

Section II: Schedule of Requirements

Terms of reference

e-Sourcing reference: ITB/2021/24995

**Supervision of the clean-up of the contaminated sites in
Skopje, North Macedonia (UNOPS-RS-2021-S-017)**

Terms of reference (TOR) for the provision of the services on the supervision of the site clean-up activities

Clean-up of Contaminated Sites at the Former OHIS Factory in Skopje – remediation of the “small dump” (delta-HCH dump)

General Information and Background

Chemical plant OHIS, situated seven kilometres from the North Macedonia capital - Skopje, in less than five kilometre proximity of 50,000 inhabitants, was one of Macedonia's largest industrial producers of a range of chemical products, including highly toxic pesticide lindane. In 1977, following a European wide ban, due to high risk to human life, the lindane production stopped, and the site has lain virtually abandoned.

The Organic Chemical Industry of Skopje AD (OHIS) was burdened by the historical production of lindane, an organochlorine pesticide. The lindane plant was gradually put into operation from 1964 and manufactured lindane until 1977, when its production ceased due to changing market conditions and environmental burden. Lindane, the gamma isomer of hexachlorocyclohexane (HCH) was produced by the process of photo-chlorination of benzene. The total lindane production according to the data provided by OHIS was around 2,800 tons resulting in a generation of around 25,000-30,000 tons of inactive isomers, i.e. alfa-, beta- and delta-HCH that were improperly dumped, causing secondary contamination of the soil and groundwater, and generation of air emissions as well. However, according to the detailed site investigation performed in 2017-2018, the estimated total quantities of the HCH containing waste and contaminated soil are around 60,088 tons.

A Memorandum of Understanding (“MoU”) was executed between the United Nations Office for Project Services, the Government of the Republic of North Macedonia, and the Embassy of Norway to the Republic of Serbia, representing the Norwegian Ministry of Foreign Affairs, in December 2018. The purpose of the MoU was to provide a framework for cooperation and to facilitate collaboration between the parties executing it, in cleaning-up environmental hotspots, and mitigating the environmental risks these hotspots pose in the territory of the Republic of North Macedonia.

In order to address this issue, the Government of the Republic of North Macedonia, in partnership with UNOPS, set up a Multi-Partner Environmental Fund (MPEF) that will manage contributions from diverse donors. The MPEF, which is a systematic mechanism for clean-up of industrial pollution at the OHIS industrial site, is established, operational, and in position to receive and utilise funding for the implementation of remedial actions.

Activities will be supported by two UNOPS managed projects titled:

- I) The Multi-Partner Environmental Fund (MPEF) Clean-up of Ohis Site, whose objective is to contribute to greater resilience to environmental risks and reduced hazards to human

health in North Macedonia by remediating industrial pollution at the former OHIS site in line with the European standards; and,

II) Nordic Support for Progress of North Macedonia, in particular Result 2 of the project, which is Enhanced Social Inclusion; Living Conditions and Local Infrastructure improved; Activity 2.4 Clean-up of toxic waste from OHIS factory - setting-up of a multi-partner environmental fund.

The direct beneficiaries of this project are the Government of North Macedonia and the Ministry of Environment and Physical Planning, while the indirect beneficiary is the entire population of North Macedonia.

Complete rehabilitation of the OHIS area is technically, economically and timely demanding and requires the remediation of at least two basins, disposal of the waste and treatment of the contaminated soil at the top, inside and aside.

Considering the complexity, urgency, financial size, as well as that this Project is aligned with efforts of the Government of North Macedonia to conduct environmental reforms in accordance with European standards, the MPEF and the Government will engage with the cleaning of the small basin of waste first - δ -HCH waste dump.

This will be done in collaboration with United Nations Industrial Development Organization (UNIDO), under its current project Removal of Technical and Economic Barriers to Initiating the Clean-up Activities for Alpha-HCH, Beta-HCH and Lindane Contaminated Sites at OHIS in Macedonia.

The whole intervention will be divided into three Lots: UNIDO will fund Lot 1 interventions and the UNOPS managed MPEF will be used to fund activities from Lots 2 and 3.

Detailed Terms of Reference (TOR) for remediation of 240 tons of HCH and 653 tons of HCH contaminated soil¹ had been prepared, and re-using UNIDO tender results, the same company (Polyeco S.A. Athens, Greece) was contracted.

