**REQUEST FOR EXPRESSIONS OF INTEREST**

**(CONSULTING SERVICES – FIRMS SELECTION)**

**REPUBLIC OF ARMENIA**

**ARMENIA EXTRACTIVE INDUSTRIES TRANSPARENCY INITIATIVE (EITI) SUPPORT, ADDITIONAL FINANCING**

**GRANT: TF0B4808**

**Assignment Title:** Consulting services for the EITI data systematic disclosing and making publicly accessible

**Reference No**. (as per Procurement Plan): **EITI-AF-CS-1.3-2**

The Government of Armenia has received financing from the World Bank (Armenia Extractive Industries Transparency Initiative Support (EITI), Additional Financing, TFOB4808) toward financing of the EITI implementation activities in Armenia, and intends to apply part of the proceeds for consulting services.

The objective of this consultancy service assignment is is conditioned by the need to regular publication (disclosure) of the metal mining industry data meets to EITI Standard, based on the principle of open data and to ensure their public accessibility.

Thе implementation period is: **about 6 months, but not latter than 15 December, 2024 .**

The detailed Terms of Reference (TOR) for the assignment are attached to this req*uest for expressions of interest.*

The Office of RA Prime Minister now invites eligible consulting firms (“Consultants”) to indicate their interest in providing the Services. Interested Consultants should provide information demonstrating that they have the required qualifications and relevant experience to perform the Services.

The Consultant qualification criteria are:

The qualifications and experience of the Consultant must meet the minimum requirements below:

* The company must have at least 5 years of experience in developing public management information systems in RA.
* The company must have at least 2 successfully implemented and commissioned similar public management information systems within the last 5 years. The company must submit reference letters certifying the proper and timely implementation of the works from the main customers of the above-mentioned systems.

*Key Experts will not be evaluated at this stage.*

The attention of interested Consultants is drawn to Section III, paragraphs, 3.14, 3.16, and 3.17 of the World Bank’s “Procurement Regulations for IPF Borrowers” July 2016 (“Procurement Regulations”), setting forth the World Bank’s policy on conflict of interest.

Consultants may associate with other firms to enhance their qualifications, but should indicate clearly whether the association is in the form of a joint venture and/or a sub-consultancy. In the case of a joint venture, all the partners in the joint venture shall be jointly and severally liable for the entire contract, if selected.

A Consultant will be selected in accordance with the Consultant’s Qualifications Based Selection (CQS) method set out in the Procurement Regulations.

Further information can be obtained at the address below during office hours from 09:00 to 18:00 (Yerevan time).

Expressions of interest must be delivered in a written form to the address below (in person, or by mail, or by e-mail) by May 23, 2024, at 18:00 (Yerevan time).

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**Client: RA Prime Minister’s Office**

**"Armenia Extractive Industries Transparency Initiative Support: Additional Financing” EGPS Grant No. TF0B4808**

**Terms of Reference**

**Consulting services for the EITI data systematic disclosing and making publicly accessible**

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# **ABBREVIATIONS AND DEFINITIONS**

|  |  |
| --- | --- |
| SDD | Systematic data disclosure |
| EITI | Extractive Industries Transparency Initiative |
| EKENG | E-Governance Infrastructure Implementation Agency |
| MTAI | Ministry of Territiorrial Administration and Infrastucture |
| ME | Ministry of Environment |
| SRC | State Revenue Committee |
| WG | Working group |
| IT | Information technologies |
| RA | Republic of Armenia |
| IS | Information system |

# **1. INTRODUCTION**

## **1.1 Project background**

The Extractive Industries Transparency Initiative (EITI)[[1]](#footnote-2) is a global standard to promote the open and accountable management of natural resources, which has 57 member states. The Republic of Armenia is a member country of the EITI from 9 March, 2017.

Under the Extractive Industries Transparency Initiative Support Project (hereinafter Project), the Republic of Armenia received a grant from the World Bank, which aims to support Armenia in increasing transparency and accountability in the mining sector through the effective implementation of the EITI Standard. The Project components are: (1) EITI reporting and mainstreaming, (2) Capacity building, (3) Communication and outreach. Project management is carried out by the RA Prime Minister Office (hereinafter **Client**).

In the value chain of extractive industry, the EITI Standard ensures a well-established, yet meantime a flexible methodology to disclose information and allows controlling the accessibility of information on nationwide payments made by private companies and the revenues that the state generates from extractive sector. It encourages the countries to develop their accountability systems and procedures of EITI data collection, and publish data in a manner of systematic data disclosure. Every country implementing the EITI Standard develops its own procedures for disclosure of information, which meets the specific needs of the given country.

In 2018-2019 Armenia's EITI website[[2]](#footnote-3) and Օnline reporting platform[[3]](#footnote-4) were developed and implemented, through which all metal mining companies and state bodies defines by the legislation submitted EITI public reports in line with the public reporting templates set forth in the Government Decree N 666-N[[4]](#footnote-5).

## **1.2 The Objective of the Systematic Data Disclosure System**

Rapidly evolving information technologies dictate their requirements to modernize solutions implemented in all areas. Previously used technologies are being replaced by new, more flexible, effective solutions that need to increase the quality and effectiveness of offered services, enabling the achievement of required and necessary results.

The need to carry out the works envisaged by this technical description is conditioned by the need to regular publication (disclosure) of the metal mining industry data meets to EITI Standard, based on the principle of open data and to ensure their public accessibility. That work includes both the correction of existing platforms technical and substantive problems and deficiencies, as well as the imperative to implement existing procedures with technologically more modern and effective means, which in turn also follows from the Armenian Government's decision N 183-L[[5]](#footnote-6) of February 11, 2021 on "Armenia's Digitization Strategy, on approving the plan of strategy measures and performance indicators", August 31, 2015. N 1093-N[[6]](#footnote-7) and December 19, 2019 N 1849-N[[7]](#footnote-8) decisions and the documents arising from it, from the standard of requirements for websites published by the Ministry of High-Tech Industry, as well as from the requirements of the EITI.

