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**Guidelines for Interoperability of the
WESR CCA with Regional Knowledge
and Data Hubs and other Platforms**

1. Background Context and Mandates

This document contains Guidelines for Interoperability of the electronic platform of the World Environment Situation Room – Common Country Analysis (WESR CCA) with other electronic platforms, namely the UN Regional Economic Commissions (Regional Data Hubs), in the context of the UN Reform and the UN Sustainable Development Cooperation Frameworks (UNSDCF).

The principles and orientations of the Leaving No One behind strategy and the mandate given by the UNEA-4, Ministerial Declaration (UNEA).

UN Reform and UNSDCF

Provision of smart environmental data on a dynamic platform and Services Dashboard to underpin to the UNCT's Common Country Analysis (CCA) and the UN Sustainable Development Cooperation Framework.

Leaving no One Behind

The UN Future we Want Strategy, the 'Leaving no One behind' framework and its 5 key dimensions: non-discrimination, geographical representation, vulnerability to shocks and fragility, governance and socio-economic status.

UNEA4 Ministerial Declaration

The ministerial declaration set out the commitment by Member States to scale-up national and international efforts to overcome common environmental, including health related challenges, fostering sustainable and efficient resource management, promoting the use and sharing of environmental data, and engaging civil society, citizens, indigenous peoples and local communities, private sector, academia and other relevant stakeholders. "Innovative solutions for environmental challenges and sustainable consumption and production".

Monitoring the environment needs to be based on scientifically robust data and as close as possible to near real-time. UNEP's World Environment Situation Room (WESR) supports the UN Resident Coordinator's Common Country Analysis (CCA) through the provisioning of the best available data and information products on the status of the environment in a dynamic, visual way. This includes providing tools that allow countries to use maps, satellite image data products, and dashboards and trend analysis.

The WESR CCA platform intends to put together "under the same roof, or knowledge platform and Intelligent Dashboard" all the systems, products and datasets produced, co-produced or facilitated by UNEP through its Divisions, Offices and Collaborating Centers. This wealth of data has the potential to provide powerful insights into UNCTs and to become a key source of information and knowledge to support the CCA reporting.

CCA Selected Countries in the 5 Regions



2. Regional Knowledge and Data Hubs

In the context of the UN Reform, and based on the outcome of several Regional Meetings, the UN Regional Economic Commissions are serving as the secretariat of the Regional Collaboration Platforms (RCP) and leading the development of Regional Knowledge and Data Hubs. In this role the 5 UN Regional Economic Commissions will foster collaboration on sustainable development across the United Nations Development System (UNDS); enhance policy coherence between global and regional United Nations processes; promote consensus on the United Nations system support and response to regional development priorities and needs; ensure the implementation and follow-up of regionally agreed frameworks, norms and standards at the national level; and deliver integrated policy advice.

The Regional Knowledge and Data Hubs (**Data Hubs**) will have multiple functions and it should enable the UNDS to determine best options for:

- Coordinating knowledge production and dissemination.
- Ensuring that the UNDS can provide MS integrated policy support, making use of the expertise, knowledge, information and data generated by all entities, and maintain a roster of experts for potential "surge" and other use by RCs and UNCTs.
- Presenting common messages and using consistent data when possible.
- Compiling collective UNDS information and data in a one-stop-shop.
- Making this information publicly available with search interfaces in English and Arabic.
- Providing civil servants, UNCTs and UNDS staff in the region with live reports to support policy development and policy advisory services.

In addition,

- Special effort will be made to ensure that all available data is aligned, optimally used and coordinated with its providers including Member States, UN agencies, Think Tanks, Academia, Big Data and other sources, while also advocating the need to fill existing data gaps;
- Special effort will be made to make optimal use of advanced technology including Artificial Intelligence, Big Data, GIS systems, collaborative platforms, visualization software, etc. in partnership with private sector providers of such systems and with donors who may be interested in funding this effort while ensuring neutrality, transparency and proper attribution.

3. Optimizing WESR-CCA support to the Regional Knowledge and Data Hubs

Given the above, WESR-CCA should enrich the environmental datasets of the regional portals (Data Hubs). As a proposal the following steps are recommended:

- To create a "catalogue/library" that includes UNEP's knowledge and information datasets and corresponding metadata.
- A Library of such products, whose content should include, *inter-alia*, information regarding the used primary data sources, refresh frequency, nominal spatial scale, models and algorithms deployed, disaggregation, main outputs and related units of measurement. This information (Library) will be critical to present UNEP's Offer in the context of national WESR-CCA platform, and to trigger and sustain a technical discussion with UNCTs members and to co-design with them specific products tailored for national requirements and specifications.
- To identify the environmental datasets that UNEP considers as fundamental datasets for achieving its mandate (keeping the environment under review). This might include for instance data related to the 25 indicators that UNEP is a custodian agency for.
- To assess the availability of these datasets in the Data Hub and making suggestions on how to fill the gaps (gap assessment).
- To discuss with regional commissions the sustainability of the data (maintaining the portal, updating the data etc.) which should be the mandate of the regional commissions.



4. Some Issues and Challenges

It is highly relevant for UNEP to focus the production of the WESR-CCA platforms towards the development of integrated products addressing all the three dimensions of Sustainable Development.

It is anticipated that the design and development of such products would require a careful, time consuming and expert-based work of analysis, processing and assimilation of data and information pertaining to the wide environmental area.

The way how this work should be performed and its sustainability over time (yearly update) is of main concern for UNEP Regional Offices who are in contact with the CTs and UN RC Offices.

The engagement with local knowledge and research centers (universities, ministries, technical bodies) working at regional and national level in the domain of environmental information and their inclusion in these workflows, seems to be the most effective solution to overcome the issue of sustainability and updating of services and products developed through WESR-CCA deployment.

The proposal to integrate an Intelligent Dashboard within the WESR-CCA architecture does not seem to fully respond to the most urgent needs of UNCTs in terms of data and information. UN Officers working at national level and governments are fully knowledgeable about data and information location and accessibility for their own countries. *Mashup systems* and data aggregators are of limited use in the region, given the general good availability of national information systems and the work being conducted by the Regional Economic Commissions and DCO for the development of SDGs-Gateway and the Regional Knowledge and Data Hubs.

