story there will be in-depth testing by the Contractor, but also by the proxy product owner (or deputy) provided by DGSM. Final sign off will be given by the product owner based on the acceptance criteria and definition of done. While this process will evolve over time, it is expected that security and privacy by design and by default are key in this implementation and a focus of the respecting testing efforts.

3.1.11.1 Documentation

Detailed documentation of the functionalities and commentary of the source code is to be provided by the contractor for all delivered user stories.

Overarching documentation (functional and technical documentation, architecture diagrams) is incrementally updated with each sprint and will be reviewed as part of each sign-off of user stories. It shall always update to reflect the current system status.

The client sets up a test environment and, during and after the development process, conducts the relevant recommended tests (e.g., unit, integration, load). Tests are also conducted regularly with future users of the IT Solution.

Work results to be provided by the contractor:

- A usable increment deployed at least into the testing and integration environment.
- Test documentation

3.1.11.2 Knowledge Sharing

For each implemented feature, the DGSM staff confirms that the following knowledge was transferred:

- How to use the use the feature;
- How to do administration of feature;
- How to troubleshoot the feature;
- How to do further adjustments on the feature; and
- How to deploy the system.

3.1.11.3 Iteration Review

Within this review the contractor, DGSM and GIZ will have a look at the status of the product and discuss about next steps and features which are expected from the contractor. In deviation to agile methods, the meeting does not constitute a formal acceptance or confirmation of performance. Nevertheless, results and agreements done within the meeting have to be documented by the contractor and will be assessed in the following iteration reviews by the review attendances.

3.1.11.4 Time Reporting

The contractor is obliged to report the delivered hours against the defined user stories and features in the project management system of DGSM. DGSM will review these time sheets and forward them to GIZ for approval. DGSM shall evaluate the performance of the contractor based on the deliverables set in the epics and iterations.

3.2 Continuous project management

The Contractor shall appoint an experienced project manager as a permanent contact person for the performance of the services over the term of the contract. The project manager shall be responsible for project management on the part of the Contractor, including:

- i. Regular progress reports, after each sprint (can be exports of the project management tool)
- ii. Provide monthly reports for the ongoing progress in line with the implementation of the NMDB pilot to DGSM and recommendations for future solution functionality improvements.
- iii. Input to high level product planning; feasibility assessments and high-level product design/ vision sessions that will be necessary before actual backlog items/ user stories are defined.
- iv. Mobilising additional expertise from respective support roles as needed

3.3 Planned Product Increments (PI) and Schedule

Each iteration is timeboxed with a timeline that shall be agreed on with the contractor during the assessment. It is a best practice to aggregate 4 sprints (each 2 weeks) per iteration. As per project management methodology the user stories and features for each iteration will be prioritized at the beginning of each iteration. Across all three Product Increments, work will be conducted on all Epics defined in the pilot scope (see Chapter 2.4). The prioritization within each sprint determines which features and user stories are completed per increment, not which Epics are being worked on. The following describes the current plan for the focus in each iteration. This focus can be adjusted as part of the iteration planning.

Milestones	Estimated Delivery period
Architecture validation + Product Increment 1	2 months after contract start
Product Increment 2	2 months after start of product increment 1
Product Increment 3	2 months after start of product increment 2

4 Granting of rights of use

4.1 NMDB and its components

The contracting party grants the same rights of use for the IT solution, granted to GIZ as per Section 3.1 of the General Terms and Conditions for EVB-IT Service Contracts (EVB-IT-Service-AGB) to DGSM.

Sections 3.1 – 3.4 of the EVB-IT-Service-AGB do not apply to open-source components. GIZ and DGSM may acquire rights of use for the open-source component(s) from the respective rights holders if it concludes license agreements with them under the terms of the respective open-source license(s). In this case, the use of the open-source component(s) shall be governed solely by the respective open-source license(s).

However, the provisions in Sections 3.1-3.4 of the EVB-IT Service AGB apply to the software components developed by the contracting party, unless these must also be licensed as open-source software due to obligations under an applicable open-source license (so-called

copyright effect). The contracting party is responsible for checking whether such a requirement exists and must inform GIZ of the result of this check. If a copyright requirement exists and the contracting party has informed GIZ of this, the provision in the preceding paragraph shall apply.

4.2 Standard Solutions (section 2.5 ToR)

The contracting party provides the required standard solutions to DGSM in accordance with sections 2.5 and the respective Annexes 7 for the respective license period.

The minimum scope of the usage rights to be granted to DGSM by the contracting party is stipulated in number 3.6 EVB-IT Service Contract. If standard solutions provided by the contracting party are licensed as OSS, the provisions in number 3.7 EVB-IT Service Contract apply accordingly.

5 Data protection

When the GIZ hires a contractor to build or upgrade a data processing system (platform, website, app etc.) on behalf of a local partner, who determines the purposes and means of the data processing activity, the GIZ does not bear ANY responsibility for such processing. DGSM shall be the data controller, and the data processing shall be carried out in accordance with the DGSM's instructions as well as laws and standards to which it is subject. Although the GIZ builds such systems in conformity with the highest data protection standards, especially those relating to data protection by design and by default, as stated in Annex 8. "GIZ Data protection standards for developing digital tools meant for GIZ's partners". The contractor is therefore required to inform GIZ if any applicable national requirement is incompatible with the provisions of this annex. However, its responsibilities end with the handing over of the systems to DGSM. As a data controller, DGSM must ALONE comply with all local and regional laws applicable to such processing (including the GDPR, where applicable). Consequently, the data protection principles such as lawfulness, data minimization, accuracy, purpose limitation, storage limitation, transparency, integrity and confidentiality, and accountability, as well as the numerous rights of the data subject should be paid due attention. We equally recommend that DGSM should conclude data protection agreements with the hosting service provider(s) and the maintenance service provider(s), where applicable. The GIZ would be available to support DGSM whenever the need arises.

