PROGRAMME

UNEP/MED WG.575/3

MedProgramme – Child Project 1.1 Reducing Pollution from Harmful Chemicals and Wastes in Mediterranean Hotspots and Measuring Progress to Impacts

PCB disposal, Its prioritization, and capacity-building for mercury

Report of the meeting

19-20 September 2023
Athens, Greece

PROGRAMME 1.1 Reducing Pollution from Harmful Chemicals and Wastes in Mediterranean Hot Spots and Measuring Progress to Impacts gef UN environment programme European Bank for Reconstruction and Development UN environment programme Mediterranean Action Plan Barcelona Convention

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Report of the Meeting

September 19, PCB disposal phases under the MedProgramme, including prioritization

Introduction

1. The MedProgramme Coordinating Unit (MedPCU) held a two-day meeting "PCB disposal, its prioritization, and capacity-building for mercury" under Child Project 1.1 (GEF ID 9684) "Reducing Pollution from Harmful Chemicals and Wastes in Mediterranean Hotspots and Measuring Progress to Impacts" on 19-20 September 2023 in Athens, Greece. This Child Project falls under the overall umbrella of the GEF UNEP programme (GEF ID 9607), entitled "Mediterranean Sea Programme (MedProgramme): Enhancing Environmental Security".

2. The primary objective of this meeting was on 19 September to present national PCB inventories, prioritize PCB equipment for next PCB disposal phase; and on 20 September to build capacity on mercury (Minamata Convention, site characterization and mercury disposal).

3. The presentations for all agenda items are provided in Annex III to the present report.

Participation

4. The meeting was attended by representatives from the participating countries of Albania, Algeria, Bosnia and Herzegovina, and Morocco; and from executing partners of CETI and CIEMAT (together with Tauw) and from UNDP Bosnia & Herzegovina. The Mediterranean Action Plan/Barcelona Convention Secretariat (UNEP/MAP), as executing agency, and MED POL were also represented.

5. The full list of participants is attached as Annex I to the present report.

19 September, 2023: PCB disposal phases under the MedProgramme, including prioritization

6. The meeting was opened at 9:30 AM (EET) on 19 September 2023 by the MedProgramme Management Officer of the United Nations Environment Programme/Mediterranean Action Plan, Barcelona Convention Secretariat, Mr, Mohamad Kayyal. Mr. Kayyal thanked all participants for their attendance and for their continuous support in carrying out inventories, disposal activities, POPs/Hg assessments or capacity-building activities under the chemicals&waste activities of CP 1.1.

7. Ms. Mellendorf the Chemicals & Waste Programme Management Officer for the MedProgramme also welcomed the participants in Athens, Greece, and thanked the countries and executing partners for their great cooperation, support and participation in CP 1.1. project activities. She emphazied that a lot of work has been done in the last months on advancing in PCB disposal activities and PCB inventory, however, that there is also a lot of upcoming activities related to the next phases of PCB disposal and mercury disposal to be started/completed until the next Project Steering Committee Meeting in March 2024.

8. The participants introduced themselves. Ms. Mellendorf presented the MedProgramme and its Chemicals & Waste activities, including PCB activities. She highlighted that the MedProgramme is the first GEF-funded programme covering the GEF focal areas of Chemicals & Waste, International Waters, Biodiversity and Climate Change as well as the cross-cutting themes of gender and

knowledge management. The implementing agencies are UNEP and the EBRD, UNEP/MAP is the lead executing agency and there are ten beneficiary countries: Albania, Algeria, Bosnia and Herzegovina, Egypt, Libya, Lebanon, Morocco, Montenegro, Tunisia and Türkiye. The MedProgamme has four components, out of which component 1 "Reduction of land-bases pollution in priority coastal hotspots" includes Child Project 1.1. entitled "Reducing Pollution from Harmful Chemicals and Wastes in Mediterranean Hotspots and Measuring Progress to Impacts" and its Chemicals & Waste related activities. Child Project 1.1. is also coordinating with Child Project 1.3 entitled " Financing Advanced Environmental Technologies in the Mediterranean Sea Region for Water Systems and Clean Coasts (EnviTeCC) (EBRD)", especially on PCBs, and with Child Project 4.1. entitled "Mediterranean Sea Large Marine Ecosystem Environment and Climate Regional Support Project (UNEP/MAP)" on knowledge management activities. In total the MedProgramme has eight Child Projects.