5. Library of Services and Means for Implementing the Interoperability

(Requires here, after the section on Available Data, the policies, standards and technical means for interoperability)

Available Products and Services: data and functionality (more detail in Technical Annex I)

Currently the following data are connected to and available through WESR CCA Intelligent Dashboards:

- UNEP SDG Global Database,
- UNEP Knowledge Repository,
- Multilateral Environmental Agreements (MEAs),
- Global Environmental Monitoring Systems (GEMS),
- Global Environmental Outlook,
- Citizen Science,
- Strategic Foresights and Emerging Challenges,
- Data related to Triple Planetary Crisis
- and increasingly individual country priorities.

The above data can be searched by location, studies, SDGs and indicators. The results can be queried by geospatial data, Knowledge Repository, MEAs and assessments.



6. Interoperability with other Electronic Platforms

Beyond the interoperability efforts between the WESR CCA platform and the UN Regional Economic Commissions, Regional Knowledge and Data Hubs, it will be crucial to reach similar levels of interoperability with other relevant platforms, as the DCO Platforms (e.g. UNinfo) and other SDG Gateway platforms (e.g. ...).

6.1 Demonstration - Use Cases in Latin America and the Caribbean

The following provides for the different Regions (LAC, Africa, West Asia and Asia Pacific as well as Europe) a demonstration through use cases and examples of existing and programmed regional knowledge hub platforms and the probable likely interoperability of these data infrastructures and WESR CCA.

6.1.1 Example of Platform: CEPALSTAT/ECLACSTAT

For many years the [CEPALSTAT](#) platform provides open access to statistics and indicators produced by ECLAC Divisions. CEPALSTAT is organized in four themes (including Environment) according to the International Statistical Activities Classification.

All the statistical information available in CEPALSTAT (data and metadata) are accessible and interoperable using APIs. The user can export data and cross-tabulate indicators to produce tables combining data from different series and / or countries and / or periods. Charts can also be prepared based on the stored data. Metadata containing the definition of the variables, description of the sources, and other relevant characteristics can be consulted and downloaded. Additionally, regional and national statistical profiles based on key indicators are available.

6.1.2 Example of ECLAC SDG Gateway

In response to SG's request to establish regional knowledge management hubs to enhance accessibility and use of regional assets, ECLAC in conjunction with funds, programmes and specialized agencies of the United Nations in the region (including UNEP) and the Development Coordination Office for Latin America and the Caribbean, has established the SDG Gateway, a [portal to serve as the Regional Knowledge Platform on the 2030 Agenda in Latin America and the Caribbean](#).

The objective of the SDG Gateway is to serve as one-stop-shop for the region where all information related to the implementation of 2030 Agenda and SDGs can be found, including activities, information resources, statistics, regional data, specific analytical tools and knowledge products developed and made available by the United Nations in response to the needs of member countries.

6.1.3 About the interoperability between ECLAC's data infrastructure and WESR

CEPALSTAT and SDG Gateway shares the same back-end architecture and main components.

CEPALSTAT front-end is currently being redesigned using python and new features will be soon implemented including a brand-new user-interface, which will also incorporate a geospatial (open data) component. CEPALSTAT uses GeoJSON standard format and therefore all data will be openly available for publication on other platforms (such as WESR).

In addition, all data and information published through SDG Gateway is also open and can be published in other platforms using JSON.

CEPAL expressed its willingness to become a consumer of relevant non-statistical data published by UNEP through WESR, which could be easily published both in CEPALSTAT or SDG-Gateway.

Along the same lines, UNEP will be in a position to pull data from CEPALSTAT using API (including geospatial layers) and to publish these resources through WESR.

6.2 Demonstration - Use Cases in Africa

Data related to African context are connected to WESR via a web link leading to Africa UN Data for Development Portal - a gateway to explore data at country, subregional and regional levels on SDGs, Agenda 2063 and key socio-economic indicators for Africa. The Africa UN Data for Development Portal is managed by Economic Commission for Africa (ECA).

The information available in Africa UN Data for Development Portal is divided into several sections: SDG Dashboards, Agenda 2063, Key Socio-Economic Data, UN Statistics; as well as other Data Products and Thematic SDG Dashboards.

When the Africa UN Data for Development Portal's API is made available, WESR will be able to pull data from the Portal using API (including geospatial layers) and to publish these resources through WESR.

6.3 Demonstration - Use Cases in West Asia

In the case of Jordan, in the WESR-CCA platform the country-specific data are integrated directly using a web service furnished by the provider, the service has [been implemented](#) although it is still in the testing phase.

Following this example, we are moving towards systematically retrieving key indicators from the ECSWA platform. Along the same line MANARA-ECSWA should be able to access the existing dashboards for common data from the WESR-CCA platform.

6.4 Demonstration - Use Cases in Asia / Pacific

Data related to Asia and the Pacific context are connected to WESR via a web link leading to [The Sustainable Development Goals – Tracking Progress and Engaging Stakeholders](#) in Review platform. The platform is managed by the Economic and Social Commission for Asia and the Pacific (ESCAP) and aims at following up and review process towards achieving the commitment of the 17 SDGs. It helps take stock of the progress, share experience, and provide guidance and recommendations for follow up actions on SDG attainment.

Specifically, the ESCAP platform provides access to SDG progress reports and SDG Data Gateway, a publicly available access to available data and statistics of SDG indicators on current status and progress towards the 17 Sustainable Development Goals in 58 regional Member states of ESCAP. The Gateway draws official SDG data from global database and offers a regional window and analysis.

When the ESCAP SDG Data Gateway's API is made available, WESR will be able to pull data from the Data Gateway using API (including geospatial layers) and to publish these resources through WESR.