The contractor shall comply with the data protection and privacy laws of Uganda (See Annex 7.5 and Annex 7.6).

6 Language

In deviation from sections 1.2, 6.1 and 8.1 of the Supplementary Terms of Contract for IT Services – EVB-IT Standard Business Terms for IT Services (EVB-IT-Service-AGB), the services are to be provided in English.

7 Technical-methodological concept

In the conceptual design of the tender (technical-methodological approach, project management, if necessary other requirements), the tenderer is required to take specific objectives and requirements into consideration and describe them, as explained below.

7.1 Requirements for the technical-methodological concept (section 1 of the assessment grid)

In the tender, the tenderer is required to show *how* the services specified in section 3, where relevant taking account of other specific methodological requirements (section 2), are to be provided (technical, methodological concept).

7.1.1 Assessment of the requirements:

The tenderer must assess the objective and the requirements of the IT Solution (see sections 1 and 2) in relation to feasibility and to what particular (non-)technical difficulties must be considered in the IT Solution to be developed by the tenderer regarding the objective (section 1.1 of the assessment grid). The tenderer should provide brief technical concepts which address the architecture vision as per the attachment 1.

7.1.2 Project management and development methodology:

The tenderer should consider the design of the project management process and describe his or her methodology for development/implementation, considering the described requirements (section 2 and 3) and compliance with the milestones (section 3) (section 1.2 of the assessment grid).

7.1.3 Operational plan/personnel assignment plan:

The tenderer must create and explain an operational plan that also includes a personnel assignment plan for all the specialist staff that he or she offers. The operational plan must depict the assignment periods (time and expert days) and describe the necessary work steps and take account of and, where necessary, supplement section 3.3 (section 1.3 of the assessment grid).

7.1.4 Test and documentation concept:

The tenderer must describe the process for testing and documenting the IT Solution and the IT security and documentation standards used (section 1.4 of the assessment grid).

8 Human resources

8.1 Human resources concept

The tenderer is required to propose personnel on the basis of relevant CVs for the positions (as experts) specified and described here in terms of the areas of responsibility and qualifications. **The requirements regarding the format and content of the CVs are set out in Section 10.**

The qualifications set out below reflect the requirements for achieving the maximum number of points in the technical assessment.

‘One year of (professional) experience’ is understood to mean 12 cumulative expert months with at least 18 expert days per month, provided no diverging definition is specified for individual qualifications.

Key expert 1: Team Leader and Project Manager (Section 3.1 of the assessment grid)

This position is a key expert.

Tasks of the Expert

- Overall responsibility for the advisory packages of the contractor (quality and deadlines and scope).
- Coordinating and ensuring communication with GIZ, DGSM, and other relevant stakeholders involved in the project.
- Personnel management, identifying the need for assignments within the available budget, as well as planning and steering assignments and supporting local and international experts.
- Regular reporting in accordance with deadlines; and
- Making himself/herself available when needed by the GIZ and DGSM as beneficiary.

Qualifications:

Education/training (section 3.1.1 of the assessment grid):	University qualification (Bachelor or equivalent) in computer science, computer engineering, or relevant field.
Language (section 3.1.2 of the assessment grid):	Knowledge of English, C1-level in the Common European Framework of Reference for Languages
General professional experience (section 3.1.3 of the assessment grid):	4 / 10 points for: 7 years of professional experience in the IT sector. 3 / 10 points for: 5 years of professional experience in IT project management, of which 1 project or engagement of minimum 6 months duration within the last 10 years as of 1 August 2026. 3 / 10 points for: experience in Agile project management or certification from a recognized institution (e.g. PMI, PRINCE2, Scrum Alliance).
Specific professional experience (section 3.1.4 of the assessment grid):	6 / 10 points for: 2 years of professional experience in managing the development of web-based systems, of which 1 project or engagement of minimum 6 months duration within the last 4 years as of 1 August 2026, including: • frontend and backend development • workflow implementation • integrations with 5 external systems • use of open-source software as primary foundation 4 / 10 points for: 2 years of professional experience in business analysis, of which 1 project or engagement of minimum 6 months duration within the last 4 years as of 1 August 2026.
Leadership/management experience (section 3.1.5 of the assessment grid):	5 years of project management experience as IT project team leader in a company

Development cooperation and regional experience (section 3.1.6 of the assessment grid)	5 / 10 points for: 1 year of experience in projects in Africa 5 / 10 years for: 1 year experience working within development cooperation.
--	--

Expert 2: Architect (Section 3.2 of the assessment grid)

Tasks of the Expert

- IT Architecture for the Solution
- Regular reporting in accordance with deadlines

Qualifications:

Education/training (section 3.2.1 of the assessment grid):	University qualification (Bachelor or equivalent) in computer science, Computer engineering, or relevant field.
Language (section 3.2.2 of the assessment grid):	Knowledge of English, C1-level in the Common European Framework of Reference for Languages
General professional experience (section 3.2.3 of the assessment grid):	7 years of professional experience in the IT sector.
Specific professional experience (section 3.2.4 of the assessment grid):	7 / 10 points for: 3 years of professional experience in the area of solution architecture design, of which 1 project or engagement of minimum 6 months duration within the last 6 years as of 1 August 2026, including: • design and implementation of multi-tier systems (front-end, back-end, database, integrations) • integration with 5 external systems or APIs • use of open-source technology stacks as primary foundation 3 / 10 points for: 2 years of professional experience in the area of requirements analysis or technical product ownership, including direct collaboration with non-technical stakeholders in the scoping or design phase of software projects within the last 5 years as of 1 August 2026.
Development cooperation and regional experience (section 3.2.6 of the assessment grid)	5 / 10 points for: 1 year of experience in projects in Africa 5 / 10 years for: 1 year experience working within development cooperation.

