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**Agenda item 5: MAP Data Policy – Data flows Annexes**

**Data Policy Annex on National Baseline Budget (NBB) data flow**

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**In charge of the study at INFO/RAC**

Lorenza Babbini, Director

Arthur Pasquale, Deputy Director

Francesca Catini, NBB officer

Annalisa Minelli, Knowledge Management & Digital Transformation officer

**Report prepared by:**

Lorenza Babbini, Francesca Catini, Annalisa Minelli, Arthur Pasquale

## Introduction

This document describes in details references and procedures tied to NBB data flux with respect to the adopted Data Policy (UNEP/MED IG.25/27, Decision IG.25/10). It could be considered as a guideline to fulfill reporting duties for Contracting Parties focusing on data flux structure, data types, access levels, data sources, data formats, data quality, data licenses, metadata, data sharing practices and restriction.

## Summary of data management aspects

### Brief description of the structure

National Baseline Budget (NBB) is an inventory of annual pollutant's loads released by all significant Land Based Sources at country level.

The architecture of the NBB is shown in the figure:

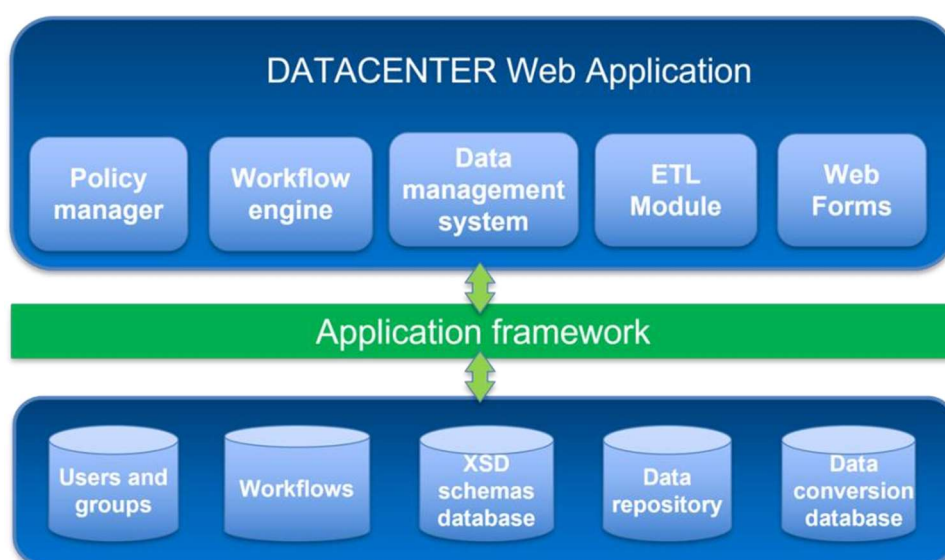


Figure 1: NBB architecture scheme

A brief description of the individual components of the architectural scheme follows:

*Policy manager*: it interacts with the users database (Info RAC LDAP), manages users permissions and profiles (e.g. Country reporter-Data provider, MAP FP, Processor, etc.);

*Workflow engine*: manages the life cycle of reported data from the initial submission step to the final publication step, passing through the validation, update and finalization steps;

*Data management system (DMS)*: main repository for data and reports delivered by the countries or CPs. It is organized with a folder structure for each country/CPs where the data or reports can be uploaded and available to others;

*ETL Module*: this module transforms data coming from XML deliveries, merges and transforms them into different formats (e.g. csv, excel files, mdb access, web services, etc.) and makes it available for the data dissemination and publication phase;

*Web Forms*: allow data reporters to deliver validated data in XML format using online, easy to use and friendly webforms. A standard web browser with JavaScript support is necessary.

The data are managed by INFO/RAC. NBB Info System has four access levels. INFO/RAC have access to all contents.

MAP components can access to public contents and can download the zip folder officially released by each CP and not yet published.

The Reporter of each CP can access, in addition to the public contents, to the specific section of the CP he/she belong to. Finally general public can access to all the data released to public by CPs.

