# CALL FOR WEATHER, CLIMATE, & HYDROLOGICAL INFORMATION DATASETS TO BE MADE OPEN AND FREELY AVAILABLE AS DIGITAL PUBLIC GOODS

January 2022

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Established in 2019, the Digital Public Goods Alliance is a multi-stakeholder initiative with a mission to accelerate the attainment of the sustainable development goals in low- and middle-income countries by facilitating the discovery, development, use of, and investment in digital public goods. Digital public goods are open-source software, open data, open AI models, open standards, and open content that adhere to privacy and other applicable laws and best practices, do no harm by design, and help attain the SDGs. To learn more, visit digitalpublicgoods.net or contact hello@digitalpublicgoods.net.

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# Background

This report details an assessment undertaken in June 2021 as part of the Digital Public Goods Alliance's Climate Change Adaption Community of Practice whose efforts have focused on identifying and highlighting digital public goods that are relevant to the generation and use of open weather, climate, and hydrological datasets for climate change adaption.

This report was written in partnership with the Digital Public Goods Alliance (DPGA), International Telecommunication Union (ITU), and the World Meteorological Organization (WMO) with contributors from the Community of Practice listed at the beginning of the report.

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# Call for weather, climate & hydrological information datasets to be made open and freely available as digital public goods

Co-Authored by: Digital Public Goods Alliance (DPGA), International Telecommunication Union (ITU), World Meteorological Organization (WMO)

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# Introduction

*Underscored by the IPCC 2021 Working Group I report, the Physical Science Basis of Climate Change, there is an urgent need to combat and mitigate the devastating impacts of climate change. It is clear that limitation in the availability and dissemination of high-quality data is a hindrance for making informed decisions and stifling technical innovation, including the development of digital solutions with the potential to address critical climate change adaptation needs, particularly in least developed countries (LDCs).*

*For this reason, the Digital Public Goods Alliance stands by the call from the Extraordinary Session of the World Meteorological Congress (Cg-Ext 2021), which recently adopted the [Unified Data Policy resolution](#) for free and unrestricted international exchange of critical Earth system data, including both observations and model data used for the monitoring and prediction of the climate system and its components. This is vital to ensuring that countries and technologists have access to high-quality and reliable open source weather, climate, hydrological, marine, and ocean observation data required to create and maintain digital solutions for climate change adaptation.* **The Digital Public Goods Alliance supports the WMO Unified Data Policy resolution by calling for this data to be made available as openly licensed digital public goods.**

## The need for open and accessible weather, climate, and hydrological data

Globally, climate change is exacerbating the frequency and severity of hazards including wind storms, drought, flooding, landslides, and wildfires.[1] In the World Economic Forum's *2021 Global Risk Report*, which reports the likelihood of risks to humanity, 4 of the top 5 risks were climate or environment-related, specifically extreme weather events, climate action failure, natural disasters, and human-made environmental disasters.[2] These risks, and the overall impacts of climate change, are higher for vulnerable systems with limited adaptive capacity and fall disproportionately on low- and middle-income countries (LMICs).[3]

Aside from the immediate impacts of the increasing frequency of weather- and water-related hazards, climate change has long-term development consequences for countries, particularly in

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[1] United Nations Sustainable Development Goals, [SDG 13](#)
[2] World Economic Forum, [The Global Risks Report 2021, 16th Edition](#)
[3] UN General Assembly, [Unprecedented Impacts of Climate Change Disproportionately Burdening Developing Countries](#)

the areas of health, food security, sustainable development, and economic stability. For instance, the Economic Commission for Africa (ECA) has said that the impacts of climate-related disasters and spending on climate change adaptation will reduce the GDP of African states by 15% on average.[4]