Expert pool 1 'Business Analyst & Design Team' with minimum of 2 to maximum 3 experts (Section 3.5 of the assessment grid)

A CV for each expert must be submitted with the tender. Please indicate in your tender which experts in the pool shall be evaluated with regard to the specific professional qualifications. If

not indicated, the experts in the pool with the professional experience reaching the maximum number of points will be evaluated.

The actual number of experts assigned from the pool may differ from the number of experts required in section 8 of the Terms of Reference. For experts not named in the tender, GIZ must confirm before the assignment that their qualifications are equivalent to those of the short-term experts proposed in the tender.

Task of the Expert Pool

- 1) Support team leader in the implementation of the defined tasks

Qualifications:

Education/training (section 3.5.1 of the assessment grid):	All experts with university qualification (Bachelor or equivalent) in computer science, Computer engineering, or relevant field
Language (section 3.5.2 of the assessment grid):	All experts with Knowledge of English, C1-level in the Common European Framework of Reference for Languages
General professional experience (section 3.5.3 of the assessment grid):	Number of Experts evaluated: 2 experts Evaluation Criterion: Years of Professional Experience in Business analysis for web-based software development (frontend, backend), within the last 10 years as of 1 August 2026. Expert 1: • Less than 2 years – 0 points • 2 to under 3 years – 1 points • 3 to under 4 years – 3 points • 4 to under 5 years – 4 points • 5 years or more– 5 points Expert 2: • Less than 2 years – 0 points • 2 to under 3 years – 1 points • 3 to under 4 years – 3 points • 4 to under 5 years – 4 points • 5 years or more– 5 points
Specific professional experience 1 (section 3.5.4 of the assessment grid):	Number of experts evaluated: All experts Evaluation Criterion: Cumulative years of Professional Experience of all experts in total in business analysis for web-based workflow systems development, within the last 10 years as of 1 August 2026: • Less than 5 years – 0 points • 5 to under 6 years – 5 points • 6 to under 7 years – 6 points • 7 to under 8 years – 7 points • 8 to under 9 years – 8 points

	• 9 to under 10 years – 9 points • 10 years or more – 10 points
Specific professional experience 2 (section 3.5.5 of the assessment grid):	5 years of professional experience of business analysis in the mining sector or supply chain of raw materials

Expert pool 2 ‘Software Development Team’ with minimum of 2 to maximum 4 experts (Section 3.6 of the assessment grid)

A CV for each expert must be submitted with the tender.

Please indicate in your tender which experts in the pool shall be evaluated with regard to the specific professional qualifications. If not indicated, the experts in the pool with the professional experience reaching the maximum number of points will be evaluated.

The actual number of experts assigned from the pool may differ from the number of experts required in section 8 of the Terms of Reference. For experts not named in the tender, GIZ must confirm before the assignment that their qualifications are equivalent to those of the short-term experts proposed in the tender.

Task of the Expert Pool

- 1) Support team leader in the implementation of the defined tasks

Qualifications:

Education/training (section 3.6.1 of the assessment grid):	All experts with university qualification (Bachelor or equivalent) in computer science, Computer engineering, or relevant field
Language (section 3.6.2 of the assessment grid):	All experts with Knowledge of English, C1-level in the Common European Framework of Reference for Languages 1 expert with Knowledge of French, B2-level in the Common European Framework of Reference for Languages
General professional experience (section 3.6.3 of the assessment grid):	Number of experts evaluated: All experts Assessment criterion: Cumulative years of Professional Experience of all experts in total in development of web-based software development (frontend, backend), within the last 10 years as of 1 August 2026: • Less than 5 years – 0 points • 5 to under 6 years – 5 points • 6 to under 7 years – 6 points • 7 to under 8 years – 7 points • 8 to under 9 years – 8 points • 9 to under 10 years – 9 points • 10 years or more – 10 points

Specific professional experience 1 (section 3.6.4 of the assessment grid):	1 expert with 5 years of professional experience in the development of web-based workflow systems built on established open-source or vendor-neutral workflow engines (e.g. Joget, n8n, Camunda, or equivalent), including configuration, extension, and integration with external systems, of which 1 project or engagement of minimum 6 months duration within the last 10 years as of 1 August 2026.
Specific professional experience 2 (section 3.6.5. of the assessment grid):	1 expert with 5 years of professional experience in applying DevSecOps practices (e.g. CI/CD pipelines, automated testing, security integration in the development lifecycle) in the development of web-based applications, including frontend, backend, and database development, of which 1 project or engagement of minimum 6 months duration within the last 10 years as of 1 August 2026
Specific professional experience 3 (section 3.6.6. of the assessment grid):	1 expert with 4 years of professional experience in quality assurance and testing of web-based applications covering frontend, backend, database and integration layers, of which 1 project or engagement of minimum 6 months duration within the last 8 years as of 1 August 2026

The tenderer must assign all the proposed experts to the required qualifications and clearly present them in a separate table preceding the CVs. The summary presentation must mention only qualifications that are actually indicated in the CVs. Professional experience must be evidenced by meaningful references in the CVs. It is advisable to make explicit reference to each example of professional experience.

Soft skills of team members

In addition to their specialist qualifications, all team members are also expected to have the following qualifications:

- Team skills
- Initiative
- Communication skills
- Sociocultural and intercultural skills
- Efficient partner- and client-oriented working methods
- Interdisciplinary thinking

Soft skills are not evaluated.

