Big Data Services

Data and Analytics, Early Warning and
Science Foresight for Action

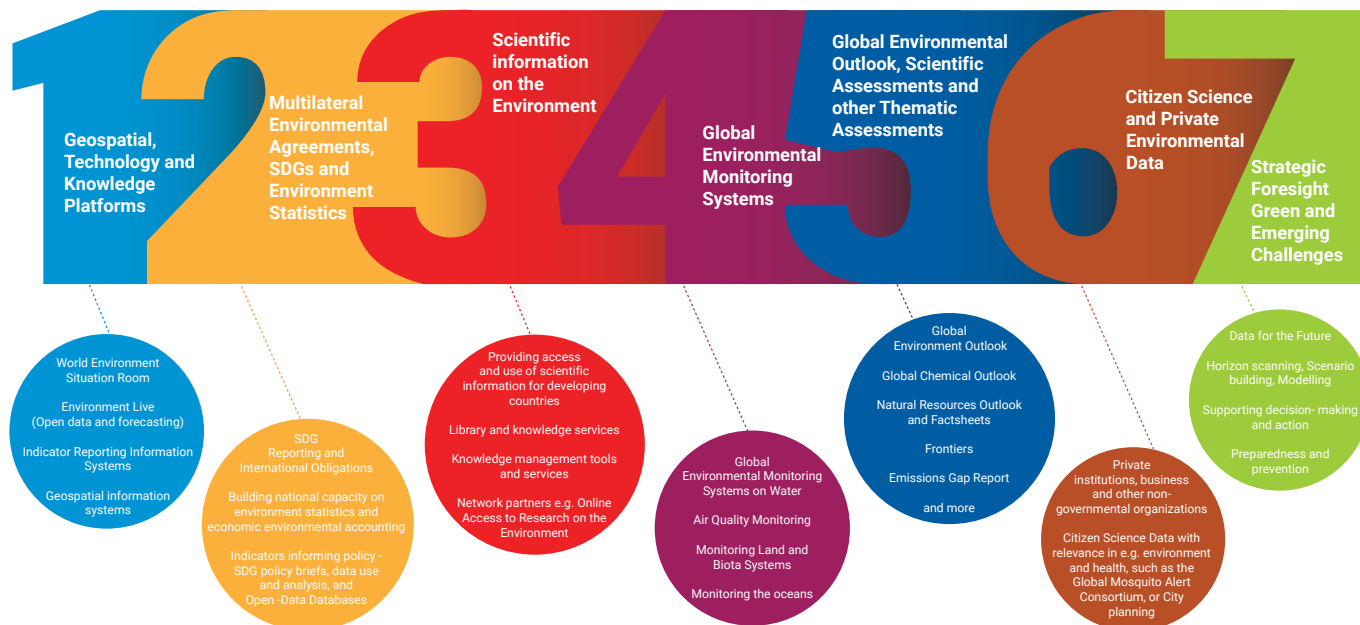**UN**
environment
programme

Transforming the lives of People, Places and Planet

Big Data and Analytics, Early Warning and Science Foresight for Action

Science and research is fundamental for United Nations Environment Programme's role as a global United Nations agency for policy and action on the Environment and its foundational mandate to keep the Environment under review. In today's times of transition from industrial societies to knowledge societies, policy and action on the environment is dependent upon the capacity of countries, regions and globally, to collect, manage and deliver Big Data and Analytics. The United Nations Secretary-General raises, at the highest level, in his latest report of 2021, on progress towards the Sustainable Development Goals, "… The availability of high-quality, timely and disaggregated data is vital for evidence-based decision-making and to ensure accountability for implementation of the 2030 Agenda…"

The Big Data Initiative builds Environmental Strategic Foresight and insights for policy through analysis of data, mapping trends, creating scenarios and identifying emerging issues on a permanent basis, at the frontier of environmental knowledge. Foresight provides a systemic process, to highlight a hotspot of environmental change, to feature an emerging science topic or provide early warning for identifying the future environmental trends. The Big Data revolution for achieving the Sustainable Development Goals can only be realized by Big Science.

Tackling Big Data and Analytics, Science and Research requires innovative partnerships with private sector (technology), and active engagement of our Global Resource Information Database (GRID) networks as well as scientific collaborating United Nations Environment Programme (UNEP) centres of excellence worldwide (capacity and human capital). The provision of Big Data and Big Science, create the foundation for Green Solutions, with impact on billions of people, on the ground, effective solutions for big challenges and priorities on the Environment, from Pollution to Biodiversity and Climate Change.

1 Geospatial, Technology and Knowledge Platforms
- World Environment Situation Room
- Environment Live (Open data and forecasting)
- Indicator Reporting Information Systems
- Geospatial information systems

2 Multilateral Environmental Agreements, SDGs and Environment Statistics
- SDG Reporting and International Obligations
- Building national capacity on environment statistics and economic environmental accounting
- Indicators informing policy - SDG policy briefs, data use and analysis, and Open -Data Databases

3 Scientific information on the Environment
- Providing access and use of scientific information for developing countries
- Library and knowledge services
- Knowledge management tools and services
- Network partners e.g. Online Access to Research on the Environment

4 Global Environmental Monitoring Systems
- Global Environmental Monitoring Systems on Water
- Air Quality Monitoring
- Monitoring Land and Biota Systems
- Monitoring the oceans

5 Global Environmental Outlook, Scientific Assessments and other Thematic Assessments
- Global Environment Outlook
- Global Chemical Outlook
- Natural Resources Outlook and Factsheets
- Frontiers
- Emissions Gap Report
- and more

6 Citizen Science and Private Environmental Data
- Private institutions, business and other non-governmental organizations
- Citizen Science Data with relevance in e.g. environment and health, such as the Global Mosquito Alert Consortium, or City planning

7 Strategic Foresight Green and Emerging Challenges
- Data for the Future
- Horizon scanning, Scenario building, Modelling
- Supporting decision- making and action
- Preparedness and prevention

Global Environmental Data Strategy and World Environment Situation Room (WESR)

A UNEP@50 Initiativefor the next 50 years. A 'Situation Room' to support Countries tackling the environmental emergency and achieving Agenda 2030 for Sustainable Development.

Mission

- Empowering science-based multilateralism
- A gateway to informed decisions for People, Places and Planet
- Science-policy in action. Take action!

At your fingertips:
Common Country Analysis & Interactive Tools
Risk Assessment & Foresight
Real-time Data on the World Environment
Measuring Progress SDGs and MEAs
In 6 UN Languages

Goals

To provide a federated data system of the best openly accessible environmental data, information and knowledge with adequate analytical capacity, to support decision making, policy setting, and action at the global, regional, national and local levels for the environment and sustainable development.

- Providing credible and independent data on the state-of-the-environment and provide policy-relevant analysis
- Using digital tools to accelerate action on climate change, biodiversity and pollution bringing more transparency

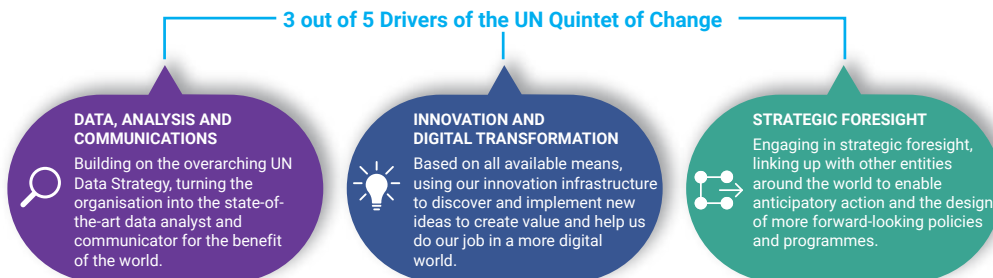| Science-policy for action	Tackling the environment crisis	Build partnerships	Strengthen governance and data standards
WESR provides integrated, flexible, and coherent access to scientific information and publications, geospatial data, environmental assessments, and foresight analyses.	WESR will provide the data backbone to support scientific assessments including the Global Environment Outlook (GEO) process.	WESR is being implemented in coordination and collaboration with other UN system entities and in partnership with other international organizations, governments, academic and research institutions, private sector and civil society organizations.	UNEP will build on WESR's existing governance mechanisms (Data Governance Group) to strengthen leadership, transparency and accountability.