Currently, the main problems formed in terms of management of automated business processes in the existing EITI Reporting System are as follows:

* Operators of government agencies regulating the sector manually enter the necessary information into the electronic reporting templates developed for them for publishing the EITI reports. If possible, it is necessary to implement the automatic exchange of electronic data between the stakeholder state bodies and the EITI’s SDD information system.
* The information received by the RA communities is presented through electronic reports developed for the Ministry of Territorial Administration and Infrastructure. It is necessary to develop separate reporting forms for RA communities (munnicipalities) and provide the access to relevant users.
* The information provided by the Environmental Protection and Mining Inspection Body is presented through electronic reports developed for the Ministry of Environment. It is necessary to develop separate reporting forms for the Environmental Protection and Mining Inspection Body and provide the access to relevant users.
* Tools for adjusting already submitted reports are missing.
* It is necessary to develop subsections for entering and maintaining data on mining rights for the Ministry of Territorial Administration and Infrastructure, providing for the possibility of entering Subsoil use contracts, Subsoil use rights’ documents, including acts of mountain allocation.
* The subsections for reflecting summary information on the mining companies is missing.
* The reconciliation of data submitted by state bodies and mining companies is currently carried out by a third party. It is necessary to develop a tool for automatic reconciliation of data submitted by state bodies and mining companies.
* Changing the data in the reference tables affects the previously presented reports. It is necessary to implement the modernization of reference tables’ data storing by adding the possibility of storing historical data.
* System transparency monitoring functionality and logging mechanism are missing.
* It is necessary to modernize the reporting and analytical tools working with the presented data.

The a.m technical and content problems in the systems adversely affect the rapid response, decision-making, and offering solutions to issues presented by the stakeholders and beneficiaries of the sector. The current state of the information systems of the sector imply that, more human and financial resources are needed to solve existing technical and content problems in information systems than will be required to modernize the automated business processes in those IS and give them a technologically new quality.

Thus, the purpose of launching of the systematic data disclosure platform and ensuring its public accessibility is to modernize the structure of the existing databases and systems of the stackholders involved in the EITI process and ensure their public access in a way to ensure the following results:

* Elimination of outdated information
* Real-time publishing of up-to-date information
* Minimizing intentional errors
* Ensuring high-quality analysis
* Conducting survey analysis
* Access to open data
* Constant online access to up-to-date information

# **2 SCOPE OF CONSULTANT SERVICES**

The following main works should be carried out within the scope of the design and development of the SDD IS:

* **The Applicant should develop a vision for the modernization of the SDD IS within the defined scope in the framework of the Technical proposal (in accordance with Annex 1 Technical Recuirements), which should describe the information system to be modernized, its database, architecture, technological solutions, stack, functional capabilities, the potential for further development and scaling, etc.**
* **The Applicant should also develop and present detailed information on the server infrastructure and software tools necessary for the design, development and operation of the SDD IS within the framework of the Technical proposal. In other words, the Applicant should identify the proper menu of IT tools that are needed to implement the platform concept.**
* **The Consultant should conduct an in-depth study of the EITI SDD IS infrastructure, based on which documentation should be developed, including a detailed technical task description, which will be submitted to the Client for approval.**
* **Based on the approved documentation, including the technical description, as well as the vision presented by during the tender, the Consultant should design and develop the SDD IS within the defined scope, carry out the testing, data migration from the databases of previously operated information systems, staff training.**
* **At the end of the above-mentioned works, there will be a comprehensive acceptance testing of the SDD IS and pilot operation, as a result of which the identified issues should be corrected by the Consultantat no additional cost. After correcting the problems found in the above phases, retesting should be performed. Only in case of the latter’s successful completion handover-acceptance should be carried out, in which case the SDD IS will be considered to enter the warranty service phase, the details of which are presented in sections 2.8 and 6 of this document․**
* **Commissioning of the SDD IS following the requirements of the current document.**

As a result of the implementation of the above-mentioned works, the **Consultant** should handover the SDD IS to the Prime Minister’s Office of Armenia (EITI national secretariat) and EKENG.

## **2.1 Software**

To provide a package of IT tools for the SDD IS , the **Consultant** should ensure that the following requirements are met:

* Agile project management methodology should be used by the **Consultant** throughout the implementation of the project, within which a project management tool (e.g. Jira, Asana, Trello or similar) should be used, to which persons appointed by the EITI, EKENG and the **Consultant** should have access,
* Study business and technical requirements of the IS, the types of competencies of the users, the amount of data to be included in the IS,
* Development of a detailed Technical proposal for the design and development of the SDD IS, approval of the document by the **Client**. This document should include the work schedule, functional, technical descriptions, integration and interoperability specifications of the IS, software architecture, technologies to be used in design, development, plans of testing, deployment, data migration, relevant staff training, SDD IS interface design concept and other necessary descriptions, which will be clarified jointly with the **Client** during the study phase to be carried out by the **Consultant**.
* Software design, development, testing, data migration, pilot release, and implementation of other activities defined by the approved detailed Technical proposal.

At the end of the project, the **Consultant** should submit to the the **Client** all the source codes of the SDD IS and the documentation according to the defined list. The principles of software code development and quality assurance requirements are defined in later sections of this document.

## **2.2 Quality assurance**

The **Consultant** should develop and submit to the CIient the testing and acceptance plan of the SDD IS. The testing plan should at least include the following main sections:

* Testing strategy
* Technical characteristics of testing
* Testing scenarios, including test cases
* Testing environment
* Development of test results
* Change management strategy based on the results of tests.