9 Costing requirements

9.1 Assignment of experts

In your tender, please do not deviate from the specification of quantities required in these ToR (number of experts and expert days, budget specified in the price schedule). This is part of the competitive tender and is used to ensure that the tenders can be compared objectively. Please note: only services that were commissioned by GIZ and rendered by the contractor will be remunerated. We would also like to point out that it may not be necessary to make use of the total number of proposed expert days.

The number of expert days corresponds to full working days.

Expert	Expert days
Expert 1: Team Leader / Project Manager	25
Expert 2: Architect	30
Expert 3: Expert Pool Nr. 1	30
Expert 4: Expert Pool Nr. 2	105

9.2 Travel expenses

9.2.1 Travel – sustainability considerations

GIZ would like to reduce greenhouse gas emissions (CO₂ emissions) caused by travel. When preparing your tender, please incorporate options for reducing emissions, for example by selecting the lowest-emission booking class (economy) or using means of transport, airlines and flight routes that are more CO₂-efficient. For short distances, travel by train (second class) or e-mobility are the preferred options.

CO₂ emissions resulting from air travel must be offset. GIZ specifies a budget for this which enables carbon offsets can be settled against evidence.

There are many different providers in the market for emissions certificates, and they have different climate impact ambitions. The [Development and Climate Alliance](#) has published a [list of standards](#). GIZ recommends using these standards.

9.2.2 Travel expense requirements

Travel expenses must be costed as follows by the contractor:

Travel expense item	Number/quantity
Total number of international flights to (Entebbe, Uganda)	6
Carbon offsets for flights	1 840 EUR

	An unalterable budget for carbon offsets for settlement against evidence is specified
Transport costs (rail travel, car travel, local public transport)	25
Per diem allowances	50
Accommodation allowances	44
Other travel expenses (visa, project-related travel expenses outside the place of business, etc.)	6

Per-diem allowances are reimbursed as a lump sum up to the maximum amounts permissible under tax law for each country as set out in the country table in the circular from the German Federal Ministry of Finance on travel expense reimbursement (download at <https://www.bundesfinanzministerium.de>).

In addition, for the following items, reasonable costs can be settled against evidence up to the proposed amount.

- Flight costs
- Transport costs
- Other travel expenses

Notes on settling accommodation allowances outside Germany:

For the country Uganda tenderers may offer accommodation allowances up to **EUR 207.00**. This is the maximum amount permissible under tax law as per the BMF circular on travel expense reimbursement.

- If the contractor offers accommodation allowances at up to 75% (**EUR 155.00**) of the maximum amounts permissible under tax law as per the BMF circular on travel expense reimbursement, the expenses will be reimbursed **on a lump-sum basis** in the contractually agreed amount.
- If the contractor offers accommodation allowances at between 75% and 100% (**EUR 207.00**) of the maximum amounts permissible under tax law as per the BMF circular on travel expense reimbursement, the corresponding **evidenced expenses** will be reimbursed up to the contractually agreed amount.

9.3 Hosting

Hosting as per Section **Fehler! Verweisquelle konnte nicht gefunden werden.** is required for the period from contract start until 9 months after contract start.

The price must be listed in the price schedule as a **monthly lump sum**. Hosting is required for a total period of **9 months**.

9.4 Materials and equipment 1 - Procurement for Plugins

Budget for materials and equipment: EUR 1,000

The fixed, unalterable budget above is given for the procurement of the materials and equipment described in the table below (payment against evidence).

Made available free of charge by the project executing agency (local project partner) for the duration of the contract	Made available free of charge by GIZ for the duration of the contract	Materials and equipment to be procured by the contractor in the financial bid
N/A	N/A	License/subscription fees for approved third-party plugins or software extensions (payment against evidence and prior written approval)

9.5 Materials and equipment 2 - License Costs for IT Project Management Tools

Budget for materials and equipment: EUR 600

The fixed, unalterable budget above is given for the procurement of the materials and equipment described in the table below (payment against evidence).

Made available free of charge by the project executing agency (local project partner) for the duration of the contract	Made available free of charge by GIZ for the duration of the contract	Materials and equipment to be procured by the contractor in the financial bid
N/A	N/A	License/seat fees for partner access to contractor's IT project management tool

9.6 Flexible remuneration

Budget for flexible remuneration: EUR 36, 000

The fixed, unalterable budget above is given in the price schedule for flexible remuneration. Flexible remuneration is intended to facilitate the flexible management of the contract by the officer responsible for the commission at GIZ. The contractor can make use of the funds in accordance with Section 21.5 of the GIZ's Special Terms and Conditions of Contract.

10 Requirements on the format of the tender

The structure of the tender must correspond to the structure of the ToR. It must be legible (font size 11 or larger) and clearly formulated. The language in which the tender must be written is English.

The technical-methodological concept of the tender (section 7 of the ToR) is not to exceed **12** pages (not including the cover page, list of abbreviations, table of contents and brief introduction).

The CVs of the staff proposed in accordance with section 8 of the ToR must be in the EU format and not exceed four pages in length. The CVs must clearly show what position the proposed person held, which tasks he or she performed and how many expert days he or she worked during which period in the specified references. The CVs should be submitted in English.

We strongly request that you do not exceed the number of pages specified.

11 Options

After the services put out to tender have been completed, important elements of these tasks can be continued or extended. Specifically:

11.1 Option 1: Extension of the Uganda Pilot towards full scale solution

11.1.1 Type and scope

While retaining the overall character of the contract, there is a possibility of GIZ continuing to obtain the services specified in section 2 of these Terms of Reference and/or of expanding the contract to include further services of the same kind.