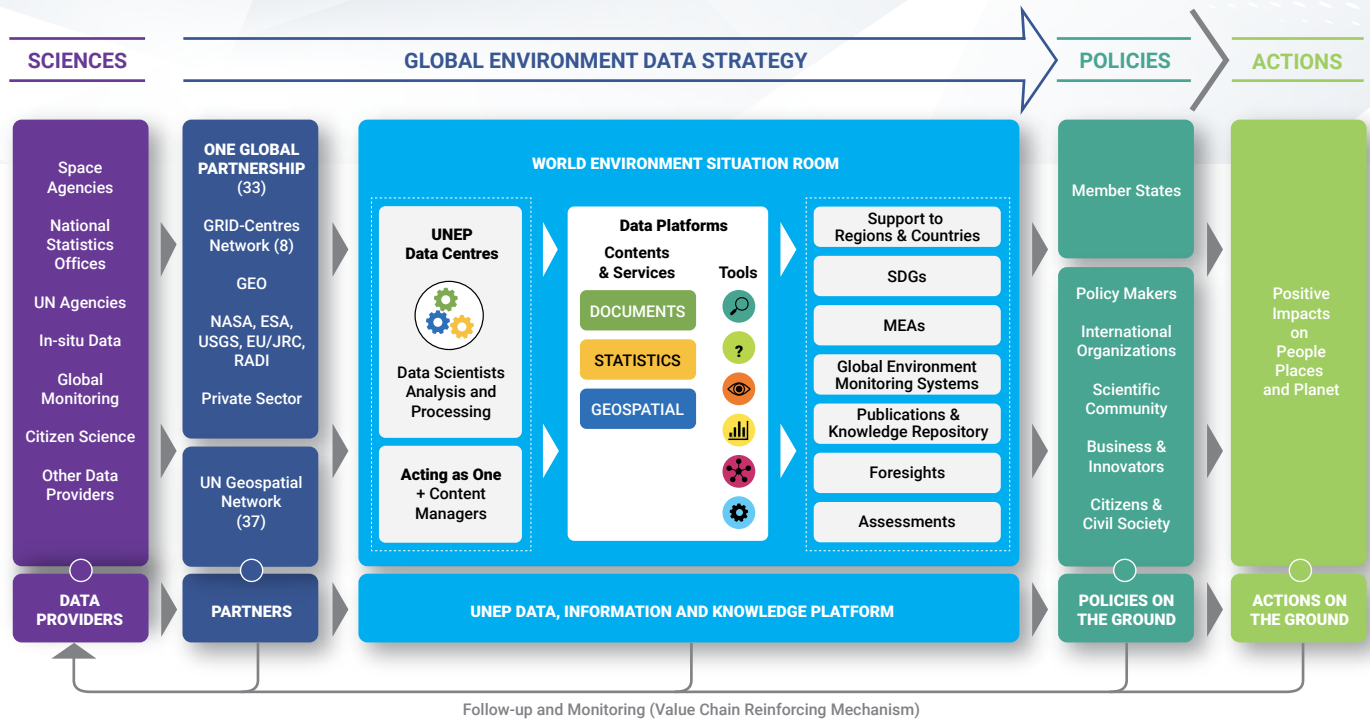**Strategic Goals**   **Means of Implementation**

Strategic Alignment with the UN System

UNEP's Global Environmental Data Strategy is fully aligned with the UN Secretary General' report 'Common Agenda', the UN Data Strategy, Strategy on New Technologies and the Roadmap for Digital Cooperation.

3 out of 5 Drivers of the UN Quintet of Change

DATA, ANALYSIS AND COMMUNICATIONS
Building on the overarching UN Data Strategy, turning the organisation into the state-of-the-art data analyst and communicator for the benefit of the world.

INNOVATION AND DIGITAL TRANSFORMATION
Based on all available means, using our innovation infrastructure to discover and implement new ideas to create value and help us do our job in a more digital world.

STRATEGIC FORESIGHT
Engaging in strategic foresight, linking up with other entities around the world to enable anticipatory action and the design of more forward-looking policies and programmes.

A Framework for Environmental Data, Products and Services

WESR leverages data by creating tools, applications, services and decision-ready products based on an understanding of needs and priorities, and how these can be transformed into specific use cases for deployment.

SCIENCES → **GLOBAL ENVIRONMENT DATA STRATEGY** → **POLICIES** → **ACTIONS**

- Space Agencies
- National Statistics Offices
- UN Agencies
- In-situ Data
- Global Monitoring
- Citizen Science
- Other Data Providers

DATA PROVIDERS

ONE GLOBAL PARTNERSHIP (33)
- GRID-Centres Network (8)
- GEO
- NASA, ESA, USGS, EU/JRC, RADI
- Private Sector

UN Geospatial Network (37)

PARTNERS

WORLD ENVIRONMENT SITUATION ROOM

UNEP Data Centres

Data Scientists Analysis and Processing

Acting as One + Content Managers

Data Platforms
Contents & Services — Tools
- DOCUMENTS
- STATISTICS
- GEOSPATIAL

- Support to Regions & Countries
- SDGs
- MEAs
- Global Environment Monitoring Systems
- Publications & Knowledge Repository
- Foresights
- Assessments

UNEP DATA, INFORMATION AND KNOWLEDGE PLATFORM

Member States

- Policy Makers
- International Organizations
- Scientific Community
- Business & Innovators
- Citizens & Civil Society

POLICIES ON THE GROUND

Positive Impacts on People Places and Planet

ACTIONS ON THE GROUND

Follow-up and Monitoring (Value Chain Reinforcing Mechanism)

Roadmap: A Phased Approach for Enhancement of the WESR

2022-2023 — PHASE I
Setting the Foundation

The goal of Phase I is for UNEP to leverage the work to date on the WESR and build a solid foundation that allows WESR to become fully operational federated data system focusing on design and data integration while scaling up the ongoing use cases.

2024-2025 — PHASE II
Increasing Capacity, Uptake and Engagement

The goal of Phase II is to further develop the WESR infrastructure, products and services, but focus on engagement, building trust and capacity to ensure uptake and usage.

2026-2030 — PHASE III
A full-fledged Federated Data System

The goal of Phase III is to have the network of data, users, applications and knowledge in place where data flows bidirectionally across organizations, data providers and platforms, to transform the WESR to a federated data system.

World Environment Situation Room and Indicator Reporting Information System
The Big Data, Information and Knowledge Platform for Environment Action

The World Environment Situation Room (WESR), situated in the Big Data Branch of UNEP's Science Division, provides the UN Member States open access to information and knowledge on the environment at the global, regional and national levels. It supports Environmental Policy through Foresight, Outlooks and Assessments and providing Capacity Building for countries to achieve the Goals of Agenda 2030 and Sustainable Development, supporting the capacity building services of UNEP. The World Environment Situation Room provides up-to-date information for citizen science, communities of practice and impact stories and case studies on the environment and people with the impact felt by people and livelihoods across countries, regions and the world.

The use of the World Environment Situation Room as UNEPs Data and Knowledge platform on Environmental Data supporting member States on the Common Country Analysis (CCA), the overall UN Development Cooperation Framework (UNDCF) and overall complementary areas of States of Environment Reporting (SER) and Voluntary Reporting of members states. In addition, the platforms integrate Global Environment Monitoring Systems for water quality, air pollution, biota ecosystems and land as well as the oceans. The different types of data are integrated within a conceptual data framework which can be broad enough to work across environmental topics, priorities and the overall achievement of Agenda 2030 and the Sustainable Development Goals.
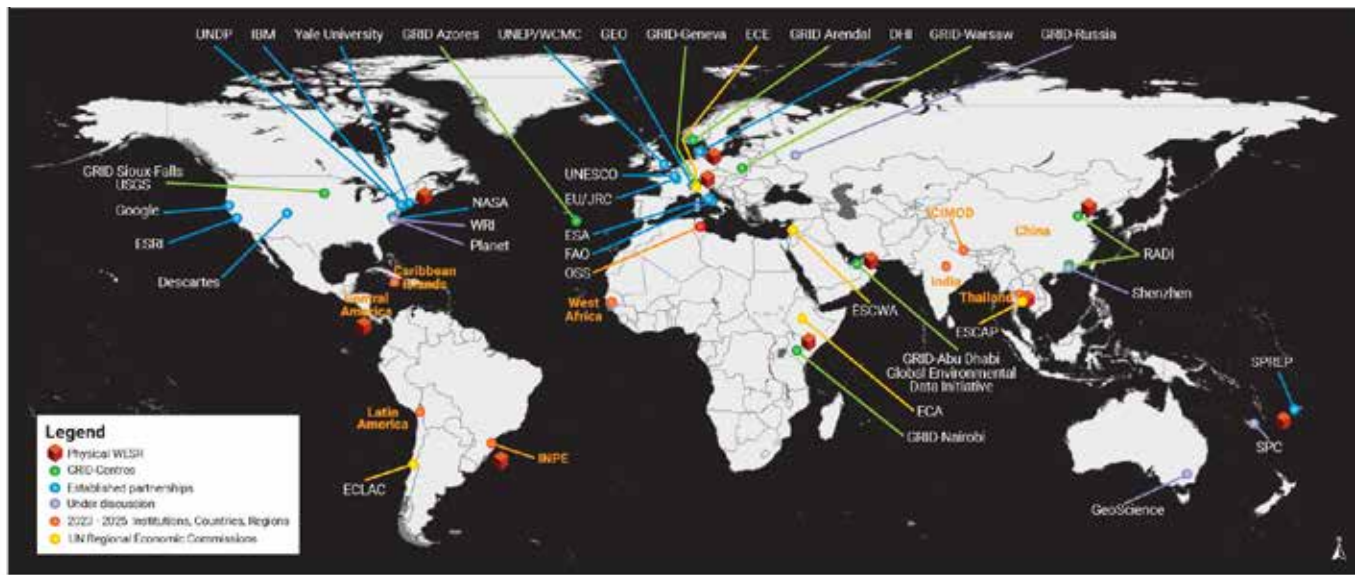
33 Worldwide Partners in a 'One Global Partnership' for the Environment

