



NARRATIVE REPORT

Workshop on the sustainable management of POPs contaminated sites

June 24–26, 2025.

Organized by:

MedWaves, the UNEP/MAP Regional Activity Centre for
SCP and the Ministry of Environment / Libya under the
GEF/UNEP Mediterranean Sea Programme.

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1 Introduction

The “**Workshop on the sustainable management of Persistent Organic Pollutants (POPs) contaminated sites**” was held online, on 24th, 25th and 26th of June. 2025. The workshop was presented in English with simultaneous interpretation into Arabic.

The workshop on contaminated sites management was according to the guidelines on the same issue of the Stockholm Convention (SC). The workshop was meant for Governmental staff and NGOs involved in the management of contaminated sites.

MedWaves, the UNEP/MAP Regional Activity Centre for SCP (former SCP/RAC) organizes this workshop and invited Boudewijn Fokke, operating as an independent consultant under the name of *Boudewijn Fokke Soil Consultancy*, to prepare and give this workshop.

The workshop discussed the “*Finalized draft guidance on Best Available Techniques (BAT) and Best Environmental Practices (BEP) for the management of sites contaminated with Persistent Organic Pollutants (POPs) dated, 24-26 June 2025 of the SC*”, hereafter referred to as the Guidance (<https://www.pops.int/tabid/9649>). This Guidance has been developed to guide Parties of the SC in the identification, assessment, management, and remediation of POPs contaminated sites, and in their actions to minimize and prevent releases of POPs from contaminated sites. This Guidance also provides information to protect human health in the process of assessment and remediation of sites. The main target audience are staff responsible for developing action plans for the identification, assessment, management, and remediation of POPs contaminated sites and technical staff involved in their implementation.

In the workshop was followed by 16 participants (see Annex I) coming from the scientific community, staff members of the related ministries, local NGOs, oil industry, farmers, and private sector. There was an active participation, and the participants express their satisfaction with the content presented material during the workshop closure.

1 Objectives of the workshop

The workshop's main objectives were:

- To introduce the Guidance which is tools to identify, assess, manage and remediate POPs contaminated sites with the goal of minimising human and environmental exposure to the harmful effects of POPs.
- To introduce the Phased approached of the sustainable management of POPs contaminated sites
- To present Phase 1, the Preliminary Site Investigation and Phase 2, the Detailed Site Investigation of the sustainable management of contaminated sites and the role of the Conceptual Site Model
- To present the Phase 3, the Site Remediation Assessment, Phase 4, the Site Remediation and Phase 5, the Site Monitoring and Aftercare
- To present the conditions to Getting Started with the management of contaminated site such as Legislation, Policy, Inventory Development and Financing Remediation

During the training the step-by-step approach on technical matters related to management of POPs contaminated sites was emphasized. A range of governance issues that are important to establishing a broader national level contaminated sites program were also discussed.

The phased (step-by-step) approach to address POPs contaminated sites in this guidance is framed within sustainability principles and aligns with the Sustainable Development Goals (SDGs) to ensure they are compatible with other important aspects of environmental protection and social development programs for Parties in countries developing soil management, water and other natural resource strategies and legislation.

2 The training program

The workshop was opened with the participation of Mr. Jordi Moles, from MedWaves, and Mr. Omar Sharif , GEF Operational Focal Point and GEF/Medprogramme projects coordinator in Libya, who welcomed the participants. The three-day program was introduced by Boudewijn Fokke. Table 1 gives the headlines of the three-day program. Annex II gives the detailed program in the presentation 1 with the title “General Introduction training”. The training started on Tuesday, 24th of June and the last day was Thursday 26th of June. The program started each day at 10:00 AM and was closed around 14:00 PM.

