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MEDITERRANEAN ACTION PLAN

Experts Consultation Meeting for MED POL
Database Management

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REPORT OF THE

EXPERTS CONSULTATION MEETING
FOR MED POL DATABASE MANAGEMENT

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Report of the Experts Consultation Meeting for MED POL Database Management

1.   The experts consultation meeting for MED POL Database Management was held in Athens on 14 and 15 March 2002. Nine regional experts (Annex I) attended the meeting which was chaired by Mr Joanny. The Meeting agreed to organize the discussions in line with the items of the provisional Agenda (Annex II).

The first day of the meeting was dedicated to a detailed examination and discussion of the working document UNEP(DEC)/MED WG.202/2. The Meeting suggested a number of corrections to the working document as presented in Annex III. The second day of the meeting was devoted to the discussions regarding data quality coding in the database and to various aspects of database access from the internet.

2.   Before the presentation of the working document which had been prepared by the MEDPOL Secretariat in collaboration with the database expert, the Secretariat briefly informed the Meeting of the work carried out during last year for the establishment of the new MED POL database. It was mentioned that a work plan had been prepared to re-structure the database to increase the capabilities of data storage and management according to the needs of MED POL Phase III. In the first phase of the work, the needs and requirements of the database were identified and accordingly the conceptual model of the new database was developed. The data reporting formats were also standardized and distributed to the data originators of MED POL III to obtain 2001 data within these formats. At that stage, the Secretariat needed to achieve a thorough discussion on the proposal for the conceptual work of the new database. The Meeting was expected to guide the Secretariat in the finalization of the first phase in order to enter into the second phase which would be devoted to the development and testing of the database.

Mr Myroshnychenko, the database expert, then presented the conceptual model in all its technical details.

3.   Before discussing the agenda items, general comments were made on:

   (a)   the operational aspects of the new database in the MED POL Secretariat
   (b)   the need for a broader Mediterranean database including data on climate, loads (industrial and urban sources), offshore dumping, etc. to be stored in the MED POL database and to establish a comprehensive background information to be evaluated together with the real data at the expert level
   (c)   The need for a list of other existing databases in the Mediterranean and the establishment of possible links with them
   (d)   The identification and/or clear presentation of outputs produced for different types of end-users

The Secretariat informed the meeting that it was planning to recruit a new person to assist MED POL in the operational phase of the new database. The needs for a broader Mediterranean database would also be considered at the later stages of the work which might require some GIS applications; the possible links with other Mediterranean databases would be considered in parallel with the establishment of the new database. The Secretariat was requested to explore the existence of other existing regional information systems that could be used in the long term.

4.   Concerning the requirements of the database, (in particular, the data to be included), several points were highlighted by the meeting. It was mentioned that aggregated data was not accepted in the present phase of MED POL, having in mind it could be the case for

historical data sets (of MED POL). In this case, there would be two different data sets in the final database which could be distinguished by different codings. It was mentioned that the compliance monitoring data regarding the shellfish areas, effluents and hot spots would also be stored in the new database; however, the corresponding compliance reports expected from the countries could be stored within the database, which is the case for bathing waters. It was also emphasized that a new approach would be operational for the quality control of bathing waters by late 2002 which was the creation of beach profiles, hence, the database requirements might be tuned during the development phase.

Concerning the variable fields in the data reporting formats, further modifications were recommended such as the inclusion of (a) detection limit values, and units after each concentration field, (b) sampling time especially for "sea water" and "loads" formats, (c) sampled fraction and layer in sediments.

It was emphasized by the Secretariat that the data reporting formats for "sea water" would necessarily be improved/modified in the future according to the finalization of the "eutrophication monitoring strategy" in MED POL. Similarly, the reporting formats for "airborne monitoring" might be improved through contacts with international programmes/organizations. The database should also comprise a dictionary table of existing international/regional criteria for health-related conditions.

It was noted that the station codings in the database should be handled with great care. Although the codes given in the national monitoring programmes were accepted as the basis of data reporting, the data manager should spend a special effort to avoid any duplication created for different coordinates with the same station name (or the opposite) and if necessary extra coding within the database should be performed. Although the official coordinates mentioned in the Monitoring Agreements were accepted as the basis for data reporting, any shifts in the coordinates (the real sampling points) which might occur during sampling (e.g. trawling) would necessarily be reported preferably in the "methodology" section of the Annual Reports accompanied by data submissions.

5.   It was proposed to include data administrative tools among the functions of the database to ease the work of the local manager. Data export with different formats (delimited flat format, XML, etc.) should also be considered within the database functions. The type of outputs produced within the database should be clearly defined as to the needs of the end-user.

6.   The architectural model proposed for the new database was found to be efficiently functional. The "methods" identification in "Analysis" / "Data" were restricted to groups of methods (e.g. methods for trace metals) instead of individual methods. The Secretariat should limit the needs of the database in terms of provision of the methods' details.

7.   The proposed database management system, MS Access, was found to be satisfactory within the present framework of MED POL Database. On the other hand, it could have been different for a broader information system. It was also mentioned that MS Access provides tools for moving to MS SQL server, hence, in case of increasing database requirements MS Access database could be converted to MS SQL database. CD copies of the database taken regularly considered as a simple, cheap and efficient way of creating a back up system.