6.5 Demonstration - Use Cases in Europe

As an example of how UNEP is engaged in the UN Reform at the regional level as well as meeting the objectives of the UN Secretary General Data Strategy, the UNEP Regional office for West Asia, the UNEP Science Division, Europe Office and the Regional Economic Commission have collaborated to the integration of UNEP's World Environment Situation Room (WESR) into the broader UN data and knowledge management hub, called MANARA. More specifically, MapX was fully integrated into the MANARA portal, facilitating the management of geospatial data on natural resources. Examples of WESR maps on carbon dioxide emissions, global forest cover and change in population can be found [here](#).

How to mitigate the impacts of climate change and adapt to it? By joining forces and sharing our data and our skills. TropiSCO is a collaboration between the French European Agency (CNES), the CESBIO laboratory (French National Center for Scientific Research) and the GlobEO startup, that aims at monitoring tropical deforestation from Earth Observation data. Since November 2022, WESR (through its MapX cartographic platform), hosts tropical deforestation data from TropiSCO, currently on Cambodia, French Guiana, Gabon, Guyana, Lao, Suriname and Viet Nam. The map is updated automatically when new forest loss is detected, and it can be navigated [here](#).

7. Focal Points

The WESR CCA team across UNEP, which includes representatives from Policy Division (angela.mwandi@un.org), Regional Offices and other UNEP offices, and the project management coordinator in the Science Division (alexandre.caldas@un.org) are considered as focal points for the purpose of management of these Guidelines for Interoperability with the Regional Knowledge and Data Hubs.

8. Revision of these Guidelines for Interoperability

These Guidelines for Interoperability should be revised periodically, at least on an annual basis in the first three years of implementation, and exceptionally when required.

I . Technical Annex I: The WESR-CCA platform

The WESR-Common Country Analysis component (WESR-CCA) aims at facilitating the integration of environmental information made available on open platforms specifically designed to enable stakeholders to use and share data and knowledge, and to engage in the production and use of scientifically sound information for assessment processes and for the transition to achieving the Sustainable Development Goals (SDGs). The platform was developed by UNEP/GRID-Geneva based on numerous consultations with the UNEP regional offices.

The WESR-CCA platform will help to bring key environmental data, information and knowledge into a common platform. This will be an interactive environmental data visualization platform for 39 countries in Africa, Asia and Latin America, based on the use of either global data common to all countries or specific data prepared and provided by each country

- Easy and quick access to visualize data and trends via graphs, tables and maps.
- Common data organized around 7 environmental themes and each of them around Drivers, Pressure, States, Impacts and Response, known as the DPSIR framework.
- Country targeted data structured around SDGs selected on the basis of issues specific to each country.
- Footprint analysis to show impacts triggered by imports from other countries & sectors.
- Concise policy analysis on national context.
- Automated updates using full interoperability with data providers.

The types of data and information made available and why

The contents of the platform can be divided into three broad categories

Statistical and cartographic data

The platform collects an extensive repertoire of indicators on national basis together with geospatial layers with a sub-national resolution. Considering only the common information part, it integrates 450 indicators from more than 80 different sources. Multiplied by 39 countries, this represents 17,550 visuals, automatically generated by the platform.

Country analysis

The sections providing specific information and data analysis are mainly based on contributions from country focal points, managed by regional offices.

Access to relevant documents

The platform provides information and access to the latest documents available (reports, publications, etc.) through its different sections.

A more precise idea of the type of data and its organisation can be found in the following paragraph.

Explanation of the three categories (country overview, common information, and country-specific information).

Country overview

The purpose of this part of the portal is to present a fast and accurate environmental status of the country

The panel is based on four sections:

- 1) *Country context*: A short description of the country including an overview of the key political structure on the environment, together with the main environmental problems of the country. This part is carried out by the national focal point.

- 2) **Changes in the key environmental parameters & drivers:** A series of historical trends to show the evolution of selected key indicators over time together with their contribution to regional and global values
- 3) **Risk assessment:** An assessment of risk related to humanitarian crises and disasters.
- 4) **Sustainable Development Goals Score Cards:** Information about the changes between the baseline and present for the 17 SDGs. The table is integrated used ad hoc API from the [UNEP score cards](#)