The Pilot Solution (see Section 2.4 of the ToR) shall be enhanced by further Epics. The following Epics are planned for implementation:

- Epic 6: Chain of Custody Export Management & Third-Party Audits
- Epic 7: Chain of Custody ICGLR Certificate Management
- Epic 8: Financial Payments and Tracking Management
- Epic 9: Compliance and Penalty Management
- Epic 11: Reporting and Analytics
- Epic 12: Online Public Portal (One Stop Center website)
- Epic 13: Integration of internal and external systems

Also all existing functionalities shall be enhanced according to the Epic List (see Annex 6) . The distinguishment between Requirements of the Pilot Solution and the Full Scale solution are agreed and defined in the Epic 1: System Architecture Definition and Validation, however and indication of a feature cut is integrated into the existing Epic Listc see Annex 6).

11.1.2 Planned Product Increments (PI) and Schedule

Each iteration is timeboxed with a timeline that shall be agreed on with the contractor during the assessment. It is a best practice to aggregate 4 sprints (each 2 weeks) per iteration. As per project management methodology the user stories and features for each iteration will be

prioritized at the beginning of each iteration. The following describes the current plan for the focus in each iteration. This focus can be adjusted as part of the iteration planning.

Milestones	Estimated Delivery period
Product Increment 4	2 months after start of product increment 3
Product Increment 5	2 months after start of product increment 4
Product Increment 6	2 months after start of product increment 5

11.1.3 Requirements

Exercising the option will depend on completed implementation of Product Increment 1.

The option will be exercised by means of a contract extension on the basis of price items already offered.

11.1.4 Quantative requirements for the optional services

11.1.4.1 Assignment of experts

In your tender, please do not deviate from the specification of quantities required in these ToR (number of experts and expert days, budget specified in the price schedule). This is part of the competitive tender and is used to ensure that the tenders can be compared objectively. Please note: only services that were commissioned by GIZ and rendered by the contractor will be remunerated. We would also like to point out that it may not be necessary to make use of the total number of proposed expert days.

The number of expert days corresponds to full working days.

Expert	Expert days
Expert 1: Team Leader / Project Manager	80
Expert 2: Architect	60
Expert 3: Expert Pool Nr. 1	50
Expert 4: Expert Pool Nr. 2	190

11.1.4.2 Travel expenses

Travel expenses must be costed as follows by the contractor:

Travel expense item	Number/quantity
Total number of international flights (Entebbe, Uganda)	6
Carbon offsets for flights	1 EUR 840 An unalterable budget for carbon offsets for settlement against evidence is specified
Transport costs (rail travel, car travel, local public transport)	25
Per diem allowances	50
Accommodation allowances	44
Other travel expenses (visa, project-related travel expenses outside the place of business, etc.)	6

Per-diem allowances are reimbursed as a lump sum up to the maximum amounts permissible under tax law for each country as set out in the country table in the circular from the German Federal Ministry of Finance on travel expense reimbursement (download at <https://www.bundesfinanzministerium.de>).

In addition, for the following items, reasonable costs can be settled against evidence up to the proposed amount.

- Flight costs
- Transport costs
- Other travel expenses

Notes on settling accommodation allowances outside Germany:

For the country Uganda tenderers may offer accommodation allowances up to **EUR 207.00**. This is the maximum amount permissible under tax law as per the BMF circular on travel expense reimbursement.

- If the contractor offers accommodation allowances at up to 75% (**EUR 155.00**) of the maximum amounts permissible under tax law as per the BMF circular on travel expense reimbursement, the expenses will be reimbursed **on a lump-sum basis** in the contractually agreed amount.
- If the contractor offers accommodation allowances at between 75% and 100% (**EUR 207.00**) of the maximum amounts permissible under tax law as per the BMF circular on travel expense reimbursement, the corresponding **evidenced expenses** will be reimbursed up to the contractually agreed amount.

11.1.4.3 Hosting

Hosting as per Section **Fehler! Verweisquelle konnte nicht gefunden werden.** is required for the period from activation of Option 1 to 6 month after activation of Option 1.

The price must be listed in the price schedule as a **monthly lump sum**. Hosting is required for a total period of **6 months**.

11.1.4.4 Materials and equipment 1 - Procurement for Plugins

Budget for materials and equipment: EUR 4,000

The fixed, unalterable budget above is given for the procurement of the materials and equipment described in the table below (payment against evidence).

Made available free of charge by the project executing agency (local project partner) for the duration of the contract	Made available free of charge by GIZ for the duration of the contract	Materials and equipment to be procured by the contractor in the financial bid
N/A	N/A	License/subscription fees for approved third-party plugins or software extensions (; payment against evidence and prior written approval)

11.1.4.5 Materials and equipment 2 - License Costs for IT Project Management

Budget for materials and equipment: EUR 2,400

The fixed, unalterable budget above is given for the procurement of the materials and equipment described in the table below (payment against evidence).

Made available free of charge by the project executing agency (local project partner) for the duration of the contract	Made available free of charge by GIZ for the duration of the contract	Materials and equipment to be procured by the contractor in the financial bid
N/A	N/A	License/seat fees for partner access to contractor's IT project management tool

11.2 Option 2: Extension of solution for Uganda

11.2.1 Type and scope

While retaining the overall character of the contract, there is a possibility of GIZ continuing to obtain the services specified in section 2 of these Terms of Reference and/or of expanding the contract to include further services of the same kind.

In addition to the Epics implemented in the Pilot Solution and Full scale solution extensions and improvements to all Epics (see Annex 6) are part of Option 2

Also all existing functionalities shall be enhanced according to the Epic List (see Annex 6). The distinguishment between Requirements of the Pilot Solution and the Full Scale solution are agreed and defined in the Epic 1 (see Annex 6) : System Architecture Definition and Validation.