The **Consultant** should integrate, carry out and submit results of the following testing phases to the **Client**:

* unit-testing
* integration testing
* system testing
* user acceptance testing
* pilot testing

The purpose of the **unit and integration testing** phases is to check the performance of the SDD IS at the level of individual functions of subsystems and interconnected functions of subsystems. These phases should be carried out in parallel with the SDD IS development process.

Unit testing shall be based on standardized, well-known testing frameworks. It should be utilized to ensure better maintainability of the codebase and relatively effortless identification of potential bugs and errors. All parts of the code shall be covered by unit tests. Automated interface testing shall also be performed using well known test automation tools such as Selenium or similar. The **Consultant** will provide all the automated testing related codes (scripts) to the **Client**.

All business cases supported by the application should have corresponding test cases developed, clearly indicating inputs and outcomes. The overall process shall consider Test Driven Development approach, ensuring that all software functionality will be covered in test cases, and that test cases will be written in advance, and in parallel with development efforts, before fully developing the software, and that software shall contentiously be tested against all test cases. **Acceptance testing** of the software shall also be performed based on developed cases, in cooperation with the **Consultant**.

**Pilot testing** of SDD IS should be performed at the locations listed below:

* EKENG
* State Revenue Committee
* Ministry of Territorial Administration and Infrastructure
* Ministry of Environment
* Environmental Protection and Mining Inspection Body
* Selected communities (municipalities)
* Selected mining companies

At this phase, the working features of the SDD IS should be tested based on the functions of different user groups.

**User acceptance testing**, during which the following features (situations) of the SDD IS should be tested:

* Management of related IT services
* Installation
* Performance under high load and transaction volumes
* Identification and prevention of intrusions and penetrations
* Information system backup and recovery
* Information recovery
* Recovery of software functionality
* Information system control, monitoring, and alerts

Testing will be performed based on the agreed up on test cases to be provided by the **Consultant** and approved by the **Client**. Acceptance testing will be done by a group formed by the **Client** and will be consisting of the system’s main stakeholders (defined by the **Client**), with the **Consultant**’s support, which will also include quality, performance and stress testing. The **Client** reserves the right to form a team of experts (consisting of own staff and/or external experts, other stakeholders) for evaluating the overall solution, its compliance with mentioned requirements, and industry well-known practices.

All aforementioned tests including GUI and API-related tests shall be automated, whenever possible, using well-known, standard test automation software.

## **2.3 Deployment**

In the process of designing and developing the SDD IS, the **Consultant** shall create and maintain three main separate environments: development, staging, and production, which shall be located on EKENG’s premises. It shall be possible to provide access to each environment whenever it will be necessary.

Deployment of the SDD IS shall be carried out in two main phases:

* Beta deployment, during which the group of specialists selected by the **Client** will carry out testing, ensuring that the SDD IS meets all the requirements defined in this document. Issues identified in this phase shall be resolved by the **Consultant** under the direct supervision of the EKENG, after which the group of specialists assigned by the **Client** will test the SDD IS again, to ensure that issues are resolved and defined requirements are met. This process will be reinitiated until all issues will be resolved.
* Deployment, which will be carried out before the commissioning of the SDD IS. Problems encountered during operation should be corrected by the **Consultant** before the initiation of the pilot program. Issues identified during the pilot programs shall also be resolved by the **Consultant**.

For IS deployment, the **Client** must provides with an appropriate IS deployment environment, the specifications of which shall be presented during the tender stage. The minimum and recommended requirements for the infrastructure shall be provided by the **Consultant.**

## **2.4 Data migration**

To perform data migration, the **Consultant** must develop and submit a detailed migration plan to the **Client** for approval, based on which the **Consultant** will carry out the migration with EKENG’s support.

The **Consultant** shall also submit the list of specialists who will carry out the migration in EKENG’s premises, to the **Client**’s for approval․

Data migration from the existing platform to the UIS will be performed by the **Consultant** , in EKENG's premises, using the latter's hardware, and with collaboration with the EKENG's team.

Data migration includes data profiling, data cleansing, data validation, and the ongoing data quality assurance process in the target system. The data migration strategy and plan should consider the following:

* all historical data;
* consider duplicate as well as unconfirmed data cleansing;
* data conversion (new meta-data and design of tables and modules);
* all the risks accompanying the data migration process.

The **Consultant** will be responsible for data cleansing, developing validation rules, applying and testing them, with EKENG’s support and all the latter will require EKENG’s approval. Validation tests should at least include schema validation, cell-by-cell comparison, reconciliation checks for all columns, NULL validation, ad-hoc testing. All the tests shall be automated, minimizing manual intervention.

## **2.5 Training**

Within the scopes of the works provided for in this document, the **Consultant** shall carry out comprehensive training of system users and responsible employees performing system maintenance (administrators, programmers).

A detailed training plan shall be developed by the **Consultant** and presented to the **Client**’s for approval. The training plan shall at least include the training methodology, rationale for defining training groups, the content of the training materials, training schedule, and the knowledge assessment methodology. Within the scope of this document, the **Consultant** shall conduct training for the following main groups:

* **Training of Trainers (ToT)** – This should enabe **Client** to carry out training for employees of state bodies regulating the mining sector and all metal mining companies by 10-15 future trainers assigned by the latter to be trained by the **Consultant** . This will be made possible through a training program developed and carried out by the **Consultant** which will enable trainees to acquire all the necessary skills and knowledge, to train their peers.
* **Training for system administrators** – This training should be carried out for system administrators (3-4 specialists), as a result of which, system administrators should acquire all the necessary skills and knowledge for the technical management and use of SDD IS.
* **Technical training** – This training should be carried out for the technical staff (5-10 specialists), who will be responsible for software maintenance of the SDD IS.