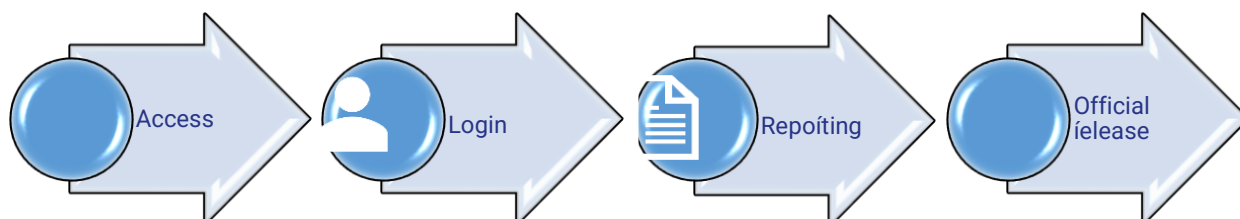


Figure 2: Reporting workflow

The workflow, which allows the Contracting Parties to submit the data related to national loads of pollutants discharged directly or indirectly into the Mediterranean Sea, starts accessing to NBB webpage from this url: <https://idc.info-rac.org/nbb>.

To access the reserved sections and proceeds entering data through the webform, login is required.

The workflow finishes when the Reporter (for each CP) officially releases the data. Only the files released to public are visible to all other CPs.

## Data types

NBB data types are basically three: the XML file as output of the reporting data in the webform, the HTML format for visualizing the data entered in the webform and the geographical part of the dataset. The geographical part is represented by the shapefiles of the Mediterranean Regions in which the loads of pollutants are discharged.

NBB data are then accompanied by corresponding and valuable metadata.

In reason of the adopted data policy also NBB data, once published, are normally exposed as Open Data (see paragraph about Data licenses for more details). Openness of the data depends on the access rights granted to the specific user. Before data are released to public, data is visible only to INFO/RAC (for management purposes), MEDPOL and MAP FPs at country level and the Contracting Parties users to which the data belong. Once the reporting workflow process is completed and data is published data can be downloaded for anyone.

Nevertheless, some data access is restricted for some different reasons (legal, privacy, research or conservation matters, basically). For these occurrences availability and openness of data will be evaluated in a case-by-case exchange between INFO/RAC and the data owner that will lead to the definition of specific restriction measures concerning data sharing.

## **Data management common practices among different access levels**

Every 5 years the Contracting Parties must submit a new NBB report on the assessment of pollutants' loads from land-based sources. The NBB Reporting System, developed by INFO/RAC in 2018, ensures availability of latest data and maintenance of long-term series, starting from the 5th reporting cycle (2019-2023). The scientific validity of the data is ensured by each CP.

### **Data collection**

National Baseline Budget reporting system is one of the data flows included in the Data Centre of the InfoMAP System to support the obligations of Barcelona Convention. It meets the obligations established by the LBS protocol, monitoring the trend, on a five-year basis, of the pollutant loads discharged into marine environment. The reporting cycles analyzed at national, sub-regional and regional river basin levels contribute to National Action Plans (NAPs) implementation evaluation.

### **Data sources**

NBB reporting system allows the Contracting Parties to submit the data related to national loads of pollutants discharged directly or indirectly into the Mediterranean Sea.

Amounts of pollutant releases to air and water, with reference to all point sources (industry and urban centers) irrespective of their capacity, must be reported. The data refers to administrative regions located in drainage basins that outflow into the Mediterranean. Pollutant loads include both measurement of emissions at source and estimation based on emission factors and rates of industrial activity, material flow, etc.

NBB reporting system cover all the pollutants evaluated as priority substances agreed by MEDPOL Focal points at their meeting held in Aix en Provence, France in November 2009 and listed in Annex II of Decision IG.21/3.

The NBB Reporting system allows to specify whether the CPs have just reported data into PRTR, avoiding duplication in reporting. In this case, the CPs will populate the NBB with information complementary to the PRTR.

The NBB reporting frequency is each 5 years but, the contracting parties which have a PRTR system are encouraged to use the same annual reporting frequency.

Validation of data uploaded by CPs will be done by National Focal Points.

