EP

MEDITERRANEAN ACTION PLAN

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Web based NBB reporting system specification requirements
First draft

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Explanatory Note

The Contracting Parties to the Barcelona Convention have adopted the Strategic Action Programme (SAP) to guide the formulation, adoption and implementation of LBS national action plans (NAP). They have agreed to monitor the implementation of SAP and NAP through National Baseline Budget (NBB) which is an inventory of the pollutants releases from all industrial sectors of a specific country on yearly basis. The collection of data composing the NBB started in 2003 and had a second reporting period in 2008. A third cycle of NBB (2013) reporting is ongoing.

So far, the procedure to report data was an Access Microsoft Database to be filled by each reporting country and to be saved on a Compact Disk sent to the Secretariat which was in charge to merge all the national databases and to provide a comprehensive assessment of the SAP pollutants in the Mediterranean.

In order to facilitate this process, to offer a more efficient NBB uploading procedure, to integrate the NBB data with other MED POL datasets and provide visualization tools to each CP and better link NBB and PRTR tools, the Secretariat has launched a new Institutional Development project, the NBB Info System. It aims to design, develop and implement a web platform to store, manage, analyze the national baseline budget (NBB) of the Contracting Parties.

The first phase of the implementation of the NBB Info System is the User Requirements Definition Phase" (UR phase). The UR phase can be called the 'concept' or ' problem definition' phase of the software development life cycle. The phase refines an idea about a task to be performed using computing equipment, into a definition of what is expected from the computer system.

The output of the UR phase is the User Requirements Document (URD). The URD gives the user's view of the problem, not the developer's. A URD may have to go through several revisions before it is acceptable to everyone.

In the framework of UfM H2020 initiative, UNEP MAP is collaborating with EEA for tracking the progress of its implementation. For this purpose a working group on H2020 indicators led by the EEA has defined 6 indicators out of which two indicators are related to industrial emissions and nutrient concentration in coastal waters.

In agreement with the concerned countries the data related to H2020 indicators (industrial emission and nutrient concentration in coastal waters) will be made accessible to the large public. Therefore the URD takes into account this element and in particular the necessary synergies to be established between NBB and PRTR.

In accordance with the last decision of COP 18, Istanbul, December 2013, the NBB information system should be based on SEIS principles. The list of users of the on line NBB system can be extended as appropriate in accordance with the relevant decisions of the contracting parties.

URD of the NBB Info System

MEDPOL with technical support from INFO RAC has prepared a first draft of the URD for the future NBB Info System. The draft URD is attached as an annex to this document for discussion by the MEDPOL focal points.

What are the user specifications

A requirement is a 'condition or capability needed by a user to solve a problem or achieve an objective'. This definition leads to two principal categories of requirements: '**capability requirements**' and '**constraint requirements**'.

Capability requirements

Capability requirements describe the process to be supported by software. Simply stated, they describe 'what' the users want to do.

A capability requirement should define an operation, or sequence of related operations, that the software will be able to perform. The operations should be organised to describe the overall process from start to finish. Operations may be routine, (e.g. normal tasks) or non-routine (e.g. error handling, interruptions).

For example: NBB_Req_0060 is a capability requirement: "The user shall be able to insert the following NBB data..."

Constraint requirements

Constraint requirements place restrictions on how the user requirements are to be met. The user may place constraints on the software related to interfaces and quality.

Users may constrain how communication is done with other systems, what hardware is to be used, what software it has to be compatible with, and how it must interact with human operators. These are all interface constraints.

An interface is a shared boundary between two systems; it may be defined in terms of what is exchanged across the boundary. Interfaces are important kinds of constraints. The user may defying external interfaces (i.e. state how interactions with other systems must be done) but should leave the developers to define the internal interfaces (i.e. to state how software components will interact with each other).

Users may constrain the quality required of the final product. Typical quality characteristics are: adaptability, availability, portability, security and safety.

For example: NBB_Req_0080 "The user shall be able to enter NBB data either by uploading MED POL PRTR XML file generated by the MED POL PRTR 3.0 system or by filling web forms." is a constraint requirement.