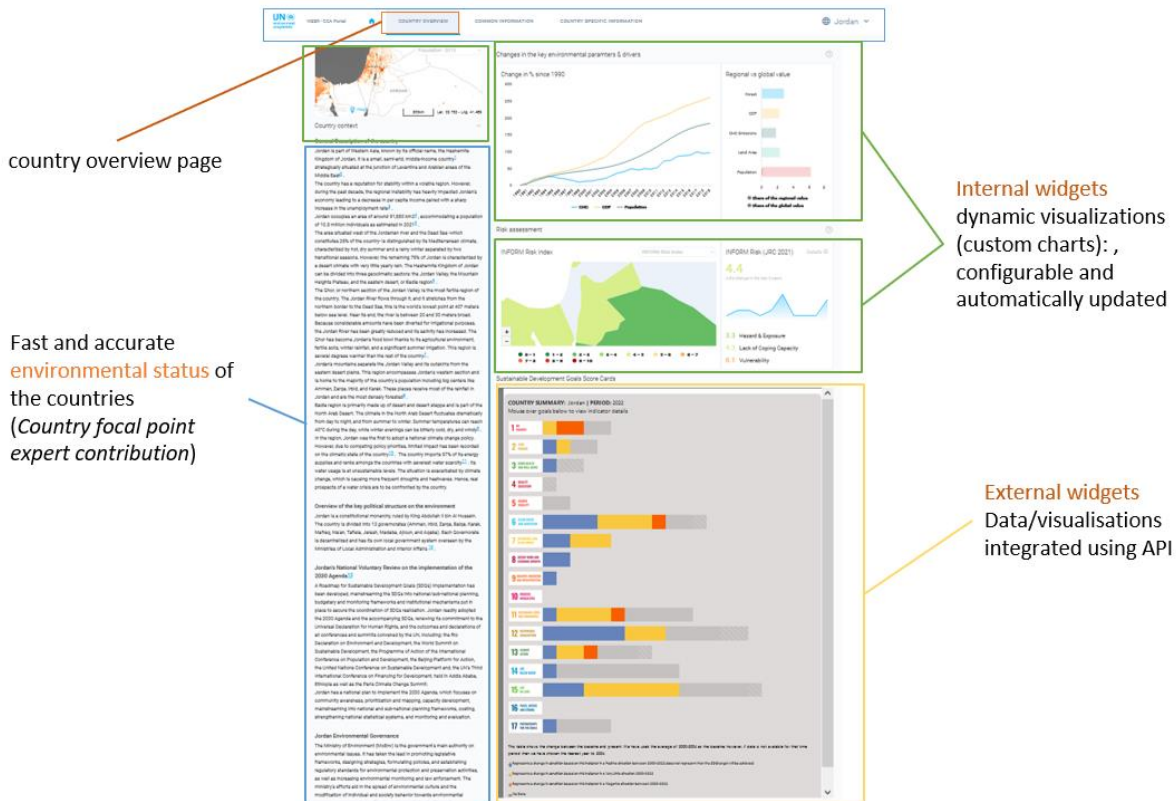


Figure 1 Composition of the country overview page

Common information

The contents and organisation of this panel will allow to make country comparison, explore countries using an DPSIR approach and furnish a footprint perspective. It also enables the access to a selection of main documents, that are dynamically harvested from external platforms.

In this panel all the (39) countries share the same information that it is mainly based on pre-existing applications (e.g.: Knowledge repository) or international databases (e.g.: FAO, IUCN etc).

UNEP/GRID-Geneva has taken care for the selection, preparation and management of all the contents of this panel.

It is organised in three main sections, as displayed in the Figure 2 below:

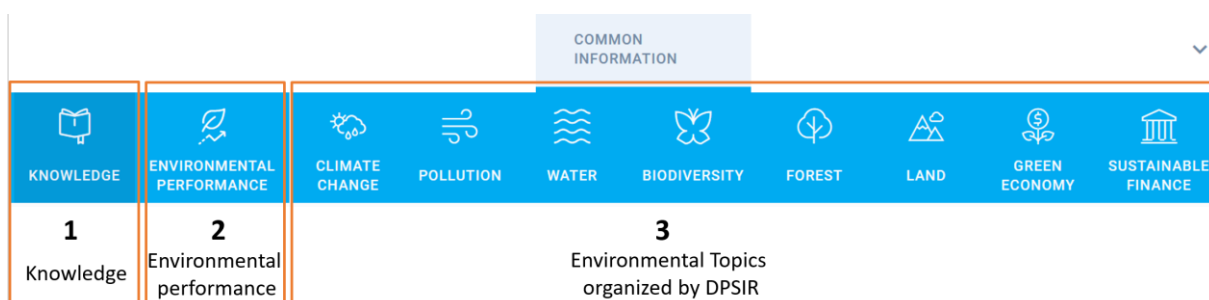


Figure 2 The Common Information selection menu

1) The Knowledge section

All the information is integrated dynamically using APIs. It includes

- Information concerning Party Status and Action Plans for the country from the [InforMEA platform](#).
- Links and brief description of several recent key documents from the [knowledge repository platform](#).
- UNEP project status in the country from the [UNEP Open data platform](#)

The screenshot displays the 'Knowledge section' of a web application. It features a navigation bar at the top with 'UN in Jordan' and 'Country Specific Information' for Jordan. The main content area is divided into several sections:

- Common information page:** A header area with navigation icons.
- Knowledge section:** A large table listing various international agreements and conventions, including the Kyoto Protocol, Paris Agreement, and others, with columns for 'Signature' and 'Party Status'.
- External widgets:** Three callout boxes on the right side of the page point to specific data visualizations:
 - 'External widgets Data/visualisations integrated using API From InforMea' points to a table of agreements.
 - 'External widgets Data/visualisations integrated using API From knowledge repository' points to a table of documents.
 - 'External widgets Data/visualisations integrated using API From UN environment Open Data' points to a table of project data.

Figure 3 The elements of the Knowledge section

2) The Environmental Performance section

Provides the key information regarding the country's environmental performance, in the context of the most relevant policy questions. The analysis covers four thematic areas:

- Raw materials
- GHG emissions
- Air pollution
- Land use

All the data and analysis have been retrieved from the [SCP-Hotspots Analysis platform](#)

N.B. This section has been created before the release of the SCP-HAT 2.0 version...

3) The Environmental topics section

Is composed of several dashboards including dynamic charts and maps. It covers seven environmental pillars:

- climate change
- pollution
- water
- biodiversity
- forest
- land
- green economy
- sustainable finance

each of which (excepted for sustainable finance) is subdivided according to the Drivers-Pressures-States-Impacts-Responses (DPSIR) framework.

The page organisation as well as the source database for all the visualisations is common to the [EC-Interactive Country Fiches](#) platform (EC-ICF)

Most of the data behind the dashboards have retrieved automatically from around 20 different providers using web services and ad-hoc scripts.

The WESR-CCA platform will benefit from all the update and improvements done on the EC-ICF platform