9. Child Project 1.1 deals with the disposal and prevention of Persistent Organic Pollutants (POPs) and mercury (Hg) in the participating countries of Algeria, Albania, Bosnia & Herzegovina, Lebanon, Montenegro, Morocco and Tunisia. Component 1 of Child Project 1.1. deals with the Chemicals & Waste focal area, and Component 2 with the GEF focal area of International Waters. MedPCU is executing outputs 1.1. and 1.2. related to disposal activities, and MedWaves, as executing partner, is executing activities related to prevention.

10. Ms. Mellendorf also presented the available GEF-budget related to the POPs and mercury activities, and highlighted that the project aims to achieve Global Environmental Benefits (GEBs) in the amount of 2000 tons of POPs disposal, including 650 tons of prevention, and 50 tons of mercury waste disposal. The three main activities related to POPs disposal (with a GEF allocation of about US$ 3,6 million) are phase 1 PCB disposal phase in Algeria and Lebanon, and PCB inventory/prioritization/verification activities in Algeria, Albania, Bosnia & Herzegovina (through UNDP Bosnia and Herzegovina), Montenegro, Morocco, and Tunisia followed by additional POPs disposal phases in participating countries. Ms. Mellendorf highlighted that funds related to SSFAs and POPs assessments have been committed as well as partly the funds for PCB disposal phase 1, however, the project now has to advance to the next preparation of procurement cases for PCB disposal phase 2.

11. Ms. Mellendorf mentioned that the key points for the meeting are to enhance knowledge about the full cycle of PCB activities under the MedProgramme, be aware of the criteria for inclusion of PCB waste into procurement cases under the MedProgramme, sharing lessons learned and experiences among the countries, and pathing the way-forward such as action points for the finalization of the PCB-disposal strategy and preparation of procurement cases.

12. In her second presentation, Ms. Mellendorf outlined the PCB-activties under the MedProgramme.The MedProgramme foresees at least two/three PCB disposal contracts:

(i) Provision of Services for the Drainage, Labelling, Packaging, Transportation, Shipment and Sound Disposal of PCBs Oils, PCBs Contaminated Oils and PCBs Equipment from Algeria and Lebanon; This procurement includes the final disposal of 451 tons of PCB waste from Algeria, and 271 tons of PCB waste from Lebanon; The already already allocated budget is around US$ 1,6 million.

(ii) Provision of Services for the Drainage, Labelling, Packaging, Transportation, Shipment and Sound Disposal of PCBs Oils, PCBs Contaminated Oils and PCBs Equipment from Algeria, Albania, Bosnia and Herzegovina, Montenegro, Morocco, and Tunisia. PCB waste from Bosnia and Herzegovina, and Montenegro has been pre-identified. The remaining budget for additional PCB phases is US$ 2 million.

13. It was outlined that Phase 1 of the PCB disposal included three main activities: Procurement request, training of national teams and stakeholders on PCB management in Algeria and Lebanon, and execution of the PCB disposal contracts. As of September 19, two contracts were signed for Algeria and Lebanon, two national trainings were conducted, and progress towards the execution of contracts (including site visits, preparation for the Basel Notification) has been made.

14. Regarding the inventory and prioritization of PCBs for phase 2, the MedProgramme foresees 5 steps: 1. Signing of execution arrangements, 2. Preparation of national inventories, prioritization of phase 2, disposal plans/requests together with UNON and execution of disposal contracts by the selected contractor. At the moment, pre-defined PCB waste from Bosnia and Herzegovina, and Montenegro have been identified, and additional quantities are expected from Albania, Algeria, Morocco and Tunisia, as long as it is within the feasibility of the technical requirements, available GEF budget and timeframe of the MedProgramme. The project also needs to finalize a regional disposal plan for the PCB-containing waste, and mainly country information related to the status of the transformers (in-use or phased-out) and the potential quantities are expected. It is very important to emphazise that the MedProgramme has set prioritization criteria of the potential PCB waste to be disposed of (which requires additional consultations and documentation). The criteria include the priority expressed by the countries and co-financing, cost-effectiveness under the available GEF-funds, risk to human and environmental health (based on FAO toolkit for prioritization), regional distribution among project countries, and feasibility with project timeline. The project has a defined project end of quarter 1, 2025, which indicates that the procurement request for phase 2 needs to be initiated in Q4 of 2023 to ensure feasibility of procurement selection under the MedProgramme.