Scope of the Proposed Contracted Services

The work intended to be provided by the Remediation activities Contractor - the company Polyeco - is to remediate the δ -HCH waste dump by disposal of the δ -HCH waste and treatment of the HCH-contaminated soil at the top, inside and aside of the δ -HCH dump. The soil is contaminated with HCH and other related components and hereafter referred to as HCH contaminated soil.

¹ Lot 1, contracted by UNIDO – should enable remediation of 450 tons HCH waste + 200 tons HCH contaminated soil; Lot 2, to be contracted by UNOPS (MPEF) – should enable remediation of 1,151 tons HCH waste + 3,860 tons HCH contaminated soil. In the first batch of contracting Polyeco was requested to submit an offer for 240 tons of HCH and 653 tons of HCH contaminated soil; Lot 3, to be contracted by UNOPS (MPEF) - remediation of 1,000 tons of HCH contaminated concrete and revitalization/restoration of the plant site.

Activities will follow pre-defined technology: excavation, separation, packing, shipment and disposal of the HCH waste at a licensed facility abroad - Removal of wastes and overlying contaminated soil and destruction by thermal decomposition, i.e. incineration at a licensed facility abroad.

Formal supervision of works / remediation activities on site is needed and will be contracted by UNOPS for UNOPS portion of activities.

The Contractor responsible for the supervision of remediation activities ("hereinafter Supervision Contractor") will provide assistance primarily in clean up operation initiated and the execution mechanism in place to sustain the clean-up operations beyond the project period, especially in establishing of a monitoring programme/system at the location aimed at execution of the clean-up operation.

The role of the Supervision Contractor is to monitor, supervise and evaluate the performances of the Contractor in every phase of the delta HCH dump clean-up activities. Namely, the Supervision Contractor shall perform the tasks specified in the table below. The time frame of the tasks will follow the delivery of outputs of the Remediation activities Contractor.

The supervision must be assured for a 100% time, so that at least one responsible supervisor must be present at the site during the site remediation activities². The Occupational Health and Safety measures supervisor must be present on site to perform inspection of the performance of the works on a weekly basis.

Scope of services

point	Task	Work to be provided	Expected result(s)
A	Review the Contractor's Site Remediation Plan	Monitor the adherence to the Site Remediation Plan, including: <ul style="list-style-type: none"> - Work Plan, Health and Safety Plan, Risk Assessment Plan, Environmental Management Plan, Emergency Response Plan and the Monitoring Plan submitted by the Contractor and propose adequate corrections for improving the same; 	Report on the adequacy of the submitted Site Remediation Plan Work Plan, Health and Safety Plan, Risk Assessment Plan, Environmental Management Plan, Emergency Response Plan and the Monitoring Plan. Monitoring programme for the supervision of works / remediation activities that will include Supervision Contractor Work Plan, Health and Safety Plan, Risk Assessment Plan, and Emergency Response Plan.
B	Review of the Transboundary licenses in accordance with the Basel Convention as approved by the competent authority of	Evaluate the adequacy of the transboundary licences according to prevailing local and international regulations and conventions.	Evaluation report on the adequacy of the transboundary licences

² Packaging activities are envisaged for 130 days according to Polyeco work plan.

	North Macedonia issued to the Remediation activities Contractor (Polyeco company).		
C	Monitoring of packing of 240 tons of HCH waste and 653 tons of HCH contaminated soil	<p>Monitor/control the adequacy of the:</p> <ul style="list-style-type: none"> - delivered packages, i.e. whether the same are UN approved and adequate for the HCH waste subjected for disposal; - labels, i.e. whether the same are in accordance with the transportation agreements; - safety and emergency equipment, i.e. whether the same are in accordance with the needed quality standards; - handling, packing and logistical equipment/materials; - excavation, separation and packing operations (preparation of the site for the excavation, packing and storage activities); - functionality of the environmental enclosure; - envisaged temporary storage site; - labeling and weighing of the packages; - post-treatment of e.g. waste waters, any gaseous, liquid and solid wastes, etc.; - analytical results from the monitoring programme/plan; 	<p>Monitoring report with detailed explanation on the packing activities submitted, evaluating the compliance of the Contractor's operations with the ToR, then the best working practices, the international standards, agreements and conventions and whether in accordance with the submitted Work Plan, Health and Safety Plan, Risk Assessment Plan, Environmental Management Plan and Emergency Response Plan.</p> <p>Moreover, the Report shall provide the inventory logbook with the final quantities of the HCH waste and HCH contaminated soil that is packed, stored and prepared for transportation.</p> <p>Interpretation of the analytical results from the monitoring programme/plan, the post-treatment of the generated by-products and the backfilling process.</p>