Without adequate open data to properly inform decisions, efforts to respond to climate change will fall short of their potential. While climate change is quite well understood in terms of broad global average numbers, much less is currently known about the expected specific impacts at local levels. In many parts of the world, lack of adequate observations is one of the main reasons for this. It is impossible to adapt to what cannot be predicted, and what is not adequately observed cannot be predicted. For this reason, the Digital Public Goods Alliance supports the World Meteorological Organization's call for a renewed commitment to free and unrestricted exchange of weather, climate, and hydrological data and specifies that this should include more openly licensed datasets aligned with the Digital Public Goods Standard.[5]

# Challenges to achieving this call to action

Access to data is imperative for scientists and policymakers working to understand the severity of the global weather and climate change. Growing availability of information and communication technologies, networks, and services has generated new opportunities to exchange and share vital information and data needed to analyse critical developments. Ensuring open access to data, which can equip countries and regions with the information and tools needed to identify and prioritise action, is paramount.

Implementing the Paris Agreement and achieving the United Nations Sustainable Development Goals (SDGs) will require sustained and unrestricted access to meteorological and hydrological data for innovation, research, operations, and for assessment purposes. Highlighted by the WMO Unified Data Policy Resolution, and the accompanying Global Basic Observing Network (GBON), due to the global nature of weather, climate, and hydrological impacts, observational data from all regions of the world should be made more openly available. Currently, this is far from reality, especially in data-sparse regions. In parallel, data must be exchanged freely for use by global and regional numerical model centres that all weather, climate, and hydrological services are based on. Model outputs generated by national services should be made available to all countries on a free, unrestricted basis without delay.

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[4] Vera Songwe, Septième session du Forum régional africain sur le développement durable
[5] Digital Public Goods Alliance, *DPG Standard*

Additionally, records of hazardous events, as envisaged under the WMO Cataloguing Initiative should be made openly available as DPGs to allow a better connection with loss and damage accounting, thus enabling improved impact-based early warning services development.

These are not new concepts, however there are several barriers and challenges to reaching these objectives, some of which include:

1. Awareness: A lack of awareness of the critical role that data can play to inform policies and actions for climate change adaptation. More awareness of this is needed in order to increase data availability and exchange in addition to adopting data standards needed to harness its potential impact.
2. Resources: There is a shortfall of financial and technical resources needed in order to adequately collect, store and distribute data, especially for low and middle-income countries. In particular, there is a need to ensure access to data and products, especially early warning information in the "last mile", where vulnerabilities to climate variability and change are highest and access to weather, water and climate information is lowest. The growing recognition that meteorological data can have economic value has made unrestricted data distribution even more challenging. The need to recoup the high upfront investments required for data collection often necessitates proprietary licensing of the data, which limits access and re-use.
3. Policies and Practises: Often national data policies and practises hinder or even prohibit the free distribution of national data.

Collectively these challenges are major barriers and have massive implications on the ability of policy-makers and other decision-makers to access the data they need to make informed decisions. For instance, 68% of the 93 environmental SDG indicators cannot yet even be measured or evaluated because of a lack of data.[6]

## Weather, climate, and hydrological information should be made available as digital public goods

As countries increasingly implement policies for climate change mitigation and adaptation, universal access to high-quality data will be crucial to understanding risks and enabling action. Just as effective climate policies are driven by quality data, so too are the digital weather, climate, and hydrological services that can help climate change adaptation efforts. A commitment to making datasets digital public goods is needed. And, this must reach beyond raw datasets alone to include processed sets that have been interpreted in a fair and equitable manner.

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[6] United Nations Environment Programme, *Measuring Progress: Towards Achieving the Environmental Dimensions of the SDGs*

It is also important that data be converted into tailored products that support specific high-priority decisions, and open access should be accompanied by robust capacity development efforts to ensure that the information leads to improved decisions, outcomes, and socioeconomic benefits.

In particular, all information and products related to the safety of people and property such as public warnings should be made freely available without delay in order to maximise anticipatory action ahead of hazardous events. The approved development of the WMO Global Multi-Hazard Alert System (GMAS) framework will necessarily benefit from such an approach.