15. Ms. Olfat, MED POL Programme Officer, also thanked the participants for their contribution and work towards finalizing the PCB inventories. She encouraged countries to speed-up a little bit, and to provide information as soon as possible.

16. Mr. Ioakimidis (PCB expert) provided a presentation about the PCB inventory under the MedProgramme. He mentioned that the most important information is related to the technical background of PCBs, the country commitments made under the Stockholm Convention, the PCB inventory and identification database, the technical prioritization criteria and the PCB disposal procedures.

17. Mr. Zivkovic from the Center for Ecotoxiocological Research (CETI) presented the experience and challenges of CETI during the PCB inventory in Montenegro. He started with an overview about CETI, which is a government institution and started operating in 1998, and has an accediation of a total of 251 methods, including the analysis of transformer oil.

18. Regarding the Stockholm Convention on Persistent Organic Pollutants (POPs) Montenegro is a state party since March 2011, and according to the National Implementation Plan (NIP) has identified the institutional strengthening, PCB management and elimination of equipment containing PCBs as the highest priority. Thus, the countries have implemented a GEF-funded project entitled "Comprehensive Environmentallly Sound Management of PCBs in Montenegro" through the UNDP office in cooperation with the Ministry of Sustainable Development and Tourism of Montenegro and project partners. The project aimed for the identification, disposal and permanent removal of equipment and waste contaminated with PCB from the environment, and CETI was responsible for the sampling of transformer oil and soil, analysis of oil and soil, and data base establishment and development.

19. Ms. Zivkovic explained that if the transformer is already identified as a PCB transformer, sampling is not required, however, if the transformer is not identified, a sample must be taken. Oil samples can be taken using the drain tap which is usually located at the bottom of the transformer. Transformers can be sampled using a hand pump via the oil filling cap. He mentioned that for sampling of capacitor oil, it is advisable only to sample capacitors that are already out of service. If there is a series of the same capacitors, it is usually sufficient to sample only two devices out of the series. If a designation is missing and relevant information from the manufacturer is not available, the only way to test the dielectric liquid is to drill a hole at the top. Sampling can be done by using a pipette, however, after sampling of oil, the capacitor is unusable, as it is then damaged. The project used a two-step PCB analysis because first a non-specific method screening test was used to speed up the inventory process and reduce the cost of PCB analysis, then a GC analysis was done only for samples containing or contaminated with PCB (>50 ppm). The GC analysis is necessary to confirm the presence of PCB waste (especially in the case of potential false positive screening results). The importance of proper labelleing was also emphazised.

20. Ms. Mujezinovic, Field Offcier, UNDP Bosnia and Herzegovina, said that BiH ratified the Stockholm Convention on 30 May 2010 and committed to meeting the requirements of the Convention. The Ministry of Foreign Trade and Economic Relations of BiH was appointed as the focal point for coordination of cooperation with international structures and bodies of the Stockholm Convention. The first National Implementation Plan (NIP) for the Stockholm convention in Bosnia and Herzegovina was developed in 2016.

21. She informed the participants that following recommendations set out in the NIP BiH, in order to ensure the implementation of the Stockholm Convention through synergy with the Rotterdam and Basel Convention, and the successful implementation of the NIP, Bosnia and Herzegovina supported the development and approval of the "Environmentally Sound Management of Persistent Organic Pollutants (POPs) in industrial and hazardous waste sectors" – POPs Project. The Project is financed by Sweden and implemented by UNDP Bosnia and Herzegovina. The project has 6 components, out of which one deals with the management and disposal of POPs from abandoned industrial premises.