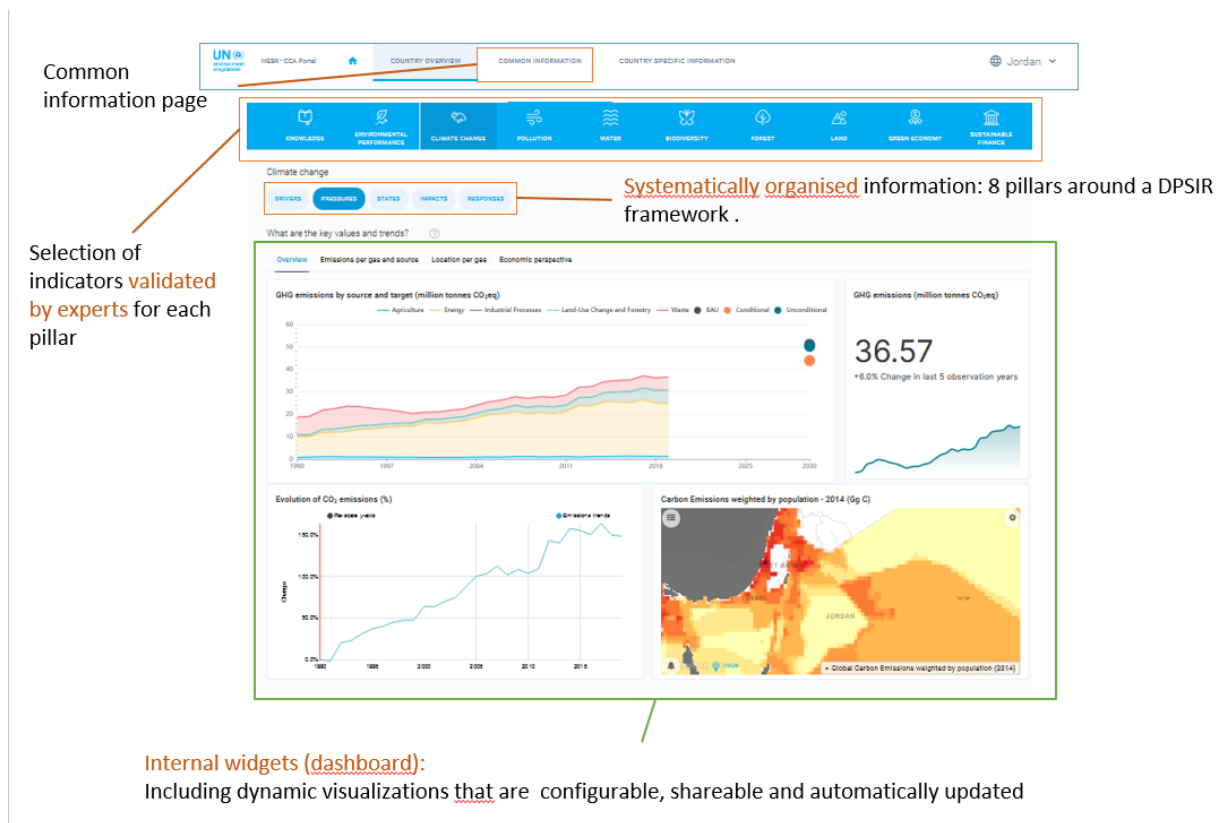


Figure 4 The environmental topic section including the 8 pillars organized using the DPSIR framework

Country specific information

The peculiarity of this panel is that it contains specific information produced and provided by the country through the focal points and regional centres. For this version, UNEP/GRID-Geneva took charge of the whole process of data preparation and their subsequent integration on the WESR-CCA platform

Please notice that at present time, we only receive inputs for the platform for the following countries:

- Argentina
- Belize
- Peru
- Jamaica
- Somalia
- Jordan
- Saudi Arabia
- UAE

The figure below displays the three main sections composing the country specific information panel

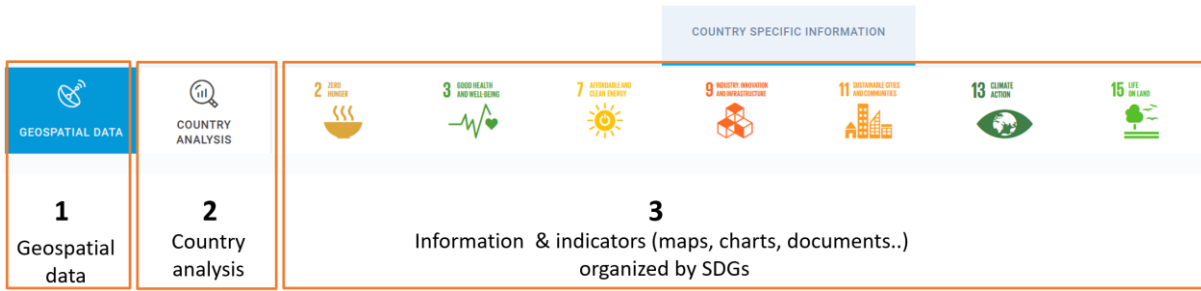


Figure 5 Selection tool for the country specific information panel

1) The geospatial data section

The geospatial data include all the layers provided by the country organized into a unique ad-hoc web map application based on [MapX](#) technology. The same layers are also integrated separately inside the different SDGs (see “information & indicators” section). This section also includes a set of core geospatial data that are common for all the countries

2) The country analysis section

This section provided entirely by the national focal points, is constituted by two parts: the first one or the proper country analyses includes text, pictures and references organized into five different paragraphs (same structure for all countries) as follows.

- 1) Sustainability and Environmental challenges
- 2) Analysis of drivers of environmental degradation
- 3) Analysis of combined environmental impacts
- 4) Data Gaps
- 5) Policy and strategy responses

The second part is made of an interactive dashboard which allows to access to a specific set of documents from the country using typology, topic and providers as search parameters.

The screenshot displays the 'Country specific information page' for Argentina. It features a navigation bar with 'COUNTRY OVERVIEW', 'COMMON INFORMATION', and 'COUNTRY SPECIFIC INFORMATION'. The 'COUNTRY ANALYSIS' section is highlighted, showing a text-based analysis of environmental challenges in Argentina, accompanied by a photograph of a landscape with mountains and a river. Below the analysis is an 'Internal widgets (dashboard): A selection of essential publications provided by the Country focal point'. This dashboard includes filters for 'typology of resource', 'topic', and 'provider', and a table of specific documentation with columns for title, typology, status, topic, provider, and year.

Figure 6 the country specific information for Argentina

3) The information & indicators section

It is organised by SDGs, selected on the basis of issues specific to each country. For each SDG is possible to access to two different types of resources:

The core indicators

Includes dashboard with specific indicators visualised as interactive charts or maps

Link to external data platforms

In case of relevant national/regional data platform are available their principal characteristics (abstract, topics, keywords) are listed in a set of cards.