The **Consultant** shall develop and provide all training, methodology, and audiovisual materials, which shall be in printed, digital, audio/video formats.

## **2.6 Documentation requirements**

Within the scope of IS implementation the **Consultant** shall prepare and provide to the **Client** the following documentation:

* System documentation, providing an overview of the underlying technology;
* Requirements documentation, including business rules, use cases, and user stories;
* Software architecture documentation, including designed APIs, and diagrammatic representation of the overall system and underlying infrastructure;
* Maintenance documentation, describing limitations and known problems within the system and implemented solutions; dependencies between system components shall also be presented in this document;
* Network topology of all layers, including physical and logical, firewalls, IPS/IDS systems and corresponding recommended configurations, hardware interconnections;
* User’s manual;
* Administration (system use) manual;
* Installation manual;
* Deployment manual;
* Support manual;
* Operation manual, including the commissioning plan;
* Failure management manual.

Documentation shall be provided both in a searchable text format (e.g. PDF, Word, etc.) and on an open-source, web-based repository, such as wiki.js, or the proprietary option offered by EKENG (e.g. Confluence) which will enable easier search, maintenance, and use. API documentation should be designed and delivered using frameworks that will reduce efforts for future maintenance and development (e.g. Swagger).

The system should have role-based user manuals in the Armenian language. English can be considered acceptable for technical documentation. The manuals should also be accessible through the system interface. The System should also include online help topics with necessary instructions. This help would be accessible directly from every part of the user interface.

Following project management documents should be provided by the **Consultant** during the implementation of this project:

* Project Management Plan
* Quality Management Plan
* Risk Management Plan
* Training Plan
* Deployment Plan
* Warranty and Technical Support Plan

The **Consultant** will be responsible for keeping all documentation up to date during the warranty period in case of changes to the system environment, features or configurations in the event of system changes, functional features and operational changes.

The **Consultant** shall clearly define the descriptions of the manuals to be provided with the system, their updating procedures, and the template for their corresponding digital format.

## **2.7 Implementation support**

The **Consultant** shall work on establishing a standard environment, policies, and guidelines for the deployment of SDD IS in data center provided by the **Client**. The environment includes building modern development continuous integration/continuous delivery pipelines based on DevOps best practices which separate environments for development, staging, and production.

Software components should be packaged up with all dependencies, enabling the application to run reliably on any infrastructure, while remaining isolated from its running environment.

## **2.8 Maintenance**

After the official handover-acceptance of the SDD IS, the **Consultant** together with EKENG shall prepare a one-year Service Level Agreement (SLA) for the system and submit it to the **Client** for approval. The warranty shall at least cover software updates, and the release of new versions aimed to fix identified bugs, issues, and errors, depending on the severity of the latter.

During the warranty period, the **Consultant** shall be guided by the conditions/methodologies for the correction of errors or bugs during operation. It is also necessary to develop a software updating and patching strategy which will be prepared by the **Consultant** and approved by the **Client**.

Software errors can cause malfunctions and consist of the following main groups:

* accuracy and completeness of the input data are not maintained in the databases,
* calculation fields in the databases do not reflect the correct values due to errors in the corresponding formulas,
* operations to be performed in a single transaction are not carried out accordingly,
* reports do not reflect the real results,
* the software does not handle errors appropriately, throws fatal errors, and closes the application without user’s intervention,
* software response latency issues that are not due to database transactions.

Details regarding all possible error categories shall be developed by the **Consultant** and reflected in the relevant Service Level Agreement (SLA) to be approved by both the **Client** and the Consultant.

Software bugs include issues that do not affect the integrity of the data, the accuracy and completeness of reports. The latter shall also be specified in the Service Level Agreement (SLA) and approved by both the **Client** and the Consultant. The warranty period for the SDD IS will begin only if the IS is deployed on the hardware belonging to **Client** which corresponds to the minimum requirements defined by the Consultant.

During the warranty period, all identified issues (errors, bugs, etc.) shall be submitted by the EKENG to the **Consultant** in written format, describing details and time when it was identified.

The warranty terms to be set out in the Service Level Agreement (SLA) must include at least the following:

* If the issues affect the main functions of the system (it is not possible to enter data or the input is done with errors, it is not possible to receive the necessary outputs during the reporting period), then the problem must be resolved within 12 hours of notification.
* All issues identified by the **Client** as non-critical issues shall be combined in a new release and be submitted to the **Client** within 1 business day.
* Hotline (telephone) consultation should be provided to information system users on business days from 9:00 to 18:00.

# **3 DELIVERABLES AND SUBMISSION DATES**

The main works envisaged within the framework of the development and implementation of the systematic data disclosure system should be carried out in the following main phases:

* **First phase: Research and definition of requirements**
* **Second phase: Development of the information system**
* **Third phase: Deployment, documentation, testing, and training**
* **Fourth phase: Commissioning of the SDD IS for operation**

**First phase: Research and definition of requirements**

**Action plan**

* Develop a project action plan
* Submit the project implementation action plan to the **Cilent**’s for approval.

**Defining Requirements: Research and Studies**

* Meetings and discussions with those responsible for the field
* Study of business requirements of the SDD IS
* Study of technical requirements of the SDD IS
* Study of the types of roles of the SDD IS users
* Research on the amount of data to be included in the SDD IS.