Data and Analytics, Early Warning and Science Foresight for Action

Indicator Reporting Information System

Indicator Reporting Information System (IRIS), a reporting system developed within the World Environment Situation Room, works to fast track reporting process at any given scale through workflow automation, linkages with databases and production of both Human and Machine readable reports. It provides efficiency and capacity building on the reporting process supporting the member countries in meeting their reporting obligations at the regional and global level. Currently, IRIS is supporting SDG reporting on select environmental indicators i.e. 17.14.1, 12. C.1, 12.2.1, 12.2.2, etc. through collaborations with SDG unit. IRIS for Shared Environmental information system, a collaboration with UN Economic commission for Europe member countries, supports their environment assessments.
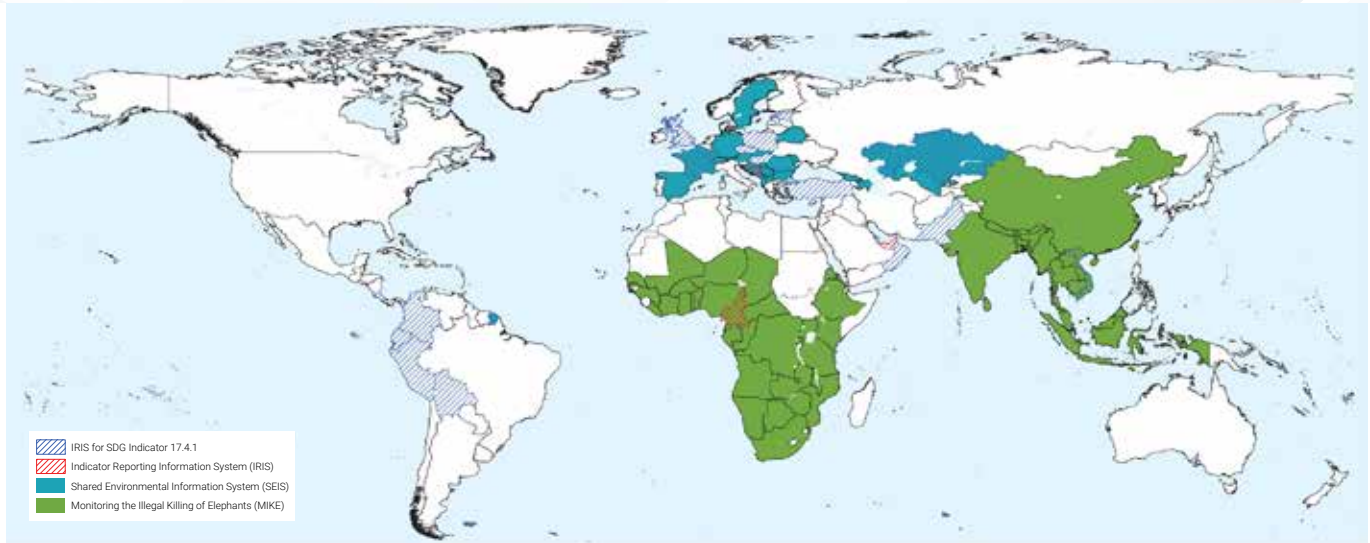
Worldwide projects utilizing the Indicator Reporting Information System (IRIS)

IRIS for Monitoring Illegal Killing of Elephants with Cites have been implemented and deployed to the Elephant range countries successfully. At the sub-national level IRIS is in use in the Environment Agency - Abu Dhabi (EAD) in preparation of their SoE report. IRIS as a service is used to link partners databases with the World Environment Situation Room for ease of reporting.

Photos: Shutterstock.com

Digital Library Services

The mandate of the UNEP Library is to serve the information and knowledge needs of the UNEP personnel in support of UNEP's work. Additionally, since 2007, the library manages the oversees the access of environment information to eligible developing countries.

The Library performs a wide range of activities including:
*   Delivering information research and access services;
*   Cataloguing, indexing and providing access to UNEP's institutional knowledge through the knowledge repository (https://wedocs.unep.org/handle/20.500.11822/1);
*   Supporting UNEP publication and outreach processes including advising of referencing and citation in UNEP publications; and
*   Managing the Online Access to Research in the Environment (OARE) (http://oare.research4life.org/content/en/journals.php), a Research4Life access to information initiative that provides developing countries access to free or low-cost peer-reviewed journals, books and databases in the environment and related fields.

To ensure that UNEP personnel base their work on the latest science and research findings, the library subscribes on their behalf to the latest peer-reviewed information databases including Nature, ScienceDirect, and Wiley.

Library Information Resources[1]
The Library subscribes to a number of electronic resources to serve the information needs of its patrons.

Climate Change and Law Collection	Nature*	ScienceDirect
EBSCO Environment Complete	Nature Climate Change*	UN Comtrade*
EIU Economist Intelligence Unit	New Scientist*	UN iLibrary
Foreign Affairs	OARE	UNEP Knowledge Repository
Foreign Policy	OECD iLibrary	Wiley Online Library
IMF Economic Review 2021[2]	Oxford English Dictionary	World Bank eLibrary
ITU iLibrary 2021	Proquest Central	WTO iLibrary
JSTOR	Science Online	

Access to electronic databases is usually via IP address. However, in view of the COVID-19 situation, most of the vendors have granted login credentials. The Library must be contacted for more information about access to the resources.

Photos: Shutterstock.com

---

1   The resources are accessible to UNEP personnel in support to UNEP's work. Please see the Library weCollaborate page for COVID-19 remote access credentials or contact angeline.djampou@un.org or samuel.opiyo@un.org or virginia.gitari@un.org for access information.
2   Resources marked (*) were not given COVID-19 remote access credentials. contact angeline.djampou@un.org or samuel.opiyo@un.org or virginia.gitari@un.org for access information.

Providing developing countries access to scientific information through the Online Access to Research in the Environment (OARE) partnership

What is OARE?
OARE is an access to information initiative that provides developing countries access to free or low-cost peer-reviewed journals, books and databases in the environment and related fields. It is led by the United Nations Environment Programme in partnership with major scientific publishers.

OARE is part of the Research4Life partnership, together with four other sister programmes with similar objectives: Hinari led by WHO, AGORA led by FAO, ARDI led by WIPO, and GOALI led by ILO.

What is available?
- More than 85,000 Scientific journals, e-books and databases
- Full-text content that can be read, printed, saved, etc.
- Training on information literacy

Who can access OARE / Research4Life?
Researchers, students, policymakers, environmental experts and librarians through their institutions in eligible countries

Who is eligible?
- 115 eligible countries grouped into two groups: Group A countries have free access to content, whereas Group B countries have low-cost access to information.
- Eligible institutions within eligible countries include government offices, research institutions, universities, non-profit organizations, etc.
  - Eligible institutions must register in order to access the resources. To date, 8,700 institutions have registered.

Countries, Regions and Territories eligible for Research4life
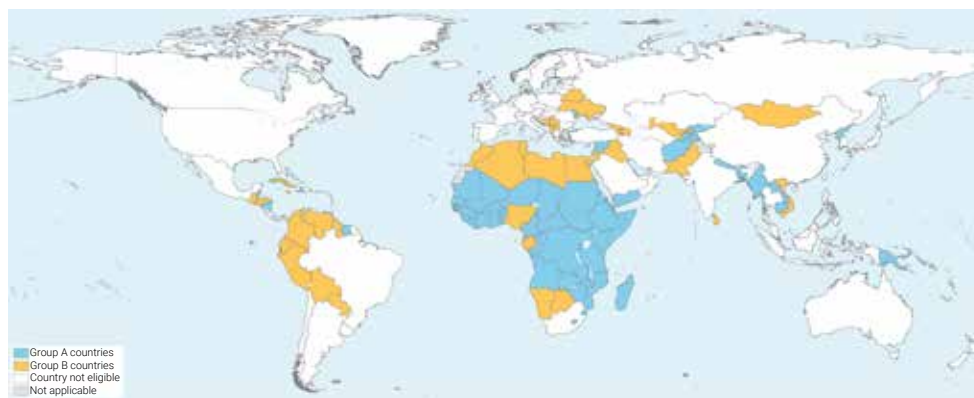
Visit https://www.research4life.org/access/how-to-register/ to register
Visit www.unenvironment.org/oare for more information on OARE

Impact on the Ground in Country support to UN Reforms (WESR CCA and EC Country Fiches)

WESR CCA - Impact

WESR CCA has made available an initial core set of basic data and analytics on environmental SDG indicators, where already available, for all the UN System and for all UN Member States.

It has also led to the engagement with UN Country Teams and UN Resident Coordinators in over 39 pilot countries enhancing the WESR platform and tailoring it to the needs and priorities of UN RCs in support the UN CCA and UNSDCF.