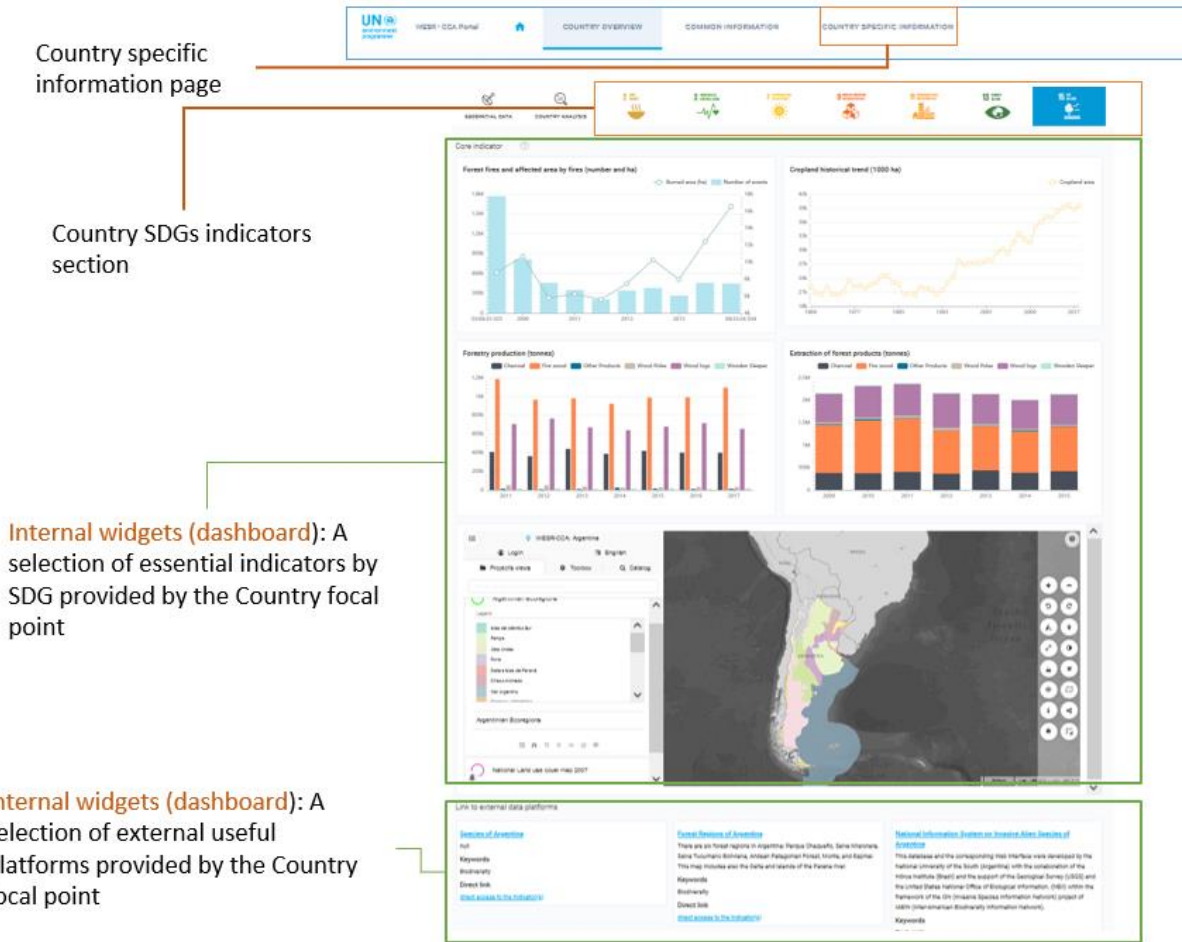


Figure 7 The country specific information page (SDG section) for Argentina

Platform architecture

The diagram in the following figure summarises the architecture and data workflow for the platform

How his WESR-CCA platforms structured?

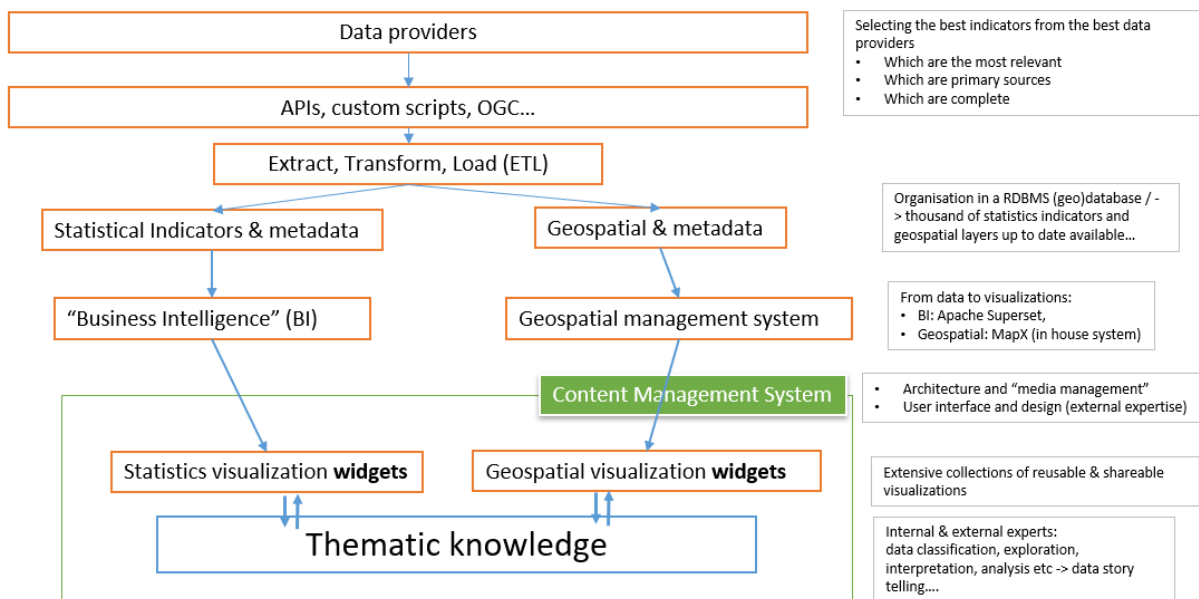


Figure 8 Structure of the WESR-CCA platform

Detailed online documentation available at:

<https://doc.unepgrid.ch/display/WDoc>

Specific user manual (ongoing) available at:

<https://doc.unepgrid.ch/display/TUT>.