The Digital Public Goods Alliance (DPGA) is a multi-stakeholder initiative with a mission to accelerate the attainment of the sustainable development goals in low- and middle-income countries by facilitating the discovery, development, use of, and investment in digital public goods. Digital public goods (DPGs) are defined as: "open-source software, open data, open AI models, open standards and open content that adhere to privacy and other applicable laws and best practises, do no harm, and help attain the Sustainable Development Goals."[7] The DPGA believes that digital public goods are vital for addressing critical development needs — including those related to climate change — because of their potential to scale quickly and meet diverse needs.[8] In the context of climate change adaptation, DPGs can be a powerful force for good as their open nature facilitates the easy integration of new information and data to advance knowledge and enable decision making.

Open data, a subset of DPGs, can be defined as data that is available to others and can be freely used, re-used, re-published, and redistributed by anyone.[9] Quality open data should be in alignment with the FAIR principles and include essential information such as metadata documentation, licensing, and collection methods in addition to making potential users aware of possible biases, confidence levels, and use-constraints. The implementation of standards for data can be one solution to this issue and ensure it is in usable formats.

## Highlighting digital public goods for climate change adaptation

Open data digital public goods already exist and have been applied by a variety of public and private sector stakeholders. The following examples of digital public goods highlight how open datasets can power open-source technologies. These technologies equip decision-makers with information needed to act and support climate change adaptation directly in addition to other relevant issues such as food security, agriculture, and disaster risk reduction. For more

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[7] United Nations, *UN Secretary General's Roadmap for Digital Cooperation*
[8] Go Fair, *FAIR Principles*
[9] The International Organization for Standardization (ISO), *ISO 5127*

information about these DPGs including licensing, documentation, and website, please see the appendix.

- **MET Norway Weather API** is a DPG that generates data and provides an interface to openly licensed world weather data produced by the Norwegian Meteorological Institute, also known as MET Norway. By providing free digital access to high-quality, reliable, and user-friendly 10-day weather forecast data for any geolocation in the world, MET Norway enables an ecosystem of related digital public goods that leverage this information to address climate change adaptation, including many of the following solutions.

- **FAO Hand-in-Hand Geospatial Platform** is a DPG making a wide-range of federated climate data available, as well as data on land and water use. The platform has brought together over 20 Food and Agriculture Organization (FAO) units across multiple domains, from animal health to trade and markets, and integrates data from across FAO on soil, land, water, climate, fisheries, livestock, crops, forestry, trade, social and economics, etc. Data has been sourced from FAO partners and public data providers across the UN, NGOs, private sector actors, and space agencies. To date, millions of geospatial layers and thousands of statistics series with 4000 metadata records have been assembled enabling a wide variety of technical innovations.

- **VIPS** is a DPG and an online forecast and information service that uses weather and climate information provided by MET Norway to deliver a tool for decision support in the integrated management of pests, diseases, and weeds. By using VIPS as the common technological platform, researchers and developers save time and resources when developing and implementing pest prediction models.

- **FAO Weather and Crop Calendar** is a DPG that leverages MET Norway's weather data to provide weather forecasts and local crop calendars to small-scale farmers to promote local crop production. Combining reliable weather forecasts with an alert system allows users to adjust their schedule and production activities based on meteorological data. It contains information on planting, sowing, and harvesting periods for more than 130 crops, located in 283 agro-ecological zones of 44 countries and supports farmers and agriculture extensionists across the world in taking appropriate decisions on crops and their sowing period. This tool also enables emergency planning and rehabilitation of farming systems after disasters.

- **Water Productivity Portal (WaPOR)** is an open-content DPG developed by FAO as a publicly accessible near real-time database that utilises openly available satellite data to monitor agricultural water productivity. WaPOR can be a positive tool for understanding water productivity gaps, proposing solutions to reduce these gaps and contributing to a sustainable increase of agricultural production. WaPOR opens the door for service-providers to assist farmers in obtaining more reliable yields and improving their

livelihoods. At the same time, irrigation authorities have access to information to modernise their irrigation schemes and government agencies are able to use this information to promote and increase the efficient use of their natural resources.