### **Data formats and data quality**

NBB ensures the standardization of the data collected by the CPs through the use of a webform. The webform is consistent with the Guidelines on National Budget of Pollutants (NBB) (UNEP(DEPI)/MED WG.404/7 Annex IV, Appendix B).

The releases are reported at National Level, per sector of activity-> subsector-> process-> chemical releases. The sector categories (30) are established in Annex I.A of the LBS Protocol. Thus a number of subsectors (up to 97) are defined for each sector.

During the reporting activities the user can control the data already entered in the webform by choosing between XML (Original) or HTML format.

The data entered in NBB can be downloaded at any time during the reporting activities as a zipped envelope containing 5 files:

- README.txt: this file contains the documents included in the envelope;
- metadata.txt: this file contains the descriptive information about the envelope;
- history.txt: this file contains log of activities executed since the envelope creation until the moment of the download;
- xml file: the file containing the data entered in the NBB webform;
- feedbacks.html: it is now empty, because quality controls have not yet been implemented, but could be implemented in the future.

The National Focal Point of each CP guarantees the quality of transmitted data through the official release procedure.

### Data licenses

NBB According to the Data Policy, approved during the Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean (Barcelona Convention) and its Protocols at their 22nd Meeting (UNEP/MED IG.25/27, Decision IG.25/10), data must be as open as possible, respecting the constraints imposed by local legislation, sensitivity of data, and copyrights. For files “released to public” by the MAP Focal Points the principal Open Data license individuated by the policy is Creative Commons Attribution (CC-BY). Nevertheless, if data is originally shared by the data owner (which corresponds in most of the cases with data creator) with a less restrictive license (like CC-0 or Public Domain) it is necessary to transmit this license while data is shared following the workflow summarily described in Figure 3a (specific case of data owner coincident with the Country). Other, more restrictive, licenses are still available to use and correspond to specific access level of the users or sensitivity of data themselves. Figure 3b shows all the possible licenses from the open ones (bright green zone) to the classic copyright (in red), which denotes closed data. Given what is stated in the data policy, the usage of “out of bright green” licenses is regulated and it must be appropriately motivated in a participative process that involves data owner, eventual data provider (if any), and the subject responsible for data sharing (such as INFO/RAC). For more references on which cases represent an exception to the general open data rule see the UNEP/MED IG.25/27, Decision IG.25/10 (Data Policy) at Section 4, Article 36.

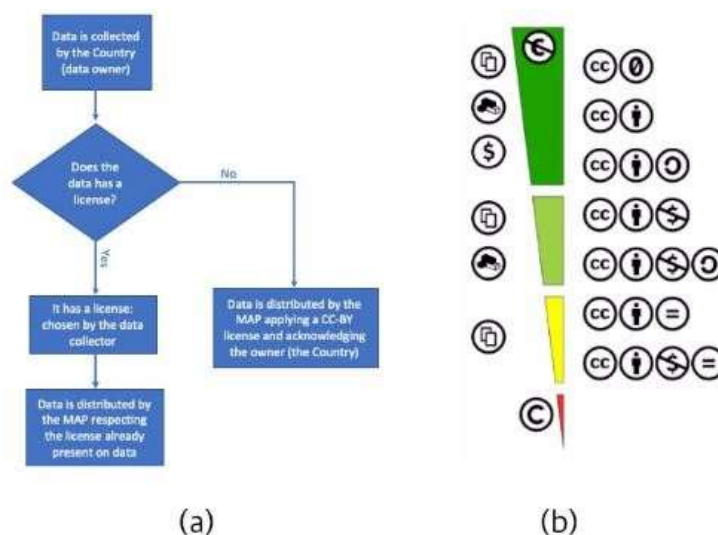


Figure 3: License attribution fluxes for data (a); available licenses for data from bright green (open data) to red (closed data) (b)

### Data Embargo periods

According to the NBB Data policy, data is normally made available to the public when the file is officially “released as public”.

Embargoes are enforced at the dataset level and can be requested if data is matter of innovative research which is currently under development (i.e. during data analyses phase or the writing of a results paper). For embargoed datasets, the basic metadata is publicly viewable, but the datasets themselves are not. Basic metadata include geospatial coordinates of the survey area, sampling period, site name, dataset type, current end date of embargo, and responsible researchers’ names (point of contact).