Table 1: Summary of the training program

Day	Activities and issues discussed
1	Opening and general introduction workshop
	Introduction to the sustainable management of POPs contaminated sites covering Module 1 & 2
	Introduction to the Conceptual Site Model
	Module 3 - Site investigation, Assessment and Conceptual Site Model
2	Module 3 - Soil and groundwater survey equipment
	Module 4 - Environmental Risk Assessment
	Module 5 - Remediation Technologies and Techniques
	Module 6 - Technology Selection Tool for remedial options to be used in Phase 3 - The Site Remediation Assessment
3	Module 7 - Stakeholder Engagement, Public & Worker Safety & Health
	Module 8 - Contaminated Sites Remediation and Monitoring and Aftercare
	Using PPE and RFP while working with POPs
	Module 9 - Getting Started: Legislation, Policy, Inventory Development and Financing Remediation
	Wrap-up and closure Workshop

3 Workshop Content

3.1 Day1

The training started with the opening and general introduction workshop to explain the workshop objectives, to discuss the detailed training program and share the rules of the training. As this was an online training using Zoom, the interaction with the participants was limited to the "chat box" for questions and the Icon for "hand raising" in case more explanation was needed. During the training confirmation of the understanding was asked regular. The presenter used the English language which was simultaneously translated in Arabic. The following channels were available for the participants (1) the channel with the original language of the speaker, (2) the Arabic translation of the original language (3) the English translation of the original language.

After the general introduction the content of BAT & BEP Guidance on contaminated site management of the Stockholm Convention (February 2025) was presented. The Guidance has 10 modules and the content was shortly shared. The order of the Modules follow the sequence of the phased approach of the contaminated site management. The training program followed the same order of the 10 modules.

After the general introduction the sustainable management of POPs contaminated sites covering Module 1 & 2 of the Guidance was presented.

As the Conceptual Site Model (CSM) is crucial in all phases of the sustainable management of contaminated sites a separate lecture to introduce the CSM was planned on the first day of the training. After the CSM was explained and the importance emphasized, the first half of the presentation dealing with Module 3, covering the Site investigation, Assessment and Conceptual Site Model, was discussed.

3.2 Day 2

The second day started with the second half of the presentation of Module 3. To not only discussing the theoretical part of the site investigation a separate session was given on the soil and groundwater survey equipment. Besides slides on various necessary equipment for site investigation, the importance of avoiding cross contamination was addressed.

One of the principles of the sustainable management of contaminated site is the risk-based approach. As the results of the various tier of environmental site risks (Human health risks, ecological risks and risks for contaminant migration) provide the reason the proceed to the next the phase of the contaminated site management or abort, as there are no risks as, a separate module (Module 4 - Environmental Risk Assessment) is devoted to this issue. The content of Module 4, was explained in a separate session of the training

When there are environmental site risks a site should be remediated. As there are different techniques and technologies available to remediate contaminated soil and groundwater Module 5 - Remediation Technologies and Techniques provides guidance on available technologies and techniques for the management and remediation of POPs contaminated soil, sediments, groundwater and POP wastes.

Module 6 - Technology Selection Tool for remedial options to be used in Phase 3 - The Site Remediation Assessment was explained in the last session of day 2. The tools which are simple Excel tables were demonstrated.

3.3 Day 3

The first lecture of the third day was on Module 7 - Stakeholder Engagement, Public & Worker Safety & Health. The content of this Module is based on the Sustainable Development Goals (SDGs) of the Global Environment Facility (GEF) and Article 10 of the Stockholm Convention on Public information, awareness, and education. In this context, stakeholder engagement is outlined not just as a measure to distribute information but to ensure an ongoing dialogue is maintained between those responsible for managing the contaminated site, the competent authorities, the site workers, and the community around the site to ensure their health and safety is not compromised by management and remedial activities.

The second lecture was on the Module 8 - Contaminated Sites Remediation and Monitoring and Aftercare. To manage sustainably a contaminated site is a stepwise process, with five phases proposed. Phase 1 Preliminary Site Investigation and Phase 2 the Detailed Site Investigation are discussed in Module 3. Phase 3, the Site Remediation Assessment is discussed in Module 5 and 6. This lecture dealt with the last two phases, Phase 4, the Site Remediation Management and Phase 5, the Site Monitoring and Aftercare. Remediation Management comprises the tendering; the detailed design of the remedial campaign; the remediation itself; remediation closure; project evaluation and reporting. The different ways to tender a remediation project were explained. The last phase, Phase 5, is only implemented when the remediation campaign of Phase 4 is completed and residual contamination with environmental risks remain at the site. Phase 5 comprises all long-term on-site operations to sustain the remedial results and remediate and/or contain the residual contamination until all the remaining environmental risks are all removed.

