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MAP Data Policy - Implications for the Contracting Parties

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MAP Data policy - Implications for the Contracting Parties

The present document aims at providing a brief overview on the main objectives and implications of the approved MAP Data Policy.

The MAP Data Policy was adopted by the Decision IG.25/10 (UNEP/MED IG.25/27) as approved during the 22nd Meeting of the Contracting Parties to the Barcelona Convention held in Antalya in December 2021, with the general aim to achieve a base level of interoperability by means of establishment of principles, objectives and instruments for each data flow belonging to the MAP.

The decision IG.25/10 is about:

1. The adoption of the UNEP/MAP Data Policy as set out in Annex I.
2. Requesting INFO/RAC to provide the necessary technical support to Contracting Parties and to address any needs identified to fully implement the UNEP/MAP Data Policy.
3. Call upon the Contracting Parties to take effective measures to implement the UNEP/MAP Data Policy.

The data policy takes in consideration two main actors:

- INFO/RAC, to which is demanded the technical support to Contracting Parties for the Data Policy application (by means, for example, of bilateral meetings, trainings and so on) and the set-up of an efficient technological infrastructure supporting the process.
- The Contracting Parties, which are called to implement data policy with the help of INFO/RAC by means of, for example, data preparation to be ingested in IMAP Info System, geodatabases harmonization to be correctly linked by InfoMAPNode, standardize data in order to achieve interoperability of systems.

The **aims** of the data policy are multiple and can be differentiated into four groups in reason of their object:

1. The qualities envisaged for the elements. The data policy promotes the soon availability of latest version of dataset and maintenance of long-term data series; quality assurance and quality control procedures on data; the protection of the integrity, transparency, and traceability of environmental data.
2. The undergoing constraints. The data policy aims to meet relevant national legislation and recognize intellectual property rights in data sharing.
3. The principles behind the policy. The data policy enables interoperability and the use of standards; full free and open access to MAP data; re-use of data from different sources; implementation of INSPIRE, SEIS, Copernicus and GEOSS principles.
4. The elements involved. The data policy aims to support research data stewardship, publication of metadata and the use of crowd-source data such as the ones coming from citizen science actions.

Principles behind prescriptions

Principles guiding the data policy are various and inspired by broader principles promoted by international organizations such as GEOSS (Group on Earth Observation System of Systems), INSPIRE (Infrastructure for Standard Information in Europe), SEIS (Shared Environmental Information System) and Copernicus. The data policy adapts these broader principles to the specific case of UNEP-MAP and translates them into objectives (Group 4).

A general principle underlying all the others is: "*data should be managed as close as possible to its source, collected once, shared with others, readily available to fulfil UNEP-MAP mandate*".

In this sentence some implications are present:

- Avoid data to be duplicated, promote a FAIR (Findable, Accessible, Interoperable, Reusable) data management.
- Promote the use of interoperable services and tools. Where available, it is fair to exploit others' work.
- Promote a mindset shift from data ownership to data stewardship ("data is a public good, I understand its usefulness for everyone, I will do anything I can to promote progress").

Aside of this general principle and its implications, which are fundamental for data management, pursuing the Interoperability it is also of primary importance.

Interoperability means to the final user that any piece of information can be shared among multiple actors with the same quality level (quality of instruments, quality of information, quality of elaboration). To achieve this, the one-way road is by means of standards: universally recognized rules to share information (protocols). An easy example is the http protocol.

Another relevant principle is the **Open Access**. Data must be as open as possible, respecting the constraints imposed by local legislation, sensitivity of data, and copyrights. Widening the horizon, Open Access also means to favor the possibility of more Countries to access knowledge. Moreover, it also underlies the principle that the fallout of data collected by means of public funds should be available for the wide public.

To formalize Open Access, Open Data licenses must be applied to data. Among all the possibilities, UNEP-MAP chose to consider the Creative Commons licenses for its data. It must be noted that, differently from the common concept of "licenses" (usually interdicting users to act in some ways), Creative Commons licenses do not focus on what user cannot do with data, but on rights reversed from the author (copyright owner) to the user. It regulates, therefore, the possibilities opened for the user with that specific license, and this mindshift is at the base of the Creative Commons initiative. While there is a variety of possible licenses for data, from absence of copyright (in green, Figure 1) to presence of copyright (in red, Figure 1) there are many nuances: the possibility to share data by attributing the author (CC-BY license), by sharing data with the same license of the original data (CC-BY-SA license), by allowing (or not) their economic exploitation (CC-BY-NC license), by recombining original data (CC-BY-ND license) we can say that (for the definition of open data) open data licenses are only 2: CC-0 and creative commons attribution. While this Data Policy encourages the use by default of CC-BY license, for eventually sensitive data other, more restrictive licenses could be used.

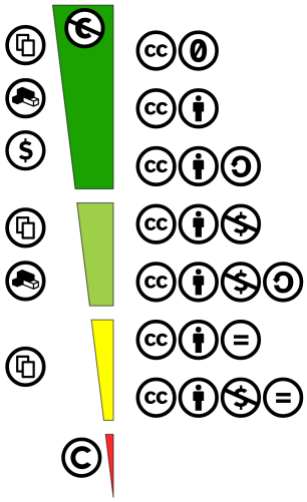

Figure 1 - Creative commons licenses regulating users' permissions between the two extremes: absence of copyright (green) and presence of copyright (closed access data, red).

The following Table 1 complements Figure 1 giving a complete explanation of license, meaning, what can be and cannot be done with data, and if the license is classifiable as open data compliant or not.