WESR CCA Dashboard

The country overview introduces the specific country description and the structure of the economy, population and territory. The pages provide the key information regarding the country's environmental performance, in the context of the most relevant policy questions.
https://wesr-cca.unepgrid.ch/

Interactive Country Fiches

The Interactive Country Fiches provide a system of interactive and updatable environmental profiles for the analysis of environmental situations and performances of countries around the world. Covering eight environmental pillars, this online tool aims to provide information on key national policies and actions and offers a single-entry point to over a hundred of up-to-date datasets. https://dicf.unepgrid.ch/
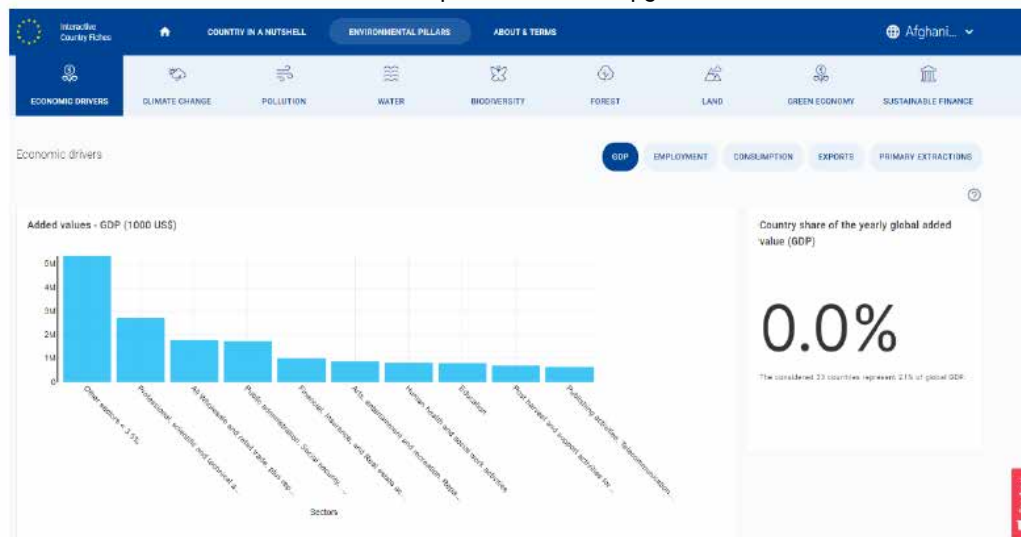
EC fiches country specific dashboard

Lessons Learnt from the implementation of WESR CCA and EC Fiches

- The Data Analytics Dashboards are a useful platform supporting the CCA implementation.
- There is a need for "Data Analysts" and "Policy Analysts" working with the Data platform and providing alignment with Country specific priorities and needs.
- There is a need for "Common Information" made available to all countries; but also "Country Specific Information", aligned with Countries Priorities.
- The Data Dashboards should also include other Data sets (social and economic data) in addition to environmental data.
- The interoperability of the WESR CCA Dashboard with the UN Knowledge Hubs in the Regions in particular the UN Regional Economic Commissions is a critical element for success.
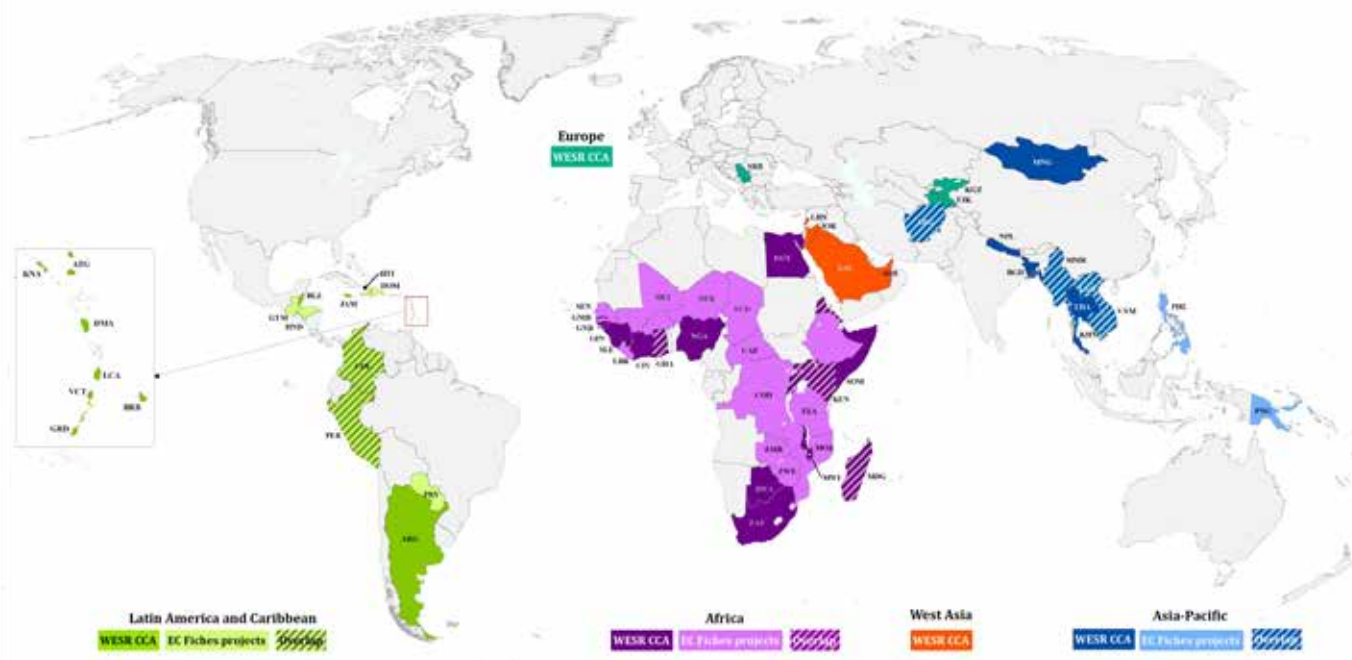
From the graphical representation of the global efforts by both WESR CCA and EC Fiches, more than 60 countries from 5 world regions (Africa, Latin America and the Caribbean, West Asia, Central Asia and Asia and the Pacific) have so far benefitted with about 12 of them piloting both projects.

Strategic Foresight, Emerging Issues and Futures

UNEP's Foresight Unit coordinates foresight initiatives that includes publishing monthly science-based Foresight Briefs that highlight diverse hotspots of environmental change, featuring emerging science topics, or discussing contemporary environmental issues in short readable documents focused primarily on the public at large, but that are also suitable for policy makers. Other foresight activities include development of demonstration projects providing scenario analysis and early warning dashboards important for informing policy-makers and using big data through structured systems analysis and modelling.
Foresight Brief topics: https://wesr.unep.org/foresight/briefs
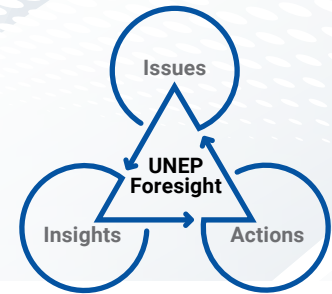
High-Level Committee on Programs (HLCP) Informal Strategic Foresight Network is also supported through the environmental dimension of foresight practices focused on environmental problem solving.
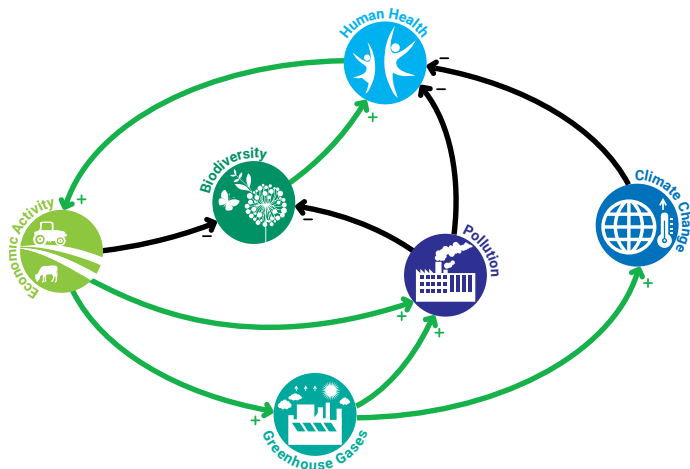
Growth in traditional economic activity results in increased global warming causing green house gases and pollution as well as reduced biodiversity. These in turn adversely impact human health and this reduces economic activity. Policies that enables economic growth that is also good for the environment will improve human health and further increase ecomonic activity through reinforcing feedback. (+) Influence is in the Same direction (-) influence is in the Opposite direction.

Looked at strategically, futures and foresight can be divided into four stages: Gathering intelligence about the future; Exploring the dynamics of change; Describing what the future might be like; and Developing and testing policy and strategy responses. Futures and foresight's primary input to the policy cycle is at the 'Formulate policy' step.