22. Ms. Mujezinovic explained that the project carried out a POPs inventory, including PCB-containing equipment and PFOS or PFOA-containing firefighting foams, however, the project only aims to dispose of 50 tons of POPs waste. Because the MedProgramme has GEF-funds for POPs disposal, UNDP BiH and UNEP/MAP are collaborating on the inclusion of PCB waste for final disposal under the MedProgramme. She then continued to explain the situation per location and mentioned that for three locations co-financing letters and confirmed quantities have been provided. For the other two locations, the inclusion is still being discussed, as the status of the transformers (in-use versus phased-out) and the possible replacement and its timing of transformers would need to be confirmed by the companies. Due to the uncertainity with two locations, there are two alternative locations to be potentially included depending the provision of evidence of PCB waste and/or co-financing letters. Ms. Mujezinovic mentioned that continuous efforts will be made to verify/identify/commit to PCB waste for final disposal under the MedProgramme.

23. In the next presentation, Albania talked first about the POPs framework in Albania, which signed the Stockholm Convention on Persistent Organic Pollutants (POPs) in 2001 and ratified it in 2004. The first NIP was prepared and approved in 2006, and the NIP update was prepared in 2016 and approved in 2018. The country already has a national legislation for POPs and PCBs in place, and it was mentioned that under a GEF-funded UNDP project entitled "*Preparation of the national plan in implementation of the POP Convention"* a preliminary inventory on POPs with main focus on the

identification of all transformers with PCBs in/or out of use was developed. This inventory wasupdated during the second NIP from 2014 to 2016.

24. Albania then presented potential PCB quantities/status for the PCB disposal under the MedProgramme, and mentioned that the process of inventory is still under completion. Results will be shared with MedPCU in the next weeks (as per the final SSFA date of 30 December 2023).

25. In the next presentation, Algeria (Centre National des Technologies de Production plus Propre (CNTPP)) presented an overview about the Center and its role as regional centre for the Stockholm Convention on POPs for Nothern Africa covering eight (8) countries. Regarding the MedProgramme, Algeria is involved in Phase 1- PCB disposal with an amount of 451 tons of PCB-containing equipment. For Phase 1, 9 selected public companies will benefit from the expertise of the CNTPP and UNEP/MAP for the environmentally sound management of their PCB waste (POPs's), ultimately, the stocks of these companies will be disposed of as part of this pilot operation. For Phase 2, it was mentioned that 600 tons of PCB-containing waste could be identified and disposed of under the project. There will be a communication about PCB waste for Phase 2 by the end of September, 2023.

26. Morocco (Ministère de la Transition Energétique et du Développement Durable Royaume du Maroc) presented a summary of the national PCB management programme related to the SC, which Morocco ratified in 2004. The programme is being implemented in two phases with financial support of the GEF. However, despite the successful elimination of PCB-containing equipment (above 2000 ppm) for export, there are also constraints related to the equipment, which is being considered as a consumer good although the PCB oil contained has been identified as a hazardous chemical substance. In addition, PCB holders might not be willing to replace transformers due to unsupported operational costs, costs of replacement in case of disposal, and/or a rental of a decontamination device in case of a mobile decontamination treatment. Ms. Mellendorf mentioned that a cost-benefit analysis for costs-associated with the replacement could be of support (as it has been under a GEF-funded SADC project). It was agreed to explore this possibility further.

27. Regarding the PCB inventory in relation to Phase 2, UNEP/MAP and Morocco has signed a Small-scale funding agreement (SSFA) to carry out a PCB inventory, as the chosen priority for Morocco has been PCBs in high-voltage transformers. The main objectives of the SSFA (until 31. 12. 2023) are the development of a database of high-volatage electrical equipment held by electricity companies (producers, transporters and distributors) and high-voltate subscriber companies; the establishment of sampling criteria for a screening campaign for contaminated transformers; the proposal of decontamination and/or disposal solutions, taking into account the characteristics of the transformers and their location; and support for the evaluation of proposed decontamination or disposal costs, including environmental treatment of the site. Good progress has been achieved in the use of the UNEP questionnaire template, obtaining information on the relevant electricity companies, the collection of equipment information (Identification, device data, risk history, PCB analysis data...), and site data (environment, land use, nearby issues). There are some remaining tasks related to obtaining data using the PCB-screening equipment, followed-by a selection of samples for laboratory verification.