11.2.2 Planned Product Increments (PI) and Schedule

Each iteration is timeboxed with a timeline that shall be agreed on with the contractor during the assessment. It is a best practice to aggregate 4 sprints (each 2 weeks) per iteration. As per project management methodology the user stories and features for each iteration will be prioritized at the beginning of each iteration. The following describes the current plan for the focus in each iteration. This focus can be adjusted as part of the iteration planning.

Milestones	Estimated Delivery period
Product Increment 7	2 months after start of product increment 6
Product Increment 8	2 months after start of product increment 7
Product Increment 9	2 months after start of product increment 8

11.2.3 Requirements

GIZ's commissioning party extends and/or provides additional funding for the current project or commissions a follow-on project or an agreement is concluded to provide cofinancing for the measure

Exercising the option will depend on completed implementation of Product Increment 4. The decision on continuation is expected to be made in the period 3 Month after contract start. If the option is exercised, it is anticipated that the contract term will be extended to September 2028.

The option will be exercised by means of a contract extension on the basis of price items already offered.

11.2.4 Quantitative requirements for the optional services

11.2.4.1 Assignment of experts

In your tender, please do not deviate from the specification of quantities required in these ToR (number of experts and expert days, budget specified in the price schedule). This is part of the competitive tender and is used to ensure that the tenders can be compared objectively. Please note: only services that were commissioned by GIZ and rendered by the contractor will be remunerated. We would also like to point out that it may not be necessary to make use of the total number of proposed expert days.

The number of expert days corresponds to full working days.

Expert	Expert days
Expert 1: Team Leader / Project Manager	70
Expert 2: Architect	45
Expert 3: Expert Pool Nr. 1	25
Expert 4: Expert Pool Nr. 2	270

11.2.5 Travel expense requirements

Travel expenses must be costed as follows by the contractor:

Travel expense item	Number/quantity
Total number of international flights	2
Carbon offsets for flights	1 EUR 280 An unalterable budget for carbon offsets for settlement against evidence is specified
Transport costs (rail travel, car travel, local public transport)	5
Per diem allowances	10
Accommodation allowances	8
Other travel expenses (visa, project-related travel expenses outside the place of business, etc.)	2

Per-diem allowances are reimbursed as a lump sum up to the maximum amounts permissible under tax law for each country as set out in the country table in the circular from the German Federal Ministry of Finance on travel expense reimbursement (download at <https://www.bundesfinanzministerium.de>).

In addition, for the following items, reasonable costs can be settled against evidence up to the proposed amount.

- Flight costs
- Transport costs
- Other travel expenses

Notes on settling accommodation allowances outside Germany:

For the country Uganda tenderers may offer accommodation allowances up to **EUR 207.00**. This is the maximum amount permissible under tax law as per the BMF circular on travel expense reimbursement.

- If the contractor offers accommodation allowances at up to 75% (**EUR 155.00**) of the maximum amounts permissible under tax law as per the BMF circular on travel expense reimbursement, the expenses will be reimbursed **on a lump-sum basis** in the contractually agreed amount.
- If the contractor offers accommodation allowances at between 75% and 100% (**EUR 207.00**) of the maximum amounts permissible under tax law as per the BMF circular on travel expense reimbursement, the corresponding **evidenced expenses** will be reimbursed up to the contractually agreed amount.

11.2.5.1 Hosting

Hosting as per Section **Fehler! Verweisquelle konnte nicht gefunden werden.** is required for the period from activation of Option 2 to 12 month after activation of Option 2.

The price must be listed in the price schedule as a **monthly lump sum**. Hosting is required for a total period of **12 months**.

11.2.5.2 Materials and equipment 1 - Procurement for Plugins

Budget for materials and equipment: EUR 1,000

The fixed, unalterable budget above is given for the procurement of the materials and equipment described in the table below (payment against evidence).

Made available free of charge by the project executing agency (local project partner) for the duration of the contract	Made available free of charge by GIZ for the duration of the contract	Materials and equipment to be procured by the contractor in the financial bid
N/A	N/A	License/subscription fees for approved third-party plugins or software extensions (payment against evidence and prior written approval)

11.2.5.3 Materials and equipment 2 - License Costs for IT Project Management

Budget for materials and equipment: 600

The fixed, unalterable budget above is given for the procurement of the materials and equipment described in the table below (payment against evidence).

Made available free of charge by the project executing agency (local project partner) for the duration of the contract	Made available free of charge by GIZ for the duration of the contract	Materials and equipment to be procured by the contractor in the financial bid
N/A	N/A	License/seat fees for partner access to contractor's IT project management tool

11.3 Option 3: Extension of Pilot to Burundi

11.3.1 Type and scope

While retaining the overall character of the contract, there is a possibility of GIZ continuing to obtain the services specified in section 2 of these Terms of Reference and/or of expanding the contract to include further services of the same kind.

Additionally to the implementation of National Minerals Databases (NMDBs) the project of Cooperation on Peace, Security and Responsible Resource Governance in the Great Lakes Region (ICGLR-Project) aims to develop a NMDB for the Burundi Mining Board (BMO).

As optional services the contracted consultant will develop and implement a national mineral database template in Burundi. This database will be based on the general national mineral database template, but localized to the specific context and requirements in Burundi.

11.3.2 Context of Burundi

The BMO through the support of the ICGLR projects developing a NMDB to enhance management of mining sector and ensure compliance with the Decree No. 100/006 of January 16, 2025, establishing the terms and conditions for the implementation of Law No. 1/19 of August 4, 2023, on the Mining Code of Burundi in relation to prospecting, geological and mining research, and the operation of large mines, small mines, and industrial quarries. The implementation of the NMDB will enhance oversight, transparency, and regulatory compliance within the mining sector. Even though operated independently the Burundi database share the same vision and goals and will have therefore a similar technical, methodological and roadmap approach.