Data and Analytics, Early Warning and Science Foresight for Action
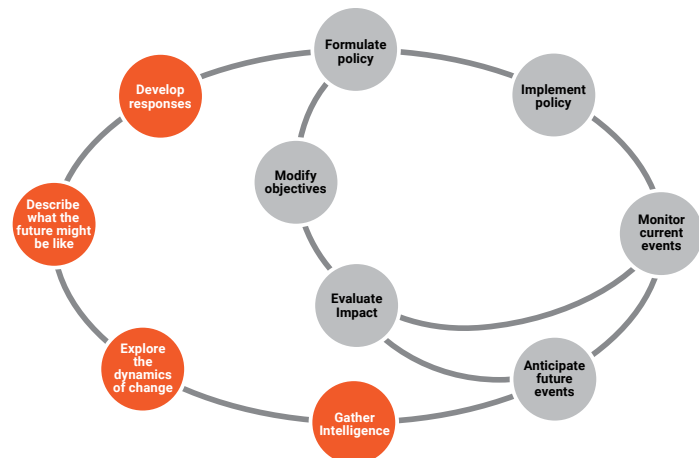
Foresight Briefs 2017-2022

001 Saving Lake Faguibine

002 Marine plastics litter and microplastics

003 The changing Aral Sea

004 Lake Urmia: Signs of recovery

005 Emerging sponge cities

006 Hacking economics for people and planet

007 Smoke-haze: A trans-boundary air pollution issue in Southeast Asia

008 Faith for earth

009 Revisiting ocean acidification, food security and our earth system

010 Alternatives for the use of glyphosate

011 We are losing the "Little things that run the world"

012 Environment, climate change and security

013 The potential of carbon sequestration in the soil

014 Building a digital ecosystem for the planet

015 Growing popularity of alternate food systems for environment and health

016 Seagrasses, the forgotten ecosystems

017 Challenges for the growth of the electric vehicle market

018 Unveiling plastic pollution in oceans

019 Blockchain technology and environmental sustainability

020 The need to eliminate lead paint globally

021 Food loss and waste in the Sustainable Development Goals' nexus

022 Desert locusts' upsurges: A harbinger of emerging climate change induced crises?

023 Nature-Based Solutions for Urban Challenges

024 Sargassum: Brown tide or golden jewel?

025 Working with plants, soils and water to cool the climate and rehydrate Earth's landscapes

026 People's livelihood and cities - building back greener

027 The growing footprint of digitalisation

028 The shrinking Arctic Sea Ice

029 Plastics in agriculture – an environmental challenge

030 Charcoal as a global commodity: is it sustainable?

To view current and previous issues online and download UNEP Foresight Briefs
https://data.unep.org/article/foresight-briefs

For more information on Foresight Foresight, Emerging Issues and Futures
https://data.unep.org/foresight

Global Environment Monitoring System Services & World Water Quality Alliance

GEMS/Water

By adopting the dedicated goal on water in the 2030 Agenda for Sustainable Development, countries worldwide recognize the central role of water and the entire hydrological cycle in achieving prosperity, human and ecosystem health. Monitoring the world's freshwater resources is a critical step in shaping any coherent water quality policy and is indispensable to responding to current water quality challenges arising from climate and pollution pressures as well as the destruction of natural capital. The UN Environment Assembly (UNEA) encourages member States to work closely with the UNEP GEMS/Water programme to keep the state of the world's freshwater resources under continuous review.

Photo © Shutterstock.com

World Water Quality Alliance

The World Water Quality Alliance ("the Alliance"), is an voluntary global expert consortium including 50+ partners from public, private sector, civil society, and UN-Water convened by UNEP in direct response to the UNEA resolution 3/10 on addressing water pollution to protect and restore water-related ecosystems. The Alliance advocates the role of freshwater quality in achieving prosperity, communicates water quality risks, and shares solutions for restoring ecosystems, human health and well-being through the following:

1. A global freshwater quality assessment.
2. Horizon scanning to identify emerging water quality issues of key concern.
3. Co-designing water quality related services and products, based on participatory process to identify local demands (use-cases).

GEMS/Water contributes to the Alliance as a provider of quality assured data, supporting setting of standards and capacity development. In return, GEMS/Water co-benefits from the Alliance expert networks and deliverables.

GEMS/Air

Although the SDGs do not include a stand-alone goal on air quality, it is widely recognized that air pollution poses a significant environmental risk factor to health. Similarly, to GEMS/Water, UNEP's GEMS/Air Programme builds and maintains collaboration amongst global stakeholders to enhance local capacity to improve air quality management. GEMS/Air catalyzes scalable innovation using science and technology know-how, to enable developing country governments to drive transformation that improve the air their citizens breathe.

GEMS/Ocean

UNEP, by taking a partnership approach, is committed to support the development of an innovative GEMS/Oceans. Building on information from existing monitoring initiatives on national, regional, and global scale, and working closely across the UN and with the Global and Earth Observation and modelling communities, GEMS/Oceans shall in future inform and enable action at scale to respond to persisting and emerging ocean-related issues. It will gather meaningful data to inform ocean and coastal state and future implications of climate, nature and pollution pressures ,mobilizing and visualizing data to support the science/policy interface, improving integrated management in the ocean and coastal zones and finally supporting the UN Decade on Ocean Science for Sustainable Development (2021-2030).

Overall, Global Environment Monitoring constitutes a critical operational mechanism in the implementation of the UNEP Medium Term Strategy 2022-2025.

Data and Analytics, Early Warning and Science Foresight for Action

The Global Resource Information Database (GRID) Centres Network

Network of GRID-Centres

One of UNEP's key roles is to keep the World Environment under review for enhancing the science-policy interface and endorsement of the Global Environment Outlook. In this context, a resolution asked UNEP to upscale its data strategy during the 4th United Nations Environment Assembly in Nairobi (11 - 15 March 2019). This is where the **UNEP network of GRID Centres** comes into play for transforming data into information and support UNEP with analytics since their creation in 1985. The Global Resource Information Database (GRID) is a worldwide network of environmental data centres created by UNEP in the mid-1980s. GRID-Centres are made of a team of data scientists who on top of their technical expertise also fully understand the UNEP mandates, thus helping to bring the most relevant data and information. The main functions of a GRID-Centre are to acquire data, transforming them into information and knowledge about the state of the world's environment in a timely and understandable manner, before disseminating these to support environmental governance and policies. GRID-Centres handle and analyse geospatial and statistical data on environmental and natural resource issues through Geographic Information Systems (GIS), remotely sensed imagery, in situ or statistical data. They process, integrate, disseminate and communicate geographic information via interoperable data platforms (webservices and APIs), through other on-line technologies including interactive graphs or maps as well as via contributions to reports on various topic related to the environment. In short, GRID-Centres provide reliable environmental knowledge based on evidence.

There are 8 formal GRID centres, namely GRID-Geneva, GRID-Arendal, GRID-Warsaw, GRID-Sioux Falls, RADI (The Institute of Remote Sensing and Digital Earth), GRID-Nairobi, GRID-Abu Dhabi Global Environmental Data Initiative, and the Atlantic International Research Centre (AiR Centre) as most recent GRID center at UNEP, while several others are under discussion. These centres may have different institutional organization: GRID-Geneva is within the UNEP Science Division, other are foundations or NGOs. Despite their different structure or legal status, all of them are working together with several other partners, forming the spine of the "One Global Partnership", supporting UNEP to transform big data into information and knowledge for sustainable development and humanitarian action at the global, regional and national levels.

Data and Analytics, Early Warning and Science Foresight for Action

GRID-Geneva

Established in 1985, GRID-Geneva is formally a partnership between the United Nations Environment Programme (UNEP), the Swiss Federal Office for the Environment (FOEN) and the University of Geneva (UNIGE). To fulfill its mandate of supporting UNEP with most relevant and up to date environmental data, information and knowledge, GRID-Geneva uses its geospatial competencies. Remote sensing, data cubes, GIS modeling, data platforms design and development, are used as supporting tools for on-line interactive data visualization (e.g. WESR, MapX, Essential Climate Variables), publications (e.g. Foresights, GEO, Sand), International Agreed Environmental Goals (e.g. Minamata Convention) or online reporting (e.g. MedQSR).

Geneva, Switzerland: Photo © Shutterstock.com

GRID-Arendal

GRID-Arendal is a non-profit environmental communications centre based in Norway. We transform environmental data into innovative, science-based information products and provide capacity-building services that enable better environmental governance. We aim to inform and activate a global audience and motivate decision-makers to effect positive change. Our vision is a society that understands, values, and protects the environment on which it depends.

GRID-Arendal was established in 1989 by the Norwegian Ministry of the Environment to support environmentally sustainable development by collaborating with the United Nations Environment Programme and other partners. The launch of GRID-Arendal was an outgrowth of the World Commission on Environment and Development, also known as the Brundtland Commission.

GRID Arendal, Norway: Photo © Shutterstock.com

Data and Analytics, Early Warning and Science Foresight for Action

We work closely with UN agencies, regional organizations, national governments, and other strategic partners to create positive environmental outcomes and impact, particularly in developing countries. A major focus for GRID-Arendal is supporting fulfilment of the Sustainable Development Goals, the Paris climate agreement, and other regional and international commitments. Our work is organized into programmes on Polar & Climate, Marine Environment, Waste & Marine Litter, and Transboundary Governance & Environmental Crime, supported by a Communications, Technology & Innovation team.

GRID-Warsaw

The UNEP/GRID-Warsaw Centre, established on 17 September 1991, is a member of the GRID (Global Resource Information Database) network, established by the UN Environment (United Nations Environment Programme – UNEP) to foster sustainable management of natural resources. We are one of the few specialised centres in charge of collecting, processing, and facilitating access to data and information about the natural environment, as well as promoting application of spatial data and GIS (Geographic Information Systems).