**Description of technical solutions**

* Defining specifications of the information system
* Classification of information and defining user permissions and privileges
* Design and development of detailed technical task description
* Development of testing and admission plan
* Development of a training plan
* Submission of a detailed technical assignment, testing and admission plan, training plan to the **Client**

**Expected results of the implementation of the first phase of work**

* Approved project implementation action plan
* Approved testing and admission plan, training plan
* Approved detailed technical task description to design, develop, implement and operate of the SDD information system
* Description of necessary technical means
* **First phase report**

**Second phase: Development of the SDD IS**

According to the approved (by the **Client**) detailed technical specification, the following actions should be carried out to design, develop and implement the SDD information system:

**Creation of the SDD IS**

* Design and development of the SDD IS databases
* Software development of the SDD IS
* The SDD IS interface design
* Alpha, functional and simultaneous testing of several users
* Beta testing
* Presentation of the preliminary version of the SDD IS

**Pilot deployment of the SDD IS**

* Trial deployment of the initial version of the SDD IS

**Expected results of the second phase of work**

* The initial version of the SDD IS
* **Second phase report**

**Third phase: Deployment, documentation, testing, and training**

**Deployment:**

* Installation on the prospective servers and workstations
* Complete deployment of the SDD IS

**Documentation:**

* User’s manual
* Administration (system use) manual
* Installation manual
* Deployment manual
* Operation manual, including including the commissioning plan
* Support manual
* Failure management manual
* The updated version of the technical requirements
* Development of Help system and integration into the SDD IS
* Development of a one-year service level agreement (SLA) of the SDD IS and submission to the **Client** for approval and signing

**Testing:**

* Final testing, including stress and load testing
* User acceptance testing.

**Training**

* Preparation of a list of specialists to be trained
* Training of Trainers (ToT), training of technical staff and IS administrators.

**Expected results of the third phase of work**

* Trained professionals who will have relevant knowledge and skills to use and manage the system
* Third phase report, including:
  + Source codes of the system (with relevant descriptions)
  + Database dump
  + User’s manual
  + Administration (system use) manual
  + Installation manual
  + Deployment manual
  + Support manual
  + Operation manual
  + Failure management manual
  + Updated version of the technical requirements
* Approved Service Level Agreement (SLA) for one-year system warranty service

**The fourth phase: the commissioning of the SDD IS**

**Delivery of the IS, pilot operation**

* Approved act of the SDD IS delivery

**Expected results of the implementation of the fourth phase of work**

* A fully functional SDD IS

# **5 INSPECTION AND TESTS**

Comprehensive testing of the SDD information system must be conducted before the system is put into operation. The **Consultant** must prepare test plans that will be approved by the **Client**. All test plans must include scenarios agreed with the **Client** to ensure thorough and proper testing of the system before deployment.

Acceptance testing will be done by **Client**, or a group formed by the system’s main stakeholders from EKENG, Prime Minister’s Staff, SRC, MTAI, ME with the **Consultant** ’s support, which will also include load and stress testing.

The **Client** reserves the right to form a team of experts (consisting of own staff and/or external experts, other stakeholders) for evaluating the overall solution, its compliance with mentioned requirements, and industry well-known practices.

A group consisting of EKENG, Prime Minister’s Staff, SRC, MTAI, ME specialists, based on **Clinet**’s decision, will be assigned to participate in testing to validate its results and to verify that it meets all the functional and non-functional requirements, that it has been configured and customized properly, and performs satisfactorily, including the tests of successful data consolidation, data migration, data entry, update and processing, report generation, etc. Users will work from test scenarios developed jointly by the **Consultant**, and the working group assigned by the **Client** as needed. As each scenario is completed, the user will note whether the test was completed satisfactorily and whether there were any errors or unexpected results. The **Consultant** must remediate any identified issues. Any features or functionalities that failed the testing, must be retested once remediate.

After testing, the **Consultant** should prepare a summary of the test results and should outline the steps that will be taken to address any issues or problems identified. In the event of any disputes about the conduct or results of testing, EKENG will provide to the **Consultant** in writing a description of the issues with specific recommendations on how to address them. The **Consultant** must take appropriate steps to resolve any disputes or provide satisfactory clarification as earliest.

# **5 COMMISSIONING AND OPERATIONAL ACCEPTANCE**

Codebase: The code will be residing on EKENG’s repository with all branches (at least develop, staging and production), and corresponding branch policies enforced.

Pipelines: Fully functional CI/CD pipelines with all automated test scripts will be deployed a functional, build, and deployment processes automated without requiring any manual intervention, except when deploying in the production environment. The process of deployment in the production environment will be defined by EKENG. All the mentioned configurations will be integrated in EKENG’s environment.

After successfully passing the acceptance testing, the rollout will be performed based on a commissioning plan to be presented by the **Consultant** and approved by the **Client**.

The commissioning plan shall be developed considering:

* Availability and readiness of trained users prior to commissioning
* Minimal service disturbances
* Parallel rollout with existing systems ensuring a rollback strategy if necessary
* Continuous monitoring, and availability of a feedback loop, ensuring proper collection, analysis, and actions if necessary.

Metrics and monitoring setups shall be included in the commissioning plan, aimed to enable analyzing human and system behaviors during the rollout. Performance indicators, such as availability, reliability, and response time of the application should not be changed or severely affected by added load, or new features. Monitoring tools should be available and configured to track performance before, during, and after deployment, and increases the user base, to ensure performance does not degrade.

Details of metrics to be monitored shall be defined and details included in the commissioning plan, provided by the **Consultant** and approved by the **Client** and EKENG. Such tracking metrics shall include but not be limited to page load time, errors, uptime, transaction durations, etc.

The **Client** will be responsible for the approval that the system is fully functional and stable, after which the commissioning will be considered successful.

# **6 DEFECT LIABILITY**

The **Consultant** warrants that the whole systems with the underlying subsystems and other components are free from any defects. Any issues identified throughout the whole lifecycle of the project and at least 1 year after commission of the SDD information system shall be resolved by the **Consultant** without any additional cost.

All issues identified shall be resolved promptly, based on the severity of identified issues, such issues should be resolved within an agreed-on timeframe. The required timeframe for resolving issues are defined as follows:

* Critical – 12 hours
* Major – within 1 (working) day
* Minor – within 3 (working) days

The severity of issues is defined by EKENG, based on developed guidelines by the **Consultant** and approved by **Client**.