Every embargo dataset will have one or more access managers, usually the original data generator or data uploader. Access managers or designated persons can access their embargoed data in NBB, using single-sign-on system and standard tools such as InfoMapNode geoportal. Access will be enabled by the system admin and data will be identified via a unique persistent identifier (PIDs).

The embargo process is not automatic; embargoes must be requested by the contributor(s) of the relevant data.

Embargoes are temporary and last for a predefined period. Normally, an embargo lasts two years after a dataset has been uploaded to the system, or until scientific publication connected to data is published, whichever happens first.

Embargoes will be automatically lifted after two years unless the data generators require further extension. Up to two-years extensions can be requested.

### **Production of metadata and other relevant documentation**

All files uploaded to NBB are provided with metadata, containing the descriptive information about the envelope. The reporter is required to compile the descriptive fields related to load of contaminants, before proceed with the reporting procedure. It is important to fill in all fields (title, description, period, coverage) so that the metadata information is complete.

### **Data metric policy**

### **Workflows for different access levels**

Authentication, authorization, and accounting (also called AAA) is the architecture behind the InfoMAP System to manage intelligently controlling access to UN Environment Programme/MAP resources, enforcing policies, and providing the information needed to use for services. These three elements are considered important for effective network management and security.

The three pillars to control security and right of actors are:

- The Authentication is the process of ascertaining that somebody really is whom they say they are.
- Authorization refers to rules/permissions that determine who is allowed to do what.
- Accounting is about keeping track of the resources used for financial or auditing purposes.

Authentication technology provides access control for systems by checking if a user's credentials match the credentials in an authorized user database or in data authentication server. Users are identified with a user ID, and authentication is performed when the user provides a correct credential (password) which matches with the user ID in the database.

Each authenticated user can access and manage data domains, based on the user’s configured role within the System. Each role has a set of corresponding permissions inside the System, in order to manage, edit and view specific data.

The user, in general, is any entity (physical person or organization) that interacts with the NBB system. The NBB is composed of different components for the data flows. Each user, according to its role, has a set of corresponding permissions within the NBB system.

The structure of the profiles and their associated rights in the NBB are:

- Contracting Party users: all the data collection may have a different composition of a national role, in order to guarantee a correct management of the environmental information, two different levels have been designed:
  - MAP Focal Point (or other NBB user designated by the MAP Focal Point): national entities responsible for the public release of the data.
  - MEDPOL NFP (or other NBB user designated by the MEDPOL NFP): users compiling the NBB webform, the metadata field and validating the data entered in NBB.
  
- MAP Component users: Users which are staff of MAP Secretariat and Component; for each of them, there is a different role in the System due to the competence and role of the activities carried out in the different data flow and data assessment. A possible subdivision is the following:
  - Coordination Unit (CU) is the supervisor of the overall of the NBB system.
  - INFO/RAC is the administrator of the overall of the NBB system. INFO/RAC holds all rights in order to protect data and system security, however INFO/RAC will not manage the dataset, unless it is required by the owner.
  - MED POL, is the MAP component involved in NBB data collection as well as in data aggregation in order to prepare specific evaluation layer or environmental products and quality assurance. They can view a great part of data but doesn't have the role to manage if it isn't required.
  
- Anonymous users: They represent users who are not authenticated and only have the possibility to search and view metadata and data publicly available.

**Interactions according to data granularity and access**

This part of the document describes the granularity of permission in managing data based on the user’s configured role within the NBB System.

		Data Production		Data Consultation	
		Upload data	Release data to public	Download data not yet "Released to public"	Download data "Released to public"
Contracting Party users	MAP Focal Point				
	MEDPOL NFP		only if designed by MAP Focal Point		
MAP Component users	CU				
	INFO/RAC				



	<b>MEDPOL</b>				
	<b>MAP Partners</b>				
	<b>Anonymous users</b>				

<b>LEGEND</b>
Available
Only for CP to which MAP Focal Point/MEDPOL NFP belong to
Not available

Figure 4: Data granularity and access