- The Platform for Real-time Impact and Situation Monitoring (PRISM) is a DPG that assesses the potential risk and impact of extreme weather events on the most vulnerable communities in order to design risk reduction activities and target disaster responses. PRISM combines information from satellites and other remote sensing sources including data from national meteorological institutions with dynamic data on vulnerability to create actionable climate information for decision-makers, allowing them to prioritise assistance to those most in need.

- Climate Information Platform (CIP) - Created by the Swedish Meteorological & Hydrological Institute, this platform is a collection of openly licensed datasets and content DPGs that provides climate scientists with easy access to pre-calculated climate indicators of weather and water in the past, present and future, for better planning of climate adaptation and mitigation activities.

- Open Foris Collect - is an open-source software DPG that facilitates environmental monitoring, paving the way for improved climate change mitigation plans. By creating an entry point for data collected in field-based inventories, it provides a fast, easy, flexible way to set up a survey with a user-friendly interface. Collect handles multiple data types and complex validation rules, in a multilingual environment. Free open-source solutions for environmental monitoring.

These DPGs were identified by the Climate Change Adaptation Community of Practice convened by the DPGA. Communities of practice are comprised of industry experts with years of experience dedicated to better understanding and addressing sector-specific development challenges. This list showcases DPGs using open datasets and are relevant to climate change adaptation efforts. If aware of other openly licensed datasets, software solutions, or open-content collections relevant to climate change adaptation, the DPGA welcomes new nominations here.

## Recommendations for achieving this call to action together

Weather, climate, and hydrological data are most valuable to climate change adaptation efforts when accessible and shared. Ensuring access to open data digital public goods is critical to powering the digital solutions countries and individuals require to respond to climate change as it can help countries access more accurate climate predictions and timely warnings of

adverse weather, climate, and hydrological high-impact events. Without these, efforts to respond to climate change will fall short.

To ensure that data is a force for good in climate change adaptation efforts, it is critical that global communities rally together and chart a new path forward. Below are steps towards making this a reality:

1. **Make commitments to open access:** Organisations that collect and process data must lead by example by providing and encouraging open and free access to data. For example, WMO has begun establishing the Global Basic Observing Network[10] which outlines the obligations WMO Members have to implement a minimal set of surface-based observing stations that will exchange data at the global level in defined formats. The final regulatory provisions were approved by 193 Member States and Territories in October 2021 and will come into effect on 1 January 2023. The economic impact of achieving this is estimated to amount to more than 5 billion USD/year based on improvements in weather prediction alone, without attempting to assign value to lives saved.

2. **Encourage inclusive private and public sharing:** Adequate climate change adaptation is only possible with strong availability of the data required to spur action from the public and private sectors. It is widely recognised that there is a rapid growth of data produced throughout the private sector and that growth should be encouraged through more free and open data sharing. The private sector should take proactive roles in producing and contributing to digital public goods. With that, there are opportunities for businesses to both contribute to and benefit from sharing data. An open and inclusive approach can stimulate entrepreneurship, innovation, and productive competition. For example, TomorrowNow.org is designing multi-stakeholder collaborations that aim to produce channels for new and innovative private sector weather intelligence data and tools where outputs will be digital public goods. Furthermore, the role of governments should not end with data sharing and safeguarding open data policy. Governments should engage with civil society, private sector organisations, and other stakeholders to provide data in interoperable formats as digital public goods that can be easily reused. When governments and private entities work collaboratively, the outputs can yield massive benefits for humanity. For example, incorporating National Meteorological and Hydrological Services data and those from privately organised observation networks into the Global Basic Observing Network.