Adaptability

Adaptability measures how easily a system copes with requirements changes. Adaptable (or flexible) systems are likely to live longer, although the extra design work needed may be extensive, especially for optimising modularity. An example of an adaptability requirement is: ' it shall be possible to add new commands without retesting existing commands'.

Availability

Availability measures the ability of a system to be used during its intended periods of its operation. Availability requirements may specify:

• mean and minimum capacity available (e.g. all terminals);

• start and end times of availability (e.g. from 0900 to 1730 daily);

• time period for averaging availability (e.g. 1 year).

Example of availability requirements are: 'the user shall be provided with 98% average availability over 1 year during working hours and never less than 50% of working hours in any one week'

Portability

Software portability is measured by the ease that it can be moved from one environment to another. Portable software tends to be long lived, but more code may have to be written and performance requirements may be more difficult to meet. An example of a portability requirement is: 'the software shall be portable between environments X and Y'.

Security

A system may need to be secured against threats to its confidentiality, integrity and availability. For example, a user may request that unauthorised users be unable to use the system, or that no single event such as a fire should cause the loss of more than 1 week's information. The user should describe threats that the system needs to be protected against, e.g. virus intrusions, hackers, fires, computer breakdowns.

For example: NBB_Req_0070 is a security requirements: "Only users with the Contracting Party and NFP profiles shall be able to edit Report information and NBB data."

Safety

The consequences of software failure should be made clear to developers. Safety requirements define the needs of users to be protected against potential problems such as hardware or software faults. They may define scenarios that the system should handle safely (e.g. 'the system should ensure that no data is lost when a power failure occurs')

Annex: Proposed NBB Info System Requirements Specification

1 Overview

The NBB Info System is defined as an Institutional Development project. It aims to design, develop and implement a web platform to store, manage, analyze the national baseline budget (NBB) of the Contracting Parties to the Land Based and activities Protocol (LSB). NBB is an inventory of the pollutants releases from all industrial sectors of a specific country. The authority responsible to collect, to store and to manage the NBB data as well as the NBB Info System is the MED POL FP. NBB data are a subset of MED POL programme data.

1.1 Purpose and Scope of this Specification

The aim of this document is to define the user and functional requirements for the update of the NBB Info system. The intended audience of this document is:

- software developers tasked with the implementation of the update;

- stakeholders of the project.

The update of the NBB is required to cope with the updated reporting needs and to move towards to SEIS principles.

References

- Guidelines for the evaluation of the effectiveness of the implementation of the strategic action programme (SAP-MED).

- Supporting tools for the implementation of PRTR in the Mediterranean Region. UNEP(DEC)/MED WG.233/5 9 June 2003.

- National Baseline Budget for 2008 manual. 22 August 2008. Draft copy.

1.2 Definitions

For the purpose of this document:

SAP priority pollutants: a list of specific pollutants whose release in the marine environment is considered to be priority to quantify in order to assess the state of marine environment.

NBB reporting format: the specification of the NBB data to be reported. A set of parameters related to SAP pollutants and their release in the environment whose values are the NBB data. Example: "the name of industry" who releases a pollutant, "the sector" who belongs an industry.

NBB data: a specific value for a parameter of the NBB reporting format. Example: "industry XXX" is a value for the parameter "the name of industry", "3000" is a value for the parameter "quantity of pollutant released ".

Reporting year: the year at which the Contracting Parties should provide the NBB report to Secretariat.

NBB report: the set of NBB data to be provided by the contracting Parties to Secretariat at any reporting year.

2 Product/Service Description

In this section, the general factors that affect the product and its requirements are described, i.e. the reasons for which certain specific requirements are later specified.

- System should be used by users in different locations since the potential users are spread among several countries.

- Some users can have access to a slow speed Internet so the system should consider this aspect.

- System should allow user to provide a NBB report.

- Users should be able to locate efficiently the information within the system.

- System should be flexible in order to allow an upgrade with new functionalities according with new user needs.

- System should avoid a duplicate submission of data already submitted elsewhere by the user. In particular the system should accept the specific XML file of MED POL PRTR 3.0 system and upload relevant data for NBB reporting, in order to not replicate submission of same data from the potential users.

- Users should be able to access NBB data through the NBB System at any time, i.e. also outside the reporting period.

