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Regional Meeting on IMAP Implementation: Best Practices, Gaps and Common Challenges

Rome, Italy, 10-12 July 2018

Agenda item 3: Proposed IMAP Common Indicators Data Standards and Data Dictionaries

Pollution and Marine Litter: Data Standards and Data Dictionaries for Selected IMAP Common Indicators

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Note by the Secretariat

In the framework of the Programme of Work and Budget for 2018–2019 of UN Environment/MAP (Decision IG.23/14), INFO/RAC is working on the implementation of a fully operative Info-MAP system and on an IMAP compatible Data and Information System, connected to MAP Components' information systems and other relevant regional knowledge platforms.

The EU funded EcAp MED II Project is supporting the development of a Pilot IMAP compatible Data and Information System (Pilot IMAP Info System), which would lay down the basis for building a fully operational IMAP Info System, by the end of the initial phase of IMAP, as provided for by Decision IG.22/7.

INFO/RAC has developed the draft data standards and data dictionaries for ten selected IMAP Common Indicators (Common Indicators 1, 2, 6, 13, 14, 15, 16, 17, 22 and 23). The following criteria were used for selecting these Common Indicators as part of the Pilot IMAP Info System:

- a) maturity of Common Indicator in terms of monitoring experiences and best practices;
- b) data collection and availability representing all IMAP clusters;
- c) availability of common indicator guidance fact sheets and/or metadata templates.

The purpose of this document is to present to the Contracting Parties the initially proposed data standards and data dictionaries for feedback and guidance towards their further development in the area of pollution and marine litter.

Based on the preliminary discussion by the present meeting, work will continue by the CORMON Pollution and Marine Litter Meetings, with the view of finalizing data standards and data dictionaries and making the respective component of the IMAP Pilot Info System fully operational by mid-2019. This would allow the Contracting Parties to upload their data generated as appropriate from the implementation of national monitoring programmes based on IMAP.

Data dictionaries are a set of information describing the contents, format, and structure of a database and the relationship between its elements. It is a crucial component of any relational database, invisible to most database users. Typically, only database administrators interact with the data dictionary.

In a relational database, the metadata, of which the data dictionary is composed of, includes the following:

- names of all tables in the database and their owners,
- names of all indexes and the columns to which the tables in those indexes relate,
- constraints defined in tables, including primary keys, foreign-key relationships to other tables, and not-null constraints.

Data dictionaries store and communicate metadata about data in a database, a system, or data used by applications. For groups of people working with similar data, having a shared data dictionary facilitates standardization by documenting common data structures and providing the precise vocabulary needed for discussing specific data elements. Shared dictionaries ensure that the meaning, relevance, and quality of data elements are the same for all users. Data dictionaries also provide information needed by those who build systems and applications that support the data. Lastly, if there is a common, vetted, and documented data resource, it is not necessary to produce separate documentation for each implementation.

Common Indicator 13, Concentration of key nutrients in water column (EO5)
Common Indicator 14, Chlorophyll-a concentration in water column (EO5)
Common Indicator 17, Concentration of key harmful contaminants measured in the relevant matrix (EO9, related to biota, sediment, seawater)
Common Indicator 22, Trends in the amount of litter washed ashore and/or deposited on coastlines (including analysis of its composition, spatial distribution and, where possible, source.), (EO10)
Common Indicator 23, Trends in the amount of litter in the water column including microplastics and on the seafloor (EO10)

Eutrophication (EO5) and Contaminants (EO9): The draft of initially proposed data standards and data dictionaries for IMAP Common Indicators **13, 14 and 17** related to eutrophication and contaminants were developed considering related IMAP Guidance Fact Sheets (UNEP(DEPI)/MED WG.444/5) and Metadata Templates, as approved by the Meeting of the MED POL Focal Points, Rome, Italy, 29-31 May 2017 (UNEP(DEPI)/MED WG.439/20).

However, it should be noted that the proposed data standards and data dictionaries also rely on other relevant experiences, as well as on best practices gained in building data bases of some international projects. This proposal therefore provides broader data sets and associated dictionaries, than required as mandatory by the related IMAP Guidance Fact Sheets and Metadata Templates. Reporting related to the additional elements is at the discretion of the Contracting Parties.

Relevant complementary parameters for biota and sediment, in particular for biological effects, will be included at a later stage with the aim to strengthen the integrated chemical and biological monitoring and assessment. The list of CAS Registry Numbers (CAS Number), as the unique numerical identifier assigned by the Chemical Abstract Service (CAS) to every chemical substance described in the open scientific literature, has been also included. Their more precise relationship with MEDPOL's list of priority chemicals will be provided at later stage.

Marine Litter (EO 10): The draft Common Indicators **22 and 23** related to beach and seafloor marine litter were aligned with the IMAP Guidance Factsheets and the Metadata Templates for Beach and Seafloor Marine Litter (MEDPOL Marine Litter Beach ID Form (annex IIa), MEDPOL Beach Litter Survey Form (annex IIb), MEDPOL Working Sheet Sea Floor Litter (annex III) approved by the Meeting of the MED POL Focal Points, Rome, Italy, 29-31 May 2017 (UNEP(DEPI)/MED WG.439/20).