3. **Increase public sector support and funding:** Ensuring that quality datasets are generated and shared is contingent on strong public sector support, and where it is lacking, progress can be inhibited. Governments must fulfill international commitments, including funding, to ensure long-term sustainability of international infrastructure integral to the exchange of data. This will require governmental coordination with all

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[10] World Meteorological Organization (WMO), *GBON - Global Basic Observing Network*

sectors including private, public, civil society, and investment.  Doing so can help avoid fragmentation and duplication while harnessing the cooperation and ongoing dialogue needed to address climate change. For example, the Systematic Observations Financing Facility (SOFF)[11] is a UN multi-partner trust fund financed by multiple European governments that will address missing weather and climate observations in least developed countries and small island developing states. Its establishment is a positive example of the power of public sector support and funding; however, more must be done, including the exploration and utilisation of models for inclusive and goal-oriented execution of public funding, through the Global Framework for Climate Services.[12]

4.  Developing standards and best practices for open data: The use of standards helps to ensure datasets can be widely and easily used in addition to making them more accessible for a broader set of users with different levels of expertise and technology. For a data set to be considered a digital public good the DPG Standard requires the use of an Open Data Commons approved license, documentation that describes all the fields, how the data was collected, and how it should be interpreted. DPG datasets must also outline the steps taken to ensure privacy and prevention of security-related issues. Another principle referenced in this report are the FAIR principles, which provide guidelines to improve the findability, accessibility, interoperability, and reusability of digital solutions. These principles emphasise machine-actionability (i.e., the capacity of computational systems to find, access, interoperate, and reuse data with none or minimal human intervention). This is important because humans increasingly rely on computational support to deal with data since the volume, complexity, and creation speed of data have all increased exponentially. Use case specific standards are also beneficial. For example, the ITU-T Study Group 20 "the Internet of Things and smart cities and communities" has developed authentic smart city standards tailored to facilitate open data in city environments. The resulting recommendation ITU-T Y.4461 "Framework of open data in smart cities" describes a practical framework for implementing open data in smart cities. It defines the key phases of its implementation, the key roles and activities for different stakeholders and other general requirements for open data.[13] Together the DPG Standard, FAIR principles, and ITU-T smart city standards enable cities and other relevant stakeholders to take valuable steps towards adopting standardised open data. Another example lies with  ITU-T Recommendation X.1303 on the Common Alerting Protocol (CAP), a critical standard for exchanging all-hazard emergency alerts and public warnings over different networks, which ITU, IFRC and WMO called to implement in April 2021.

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[11] IISD - SDG Knowledge Hub, *Financing Facility to Support LDCs and SIDS on Climate Observations*
[12] World Meteorological Organization (WMO), *Global Framework for Climate Services*
[13] International Telecommunication Union, *Y.4461 : Framework of open data in smart cities*

# APPENDIX

## 1. MET Norway

URL       https://www.met.no
License     Creative Commons Attribution 4.0 International

Assessment summarised in the table below is extracted from the DPG Registry:

| Indicators | Requirement | Response | Details & References |
|---|---|---|---|
| SDGs relevance | **Relevant to at least one SDG** | Yes | SDGs 2,3,9,1315,17 |
| Open source | **Use of approved license** | Y | Creative Commons attribution 4.0 International https://developer.yr.no/doc/License/ |
| | **Clear ownership** | Y | https://api.met.no/doc/License, https://developer.yr.no/doc/License/ |
| | **Platform independence** | Y | No platform dependencies |
| | **Technical and operational documentation** | Y | https://developer.yr.no/ https://api.met.no/weatherapi/locationforecast/2.0/documentation |
| | **Mechanism for extracting non-PII data** | Y | Project is Open data, data extracted via OpenAPI Specified REST Web Services in GeoJSON format |
| Adherence to laws, standards & best practice | **Adherence to applicable laws** | Y | GDPR and with relevant local laws where applicable |
| | **Adherence to applicable standards and best practises** | Y | Standards - HTTP, GeoJSON, OpenAPI2, WCAG Best Practises- https://digitalprinciples.org/ |
| Steps taken to mitigate & avoid harm in product design | **Data privacy and security** | Y | PII collected is IP address which is not shared |
| | **Inappropriate and illegal content** | N/A | Does not store or distribute content |
| | **Protection from harassment** | N/A | No interaction between users |