- Users should perform a set of analysis on the NBB data.

- Data are sensible so it should provided a solid backup.

- System should manage a work flow for the submission of data.

- System should manage access with defined authorizations since the data are sensible.

- Users could download data on local pc according their specific authorizations in order to analyze data with local software.

- A specific subset of data should be public and freely downloadable.

- System should provide an access to data reported in the reporting year 2003.

2.1 Product Context

System should accept the XML file of MED POL PRTR system and upload the relevant data into the database.

2.2 User Characteristics

Any entity (physical person or organisation) interested to NBB data is referred to as a "user". Each user is given a definite role, which defines the amount of information/data and the kind of actions they are allowed to access. Role permissions can be modified as needed by the users with administrator profile. The user profile list (below) can be extended as appropriate in accordance with the relevant decisions of the contracting parties.

The user profiles are:

- Anonymous: Data access and querying restricted to public data.

- Contracting Party: data access, editing and querying restricted to user's own Contracting Party data; he can change the state of the report between draft and final levels.

- NFP (National Focal Point): data access, editing and querying restricted to user's own Contracting Party data; he can change the state of the report between draft, final and official levels.

- MED POL operator: Unrestricted data access, management, querying and distribution; he can change the state of the report between official and archived levels.

- Administrator: Unrestricted user management;

Any user will be given a user name and a password, except for the anonymous one.

Typically the administrator and MED POL operator are reserved to MED POL members.

2.3 Assumptions

In this section we list any assumptions that affect the requirements, for example, equipment availability, user expertise, etc.

Availability of Internet connection.

Availability of modern browser (as Google Chrome, Mozilla Firefox, Internet Explorer, Safari).

Average expertise for users to work with a web application.

Valid SSL certificate identifying the NBB System.

3 Requirements

3.1 Users authentications and authorizations

Req ID	Requirement	Comments
NBB_Req_0010	Each user of the system shall be given a definite role, which defines the amount of information/data and the kind of actions he is allowed to access.	

Req ID	Requirement	Comments
NBB_Req_0030	System shall manage the following user profiles: • Anonymous, • Contracting Party, • NFP (National Focal Point), • MED POL operator, • Administrator.	
NBB_Req_0040	The user shall be able to login to the system using a username and password.	

3.2 Reporting data editing and submission

Req ID	Requirement	Comments
NBB_Req_0050	The user shall be able to insert all the data as a report, identified by Contracting Party, reporting year (and Responsible Institution).	
NBB_Req_0060	The user shall be able to insert the following NBB data: • industry (mandatory), • region of location of the industry (mandatory), • sector which the industry belongs to (mandatory), • sub sector which the industry belongs to (mandatory), • industrial process in operation in the industry to produce one or more pollutants (mandatory), • one or more types of pollutants released in the industrial process (mandatory), • pollutant quantity (tonnes/year) released (mandatory), for each pollutant type.	
NBB_Req_0070	Only users with the Contracting Party and NFP profiles shall be able to edit Report information and NBB data.	
NBB_Req_0080	The user shall be able to enter NBB data either by uploading MED POL PRTR XML file generated by the MED POL PRTR 3.0 system or by filling web forms.	
NBB_Req_0090	The user shall be able to further modify data uploaded by MED POL PRTR XML file in web forms.	
NBB_Req_0100	When uploading data from a MED POL PRTR file, only data required by NBB shall be uploaded.	The correspondence map between data in NBB and PRTR will be provided by the MED POL.
NBB_Req_0110	The GUI of the system shall support the following languages: English and French.	
NBB_Req_0115	Implementation of On/off P refilling functionality for PRTR existing data	
NBB_Req_0120	Implementation of PRTR structure with emission factors for the NBB sectors	
NBB_Req_0125	Harmonization of NBB and PRTR sector, subsector, process and pollutants dictionaries	
NBB_Req_0130	Upload of csv file with PRTR/emission factor data	

3.3 Consistency checks

Req ID	Requirement	Comments
NBB_Req_0140	During the upload of XML file, the system shall perform a validation of the format file conformance to the PRTR scheme. If the validation fails, no data shall be uploaded.	
NBB_Req_0150	When entering data through web forms, the system shall perform at least the following basic conformance and consistency checks: • data type check, • positive values for pollutant quantities, • presence of an entry value for each mandatory data. The system shall inform the user with an explicative error message about the error conditions encountered.	Example: numeric fields cannot contain alphabetic characters. Date fields shall contain a properly formatted date. String fields with length 3 cannot contain more than 3 characters
NBB_Req_0160	The user shall not be able to save NBB data in the system until all errors are removed.	