There are currently varying degrees of progress in planning and framework conditions for the implementation and operation of the NMDBs. The project therefore plans to first expand and stabilize the current prototypes in certain areas (focus on auditing) and then introduce the results in Burundi. It is clear that each country will have its own NMDB instance, but progress in the development of one platform should also be applied to the other platform.

11.3.3 Objective of the commission/subject of the option

Following an initial technical needs assessment at DGSM by GIZ-ICGLR regional project, a National Minerals Database template (prototype) was developed in alignment the ICGLR architectural vision (**Annex 4: Architecture Vision Minerals Flow Data Vault**). This functional prototype of the NMDB was purposely implemented to meet the Regional Certification Mechanism (RCM) core traceability functionality.

The objective of the option is to further develop and deploy, and evaluate a pilot of the NMDB that complies with BMO legal and regulatory framework for a Minimum Policy Compliant Product (MPCP). The fully functional pilot of the NMDB in Burundi will demonstrate the core functionalities of the NMDB, validate user journeys, and facilitate early feedback from a limited set of users.

11.3.4 Existing IT Solution within BMO

Besides the existing prototype, the further development of the Uganda pilot (which shall be a base for the optional services set out under Section 11.6 of the ToR as well) the digitalization of the mining sector is precarious, with partial coverage supported by the following means:

1. The application and mobile tablets offered by **ITSCI** through Kombuka Africa, covering partly the traceability of the 3T minerals.
2. A software system, named **GELEXMICA**, recently developed by a local company to support the internal activities of the BMO, still in the process of rollout and is not yet fully functional.

11.3.4.1 General conditions on Partner side

BMO in Burundi has an IT Department who will need strong trainings to participate and actively support the whole development process of the NMDB.

11.3.4.2 General Requirements

The general requirements and methodological concept for the extension to Burundi shall reflect the requirements as set up in Uganda specifically for the sections:

- Chaoter “2.3 General Requirments”
- Chapter “2.5 Usage of standardised solutions”
- Chapter “2.6 Non Functional Requirements”
- Chapter “2.7 Usage of open-source software (OSS)”
- Chapter “2.8 Hosting”
- Chapter “2.9 Further specification/general conditions”
- Chapter “2.10 Other requirements”
- Chapter: “3.1 Use of agile methodology”
- Chapter “3.2 Continous project management”

Deviations from the main parts are described in the following sections.

11.3.4.3 Planned Product Increments (PI) and Schedule

Each iteration is timeboxed with a timeline that shall be agreed on with the contractor during the assessment. It is a best practice to aggregate 4 sprints (each 2 weeks) per iteration. As

per project management methodology the user stories and features for each iteration will be prioritized at the beginning of each iteration. Across all three Product Increments, work will be conducted on all Epics defined in the pilot scope (see Chapter 2.4). The prioritization within each sprint determines which features and user stories are completed per increment, not which Epics are being worked on. The following describes the current plan for the focus in each iteration. This focus can be adjusted as part of the iteration planning.

Milestones	Estimated Delivery period
Product Increment Burundi 1	2 months after Option start
Product Increment Burundi 2	2 months after start of product increment Burundi 1
Product Increment Burundi 3	2 months after start of product increment Burundi 2

11.3.4.4 Functional requirements and Epics

The following Epics will be addressed in the Option for the Burundi NMDB (see Annex 6):

- Epic 1: System Architecture Definition and Validation
- In difference to the Epic 1 in Chapter 3.4.1, no technical validation of the system must be considered here, as the technical architecture set up from Uganda will be further used
- Epic 2: Implementation of the UI and Backend for the Digital Registry for the National Minerals Database
- Epic 3: User roles and Access management
- Epic 4: Chain of Custody Mine site Management & Inspection
- Epic 5: Chain of Custody Traceability Module
- Epic 14: Knowledge Transfer

11.3.4.5 Data Protection

When the GIZ hires a contractor to build or upgrade a data processing system (platform, website, app etc.) on behalf of a local partner, who determines the purposes and means of the data processing activity, the GIZ does not bear ANY responsibility for such processing. BMO shall be the data controller, and the data processing shall be carried out in accordance with the BMO's instructions as well as laws and standards to which it is subject. Although the GIZ builds such systems in conformity with the highest data protection standards, especially those relating to data protection by design and by default, as stated in Annex 8. "GIZ Data protection standards for developing digital tools meant for GIZ's partners". The contractor is therefore required to inform GIZ if any applicable national requirement is incompatible with the provisions of this annex. However, its responsibilities end with the handing over of the systems to DGSM. As a data controller, DGSM must ALONE comply with all local and regional laws applicable to such processing (including the GDPR, where applicable). Consequently, the data protection principles such as lawfulness, data minimization, accuracy, purpose limitation, storage limitation, transparency, integrity and confidentiality, and accountability, as well as the numerous rights of the data subject should be paid due attention. We equally recommend that DGSM should conclude data protection agreements with the hosting service provider(s) and the maintenance service provider(s), where applicable. The GIZ would be available to support DGSM whenever the need arises.

The contractor shall comply with the data protection and privacy laws of Burundi.

11.3.4.6 Language

In deviation from sections 1.2, 6.1 and 8.1 of the Supplementary Terms of Contract for IT Services – EVB-IT Standard Business Terms for IT Services (EVB-IT-Service-AGB), the services are to be provided in English and French.

11.3.4.7 Granting of rights of use

11.3.4.7.1 NMDB – Burundi

The contracting party grants the same rights of use for the IT solution, granted to GIZ as per Section 3.1 of the General Terms and Conditions for EVB-IT Service Contracts (EVB-IT-Service-AGB) to BMO.