Officially registered as an NGO (the branch of the National Foundation for the Environmental Protection in Poland), we cooperate with many national and international partners – local authorities, educational entities and companies implementing CSR (Corporate Social Responsibility) politicies.


Warsaw, Poland: Photo © Shutterstock.com

https://www.grida.no/

GRID-Sioux Falls

The North American node of UNEP's Global Resource Information Database (GRID), designated as GRID-Sioux Falls, is located at the Earth Resources Observation and Science (EROS) Center of the United States Geological Survey in Sioux Falls, South Dakota, USA. GRID-Sioux Falls has been operational since 1991 and functions as a partnership between the United Nations Environment Programme (UNEP) and the U.S. Geological Survey (USGS).
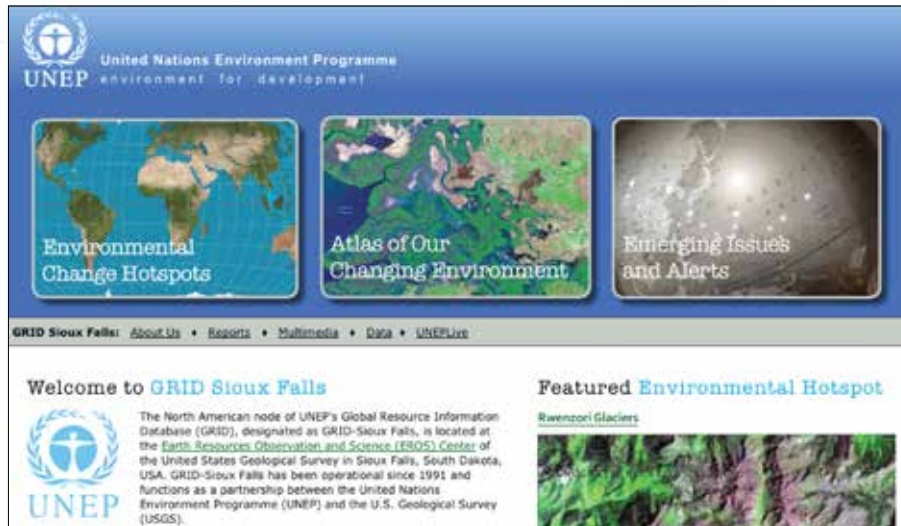
GRID-Sioux Falls, United States of AMerica: Photo © Shutterstock.com

https://na.unep.net/

GRID-Sioux Falls has supported the creation of 1) environmental change hotspots, an interactive OpenStreetMap presentation of satellite change pairs and storylines, 2) the "Atlas of Our Changing Environment" publications (12), ranging from "One Planet, Many People" to "Africa Mountains Atlas", and 3) a series of "Alerts" on emerging global environmental issues.

RADI (The Institute of Remote Sensing and Digital Earth)

The Institute of Remote Sensing and Digital Earth (RADI) under the Chinese Academy of Sciences (CAS) was founded in September 2012 through the merging of the Institute of Remote Sensing Applications (IRSA) and the Center for Earth Observation and Digital Earth (CEODE).

RADI has established a Memorandum of Understanding with UNEP in order to collaborate in activities of the production of geospatial information for the GEO (Global Environmental Outlook 6). Also, RADI is collaborating with UNEP technical teams to the interoperability of Digital Earth platforms at China and the Big Data platform of UNEP, the World Environment Situation Room). RADI is working with UNEP to establish a GRID or Collaborating GRID center as part of the GRIDs Network.

http://english.irsa.cas.cn/

GRID-AGEDI (Abu Dhabi Global Environmental Data Initiative)

https://agedi.org/current-projects/
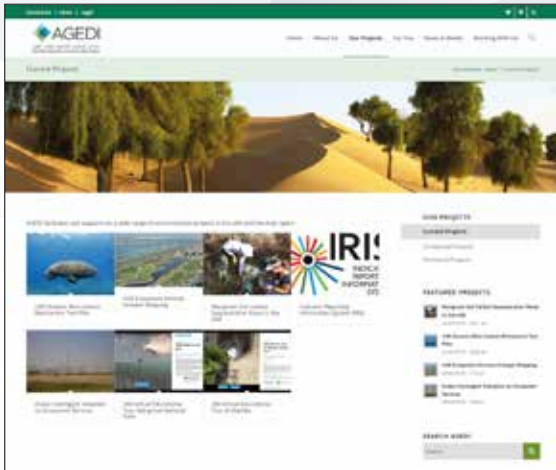
The Abu Dhabi Global Environmental Data Initiative (AGEDI), headquartered in Abu Dhabi, was launched by the Environment Agency – Abu Dhabi and United Nations Environment Programme at the UN World Summit on Sustainable Development in 2002. AGEDI's mission is to facilitate the access to quality environmental data that equips policymakers with actionable, timely information to inform and guide critical decisions towards a sustainable future. Recent initiatives include:

1) The Indicator Reporting Information System (IRIS) is an AGEDI programme that is being implemented by the AGEDI partners EAD and UNEP's Science Division Technical teams at Nairobi. IRIS has been deployed around the work in several applications and use cases;

2)) The 'Eye on Earth' initiative which has mobilized a worldwide community of more than 5,000 members by means of three international Summits and through hosting 50 pioneering international online seminars.

GRID-Nairobi

The World Environment Situation Room Unit within the Big Data Branch of UNEP has 2 staff members with Geospatial capabilities and skills and 2 other staff members with programming and environmental data management experience. The Regional Office for Africa has 2 staff members with Geospatial capabilities and skills and 2 more staff members with Environmental Data analyses competences and experience. In collaboration the Science Division, the Regional Office for Africa of UNEP has been collaborating in several initiatives:

1) The Africa Atlas;
2) The implementation fo the WESR Common Country Analysis project supporting the UN Reform and the UN Development Cooperation Framework;
3) The implementation of Science Policy advice to African countries.

Through an internal written agreement between these two entities, internal to the United Nations Environment Programme (UNEP), GRID Nairobi is being established to become a center part of the GRIDs Network.


Nairobi, Kenya: Photos © Shutterstock.com

Data and Analytics, Early Warning and Science Foresight for Action

Atlantic International Research Centre (AIR Centre) as new GRID Node at UNEP

The Atlantic International Research Centre (AIR Centre) is an international non-profit organization for the development of scientific and technological applications in the Atlantic region, paying special attention to the study of ocean-space interactions and the development of sustainability solutions. The AIR Centre, headquartered on Terceira Island - Azores, is established as a distributed network which already includes several countries in the Americas (Brazil, Colombia, Mexico, United States), Europe (Portugal, Spain, United Kingdom, Norway), and Africa (South Africa, Nigeria, Angola, Namibia, Cape Verde, São Tomé and Príncipe).

The AIR Centre's mission includes activities in areas of enormous scientific, economic and social impact, such as coastal erosion, protection of bays and estuaries, or mitigation of natural disasters. To carry out its mission, the AIR Centre has deployed an Earth Observation Laboratory at its headquarters on Terceira Island. Thanks to a Memorandum of Collaboration with the European Space Agency, signed in 2019, the AIR Centre hosts the ESA Lab@Azores, an open platform of collaboration which is embedded within ESA as part of its ESA Lab@Initiative.
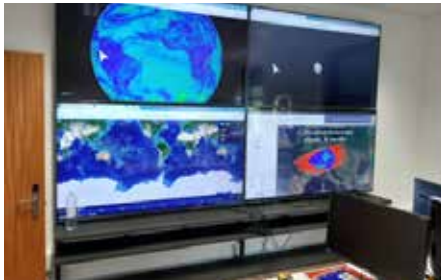
The AIR Centre EO Lab has already started more than 20 projects in consortium with entities from associated countries (companies, Universities, Research Centres), won in international competitions (national, European and intercontinental programs) on issues related to the oceans such as desalination, off-shore renewable energy, protection of marine ecosystems, detection of plastics in the oceans from satellite, ports of the future, coastal cities, aquaculture, etc.

The AIR Centre EO Lab is using extensively Copernicus data, but in addition a Direct Receiving Station has been deployed at its premises for real time acquisition of data from direct broadcast satellites like Terra, Aqua, Suomi-NPP, JPSS-1 (NOAA 20) and FengYun3A/B/C/D. In addition, the AIR Centre is also one of the shareholders of the Earth Observation satellite operator GEOSAT, which operates the satellites GEOSAT 1 and GEOSAT 2 providing unique very high resolution (down to 75 cm spatial resolution) images of the planet to help developing scientific projects and technological applications towards sustainability and help solving the global challenges that we are facing. An EO Data Centre has been deployed at AIR Centre to store the received EO data and to make it available to all the network in real time and to UNEP as a new node of its GRID.