28. Regarding the evaluation of 10 relevant locations, the environmental assessment of a site with large processors includes five (v) phases (i) planning phase, (ii) preliminary assessment, (iii) analysis of the data collected, (iv) impact assessment stage, and (v) recommendation step. Finally future perspectives the country would need to implement besides the MedProgramme include the preparation of a new legal framework to encourage holders to decontaminate or dispose of their transformers in service, the implementation of an operational scheme for the sustainability of the PCB sector (collection, transport, decontamination and recovery of raw materials in Morocco), the training

of private holders in screening tests (MT subscribers) and awareness of maintenance companies, as well as theestablishment of an information and monitoring system.

29. The last presentation of day 1 was given by Ms. Mellendorf and Mr. Ioakimidis about procurement procedures, required information, and technical PCB disposal phases. Ms. Mellendorf outlined the procurement requirements and steps, which are the following:

UNEP/MAP
(1) Terms of Reference, and Annexes (including draft Environmental Management Plan)
(2) Request to UNON (Nairobi)

UNON (initation of procurement case and evaluation stages)
(3) Issuance of Expression of Interest and pre-selection
(4) To the pre-selected bidder, bidding phase
(5) Technical evaluation by UNEP/MAP
(6) Financial evaluation by UNON – selection of lowest price or best score
(7) Review committees (depending on contract price)
(8) Issuance of contract

UNEP/MAP/Contractor/Country
(9) Execution of contract and payment, as schedule

Timeframe: As per discussion with UNON, 9 months, however, does not include the unforeseen.

30. Regarding the technical information needed for the Terms of Reference (ToR) for at the least the following:

Technical inputs:
a. Estimated quantities of PCB oil, PCB-containing equipment
b. Phased-out versus in-uses
c. Extract data from INVENTORY FORM

i. Company- Owner information
ii. Equipment information
iii. Nameplate/ PCB screening
iv. Environmental risk-related questions
v. Pictures

Commitment from the owners of the companies for the availability of the transformers; replacement or transformers; or support for decontamination (for in-use equipment)

31. Mr. Ioakimidis then continued the presentation by outlining the steps for sound disposal of PCB waste, including the labelling, transportation, transfrontire shipment and final disposal of PCBs. A contractor selected for PCB disposal has obligations in line with national and international regulations, including the development of a health, safety and environmental plan (HSE), preparation of the documents related to the Basel Notification, as well technical field work such as the labelling, packaging and collection of PCB-contaminated transformers, the national and international shipment, and the final disposal of PCBs abroad. The importance of wearing protective personal equipment (PPE), including protective masks, head, foot and hand protection, were mentioned. He then explained the steps/documents related to the Basel Convention, and explained an example of a

transformer drainage scheme, collection ways, and final disposal steps (only for phased-out transformers for export abroad).

32. For transformers, pre-treatment is to process to decontaminate or separate hazardous from non-hazardous waste, to reduce the final disposal costs and recycle as much as possible useful materials as metals. The targeted PCBs types, are non- porous parts as steel, cooper, aluminum, magnetic plates. The main treatment step is to process to transform- convert liquid PCBs into non-hazardous substances targeting the PCBs types of porous, non- porous parts as steel, cooper, aluminum, magnetic plates, wood parts, paper and liquids. For capacitors, there is no pre-treatment recommended, and the main case capacitors are to process to transform-convert liquid PCBs to non-hazardous substances and to decontaminate metal parts into non-hazardous substances and recycle metal parts. A scheme of transformers, carcasses and core decontamination can be found in presentation (10).

33. The meeting concluded at 17.00 o'clock by summarizing the key action points per country (as mentioned in the paragraphs above).

20 September, 2023: Capacity-building on Mercury (Mercury Convention, site assessments, and decommissioning of chlor-alkali sites)

34. Ms. Mellendorf opened the second day of the meeting related to capacity-building on mercury convention, site assessments, and decommissing of chlor-alkali sites). The participants introduced themselves again, and two more participants were welcomed to the meeting. Ms. Mellendorf the Chemicals & Waste Programme Management Officer for the MedProgramme also welcomed the all participants in Athens, Greece, and thanked the countries and executing partners for their great cooperation, support and participation in CP 1.1 mercury-related project activities.