# **7 REQUIRED COMPANY AND STAFF QUILIFICATIONS**

The qualifications and experience of the **Consultant’s** staff must meet the minimum requirements below:

* The Company should have a at least the following staff:
  + - 1 Team Leader with university degree in IT, Computer Science and/or other relevant university degree with at least 5 years of working experience in the IT sector, as well as strong coordination and team leading skills.
    - 1 web/UI designer with relevant university degree and at least 3 years of working experience in web/UI design.
    - 1 frontend developer with relevant university degree and at least 3 years of working experience in computer programming (frontend development).
    - 2 backend developers with relevant university degree and at least 3 years of working experience in computer programming (backend development).
    - 1 database specialist with relevant university degree and at least 5 years of working experience in computer programming.
    - 1 devops specialist with relevant university degree and at least 5 years of working experience in computer programming.
    - 1 information security specialist with relevant university degree and at least 5 years of working experience in computer programming.

− 1 mining specialist with relevant university edegree and at least 5 years of working experience in the mining sector with strong professional skills, who will guide the Applicant team to visualize and understand the platform concept.

# **ANNEX 1**

# **TECHNICAL REQUIREMENTS**

This section presents the technical requirements to which the poposal of the **Applicant** must comply.

## **1. General requirements for application software (G)**

Following is the list of areas for general requirements:

1. Overall composition of solution and requirements regarding the systems architecture
2. Versioning of solution
3. Archiving of data
4. Database system software
5. Reporting and analysis environment
6. User interface software
7. On-line help
8. Reliability requirements, i.e. fault tolerance and disaster recovery
9. Backup and recovery requirements
10. Requirements for support of integration
11. Security and data privacy requirements, i.e. in the area of information management and users’ management.

### ***G01 Overall composition of solution***

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| *01.* ***Overall composition of solution*** | |
| **G01.001** | The SDD IS shall assure compatibility with various operating systems, being optimized for Apache/nginx web server operating in Linux or other UNIX operating systems. |
| **G01.002** | The SDD IS page link shall be implemented in xHTML1.0 language, as per W3C standards, if needed HTML 5 may also be used. |
| **G01.003** | The SDD IS should be adaptive or responsive, assuring maximum use by computers, mobile phones and tablets. |
| **G01.004** | The SDD IS shall have a content management system (CMS), which shall allow people with nonprofessional technical knowledge (no knowledge of programming languages) to manage the portal structure, as well as replenish the content of the page and add new sections. The CMS of the portal shall have a number of user servicing options with different levels of authorizations. |
| **G01.005** | The SDD IS shall have a global search system, which will allow searching in any section of the system. More comfortable and efficient search system shall be developed to ensure convenience of presenting information. It shall contain text, multilingual search, search by date, thematic search, and expanded search. |
| **G01.006** | The user shall be able to subscribe to frequently updated sections of the portal, such as to the media center. |
| **G01.007** | In the lower part of any page of the SDD system, a special module shall be placed to allow disseminating the given page in social media networks, such as Facebook, X(Twitter), Live Journal, GOXI, YouTube, etc. |
| **G01.008** | The SDD IS shall allow creating unlimited number of static HTML pages. |
| **G01.009** | The structure of the SDD IS, the user interface and source codes shall comply with the requirements of RoA legal acts (specifically to GoA Decree No. 1521-N, dated December 26, 2013 on “Approving the Minimum Requirements for Official Websites of State Bodies in the Internet”). |
| **G01.010** | It is necessary to implement a subsystem of reference tables in the SDD IS, which should have the following capabilities:   1. Reference table has validity period 2. Reference table item has validity period 3. It is possible to use reference table content as it was in any moment of time in past and current state 4. It is possible to apply business rules to control validity period consistency 5. It is possible to configure relations between reference tables and between data items 6. Reference table can be a hierarchy and system must ensure data consistency 7. It is possible to apply system rules to enforce uniqueness of data elements |
| **G01.011** | The SDD IS must provide full history of reference data. |

### ***G02 Versioning***

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| *02. Versioning requirements* | |
| **G02.01** | The **Consultant** shall provide the tools for automated migration from one version of SDD IS to next version of SDD IS, i.e. but not limited to following:   1. Automatic implementation of change of the data from older data model to the new data model; 2. Automatic transfer and/or change of the settings associated with the transition to the new version.   The **Consultant** shall provide complete and detailed documentation for transition from old version to next version of the SDD IS. |
| **G02.002** | Annual release of SDD IS shall include at least following improvements to the software:   1. Updates for web applications to support last stable releases of following major browsers:    1. EDGE (Microsoft)    2. Safari (Apple)    3. Firefox (Mozilla)    4. Chrome (Google) 2. Improvements for known problems |

### ***G03 Data archiving***

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| *03. Archiving requirements* | |
| **G03.001** | The SDD IS must have operational data archiving tools. At least the following functionality should be implemented:   1. Ability to archive historical data according to pre-defined parameters e.g. age, period, etc.; 2. Ability to view/search archived data; 3. Ability to retrieve and reactivate archived data; 4. Ability to control access to fields on forms, templates, documents and other data based on defined roles and access rights. |
| **G03.002** | All removable data must be archived with the opportunity to get restored from the archive into the actual system. |
| **G03.003** | SDD IS should provide clear, simple and fully documented procedure for data backup and data restoration from the archive.  SDD IS must ensure that such restoring from backups is accomplished in ways that do not compromise security protection (trusted recovery service).  The **Applicant** is requested provide description about how SDD IS ensure such trusted recovery service. |