Technical Annex II : The World Environment Situation Room

Technical Documentation on API & Interoperability

Aim of this document

This document is a Technical Annex II for document “**Guidelines for Interoperability of the WESR CCA with Regional Knowledge and Data Hubs and other Platforms**”, available at [WESRCCAG.pdf \(unep.org\)](#)

The World Environment Situation Room (WESR) is the UNEP data, information and knowledge platform. It includes more than 1500 statistics datasets, 1700 geospatial datasets and more than 11,000 publications. WESR is still under development, currently the APIs used for WESR were developed by various entities in UNEP, resulting in a complex access. We have planned in 2023 to produce a broker which will provide users with a single interface.

Meanwhile, we are providing this catalogue of APIs. This technical document is intended for data scientists with experience in using APIs. It provides an inventory of current services provided through web services and APIs in the frame of the WESR. It identifies and categorizes the typology of those services.

General introduction

API definition

An Application Programming Interface (API) is an intermediary that allows for applications to access the features or data of another application or system. API allows the user to programmatically integrate external data into their own applications.

Keywords: interoperability, centralized/decentralized infrastructure

Benefits:

1. Discover available data.
2. Access data in a standard or customized way.
3. Use functions and services from an external application.

Well-known examples of APIs are the Google Maps API, etc.

Context and needs

Current situation

Different levels of interoperability supported by related web services and APIs exist and function at the level of the different components of the WESR platform.

Although most of them meet the common standards, they are not easily accessible, sometimes poorly documented, and in several cases rather 'generic'. There is currently a need for a shared vision and to know where we are headed.

Case study: API strategy

Broker solution

A possible strategy could be to develop a data broker that would allow discovering data in various formats and from various sources and exposing them in a standard way. There are several options.

- A data broker can be developed into any organization to federate its sources.
- An external data broker can be developed for navigating into different organizations.

WESR specific context

Geospatial datasets

Introduction

Most of the services provided under the WESR are compliant with the Open Geospatial Consortium standards ([OGC API](#)). It is a multi-part standard that offers the capability to create, modify, and query spatial data on the web and specifies requirements and recommendations for APIs that want to follow a standard way of sharing geospatial data.

Catalogue Services

Catalogue services support the ability to publish and search collections of descriptive information (metadata) for data, services, and related information objects. Metadata in catalogues can be queried and presented for evaluation and further processing by both humans and software.

Service name	GRID Datacore Catalogue
Description	Main engine of GRID-Geneva for geospatial data.
Standard or typology	OGC-CSW (catalogue service for the web)
URL	https://datacore-gn.unepgrid.ch/geonetwork/srv/eng/csw
WESR sections	Geospatial
Provider	UNEP/GRID-Geneva
Notes	Swagger page for built custom API: https://datacore-gn.unepgrid.ch/geonetwork/doc/api/index.html

Service name	MapX search tool API
Description	Search tool API (full-text search on the MapX public catalogue)
Standard or typology	MeiliSearch¹
URL	https://github.com/unep-grid/map-x-mgl/wiki/Search-tool-API
WESR sections	Geospatial
Provider	UNEP/GRID-Geneva
Notes	Provides access to 1'700 geospatial public datasets (as of October 2022). Fully interoperable with the WESR Search Engine from where it is possible to search geospatial datasets by keyword, location and date.

Visualisation Standard

The “Map Service” Interface Standard defines a set of interfaces for requesting map images over the Internet. They make it easy for a client to request images on demand defining parameters such as size and coordinate reference systems. A map service server provides information about which maps are provided by the service, it returns a list of maps (or one specified map) and responds to specific queries about the content and properties of a map.

Service name	GRID-Geneva Datacore Catalogue
Description	Main GeoServer at GRID-Geneva

¹ Meilisearch is a RESTful search API. It aims to be a ready-to-go solution for everyone who wants a fast and relevant search experience for their end-users. Meilisearch works out-of-the-box with default settings that meet the needs of most projects. However, searching is still highly customizable.

Standard or typology	OGC-WMS
URL	https://datacore.unepgrid.ch/geoserver/wms
WESR sections	Geospatial
Provider	UNEP-GRID/Geneva
Notes	Provide a list of all geospatial layers hosted at GRID Geneva. Not all are included in the WESR platform.

Service name	MapX Data Sharing Manager
Description	Enables users to create and customise links to MapX features (i.e., geospatial data layers, story maps, workspaces containing a series of data layers of the same environmental topic); and to share them as simple URLs or on social media.
Standard or typology	iFrames/social networks
URL	https://github.com/unep-grid/map-x-mgl/wiki/Sharing-Manager
WESR sections	Geospatial, Climate Change, WESR-CCA, EC-country fiches
Provider	UNEP-GRID/Geneva
Notes	Each data layer or group of data layers can be embedded into an external web page.

Service name	MapX OGC Services (WMS, WFS, WCS)
Description	1. Makes any MapX geospatial layer discoverable and accessible from external applications that are able to integrate WMS (web map service - data display), WFS (web feature service - vector download) and WCS (web coverage service - raster download). 2. Inversely, makes any WMS/WMTS layer exploitable from MapX.
Standard or typology	OGC-WMS, OGC-WFS, OGC-WCS
URL	https://github.com/unep-grid/map-x-mgl/wiki/Sources#managing-sources
WESR sections	Climate change, WESR-CCA, Geospatial, EC-country fiches
Provider	UNEP/GRID-Geneva
Notes	WMS-WFS-WCS can be activated on demand, e.g., if the data licence authorises data to be downloaded.

Service name	MapX Software Development Kit (SDK)
Description	The MapX SDK package facilitates the integration of MapX into external systems. It features a simple way to interact with MapX data and functions within a static web page or from a full featured application.
Standard or typology	
URL	https://github.com/unep-grid/map-x-mgl/tree/master/app/src/js/sdk/
WESR sections	Climate change, WESR-CCA, Geospatial, EC-country fiches
Provider	UNEP/GRID-Geneva
Notes	---

Per country statistics and SDG

This section includes so-called statistical data, which generally refer to a specific country or group of countries (regional aggregations). The time connotation (time series) is generally an important element. SDG indicators, but not only are part of this category. It must be noticed that for these categories the set of standards is more heterogeneous than in the case of geospatial data where the OGC has been able to prevail as a globally accepted and used standard.