## 2. FAO Hand-in-Hand Geospatial Platform

URL       http://www.fao.org/hih-geospatial-platform/en/
License     CC-BY-NC-SA-3.0

Assessment summarised in the table below is extracted from the DPG Registry:

| Indicators | Requirement | Response | Details & References |
|---|---|---|---|
| SDGs relevance | **Relevant to at least one SDG** | Yes | SDGs1,2,5,9,17, |
| Open source | **Use of approved license** | Y | Creative Commons Attribution Non Commercial Share Alike 3.0 Unported https://www.fao.org/3/ca7570en/ca7570en.pdf |
| | **Clear ownership** | Y | https://www.fao.org/hih-geospatial-platform/en/ |
| | **Platform independence** | Y | No platform dependencies |
| | **Technical and operational documentation** | Y | https://www.fao.org/hih-geospatial-platform/en/ |
| | **Mechanism for extracting non-PII data** | N/A | Does not extract non-PII |
| Adherence to laws, standards & best practice | **Adherence to applicable laws** | Y | Privacy policy for use of FAO Applications: http://www.fao.org/contact-us/privacy-policy/en/ |
| | **Adherence to applicable standards and best practices** | Y | Standards - HTTPS Best Practises- Principles for Digital Development, Human Centred Design Principles |
| Steps taken to mitigate & avoid harm in product design | **Data privacy and security** | N/A | Does not collect or store PII http://www.fao.org/contact-us/privacy-policy/en/ |
| | **Inappropriate and illegal content** | N/A | Does not store or distribute content |
| | **Protection from harassment** | N/A | No interaction between users |

## 3. VIPS

URL                          https://nibio.no/en/services/vips
Repository                   https://gitlab.nibio.no/VIPS
License                      GNU Affero General Public License version 3

Assessment summarised in the table below is extracted from the DPG Registry:

| Indicators | Requirement | Response | Details & References |
|---|---|---|---|
| SDGs | **Relevant to at least one** | Yes | SDGs 2,13,15 |

| | | | |
|---|---|---|---|
| relevance | **SDG** | | |
| Open source | **Use of approved license** | Y | https://gitlab.nibio.no/VIPS |
| | **Clear ownership** | Y | https://nibio.no/en/services/vips |
| | **Platform independence** | Y | No platform dependencies |
| | **Technical and operational documentation** | Y | https://gitlab.nibio.no/VIPS/documentation |
| | **Mechanism for extracting non-PII data** | Y | REST |
| Adherence to laws, standards & best practice | **Adherence to applicable laws** | Y | GDPR |
| | **Adherence to applicable standards and best practices** | Y | Standards - HTTPS, HTML5, CSS, JSON, Rest, AJAX, Java EE Compliant, i10n, i18n Best Practises- https://digitalprinciples.org/ |
| Steps taken to mitigate & avoid harm in product design | **Data privacy and security** | Y | Access to PII requires valid login. Servers are in-house |
| | **Inappropriate and illegal content** | N/A | |
| | **Protection from harassment** | N/A | |

## 4. FAO Weather and Crop Calendar

URL                    https://digital.apps.fao.org/weather

License             Creative Commons Attribution Non Commercial Share Alike 3.0 Unported