3.4 Data submission work flow

Req ID	Requirement	Comments
NBB_Req_0170	The submission process for a report shall follow a work flow with the following levels ("states"): • draft: report can be view and edited; • final: report can be read but cannot be edited; • officially submitted: report is officially submitted. It can be read but no edited; • archived: report is archived. It can be read, but not edited.	
NBB_Req_0180	A user shall be able to operate on a report in a given work-flow level, and change the level, only if he has the proper authorization profile, according to the following correspondence: • users with the "Contracting Party" profile can read and write report in the "draft" status; they can read the report in the "final" status; they can change the status from "draft" to "final" and vice versa. • users with the "NFP" profile can read and write report in the "draft" status, read the report in the "final", "officially submitted" and "archived" status; they can change the status from "draft" to "final" and vice versa, from "final" to "officially submitted" and vice versa. • MED POL operator can read report in the "final", "officially submitted" and "archived" status; they can change the status from "officially submitted" to "archived" status and vice versa. • Anonymous can read specific reporting data, for reports in the "official submission" and "archived" status. • Administrator has no authorization to operate on the report work flow.	

3.5 Submission log

Req ID	Requirement	Comments
NBB_Req_0190	The system shall notify the users with the proper authorization profiles whenever the work flow of a report is changed. The notification is performed by e-mail.	E.g.: when a report state is changed from "draft" to "final", users from the Contracting Party, with the profile "NFP", and users with the "MED POL operator" profile will be notified, as they are the ones who can operate on the report in the new state.
NBB_Req_0200	The system shall maintain a submission log, reporting for each report at least the date of publication and the user publishing it.	
NBB_Req_0210	The system shall maintain a copy of all the e-mail sent.	

3.6 Data Retrieval

Req ID	Requirement	Comments
NBB_Req_0220	A authorized user shall be able to search and retrieve reporting NBB data according to his profile.	
NBB_Req_0230	The system shall offer a web form for the retrieval of NBB data. Data retrieval will be possible by specifying one or more of the following parameters: • contracting parties; • regions; • reporting year; • sectors; • sub sectors; • industrial processes; • pollutants.	The choice of the contracting party will only be available to users who can access data from more than one Contracting Party.
NBB_Req_0240	The search results shall be available as a table on a web page and shall be downloadable as csv file.	
NBB_Req_0245	The authorized user shall be able to perform a search on NBB data of reporting year 2003 according his profile. The system shall offer a separate section for the search of NBB data of the year 2003.	NBB data of 2003 could be only visualized and not changed.

3.7 Data visualization

Req ID	Requirement	Comments
NBB_Req_0260	Users shall be able to perform a pre-defined set of analyses on the reported data, depending on the authorization profile. The results of the analyses will be displayed as plots. The available analyses shall be: 1) number of industries per region, for a specified Country, reporting year and sector; 2) number of industries per sector for a specific region and a reporting year; 3) number of industries per sub sector for a specific region, reporting year and sector; 4) production (tonnes/year) of a specific pollutant versus reporting years for a group of sectors and for a specific region; 5) production (tonnes/year) of a specific pollutant versus reporting years for a group of sub sectors in the same sector and for a specific region; 6) production (tonnes/year) of a specific pollutant for all the regions in a Country, for a specific sector and reporting year; 7) total production (tonnes/year) of a specific pollutant versus reporting years for a group of Countries.	
NBB_Req_0270	A subset of data, those corresponding to Indicators 5 e 6 of H2020 Indicators, will be visualized in a web page with anonymous access.	Plot relative to Indicators 5 e 6 are the type 4) , 5) , 6) and 7)
NBB_Req_0280	The users shall be able to save the plot resulting from an analysis as an image on a local pc.	
NBB_Req_0290	Search of regional data through an interactive map	