35. Ms. Mellendorf again presented the MedProgramme with focus on mercury-related activities, which are the development of environmental management plans for mercury disposal, assessment of mercury-contaminated sites, and MedWaves prevention activities. She also congratulate Algeria for the ratification of the Minamata Convention in 2022, and mentioned this occasion is great to move forward with the preparations of mercury waste to be disposed of under the MedProgramme.

36. She recalled that Child Project 1.1 aims to dispose of at least 50 tons of mercury waste, and she is happy that work towards the environmentally sound management plan for mercury waste in Tunisia has begun under the SSFA agreement with CIEMAT. However, although work has started now, there is a need to proceed timely to ensure that results are being presented at the next Project Steering Committee Meeting in March 2024.

37. Ms Mellendorf outlined again that Child Project 1.1. deals with the disposal and prevention of Persistent Organic Pollutants (POPs) and mercury (Hg) in the participating countries of Algeria, Albania, Bosni a& Herzegovina, Lebanon, Montenegro, Morocco and Tunisia. Component 1 of Child Project 1.1. deals with the Chemicals & Waste focal area, and Component 2 with the GEF focal area of International Waters. The MedPCU is executing outputs 1.1. and 1.2. related to disposal activities, and MedWaves, as executing partner, is executing activities related to prevention.

38. Related to mercury activities, the project is carrying-out three assessments for (i) Bosnia-Herzegovina "Small Scale Funding Agreement (SSFA) to prepare an assessment on the contamination of soil and groundwater with Mercury at HAK 1, Chemical industrial complex, Tuzla, Bosnia &Herzegovina", which has been completed through a SSFA agreement with Tuzla University; (ii) "Small Scale

Funding Agreement (SSFA) to prepare an assessment on the POPs contamination of the harbor beds, and its risks assessment at Tivat Bay and Risan Harbour in Montenegro", which has started with the executing partner of CETI, and (iii) Mercury assessment and Development of an Environmentally Sound Management (ESM) Plan in Tunisia, which is being executed by UNDP Tunisia.

39. Ms. Mellendorf then showed an overview of the mercury waste (as per project document) in Algeria and Tunisia for potential disposal, after the findings of the Environmentally Sound Management Plan. She also mentioned that there is a need for an agreement with Algeria about the development of the ESM plan, while it was indicated by Morocco that the 2t of metallic mercury stored at a chlor-alkali site (as per project document) are not available for disposal.

40. Capacity-building activities are also an important aspect of the MedProgramme, so a SSFA agreement with CIEMAT has been reached to carry out the following activities: covering topics of the Minamata Convention and mercury (in general), mercury site-charazterization (examples, tools), decommissioning of chlor-alkai sites, and mercury disposal.

- Training modules for Mercury (Hg) about (a) Minamata Convention on Mercury; (b) Mercury-contaminated sites and remediation; (c) Mercury monitoring; (d) Chlor-alkali Hg-contaminated sites with focus on the Mediterranean region prepared.
- Awareness-raising material on the Mercury situation for the MedProgramme region in Tunisia (in English and French).
- 4 capacity-building meetings on Mercury for the MedProgramme region, including the capacity-building event on mercury in Athens (September 2023), and one training in Spain, 1 online and Tunisia organized and training carried-out. (hybrid or in-person, depending on budget constraints and availability of technical infrastructure).

41. Regarding the timelines, the environmentally sound management plans for mercury waste disposal need to be ready of until March 2024 to be able to make a decision at the Project Steering Committee, following the initation of procurement cases. This is an important milestone taking into account that the project will end in quarter 2025.

42. Ms. Mellendorf finalized her presentation by announcing that a video-maker has been recruited for the development of Chemicals & Waste-related videos. Further information will be shared in due time.

43. Ms. Sierra, represented CIEMAT to this meeting, and she provided an overview about the Minamata Convention, its history, the nature of mercury in the environment, including environmental and health effects, and outlined the timeline and milestones of the Minamata Convention on Mercury.