Assessment summarised in the table below is extracted from the DPG Registry:

| Indicators | Requirement | Response | Details & References |
|---|---|---|---|
| SDGs relevance | **Relevant to at least one SDG** | Yes | SDGs 1,5,9,10,17 |
| Open source | **Use of approved license** | Y | Creative Commons Attribution Non Commercial Share Alike 3.0 Unported |
| | **Clear ownership** | Y | http://www.fao.org/digital-agriculture/digital-portfolio/en/ |
| | **Platform independence** | Y | No platform dependencies |
| | **Technical and operational documentation** | Y | https://digital.apps.fao.org/weather |
| | **Mechanism for extracting non-PII data** | N/A | N/A |
| Adherence | **Adherence to applicable** | Y | http://www.fao.org/contact-us/privacy-policy |

| | laws | | /en/<br>Privacy policy for use of FAO Applications: |
|---|---|---|---|
| to laws,<br>standards &<br>best<br>practice | **Adherence to applicable<br>standards and best<br>practices** | Y | Standards - REST API, JSON, HTTPS<br>Best Practises: Principles for Digital<br>Development, Human Centred Design<br>Principles, Progressive Web App |
| Steps taken<br>to mitigate<br>& avoid<br>harm in<br>product<br>design | **Data privacy and<br>security** | Y | |
| | **Inappropriate and<br>illegal content** | N/A | |
| | **Protection from<br>harassment** | N/A | |

## 5. Water Productivity Portal (WaPOR)

URL          https://wapor.apps.fao.org/home/WAPOR_2/1
License       Creative Commons Attribution Non Commercial Share Alike 3.0 Unported

Assessment summarised in the table below is extracted from the DPG Registry:

| Indicators | Requirement | Response | Details & References |
|---|---|---|---|
| SDGs<br>relevance | **Relevant to at least one<br>SDG** | Yes | SDGs 2,6,12,13,17 |
| Open<br>source | **Use of approved license** | Y | Creative Commons Attribution Non<br>Commercial Share Alike 3.0 Unported |
| | **Clear ownership** | Y | https://www.fao.org/in-action/remote-sensing-for-water-productivity/en/ |
| | **Platform independence** | Y | No platform dependencies |
| | **Technical and<br>operational<br>documentation** | Y | https://www.fao.org/land-water/databases-and-software/wapor/en/ |
| | **Mechanism for<br>extracting non-PII data** | N/A | Does not collect or use non-PII |
| Adherence<br>to laws,<br>standards &<br>best<br>practice | **Adherence to applicable<br>laws** | Y | http://www.fao.org/contact-us/privacy-policy/en/<br>Privacy policy for use of FAO Applications: |
| | **Adherence to applicable<br>standards and best<br>practices** | Y | Standards - Open Geospatial Consortium<br>Best Practices: Principles for Digital<br>Development, Human Centred Design<br>Principles |
| Steps taken<br>to mitigate<br>& avoid<br>harm in<br>product<br>design | **Data privacy and<br>security** | N/A | Does not collect or store PII |
| | **Inappropriate and<br>illegal content** | N/A | |

| | Protection from harassment | N/A | |
|---|---|---|---|

## 6. PRISM

URL                  https://innovation.wfp.org/project/prism
License           MIT License

Assessment summarised in the table below is extracted from the DPG Registry:

| Indicators | Requirement | Response | Details & References |
|---|---|---|---|
| SDGs relevance | Relevant to at least one SDG | Yes | SDGs 1,2,11,13 |
| Open source | Use of approved license | Y | MIT License |
| | Clear ownership | Y | https://wfp-vam.github.io/prism-frontend/about-prism/ |
| | Platform independence | Y | PRISM was originally developed with Mapbox GL JS version 1.x which is fully open source. Mapbox announced that version 2.x would no longer fall under an open source license. PRISM continues to utilise Mapbox 1.x. MapLibre GL is an open source alterative to Mapbox GL JS. Users of the PRISM system may replace Mapbox with MapLibre. WFP is investigating the details of this transition and plans to have the master branch on GitHub shift to MapLibre at a future date TBD. |
| | Technical and operational documentation | Y | https://github.com/WFP-VAM/prism-frontend |
| | Mechanism for extracting non-PII data | Y | N/A |
| Adherence to laws, standards & best practice | Adherence to applicable laws | Y | GDPR |
| | Adherence to applicable standards and best practises | Y | Web Map Service (WMS) / Web Coverage Service (WCS) / Web Feature Service (WFS) GeoJSON / JSON REST API |
| Steps taken to mitigate & avoid harm in product design | Data privacy and security | Y | N/A |
| | Inappropriate and illegal content | N/A | N/A |
| | Protection from harassment | N/A | N/A |