UN Geospatial Network, across 37 Agencies, Funds and Programmes of the UN System

Strengthening the Coherence and Coordination of Global Geospatial Information Management across the UN System

The role of the UN Geospatial Network in the UN-GGIM Architecture
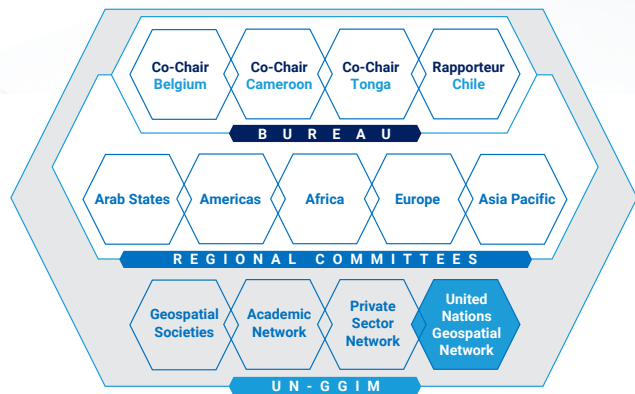
'As the pandemic continues to unfold, and the world moves further off track in meeting the 2030 SDG deadline, timely and high-quality data are more essential than ever. Indeed, data are being widely recognized as strategic assets in building back better and accelerating the implementation of the SDGs. What is needed now are new investments in data and information infrastructure, as well as human capacity to get ahead of the crisis and trigger earlier responses, anticipate future needs and design the urgent actions needed to realize the 2030 Agenda for Sustainable Development.'

António Guterres, Secretary-General of the United Nations
The Sustainable Development Goals Report 2021

UN-GGIM Objectives
- A formal inter-governmental body which reports directly to the Economic and Social Council (ECOSOC)
- Discusses and coordinates Geospatial Information Management activities by involving Member States at the highest level.
- Makes joint decisions and sets directions on the use of geospatial information within national and global policy frameworks;
- Address global issues and contribute collective knowledge as a community with shared interests and concerns
- Develops effective strategies to strengthen geospatial capacity particularly in developing countries
- To make timely, reliable and authoritative geospatial information consistently and readily available to support national, regional and global development.

Foundation
The Network is building upon the experiences of past coordination efforts of the United Nations Geographic Information Working Group (UNGIWG), 2000 - 2016
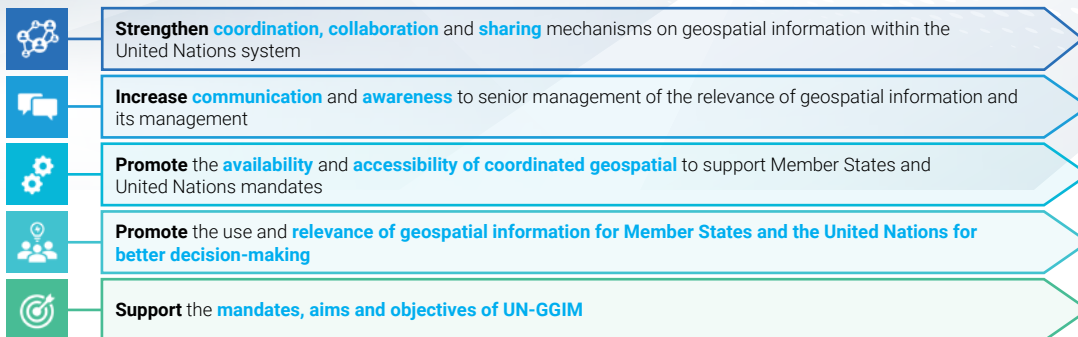
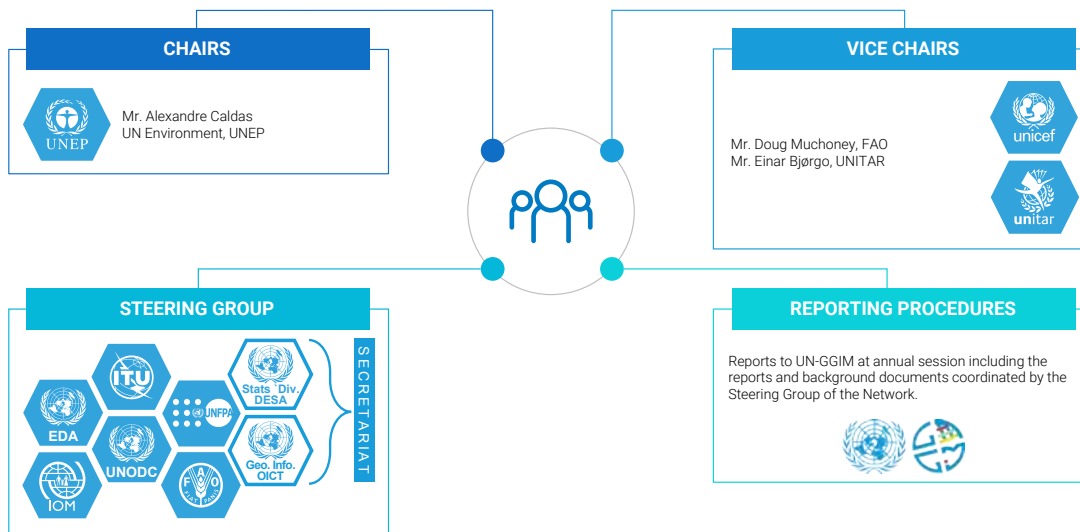| **Seventh** Session Committee of Experts	**Eighth** Session Committee of Experts	**Ninth** Session Committee of Experts	**Tenth** Session Committee of Experts
2-4 AUGUST 2017, NEW YORK	1-3 AUGUST 2018, NEW YORK	7-9 AUGUST 2019, NEW YORK	5-7 AUGUST 2020, NEW YORK
…agreed to establish a United Nations system network within its global architecture	…endorsed the Terms of Reference of the Network and its governance	…endorsed the Steering Group, the work programme and renaming of the Network to the "United Nations Geospatial Network"	…commended work on the preparation and completion of the Blueprint, strategic design document and a review of the geospatial landscape in the United Nations
decision 7/115	decision 8/115	decision 9/115	decision 10/102
2017	**2018**	**2018**	**2020**

Vision of the UN Geospatial Network

Geospatial for a Better World...Transforming People, Places and Planet

Mission

Strengthen the Coordination and Coherence of Geospatial Information Management within the United Nations System Objectives

Strengthen coordination, collaboration and **sharing** mechanisms on geospatial information within the United Nations system

Increase communication and **awareness** to senior management of the relevance of geospatial information and its management

Promote the **availability** and **accessibility of coordinated geospatial** to support Member States and United Nations mandates

Promote the use and **relevance of geospatial information for Member States and the United Nations for better decision-making**

Support the **mandates, aims and objectives of UN-GGIM**

Structure

CHAIRS

Mr. Alexandre Caldas
UN Environment, UNEP

UNEP

VICE CHAIRS

Mr. Doug Muchoney, FAO
Mr. Einar Bjørgo, UNITAR

unicef
unitar

STEERING GROUP

ITU
EDA
UNODC
IOM
UNFPA
Stats Div. DESA
Geo. Info. OICT
FAO
SECRETARIAT

REPORTING PROCEDURES

Reports to UN-GGIM at annual session including the reports and background documents coordinated by the Steering Group of the Network.

Strategy and Priorities

The Network as approved for the forthcoming years to pursue a number of keystrategic priorities.

Blueprint of the United Nations Geospatial Network

Governance, Strengthening the Network

Coherence and Coordination, Delivering as One

Partnerships, Capacity Building and Outreach

Data and Analytics, Early Warning and Science Foresight for Action

UN Geospatial Network, across 37 Agencies, Funds and Programmes of the UN System

Strategy: The Blueprint

BLUEPRINT
Strategic framework, orientations, design and upcoming activities of the Network (2020)

BLUEPRINT LANDSCAPE
Overview of current geospatial capacities and representatives in the UN system (2020)

Recent Publications

GEOSPATIAL IN ACTION
Geospatial for the SDGs: data and insights for the SDGs by the UN system (2021)

GEOSPATIAL FOR HUMANITY
Geospatial for prevention, response & recovery from COVID19 by the UN system (2021)

1 STRATEGY
The Blueprint

3 PRIORITIES
Governace, Technology & People

7 TRANFORMATION PATHWAYS
Data & Standards Policies, Governance, Outreach, Capacity development, Partnership, Innovation & Technology