44. Ms. Mellendorf provided a brief overview of the mercury assessments, which were undertaken in Tuzla, Bosnia and Herzegovina, and now in Tunisia.

45. Ms. Zouad from Morocco then continued to present mercury findings as per country assessment. The findings showed that there are no interim stocks of mercury compounds. There have been no imports since 2015 and the quantities imported have been used, and that there is only one chlorine soda manufacturing company using mercury (industry). Legal gaps in certain areas covered by the Convention which makes it necessary to fill and correct it through the adoption of new laws and regulations in order to ensure full harmonization of the national legal framework with certain obligations of the Convention and facilitate their application.

46. Ms. Sukovic from the Center for Ecotoxicological Research, Podgorica, Montenegro presented an overview about the initial findings of the SSFA agreement between UNEP/MAP and CETI. However, first an overview about the Boka Bay, challenges with the pollution due to numerous causes such as inadequate waste management, discharge of polluted wastewater, inadequate environmental management, and outdated technologies. In reponse to pollution, a monitoring program of the state of coastal ecosystem of Montenegro was performed from 2009-2016, which indicated no, average or above average mass concentrations of mercury in the sediment per sampling location.

47. Regarding the SSFA and its objective to carry out a risk assessment on the contamination of the harbor beds with POPs and mercury in Tivat Bay and Risan Bay, Ms. Sukovic outlined a locational overview of the Boka Bay, which is the largest bay of the Adriatic Sea (87 km²) and consists of 4 smaller bays. Towards creating an environmental risk assessment, the formation of the national team and as well as an initial site visit has been completed for three research locations at Tivat Bay (Porto Montenegro, shipyard and marine "NAVAR", and Tivat airport). At the CSM- Porto Montenegro, the identification, of sources of contamination, pathways, and possible receptors may be affected, description of physical, chemical, and biological processes that occur or can occur at a contaminated site, and identification of transport, migration, and actual/potential impacts of contamination (in soil, air, groundwater, surface water, and sediments) to human and/or ecological receptors are necessary. The presenter described the current state of Porto Montenegro, its site history, and outlined relationships between a chemical source, exposure pathway and potential receptor, which are relevant for the interpretation of results. A detailed sampling plan for Porto Montenegro, shipyard and marina "NAVAR", Tivat airport, and Port of Risan.

48. Ms. Sukovic continued to outline the methodology of sampling, selected chemical compounds for analysis and results obtained so far (using a sediment quality guidelines), as outlined the presentation (14) to be found in the Annexes. Finally, it was mentioned that for the assessment of the combined effect of the POPs the calculation of the potential ecological risk index for some parameters will be applied where applicable. Potential ecological risk will be calculated as the sum of the risk parameters for the individual POPs and will reflect the impact of each pollutant but also the combined impact of multiple pollutants. In order to evaluate the potential genotoxicity and ecological impact of sediment contamination on aquatic biota, sediment toxicity bioassay toolkits will be conducted along with a comparison of results from conventional chemical analysis and SQG.

49. Mr. Guido van de Coterlet from Tauw talked about the decommissioning of chlor-alkali plants and started his presentation with an overview of chlor-alkali facilities in the Mediterranean Basin, and then explained the mercury cell techniques applied for former mercury chlor-alki plants, where metallic mercury was used during electrolysis, and that there is/was direct mercury contaminataion (pipes, equipment) and indirect mercury contamination (walls, floors). He outlined where the mercury can be in the chlor-alkali process and then continued with the decommissioning of chlor-alkali sites, which can be divided into three phases of decommissioning (i) the decommissioning phase (removal of stocks, cleaning of the network), (ii) decommissioning of above ground structures (site investigation and preparation, removal of materials and equipment, demolition of buildings), and (iii) remedication of soil and groundwater. Detailes for each step were outlined, as described in detail in presentation (15).