## 7. Climate Information Platform (CIP)

URL                  https://climateinformation.org/

License           Creative Commons Attribution 4.0 International

Assessment summarised in the table below is extracted from the DPG Registry:

| Indicators | Requirement | Response | Details & References |
|---|---|---|---|
| SDGs relevance | Relevant to at least one SDG | Yes | SDGs 1,2,3,6,7,9,11,12,13,15,17 |
| Open source | Use of approved license | Y | Creative Commons attribution 4.0 International (as indicated on webpage) |
| | Clear ownership | Y | https://climateinformation.org/ |
| | Platform independence | N | No platform dependencies |
| | Technical and operational documentation | Y | Data Access Platform<br>Site Specific Report<br>KnowledgeBase |
| | Mechanism for extracting non-PII data | Y | Download of maps and graphs are possible in PNG-format. Metadata can also be downloaded in excel format |
| Adherence to laws, standards & best practice | Adherence to applicable laws | Y | GDPR |
| | Adherence to applicable standards and best practises | Y | WCAG<br>PNG format<br>Accessibility Statement |
| Steps taken to mitigate & avoid harm in product design | Data privacy and security | Y | The only personal data we collect from users is what they add in the contact form. This form is based on the plugin WPForms (wordpress) that sends an e-mail to SMHI. E-mails that go to SMHI are handled according to SMHI´s management of personal data.<br>Data that stored for distribution is climate indicators. This is open data that is stored at SMHI and is distributed through SMHI web applications (Data Access Platform and Site-Specific report). |
| | Inappropriate and illegal content | N/A | Does not store or distribute content |
| | Protection from harassment | N/A | No interaction between users |

## 8. Open Foris Collect

URL            https://openforis.org/tools/collect/
License        MIT License

Assessment summarised in the table below is extracted from the DPG Registry:

| Indicators | Requirement | Response | Details & References |
|---|---|---|---|
| SDGs relevance | **Relevant to at least one SDG** | Yes | SDGs 2,13,15 |
| Open source | **Use of approved license** | Y | MIT License |
| | **Clear ownership** | Y | https://github.com/openforis/collect/blob/master/LICENSE.TXT |
| | **Platform independence** | N | No platform dependencies |
| | **Technical and operational documentation** | Y | Developer's guide<br>User's manual<br>Metadata |
| | **Mechanism for extracting non-PII data** | Y | N/A |
| Adherence to laws, standards & best practice | **Adherence to applicable laws** | Y | N/A |
| | **Adherence to applicable standards and best practises** | Y | Security - HTTPS (Ready/depends on the environment where Collect is installed)<br><br>Internationalization (i18n) - UTF-8<br><br>Web standards - HTML, CSS, JavaScript (ECMAScript)<br><br>Software Architectural Styles - REST (Representational State Transfer)<br><br>Data Exchange formats - JSON (JavaScript Object Notation), XML (Extensible Markup Language), CSV (Comma Separated Values)<br><br>Multimedia - PNG (Portable Network Graphics), JPEG (Joint Photographic Experts Group), Ogg MP3 (Moving Picture Experts Group: Audio Layer III), FLAC (Free Lossless Audio Codec), H.264 (H.264/MPEG-4 AVC), AAC (Advanced Audio Coding), MP4 (MPEG-4 Part 14) |
| Steps taken to mitigate & avoid | **Data privacy and security** | Y | The data collected is stored in a database that is the responsibility of the user that installs Collect. |

| harm in product design | | | Collect uses a user-management procedure to assign passwords as well as user groups to access specific segments of the data. |
|---|---|---|---|
| | **Inappropriate and illegal content** | N/A | Does not store or distribute content |
| | **Protection from harassment** | N/A | No interaction between users |