Terms of Reference (ToR)

Development of ICLEI global database system

Selection Documentation for Goods, Works & Services
For ICLEI – Local Governments for Sustainability e.V.

1. Contact

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2. About ICLEI

ICLEI – Local Governments for Sustainability is a global network working with more than 2,500 local and regional governments committed to sustainable urban development. Active in 125+ countries, ICLEI influences sustainability policy and drives local action for low emission, nature-based, equitable, resilient and circular development.

ICLEI brings a strong urban component to national and global sustainability policies and translates these policies into action. By making sustainability an integral part of urban development and creating systemic change in urban areas through practical, integrated solutions, ICLEI helps cities, towns and regions anticipate and respond to complex challenges, from rapid urbanization and climate change to ecosystem degradation and inequity.

ICLEI members and staff experts work together through peer exchange, partnerships and capacity building to create systemic change for urban sustainability.
ICLEI creates connections among the local, regional, national and global governmental levels, and advocates for robust national and global sustainability policies that reflect the interests of local and regional governments and their communities.

Through collective efforts to build a sustainable urban world, ICLEI is shifting the trajectory of global development.

3. Purpose

The ICLEI World Secretariat is looking for an external service provider to support the further development and maintenance of its global database system as well as the APIs that connect it with various internal and external websites and tools, both for the purposes of data collection as well as data reporting.

4. Project background

The ICLEI World Secretariat is currently operating with two global databases: the DreamDB and the legacy database.

The DreamDB is the ICLEI World Secretariat’s primary database. The DreamDB houses a wide range of information pertinent to the ICLEI network, such as Membership information, basic information on cities, towns and regions, sectoral information pertinent to local sustainable development, and data corresponding to both ongoing and past ICLEI projects and activities.

The DreamDB database system is postgresQL and data is organized into entities, which are essentially a collection of tables (a main one and many extensions to it).

The legacy database is the “old” ICLEI database, and consists of the global database and the cCR database. Both are relational databases stored in MySQL. The Knowledge Management Team (from here onwards referred to as KM Team) uses MySQL Workbench 6.3 to extract, view or update information.

The DreamDB was initially created with the idea to replace and improve the efficiency of the legacy database, and therefore contains all the data present in the legacy database. Through its development, the DreamDB has been kept up-to-date through the use of a “datapump” that updates and inserts new data from the legacy database into the correspondingly mapped fields in the DreamDB.
The DreamDB is linked to several internal and external systems that collect or display its data (see diagram below). Some interactions are one sided (data is either collected or displayed) while others work both ways. Each connection may be implemented in a different way, according to the nature of the website itself.

The data is stored into the database using various tools that are adapted to the needs of each project like online forms or excel documents.

Primary challenges of the current database system and working environment

1. Limited level of autonomy of the KM Team to manage the database system without extensive external support

The DreamDB is structured so that all its documentation can be easily retrieved through the metadata, which contains the list of all tables, fields, and detailed information such as datatype, keys and so on. However, the metadata -in the form of a csv file- is not only used as a reference, but also as the main tool to update the structure of the database, including
but not limited to the change of a field type, the insertion of a column or the removal of a table. Every time such a modification is required, the csv file is uploaded through the DreamDB’s administrative front end and a procedure takes apart and recreates the database structure. The KM Team currently lacks a desired and necessary level of access to autonomously make changes and updates to most of the DreamDB features and if the procedure returns an error, immediate external support is required to restore the situation. As a result, the KM Team does not directly manage the database since its corruption could cause disservice on online platforms with length of downtime dependent on the reaction time and availability of the external support.

2. **Continued dependence on the legacy database**

   The legacy database is still used for the management of some features and websites, such as ICLEI’s Global Activity Reporting platform, and the “datapump” is required to keep the DreamDB up-to-date.

3. **Limited access for ICLEI staff to work with the data**

   At the moment, the only front end available for ICLEI staff to retrieve, update and generally work with the data is related to ICLEI’s Global Activity Reporting platform. This web interface can be used to add and update information pertaining to projects and activities being implemented by ICLEI, as well as search and filter for projects and organizations based on a number of criteria. However, as this interface is linked to the legacy database, as opposed to the DreamDB, ICLEI staff are unable to access all the data in ICLEI’s primary database system. It also means that making updates to the interface is an inefficient effort, as long as the Global Activity Reporting platform is not connected directly to the DreamDB.

   In addition, the database currently stores information relative to a wide range of projects, but, unless there is a connection in place to display such information, the KM Team is always required to provide exports in order for ICLEI’s staff to work with the data.

4. **Unstable connection to ICLEI’s Global Activity Reporting platform and minimal automation**

   All ICLEI staff are required to connect to a VPN to access ICLEI’s network and use the ICLEI’s Global Activity Reporting platform. However, ICLEI’s offices are located all around the world and accessing the VPN does not always provide a stable connection. The resulting limited available webpage proves to be inconvenient not only because it does not allow
ICLEI staff to report new activities, but also because it prevents them from viewing the available data that they may require. In addition, a lot of manual processing is performed by the KM Team after the form is filled out, which heightens the probability of errors and misaligned data.