50. Ms. Sierra from CIEMAT provided a final presentation about CIEMAT's experience on mercury contaminated sites with an example of Almaden (Spain). She provided an overview about the location, and mentioned that the work is under the slogan"Prevention is better than cure", and that a conceptual model for the assessment of contaminated sites is being used. Generally there are four phases of planning of a decontamination project, which are phase 1 preliminary evaluation, phase 2 detailed research focusing on contamination type, location, extension and origin of contamination and

its sources, and sampling and analysis, phase 3 in which planning is carried out and feasibility is checked, and phase 4 that is the action plan. Ms. Sierra showed the results of soil-plant studies to study the uptake of mercury by different typical wild plants of the area, results of an eggplant and a potato study. The presentation was concluded by an overview of capacity-building activities undertaken by CIEMAT for national and international clients.

51. Ms. Mellendorf concluded the meeting by summarizing the way-forward with the environmentally sound management plans and mercury disposals, as per earlier presentation, and mentioned high-interest in the upcoming capacity-building activities on chlor-alkali and characterization of mercury-contaminated sites under the MedProgramme. The points were also welcomed by the participants. The meeting was concluded at 16.30.

Annex I

List of Participants

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UNITED NATIONS ENVIRONMENT PROGRAMME - SECRETARIAT TO THE BARCELONA CONVENTION AND COMPONENTS OF THE MEDITERRANEAN ACTION PLAN / PROGRAMME DES NATIONS UNIES POUR L'ENVIRONNEMENT - SECRETARIAT DE LA CONVENTION DE BARCELONE ET COMPOSANTES DU PLAN D'ACTION POUR LA MEDITERRANEE

Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean (Barcelona Convention) and its protocols

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Annex II

Provisional Agenda

MedProgramme – Child Project 1.1 Reducing Pollution from Harmful Chemicals and Wastes in Mediterranean Hotspots and Measuring Progress to Impacts

Capacity-building on mercury and prioritization for POPs disposal

September 19-20, 2023

Athens, Greece

Introduction

Child Project 1.1. deals with the disposal and prevention of Persistent Organic Pollutants (POPs) and mercury (Hg) in the participating countries of Algeria, Albania, Bosnia & Herzegovina, Lebanon, Montenegro, Morocco, and Tunisia. Output 1.1 aims to manage and dispose of 2,000 tonnes of POPs, and Output 1.2 aims to manage and safely storage of 50 tonnes of mercury wastes.

This meeting focuses on the PCB disposal strategy, including the next procurement exercises, and on capacity-building for mercury to facilitate mercury characterization studies under the MedProgramme and final disposal of mercury.

1. PCBs inventories and PCB disposal phases under the MedProgramme, including prioritization,
2. Capacity-building on Minamata Convention, mercury characterization and mercury disposal (led by CIEMAT)

Objectives

1) To present national PCB inventories, prioritize PCB equipment for next PCB disposal phase;
2) To build capacity on mercury (Minamata Convention, site characterization and mercury disposal.

Agenda

September 19, 2023

Prioritization of PCB inventory, and PCB disposal

Time* Athens time	Item	Speakers
9.00 h - 9.30 h	Registration	
9.30 h - 10.00 h	PCB activities, PCB inventory and PCB disposal under the MedProgramme	Maren Mellendorf (UNEP/MAP)
10.00 h -12.00 h	PCB inventories from Albania, Algeria, Morocco, Tunisia,	Countries

Time* Athens time	Item	Speakers
12.00h - 13.30h	Lunch	
13.30 - 16.00 h	Prioritization exercise and PCB disposal (procurement- requirements, steps, timeline)	Maren Mellendorf (UNEP/MAP) and countries
16.00h - 17.30h	Questions and answers	All

September 20, 2023

Capacity-building on Mercury

Time* Athens time	Item	Speakers
9.00 h - 9.30 h	Registration	
9.30 h - 10.00 h	Mercury activities under the MedProgramme	Maren Mellendorf (UNEP/MAP)
10.00 h -11.00 h	Minamata Convention and Mercury	CIEMAT
11.00 h -12.00 h	Mercury assessment under the MedProgramme	BiH, Montenegro, Tunisia
12.00h - 13.30h	Lunch	
13.30 – 14.30 h	Mercury characterization – general, tools, examples	CIEMAT
14.30h - 17.30h	Mercury activities for MedProgramme countries Questions and answers	CIEMAT, countries