As during Phase 4 and 5 onsite activities are to be executed and during such activities it is necessary to handle hazardous substances including POPs, a special session was given on the use of Personal protective equipment (PPE) including Respiratory Protective Equipment (RPE). It was emphasized that PPE and RPE the final line of defence are.

The last lecture was discussing the content of Module 9 - Getting Started: Legislation, Policy, Inventory Development and Financing Remediation. This module provides the policy framework to bring together all the preceding technical elements, principles, and approaches into a coherent national contaminated sites program. The lecture canvassed the major policies, legislation and principles.

4 Evaluation

Participant feedback at the end of the lectures indicated strong interest in the topics discussed. This workshop served as an introduction to sustainable management of contaminated sites. The trainer was unsure if all content was clearly conveyed due to translation challenges on the first day, though these improved with slower pacing and pauses. To address language barriers, Arabic videos, presentations, and workshop materials will be made available via the MedWaves YouTube channel and will be shared by email. However, online lectures lack visual contact, and limiting participant interaction.

Of the 54 registered participants, only 12 (22%) attended all three days of the workshop. Online participation often falls short compared to in-person workshops in Libya due to many reasons such as:

- Weak internet infrastructure: unstable connection in many areas especially outside major cities which suffer from intermittent internet making it difficult to follow sessions smoothly.
- Not everyone has access to a laptop or tablet. Many rely on phones, which limits their ability to view content, or participate in discussions.
- Online participants are more easily distracted by home life, work, or social media that make them attend only part of the sessions.

5 Annexes

5.1 Annex I – List of participants

Name (original name)	Email	Total duration (minutes)	Attendance Frequency
Omar Sharif	sharif.omar300@gmail.com	784	3-Days
Mohamed Aldakar	mohamed220072020@gmail.com	767	3-Days
Nermeen Gritli	narmeenadel@gmail.com	672	3-Days
Gloria Muftah	gloriamuftah@yahoo.com	658	3-Days
Abdullah wanis	waneesabdullah@gmail.com	549	3-Days
Hana	grminten@yahoo.com	535	3-Days
Muna Ibrahim	muna24122011@gmail.com	531	3-Days
Abubaker Sharif	abu.sharif@sebhou.edu.ly	530	3-Days
Hassan Mohamed Ali Almortada	hassanalomrani285@gmail.com	495	3-Days
Fairouz Elghali	alghali.fairouz@gmail.com	391	3-Days
youssef zidi	youssef.zidi@mineat.gov.tn	389	3-Days
ambark mustafa	amb.mustafa@wau.edu.ly	384	3-Days
Mahmud Al Tarhouni	altarhouni73@gmail.com	407	2-Days
Abdalraheem Huwaysh	ahweesh@yahoo.co.uk	355	2-Days
mohamed malloog	mmalloog1@gmail.com	320	2-Days
Gasem Mohamed	aboelgasem2018@gmail.com	194	2-Days
Almahdi Dabbash	darkman28945@gmail.com	147	2-Days
Hamed Almasri	hamed4256017@gmail.com	115	2-Days
Suhail Abdullah	suhail.r.a97@gmail.com	13	2-Days
abu sharif	abu160.abu160@gmail.com	195	1-Day
Othman Mokhtar	ot.sd.mu@gmail.com	191	1-Day
Mohaled EL BOUCH	elbouch21@yahoo.fr	179	1-Day
Amnah Alshebani	amn.alshebani@wau.edu.ly	145	1-Day
Ambark Nino	ambark417@gmail.com	30	1-Day
Salma	7mwtvxjkhc@privaterelay.appleid.com	9	1-Day
Ali Mawof	ali.mawof@mail.mcgill.ca	5	1-Day
Suhail Almzoge	libya1997105@gmail.com	1	1-Day
Isma Mohamed	is.abdolrhman@wau.edu.ly	1	1-Day

5.2 Annex II – The presentations of the Workshop