### ***G04 Data management***

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| *04. Data management requirements* | |
| **G04.001** | The **Consultant** shall provide complete administration manual for SDD IS database administrators, which prescribes all needed procedures for proper administration of all databases, which are part of the system.  Amongst others aspects, this administration manual shall include procedures, guidelines, and methods for effective data planning, analysis, standards, modelling, configuration management, storage, retrieval, protection, validation, and documentation.  The **Applicant** is requested provide description of the administration manual. |
| **G04.002** | SDD IS shall have the means to download and upload application data via a text file (ASCII format).  SDD IS shall perform all necessary checks of the loaded data, including data integrity and compliance with data stored in the System. |
| **G04.003** | SDD IS shall provide capability to invoke application integrity checking for data, program modules, data files and other components, which are part of the system. |
| **G04.004** | SDD IS shall provide an opportunity to automatically prevent user access to the system, stop the user in the system in case of damage of software modules, data files, data corruption or any other type of integrity errors. |
| **G04.005** | There are shall be complete audit trail of all data changes in any table in components of SDD IS; audit trail must include at least following data:   1. User data 2. Authorisation, which was used for accessing the data and functions of the system 3. Details of the action, which were applied by user 4. Initial state before action 5. Timestamp of the action 6. Device details, from where user accomplished the activity |
| **G04.006** | The system must have means for analysing the history of data changes. |
| **G04.007** | SDD IS shall provide capabilities for the integration with external systems providing complete, comprehensive and well-documented interface to any data in the system. |

### ***G05 Reporting and analytical environment***

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| *05. Reporting and analytical environment requirements* | |
| **G05.001** | SDD IS shall have available the specialised tool (reporting tool) for creating print-ready and interactive reports of an arbitrary shape based on the data stored in the system with or without parameters. It shall support dashboard type visualisation components such as gauges, sliders, checkboxes, map etc.  It shall be possible to save reports and queries definitions for later use. |
| **G05.002** | It shall be possible to export all reports into standard formats, i.e. MS Office, PDF, XML, JASON, CSV and HTML. |
| **G05.003** | Overall centralised SDD IS access control shall be enabled for controlling the access to data by reporting tool users. |

### ***G06 User interface***

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| *06. User interface requirements* | |
| **G06.001** | The SDD IS software must provide on-line access to all requested functions to all users using web browser, in accordance with RA Government Decree No. 572-N of May 25, 2017. |
| **G06.002** | The user interface (UI) design of the SDD IS shall be attractive and assure maximum usability. The **Service provider**, in collaboration with the **Client**, shall present the graphical design (with alternative options) of the system. |
| **G06.003** | All components of the SDD IS shall be of three languages (Armenian, English and Russian). All texts shall be Unicode (UTF-8) encoded to support the texts in all the languages. |
| **G06.004** | SDD IS shall ensure user friendliness, i.e. through following techniques:   1. All activities, which are not require input from person must completely automated; 2. There shall be no need for double entry of information by user; 3. In every place where data into business forms can be prefiled based on information in SDD IS or in integrated external systems, SDD IS functionality must provide automatic pre-filling of data.   The **Applicant** is requested to provide description of how SDD IS addresses those principles. |
| **G06.005** | SDD IS shall assure maximum compatibility with the existing main browsers, such as Microsoft EDGE, Mozilla Firefox, Opera, Safari, Chrome, etc. |
| **G06.006** | The color and style solutions should comply with the solutions provided in the EITI's official website (www.eiti.org). |

### ***G07 On-line help and documentation***

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| *07. On-line help requirements* | |
| **G07.001** | SDD IS shall have built-in context-sensitive online help system, working in real time, in the languages as specified in the requirement G06.003.  SDD IS shall provide convenient search capabilities for end users to search for the information about system capabilities. |
| **G07.002** | SDD IS shall provide user interface for management of the content of the on-line help and users’ manuals. |
| **G07.003** | At the end of the implementation phase the **Consultant** should provide complete documentation about internal organisation and functional capabilities of the SDD IS. At least following documentation shall be enabled on Armenian, and English languages:   1. System administration manual 2. User manual 3. Technical description of SDD IS modules 4. Integration developers and administration manual |

### ***G08 System reliability***

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| *08. Reliability requirements* | |
| **G08.001** | SDD IS and its data shall not be damaged as a result of a power failure.  The **Applicant** is requested to provide information about how proposed SDD IS is handling this requirement. |
| **G08.002** | The functionality of the system shall be automatically restored without loss of data integrity at the power supply is resumed.  The **Applicant** is requested to provide information about how proposed SDD IS is handling this requirement. |
| **G08.003** | SDD IS shall provide an opportunity to prevent an overflow of data files and storage capacity.  The **Applicant** is requested to provide information how the above is controlled and prevented. |

### ***G09 Backup and recovery***

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| *09. Backup and recovery requirements* | |
| **G09.001** | SDD IS shall ensure procedures for automatic backup of the system and the data.  The **Applicant** is requested to provide description on existing automated back up procedures in the SDD IS. |
| **G09.002** | SDD IS shall enable full and partial backup of the system and support scheduling for different period of times different types of backups.  SDD IS shall enable a full backup of the system as well as backup of changes (cumulative incremental backup).  SDD IS shall provide tools to automatically run scheduled backup procedures.  SDD IS shall provide means for launching backup procedures manually. |
| **G09.003** | SDD IS shall provide checks of copies for data integrity. |
| **G09.004** | **Consultant** is requested to provide a clear and comprehensively documented procedure for the system recovery. |

### ***G10 Integration and interoperability***

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| *10. Requirements for support of integration* | |
| **G10.001** | It is necessary to implement interoperability with external websites or databases, for example, with the information systems` databases of the State Register of Legal Entities of the RA Ministry of Justice, the State Revenue Committee, RA communities, etc. Interoperability must be carried out in accordance with the requirements of the RA Government Decree 1093-N of August 31, 2015. |
| **G10.002** | Integration specified in the requirement G10.001 should be implemented using standard web services technologies. The **Consultant** must implement the web services not only in the SDD IS, but also in external systems. |