Sections 3.1 – 3.4 of the EVB-IT-Service-AGB do not apply to open-source components. GIZ and BMO may acquire rights of use for the open-source component(s) from the respective rights holders if it concludes license agreements with them under the terms of the respective open-source license(s). In this case, the use of the open-source component(s) shall be governed solely by the respective open-source license(s).

However, the provisions in Sections 3.1-3.4 of the EVB-IT Service AGB apply to the software components developed by the contracting party, unless these must also be licensed as open-source software due to obligations under an applicable open-source license (so-called copyleft effect). The contracting party is responsible for checking whether such a requirement exists and must inform GIZ of the result of this check. If a copyleft requirement exists and the contracting party has informed GIZ of this, the provision in the preceding paragraph shall apply.

11.3.4.7.2 Standard Solutions (section 2.5 ToR)

The contracting party provides the required standard solutions to BMO in accordance with section 2.5 and the respective Annexes 7 for the respective license period.

The minimum scope of the usage rights to be granted to BMO by the contracting party is stipulated in number 3.6 EVB-IT Service Contract. If standard solutions provided by the contracting party are licensed as OSS, the provisions in number 3.7 EVB-IT Service Contract apply accordingly.

11.3.5 Requirements

Exercising the option will depend on completed implementation of the NMDB Template in Uganda. The decision on continuation is expected to be made in the period 6 Month after contract start. If the option is exercised, it is anticipated that the contract term will be extended to September 2027.

The option will be exercised by means of a contract extension on the basis of the price items already offered.

11.3.6 Quantitative requirements for the optional services

11.3.6.1 Assignment of experts

In your tender, please do not deviate from the specification of quantities required in these ToR (number of experts and expert days, budget specified in the price schedule). This is part of the competitive tender and is used to ensure that the tenders can be compared objectively. Please note: only services that were commissioned by GIZ and rendered by the contractor will be remunerated. We would also like to point out that it may not be necessary to make use of the total number of proposed expert days.

The number of expert days corresponds to full working days.

Expert	Expert days
Expert 1: Team Leader / Project Manager	20
Expert 2: Architect	15
Expert 3: Expert Pool Nr. 1	30
Expert 4: Expert Pool Nr. 2	100

11.3.6.2 Travel expenses

Travel expenses must be costed as follows by the contractor:

Travel expense item	Number/quantity
Total number of international flights	2
Carbon offsets for flights	1 EUR 280 An unalterable budget for carbon offsets for settlement against evidence is specified
Transport costs (rail travel, car travel, local public transport)	5
Per diem allowances	10

Accommodation allowances	8
Other travel expenses (visa, project-related travel expenses outside the place of business, etc.)	2

Per-diem allowances are reimbursed as a lump sum up to the maximum amounts permissible under tax law for each country as set out in the country table in the circular from the German Federal Ministry of Finance on travel expense reimbursement (download at <https://www.bundesfinanzministerium.de>).

In addition, for the following items, reasonable costs can be settled against evidence up to the proposed amount.

- Flight costs
- Transport costs
- Other travel expenses

Notes on settling accommodation allowances outside Germany:

For the country Uganda tenderers may offer accommodation allowances up to **EUR 102.00**. This is the maximum amount permissible under tax law as per the BMF circular on travel expense reimbursement.

- If the contractor offers accommodation allowances at up to 75% (**EUR 76.50**) of the maximum amounts permissible under tax law as per the BMF circular on travel expense reimbursement, the expenses will be reimbursed **on a lump-sum basis** in the contractually agreed amount.
- If the contractor offers accommodation allowances at between 75% and 100% (**EUR 102.00**) of the maximum amounts permissible under tax law as per the BMF circular on travel expense reimbursement, the corresponding **evidenced expenses** will be reimbursed up to the contractually agreed amount.

11.3.6.3 Hosting

Hosting as per Section **Fehler! Verweisquelle konnte nicht gefunden werden.** is required for the period from activation of Option 3 to 6 months after activation of Option 3.

The price must be listed in the price schedule as a monthly lump sum. Hosting is required for a total period of 6 months.

11.3.6.4 Materials and equipment 1 - Procurement for Plugins

Budget for materials and equipment: EUR 1,000

The fixed, unalterable budget above is given for the procurement of the materials and equipment described in the table below (payment against evidence).

Made available free of charge by the project executing agency (local project partner) for the duration of the contract	Made available free of charge by GIZ for the duration of the contract	Materials and equipment to be procured by the contractor in the financial bid
N/A	N/A	License/subscription fees for approved third-party plugins or software extensions (; payment against evidence and prior written approval)

11.3.6.5 Materials and equipment 2 - License Costs for IT Project Management

Budget for materials and equipment: EUR 600

The fixed, unalterable budget above is given for the procurement of the materials and equipment described in the table below (payment against evidence).

Made available free of charge by the project executing agency (local project partner) for the duration of the contract	Made available free of charge by GIZ for the duration of the contract	Materials and equipment to be procured by the contractor in the financial bid
N/A	N/A	License/seat fees for partner access to contractor's IT project management tool

12 Annexes

Annex 1: GIZ Govstack Factsheet

Annex 2: RCM Manual

Annex 3: ICGLR Data Management Sharing Policy 2025

Annex 4: Architecture Vision Minerals Flow Data Vault

Annex 5: National Mineral Database Template

Annex 6: Epic List

Annex 7: NITA-U guidelines:

- 7.1 National Information Security Framework
- 7.2 Standards for acquisition of Information Technology, Hardware and Software
- 7.3 Cloud computing guidelines
- 7.4 National Data bank regulations
- 7.5 Data Protection and privacy

Annex 8: GIZ Data Protection Guidelines

Annex 9: List of OSS-Components