The KM Team would like to rectify these issues as soon as possible and, ideally, only be working with one database system for all extents and purposes.

5. Objectives

The ICLEI World Secretariat is looking for a solution that fulfills the following objectives:

1. Integrate all outstanding components into a singular database system, eliminating the need to maintain two databases and a “datapump” to keep them in sync. The existing databases should be merged trying to utilize as much of the active structure as possible. However, the solution of adopting a new database system would be encouraged if it would prove more efficient and cost saving in the long term.

2. Enable the KM Team to easily manage, update and maintain data entries, the database system as a whole, and the numerous APIs connecting the database with the respective tools, websites and platforms.

3. Tasks which the KM Team should be able to regularly and easily perform, with little to no additional external support, include:
   - Create new database records in existing entities (e.g. new ICLEI Members, new cities/towns, new projects).
   - Create new strong and weak entities, views, triggers.
   - Create new attributes (fields) in existing entities.
   - Update existing attributes types, indices, keys.
   - Create and update new and existing APIs between data collection tools and the DreamDB.
   - Create and update new and existing APIs between the DreamDB and websites/platforms showcasing data.
   - Create and update data reports regularly needed by other ICLEI staff to improve the effectiveness of their work.
   - Create and execute custom queries on the database.
• Create and execute stored procedures and/or functions to improve the automation of data-processing.

4. Establish a monitoring dashboard of the overall health and performance of the database, so that the KM Team is alerted when issues that need to be investigated arise.

5. Provide an interface that makes it easy for other ICLEI staff to view and query the database, incentivizing them to keep projects and memberships information up-to-date. The access to the data should be modulated according to specific grants.

6. Update ICLEI’s Global Activity Reporting platform to avoid connection issues created by the VPN and offer a positive user experience for ICLEI staff. Besides, update the interface itself to improve automation of data-management.

In addition, assuming the satisfactory and timely completion of the above tasks, the ICLEI World Secretariat would be looking to establish a maintenance contract with the external service provider for regular support and strategic consulting on the direction of new database development projects and practices. Such consulting may pertain to:

• Advising on best practices to keep the multiple systems up-to-date in terms of efficiency and security.

• Recommending new technology available that would imply time and cost savings in the long term.

• Consulting with the KM Team on how to best structure and implement new or existing connections between database and external services in respect of costs, efficiency and security.

• Suggesting the best way, in terms of user experience, to design and develop new platforms that may be required for data display/data collection.

6. Assumptions

• ICLEI World Secretariat will determine when milestones are placed and will assure fast communication on arising questions in order to reach the deadline goals.

• ICLEI World Secretariat will take care of the hosting and server setup for production needs.
• The final scope of work and its costing may change upon getting more information from ICLEI World Secretariat on their goals, vision, functional requirements, etc.
• The firm will provide access to a test platform to overview the development at any given stage and define a process by which the KM Team can give input and feedback iteratively.
• ICLEI World Secretariat will provide all needed credentials/API/endpoints of the current databases for investigation.

7. Format of proposal

The proposal should contain the following details:

1. The delineated solution to combine the existing databases and the reason behind this choice. Please remember that such a solution should consist of a single database system that will be fully and easily accessible to the KM Team and will improve automation in their processes.

2. A suggestion on how to enable the KM Team to best autonomously manage the data and APIs, including, if necessary, any tools or interfaces that may facilitate their administration.

3. The implementation proposal for the monitor dashboard.

4. The proposition on how to develop an interface to display/update data available to all ICLEI’s staff.

5. An alternative recommendation to circumnavigate the VPN issue for ICLEI’s Global Activity Reporting platform that offers the same level of security.

Each of the above points must be accompanied by the estimated working days and time frame for realization and the hourly rate charged for each task.

8. Evaluation criteria

The applications will be assessed using the following criteria:

• Methodology 30%.
• Company profile 15%.
• Past Experience and portfolio 15%.
• Financial Offer 40%.
9. Application

The interested parties should send an expression of interest with subject line “EOI - Development of ICLEI global database system” to the KM Team no later than the 23/02/2022 13:00 CET and will be contacted with the details and credentials on how to access the most relevant tables of ICLEI’s databases.

Requests for clarifications (both via email or through a call) can be arranged with the KM Team. The deadline for all queries is set for the 06/03/2022 13:00 CET. Afterwards no more questions will be accepted and ICLEI will publish an attachment to the present call listing all Q&A available for all applicants to review.

Applications should be submitted by email to knowledge.management@iclei.org using the subject line “Application - Development of ICLEI global database system” and including all the above mentioned documentation, i.e.:

- A proposal as delineated in Section 7, the hourly rate for each point, the estimated working days and elapsed time for realization, where applicable.
- The company profile and experience with samples of previous work.

The deadline for the application submission is set for the 06/04/2022 13:00 CET. Please note that applications submitted after the deadline cannot be considered.