### ***G11 Information security***

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| *11.* ***Information security requirements*** | |
| **G11.001** | The content management system of the SDD IS (CMS) shall be accessible only from authorized addresses (through VPN) and mandatorily in case of availability of SSL certificates. |
| **G11.002** | SDD IS shall enable to manage user profiles, as well as define validity period of the user profile and working hours of respective users. |
| **G11.003** | Access to the SDD IS must be carried out using strict identification mechanisms, in accordance with the RA Governmen Decree No. 572-N of May 25, 2017. |
| **G11.004** | SDD IS shall provide control over a user login into the system, including but not limited to following:   1. Number of allowed attempts (i.e. the number of unsuccessful login attempts, after which the user’s account is automatically locked); 2. Time of user inactivity inside of the sessions, following which the user is automatically disconnected from the system; 3. Automatic locking of the user account, if relevant user has not logged into the System over the defined time.   SDD IS must provide the possibility to configure the above-mentioned parameters. |

**2. Functional requirements of the application software(F)**

Below are the functional requirements for all components of the SDD IS.

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| *01. Online reporting system requirements* | |
| **F01.001** | Mining companies and relevant State Authorities should submit reports on Online Reporting System at least once a year before 1 August of the year following the reporting year or within another period established by law, electronically. |
| **F01.002** | Companies and State Authorities must have user accounts on the platform that meet the requirements in section G11. |
| **F01.003** | The information received by the RA communities is presented through electronic reports developed for the Ministry of Territorial Administration and Infrastructure. It is necessary to develop separate reporting forms for RA communities (municipalities) and provide the access to relevant users. |
| **F01.004** | The information provided by the Environmental Protection and Mining Inspection Body is presented through electronic reports developed for the Ministry of Environment. It is necessary to develop separate reporting forms for the Environmental Protection and Mining Inspection Body and provide the access to relevant users. |
| **F01.005** | Users, accessing the system, shall be able to complete the public reports for the reporting year, as well as download approved public reports for previous years. Online reports of the reporting year should be in line with the forms of reports prescribed by the Government Decree N 666-N of June 8, 2018. |
| **F01.006** | Users must be able to upload documents in doc, xlsx and pdf formats at the end of each report, in order to provide supporting documentation for the report. |
| **F01.007** | After completing the report, the user shall be able to save it as a draft or send it. While sending the report the system shall request signing with ID card by placing it in the corresponding equipment, as a result of authentication, the system shall not only save the data in the database but also compile a PDF file with the electronic signature. |
| **F01.008** | It is necessary to modernize all reporting forms in the system. |
| **F01.009** | Tools for adjusting reports need to be developed so that a state authorities or mining companies that discovers an error in their already submitted reports before the reporting deadline can submit an adjusted report. |
| **F01.010** | The system should save the adjusted report in the current status, while at the same time saving the previously submitted report in the database. |
| **F01.011** | The SDD IS must have a tool for creating new reporting forms and modifying existing reporting forms. Through this tool, the administrator of the SDD IS should have the opportunity not only to add/modify reporting forms, but also to specify their validation and business rules. |
| **F01.012** | It is necessary to develop automatic exchange of electronic data between the interested state bodies and the EITI portal. In particular,   * It is necessary to develop web services to receive data from the tax and customs systems of RA SRC. * It is necessary to develop a web service to retrieve real estate tax and vehicle property tax data. * It is necessary to develop a web service to receive data on beneficial owners from the State Register of Legal Entities. * It is necessary to develop a web service to receive data from electronic systems of communities (municipalities).   Web services must be developed taking into account the requirements specified in section G10. |
| **F01.013** | It is necessary to develop a tool for reconciliation the data presented by state bodies and mining companies. The differences revealed as a result of the reconciliation must be presented to the **Client** in the form of a report. |
| **F01.014** | It is necessary to develop subsystems for entering and maintaining data on mining rights for the Ministry of Territorial Administration and Infrastructure, providing for the possibility of entering and saving contracts, permits (mining rights) documentation. |
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| *02. Data center requirements* | |
| **F02.001** | The Data center must graphically illustrate the aggregated and disaggregated data presented by mining companies and state bodies over the years. |
| **F02.002** | Various types of graphs and reports will be generated according to the agreed parameters with the **Client**, in particular by presenting number of reporting companies, number of reconciled reports, data on extraction, exports, taxes and other payments, license fees, social-econimic and charitable contributions, environmental data, number of employees, etc. |
| **F02.003** | Users should be able to carry out their analysis and get graphical results through different filters (e.g. by reporting companies, reporting periods, by data fields) also by ensuring data download in image and csv, xlsx, json formats. |
| **F02.004** | The reports in the data center must meet the requirements specified in section G05. |
| **F02.005** | The approved public reports submitted by all mining companies and state bodies should be accessible and downloadable in the "Data Center” in open data format. |
| **F02.006** | It is necessary to develop a subsection for reflecting summary information on mining companies. |

1. https://eiti.org/ [↑](#footnote-ref-2)
2. https://www.eiti.am [↑](#footnote-ref-3)
3. https://reports.eiti.am/hy/ [↑](#footnote-ref-4)
4. https://www.arlis.am/DocumentView.aspx?DocID=132674 [↑](#footnote-ref-5)
5. https://www.arlis.am/DocumentView.aspx?DocID=149957 [↑](#footnote-ref-6)
6. https://www.arlis.am/DocumentView.aspx?DocID=152169 [↑](#footnote-ref-7)
7. https://www.arlis.am/DocumentView.aspx?DocID=137681 [↑](#footnote-ref-8)