Symbol	Name	Meaning	What can be done	Open Data?
	CC-0	With this license the data owner waives any right on data, included the one to be recognized as the author	Make a copy of data, recombine them, use for commercial purposes	Y
	CC-BY	With this license data owner is acknowledged when data is used for any purpose		Y
	CC-BY-SA	With this license data owner is acknowledged when data is used, and the user is obliged to use the same license if data is shared		Y
	CC-BY-NC	With this license data owner is acknowledged, but data can be used only for non-commercial purposes	Make a copy of data, recombine them	N
	CC-BY-NC-SA	With this license data owner is acknowledged, data can be used only for non-commercial purposes, and the user is obliged to use the same license if data is shared		N
	CC-BY-ND	With this license data owner is acknowledged, but data cannot be used (analyzed, integrated, recombined) to create new products	Make a copy of data	N
	CC-BY-NC-ND	With this license data owner is acknowledged, but data cannot be used (analyzed, integrated, recombined) to create new products, and data can be used only for non-commercial purposes		N

Table 1 – Complete explanation of Creative Commons licenses.

The last, relevant, principle examined is the promotion of **reuse of data**. Since one of the aims is to avoid duplication of efforts, data must be enabled to be reused, exploited, and recombined from different sources to different frameworks and media.

Reuse of data, metadata and infrastructure, can be possible only if:

- meta(data) are richly described with a plurality of accurate and relevant attributes
- (meta)data are released with a clear and accessible data usage license
- (meta)data are associated with detailed provenance
- (meta)data meet domain-relevant community standards

The implication for the reuse of provenance is clear: knowing the origin of a data, it is possible to contact the owner/contact person or responsible of data wherever concerns (such as bugs, or errors) on data might be present. This highly increases the possibility for the data to be reused.

Also, the presence of relevant attributes augments the possibility for data to be reused: choosing attributes codified in vocabularies or standards highly increases data value by making them more understandable and desirable for the final user.

Implications for Contracting Parties

Two main groups of concrete implications for Contracting Parties have been identified.

The first group collects implications applying generically to all the data, the second group focuses on the implications applying only to restricted data. All the implications (generic and particular) must be taken in consideration from the Countries whenever data are being shared and eventual constraints on data must be verified BEFORE taking any measure for data sharing.

Common implications for all the data:

- If there are adequate competencies, data must be handled as close as possible to its source, following the principle to do not duplicate data.
- Spatial data must be in standard format (ISO, OGC and INSPIRE) to be available via an interoperable infrastructure for spatial information.
- Data shall be made available with the minimum time delay at no cost.
- If data has a unique identifier (URI or DOI, for example) this must be cited when providing or declaring data.
- Data should be given with location (or Latitude/Longitude coordinates) whenever possible for environmental data.

Particular implications for sensitive data:

- In case of data owned by the Contracting Parties or third parties, eventual barriers or limitations to data sharing must be verified to assess their compliance with the data policy

before any action is pursued on data. Also, intellectual property rights, use or reuse conditions, confidentiality, and data quality statement must be verified.

In particular, restrictions to put attention on are:

- Binding rules
- International treaties
- National legislation
- Personal data (protection of)
- Statistical confidentiality
- Protection of intellectual property rights
- Protection of national security
- Defense
- Public security
- Embargo

Requested restrictions must be demonstrated with specific references. Reasons for closing data can be related mainly to four different natures:

1. Legal – in this case there are laws (national or international) that regulates the use of data. This case also includes all the above-mentioned reasons of defense, public security, intellectual property.
2. Privacy – this case refers to the possible leak of personal data, so data related in some ways to GDPR regulations.
3. Research – this case refers to data involved in research activities currently under development or publication.
4. Conservation – this case refers to data involving for example endangered species, where position of data could be harmful to species themselves (an example could be the exact position of migratory birds).

While some of these data are not sharable at all (data dealing with defense or national security, for example), some of them can be partially opened under specific conditions related both to license and to data manipulation.

For example, in most of the “Conservation” cases (point 4) position of data is crucial to define their “sensitive” nature. A possible solution to data closing could be the blurring of data with respect to its position or the spatial aggregation that makes data refer not to a specific point but (for example) to a region or a Country.

In these cases, where data could be partly opened, a special management plan must be arranged among data owner (for example the Contracting Party), provider (for example the thematic RAC) and data sharer (for example INFO/RAC).

In any case, if data is “restricted” or strategic for the Contracting Parties, it will not be opened to the large public, but it will be shared only among appropriate (authorized) users.

When necessary, confidential, or sensitive data could be reclassified or aggregated by cooperating with INFO/RAC in order to at least partially open the dataset.

If data is matter of scientific publication or it is involved in consortium contract or patent registration, it could be subjected to embargo. To formalize the embargo (which should not last less than 24 months, ideally) the partner must motivate the request (for embargo) and the duration of the embargo duration should be explicitly stated in the metadata.

Conclusions

In conclusion, when data is produced and shared within the MAP system, a set of data policy rules should be considered. These rules are established in the wider context of a set of principles that push towards Open Access, interoperability, and FAIR data management.

In general, as data is a public good, the fallout from data collection should be on the entire community so data should be “as open as possible, as closed as necessary”.

If, for any reason, data must be shared under some restrictive conditions, it is necessary both to verify if these necessities really exist and to choose, together with specialized personnel, the right and more appropriate restriction for that data. Possible aggregation or reclassification of sensitive data could be also discussed among the data owner, the data provider, and INFO/RAC.