8.   Various aspects of the quality coding of data loaded in the database were discussed. The contribution of data originators to the quality coding procedure was commonly proposed and adopted. The meeting agreed to propose the following major steps for data quality coding:

(a) First check by data originator and data transmission to MAP/MED POL…..(0 flag)
(b) Gross check in MED POL by considering the programme requirements and utilizing the necessary technical tools…………………………….……(1 to n flag)
(c) Final check and sign by the data originator…………………………………(n+1 flag)
(d) Expert check…………………………………………………………………(n+2 flag)

The technical tools utilized during gross check as mentioned in step (b) could comprise several sub-steps. They would be applied upon receipt of data (step a) and after checking the compatibility of the data with the official programmes/requirements. The necessary technical tools of gross check were suggested as : media testing, checking the validity of data limits, checking the data against physical laws, performing statistical tests (e.g. 3σ test).

Expert check (step d) would be needed after the final check of the originator (step c) to apply more sophisticated statistical tests, to check the data against the laboratory quality measures (scores obtained in intercalibration exercises, results achieved from certified reference material analysis, precision and accuracy tests etc.), to differentiate and record the questionable results.

Establishment of a working group to define the tools of data checking and assessment and to clarify the details of the whole data quality coding/flagging procedure was also recommended by the meeting.

After the finalization of the quality coding scheme for the MED POL database, the data originators should be informed in advance about the data checking/control policy of MED POL.

It was also recommended to include two more tables in the "Dictionaries" of the proposed database structure; one being for the technical control procedure and the other one including a list of experts.

9.   Interactions of the database with the internet users were discussed based on the proposal made in the working document. The two-step proposal for internet access to database was commonly accepted. As a first step an inventory of the database would be accessed through the internet providing information on the ongoing monitoring programmes, participating institutes, monitoring parameters/matrices/stations and station locations on map for general public and managers. Interactive web pages created at the second step would allow to formulate queries to the database and select live information to be reported either in tables or on maps. At this stage, the graphical presentations could be arranged combining of MS Access with Active Server Pages Technology and ISAPI Mapping Module.

The policy matters concerning the access to database at different levels by the end-users were also discussed within the context of interactions with internet users. Besides the limited access to the main database, the full access option was also suggested. However, considering the complex nature of the database, the type of data stored in the database (environmental data) and the time consuming steps of data validation, it was agreed to opt for a limited access at present. Therefore, it was proposed and commonly accepted that all internet users would be informed about the general information on the monitoring programmes (the first step of access), the availability of validated data in the main database (preferably together with a data inventory) and the possibility of access to the whole data upon request.

10.   The Secretariat briefly presented the work plan after the Meeting until the finalization of the database. It was stated that the updated version of the working document (UNEP(DEC)/MED WG.202/2) would be sent to the National Coordinators for information as

attached to the policy paper on data exchange and access which would be prepared by the Secretariat.

It was mentioned that the establishment of the new MED POL database had been considered in a complete work plan. The first step; identification of the needs and creating the conceptual model was just completed and the second major step would be the development and testing of the database which could be finalized by 2003 and the database would be operational. Training would also be provided for different types of users of the database.

ANNEX I

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ANNEX II

AGENDA

Thursday, 14th March

09:00-10:30
- Welcome and organization of the work
- Presentation of the working document
  Conceptual design of the MED POL-III Database

10:30-11:00   Break

11:00-13:00
- Requirements to the Database (Background discussion)
  o Data to be included into the database (including all the possible future expectations/needs of MED POL and end-users)
  o Database functions : Standard and specific requirements
  o Data import/export and production of outputs (outputs for the disposal of end-users will be detailed)
- The proposed model for the Database
  o Architectural model
  o Selection of the DBMS (MS Access proposal will be discussed :*Examples, demonstrations and alternatives*)
  o Database contents/structure

13:00-14:30   Break

14:30-16:00   The proposed model for the Database (continuation of the morning session)

16:00-16:15   Break

16:15-18:00
- Quality coding of data in the Database
  o Needs
  o Criteria/coding schemes (different alternatives to GETADE scheme)

Friday, 15th March

09:00-09:30   Review of the 1st day discussions and conclusions

09:30-10:45
- Interactions with MED POL Database
  o Data access, update, exchange policy
  o Database-expert interactions

10:45-11:15   Break

11:15-12:45
- Interactions with Internet Users
  o Proposed model
  o Realization of the model for the short term and longer term expectations
  o Technical issues

12:45-13:00   Final considerations

ANNEX III

**List of corrections made on the content of document UNEP(DEC)/MED WG.202/2
(Conceptual design of the MED POL Phase III database)**

1. *Aggregated contaminants data* (Section 2.1.1 item 3) for trend monitoring stations removed

2. *Data export in commonly used formats* included under standard database functions (Section 2.2)

3. *Availability of administrative tools for data manager* included as another item under specific requirements to database functionality. A relevant paragraph also included in the same section (Section 2.2)

4. *Parameter ID* (Fig.3.5.2: Monitoring data/Sample header) replaced *Header Parameter ID* and *Value* replaced *Numeric Value*

5. *New fields* regarding sediment sampling layer and fraction included in the corresponding data reporting formats (Tables 4 and 5 of Annex I)

6. *New fields* regarding the sampling time included in sea water and loads data reporting tables (Tables 6, 7 of Annex I)

7. *New fields* regarding the detection limit values of each parameter included in each data reporting table (Annex I) after all the concentration figures

8. Sample_ID, the first field in Table 10 (Annex I), replaced with CRM_sample_ID