Catalogue services

As for geospatial data, this section presents the web services that give an overall information of the data set collection.

Service name	GRID BI dashboards and charts (Superset) catalogue
Description	Lists dashboards and charts available at UNEP/GRID-Geneva.
Standard or typology	REST API Following OpenAPI specification
URL	https://dash.unepgrid.ch/dashboard/api/read https://dash.unepgrid.ch/chart/api/read
WESR sections	Climate change, WESR-CCA, Geospatial, EC-country fiches
Provider	UNEP/GRID-Geneva
Notes	Swagger page for built custom API: https://dash.unepgrid.ch/swagger/v1

Service name	UNEP SDGs
Description	the API provides data for SDG indicators under UNEP custodianship
Standard or typology	REST API, Web based
URL	https://unepiveservices.unep.org/nsiws/rest/categoryscheme/unep/unep/1.10?references=dataflow
WESR sections	SDG Indicators
Provider	Science Division, CDIB, SDG and Environment Statistics Unit
Notes	To be replaced by SDG Data Catalogue API based on .STAT Suite

Visualisation Standard

In this section, we would like to group services that allow the reproduction / integration of visualisation (charts, dashboards) within an external website.

Service name	GRID BI dashboard (Superset) Catalog for WESR-CCA
Description	Dashboards include a set of dynamic visualisations (charts, maps, text) organised by theme (e.g. climate change, emissions by countries).
Standard or typology	iFrames
URL	https://dash.unepgrid.ch/superset/dashboard/180/?standalone=2
WESR sections	Climate change, WESR-CCA, Geospatial, EC-country fiches
Provider	UNEP-GRID/Geneva
Notes	BI Dashboards can be easily embedded in any other platform by the way of their url.

Data Access Standards

Allows access to the raw data (grouped or not).

Service name	GRID BI charts (Superset) data access
Description	Connect and retrieve the data for each chart included in a dashboard.
Standard or typology	Json API
URL	Curl example for a specific chart
WESR sections	Climate change, WESR-CCA, Geospatial, EC-country fiches
Provider	UNEP-GRID/Geneva
Notes	Needs to be customised for easy access.

SCP-HAT

Service name	SCP-HAT API
Description	It provides the data used in SCP-HAT, mainly environmental pressure and impact indicators.
Standard or typology	Rest API
URL	116.203.139.184:3001
WESR sections	Sustainable Consumption and Production, WESR-CCA, Interactive Country Fiches.
Provider	Vienna University of Economics and Business (WU Vienna)
Notes	Right now it just allows retrieving data exactly as stored in the database without any user-friendly join-operations making life easier. A new version in the future will make this API useful.

Catalogue services & data access

Service name	Knowledge Repository
Description	Knowledge products from the UNEP digital library
Standard or typology	REST API, JSON
URL	https://wedocs.unep.org/rest/
WESR sections	Publications
Provider	UNEP Library Unit
Notes	Remapping will need to be done once retagging is done in the Knowledge Repository

Service name	InforMEA
Description	The purpose of the InforMEA API is to establish a communication protocol between InforMEA database and its data providers, the MEAs.
Standard or typology	Rest API, JSON
URL	https://odata.informea.org/
WESR sections	decisions, meetings
Provider	United Nations Information Portal on Multilateral Environmental Agreements
Notes	Pending datasets: treaties, national reports, national action plans

Service name	UNEP GIS Hub
Description	WESR ArcGIS hub datasets
Standard or typology	Rest API, JSON
URL	https://hub.arcgis.com/api/v3/
WESR sections	Geospatial datasets (indicators, themes)
Provider	World Environment Situation Room ArcGIS Hub
Notes	-

Service name	UNEP World Conservation Monitoring Centre
Description	Explore nature action resources by theme from UNEP-WCMC
Standard or typology	Rest API, JSON
URL	https://resources.unep-wcmc.org/products/WCMC_RT235/
WESR sections	Datasets by theme
Provider	UNEP-WCMC
Notes	-

Service name	GPML Digital Platform
Description	Provides technical information on how to query feature layers from feature services and/ or OGC services available in the GPML Data Hub using the available programming interface API
Standard or typology	Rest API, JSON
URL	https://datahub.gpmarinelitter.org/pages/api-explore https://digital.gpmarinelitter.org/api/browse?topic=event&upcoming=true&limit=3 https://digital.gpmarinelitter.org/api/browse?featured=true&limit=3
WESR sections	Indicators, upcoming events, featured initiatives/products
Provider	UNEP Global Partnership on Marine Litter
Notes	Partially implemented, awaiting confirmation to use digital.gpmarinelitter in WESR

Standards description

OGC-CSW

Catalogue Service for the Web (CSW), is a standard for exposing a catalogue of geospatial records on the Internet (over HTTP).

Catalogue services support the ability to publish and search collections of descriptive information (metadata) for data, services, and related information objects. Metadata in catalogues represent resource characteristics that can be queried and presented for evaluation and further processing by both humans and software.

OGC- WMS

One fundamental component of the web map is the map image. The Web Map Service (WMS) is a standard protocol for serving georeferenced map images generated by a map server. In short, WMS is a way for a client to request map tiles from a server. The client sends a request to a map server, then the map server generates an image based on parameters passed to the server in the request and finally returns an image.

It is important to note that the source material from which the image is generated does not need to be an image. The WMS generates an image from whatever source material is requested, which could be vector data,

raster data, or a combination of the two.

MeiliSearch

The **MapX Search tool API** was built on top of [MeiliSearch](#), an open source ([MIT License](#)) search-engine.

Meilisearch is a RESTful search API. It aims to be a ready-to-go solution for everyone who wants a fast and relevant search experience for their end-users. Meilisearch works out-of-the-box with default settings that meet the needs of most projects. However, searching is still highly customizable.

References

<https://git.unepgrid.ch/wesr/portal/wiki/API>