50 PROPOSED ACTIVITIES
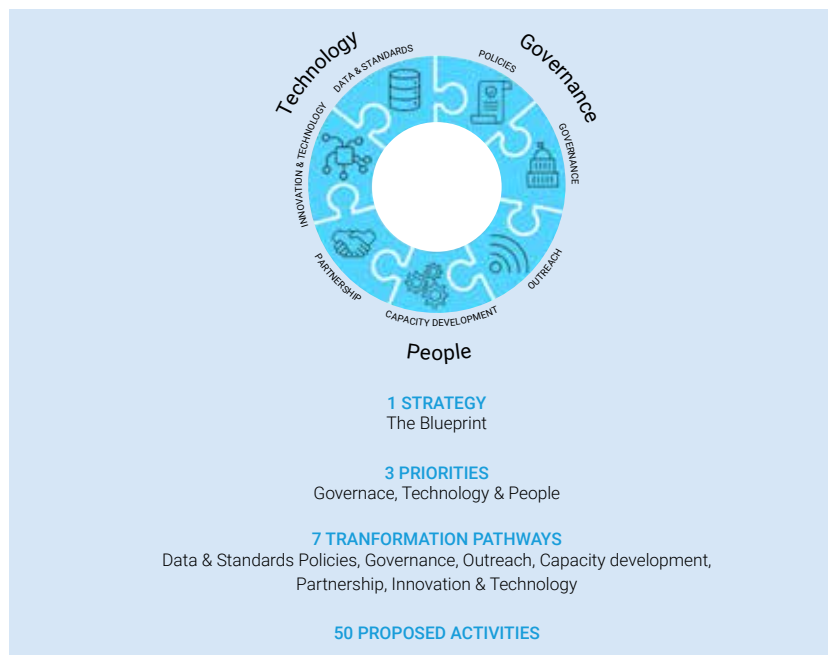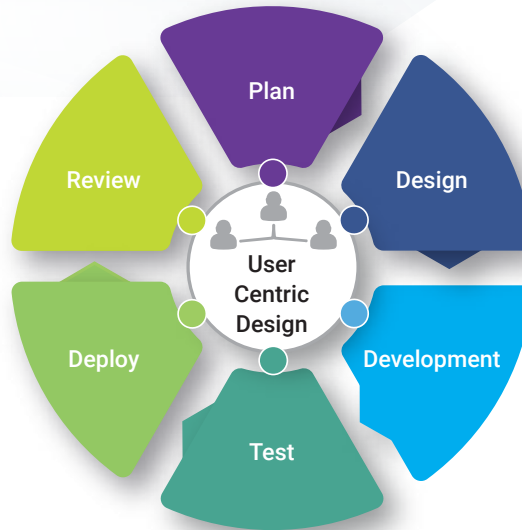
Enhancing Geospatial Job Profile across UN system

Generic Job Description
Generic geospatial jobs
Director, Senior professionals, Professionals
Assistants approved by OHRM (2021)

Data and Analytics, Early Warning and Science Foresight for Action

One UN Geospatial Situation Room - Implementation PATHWAYS

Blueprint Strategy

Strategic Alignment with the UN Strategy

One UN Situation Room initiative is fully aligned with the UN Secretary General' report 'Our Common Agenda', the UN Data Strategy, Strategy on New Technologies and the Roadmap for Digital Cooperation.

Plan · Design · Development · Test · Deploy · Review — **User Centric Design**

Roadmap: A Phased Approach for Implementation

2022-2023
Setting the Foundation
PHASE I

2024-2025
Increasing Capacity, Uptake and Engagement
PHASE II

2026-2030
Fully Fledged *Federated* Data System
PHASE III

3 out of 5 Drivers of the UN Quintet of Change

DATA, ANALYSIS AND COMMUNICATIONS
Building on the overarching UN Data Strategy, turning the organisation into the state-of-the-art data analyst and communicator for the benefit of the world.

INNOVATION AND DIGITAL TRANSFORMATION
Based on all available means, using our innovation infrastructure to discover and implement new ideas to create value and help us do our job in a more digital world.

STRATEGIC FORESIGHT
Engaging in strategic foresight, linking up with other entities around the world to enable anticipatory action and the design of more forward-looking policies and programmes.
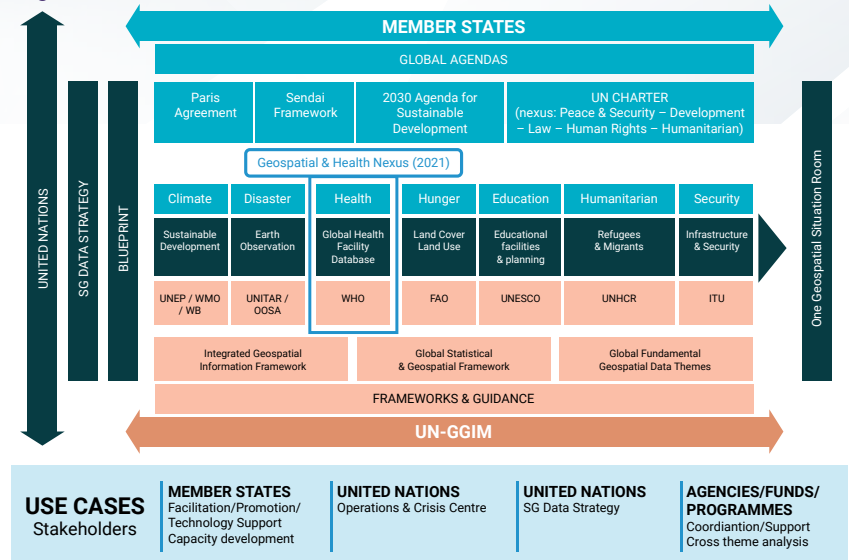
Data and Analytics, Early Warning and Science Foresight for Action

One UN Geospatial Situation Room - Implementation PATHWAYS
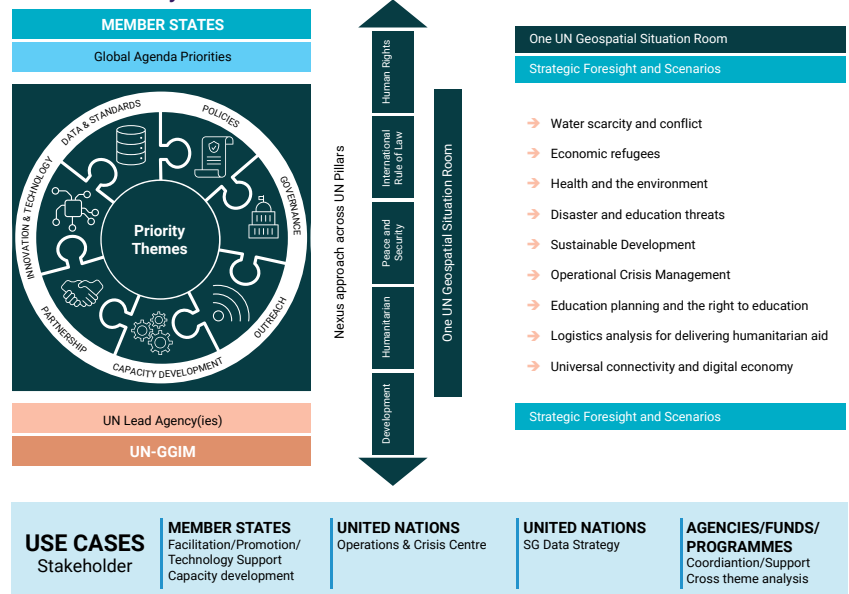
Blueprint Strategy

A Geospatial Data Hub for the nexus of the United Nations

- Focus on the *nexus* of 5 pillars of the UN (peace and security, sustainable development, humanitarian, international rule of law and human rights)

- Builds on *synergies* of existing data systems and platforms across UN system (integrating geospatial, statistics and other data documents)

- Is implemented as a *federated* data system, with clearly identified Authoritative Data Hubs and Spokes

- Contributes directly as a USE CASE to the implementation of the SG U*N Data Strategy* (e.g. UN Data Hub and UN Peace and Security, UNOCC)

- Is built using a *Scalable* and *Phased* approach implementation plan

High-level Architecture and Priorities

USE CASES Stakeholders	MEMBER STATES Facilitation/Promotion/ Technology Support Capacity development	UNITED NATIONS Operations & Crisis Centre	UNITED NATIONS SG Data Strategy	AGENCIES/FUNDS/ PROGRAMMES Coordiantion/Support Cross theme analysis

Service Delivery and Use Cases

One UN Geospatial Situation Room

Strategic Foresight and Scenarios

- → Water scarcity and conflict
- → Economic refugees
- → Health and the environment
- → Disaster and education threats
- → Sustainable Development
- → Operational Crisis Management
- → Education planning and the right to education
- → Logistics analysis for delivering humanitarian aid
- → Universal connectivity and digital economy

Strategic Foresight and Scenarios

USE CASES Stakeholder	MEMBER STATES Facilitation/Promotion/ Technology Support Capacity development	UNITED NATIONS Operations & Crisis Centre	UNITED NATIONS SG Data Strategy	AGENCIES/FUNDS/ PROGRAMMES Coordiantion/Support Cross theme analysis

Data and Analytics, Early Warning and Science Foresight for Action

https://data.unep.org

Big Data Services | Data and Analytics, Early Warning and Science Foresight for Action

33 Partners in the One Global Partnership

UN environment programme | WESR WORLD ENVIRONMENT SITUATION ROOM

OTHER ONE GLOBAL PARTNERSHIP PARTNERS
| UNEP GRID Geneva | UNEP GRID Arendal | GRID Warsaw | GRID Sioux Falls | GRID Nairobi | GRID Azores | Environment Agency - ABU DHABI | RADI | AiR Centre | SPREP | UNEP WCMC | Yale University |
| NASA | ESA Copernicus | Google | IBM | Descartes | UN System (OICT, DESA-UNSD, UN-GGIM, FAO, WMO, WHO, UNDP) | GEO | European Association Citizen Science | US Association of Citizen Science |

Contact: alexandre.caldas@un.org

Transforming the lives of People, Places and Planet