D	Monitoring of the transportation of the packed HCH waste and HCH contaminated soil	<p>Monitor/control the adequacy of:</p> <ul style="list-style-type: none"> - provided documentation for transboundary movement and the permits; - loading and stowing of the HCH waste and HCH contaminated soil on the transport units (trucks, containers); - licenses/approvals of the drivers and the transport units (ADR certificates for the drivers, vehicle approval certificate, CSC approval); - documents that accompany the shipment (Received export, transit and import permits, tracking form, instructions for the driver, truck/container loading list, etc.); - labelling of the transport units; - preparatory activities for the transportation (driver briefing, route adherence, vehicle/container inspection); - insurance of the carrier(s); - written approval from the disposal site on the accepted HCH waste and the HCH contaminated soil; 	Monitoring report describing the compliance of the Contractor's transportation activities with the Macedonian and international regulations including customs, EC Directive No. 1013/2006 of the European Council concerning the shipments of waste, the Basel and Stockholm Convention documentations for transboundary movement of the HCH waste and the HCH contaminated soil, as well as with the international standards and guidelines on hazardous waste transportation.
E	Verification of the disposal of the HCH waste and the HCH contaminated soil	<p>Control the adequacy of the:</p> <ul style="list-style-type: none"> - written confirmation from the disposal site on the disposed HCH waste and HCH contaminated soil 	Verification report confirming the disposal of the HCH waste and the HCH contaminated soil;
F	Evaluation of the reports submitted by the Contractor on fulfilled activities	Review the validity of the submitted reports by the Contractor on fulfilled activities and, if needed, provide inputs, comments to reflect the eventual discrepancies from the real site conditions	Verification report on the submitted Contractor's reports on fulfilled activities

Deliverables

Milestone #	Deliverables	Payment tranches (upon submission of the respective invoices)
1	Contract duly countersigned; receipt and acceptance by UNOPS of the monitoring programme / system at the location aimed at execution of the clean-up operation, following the review of the Contractor's site remediation plan and site take over report.	Twenty percent (20%) of the Contract Price
2	Submission and UNOPS's acceptance of the Evaluation report on the adequacy of the transboundary licences.	Twenty percent (20%) of the Contract Price
3	Submission and UNOPS's approval of the Monitoring report with detailed explanation on the packing activities performed, evaluating the compliance of the Contractor's operations with the ToR of its contract. This will be aligned with the Contractor's submission of the Contractor's Report No. 1 evidencing packing of 240 tons of the HCH waste and evidencing packing remediation of 653 tons HCH contaminated soil.	Thirty percent (30%) of the Contract Price
4	Submission and UNOPS's approval of the Verification report confirming the disposal of the HCH waste and the HCH contaminated soil; The Verification report will be aligned with the Contractor's submission of the Contractor's Report No. 2 evidencing disposal of 240 tons of the HCH waste and evidencing disposal of 653 tons of HCH contaminated soil.	Twenty percent (20%) of the Contract Price
5	Submission and UNOPS's approval of the Verification report confirming Contractor's reports on fulfilled activities.	Ten percent (10%) of the Contract Price

Payments

Payments will be made within 30 days upon receipt and acceptance of Invoices submitted by the Supervision Contractor to the UNOPS, confirming that the required activities are delivered.

The payments will depend on the time of the finalization of the requested deliverables.

The services funded by UNOPS projects are normally VAT exempted. All relevant documents necessary for VAT exemption will be provided by UNOPS to the Supervision Contractor.

UNOPS reserves the right to perform payments with VAT included for one or more contract milestones. The Contractor will be required to issue invoices with or without VAT included, in accordance with the UNOPS request.

Requirements that must be met by the Bidder:

The supervision must be assured for a 100% time during the remediation activities performed on the site in the OHIS compound. According to the Polyeco Work plan, 130 days are planned for Packaging operations. At least one responsible supervisor must be present at the site during this time. The Occupational Health and Safety measures supervisor must be present on site to perform inspection of the performance of the works on a weekly basis.

- The Bidder must be a legal entity, duly registered and active at the time of submission and in continuous business of providing similar services for at least five years.
The Bidder can be a joint venture (consortium) composed of two or more legal entities, whereas one legal entity is appointed as a leading one (the Bidder - the main Supervision Contractor). In case of subcontractors and/or joint ventures, the formal & eligibility requirements are the same as for the main Supervision Contractor (leading entity).
- The Bidder must have at least 5 years of professional and practical experience and proven track record in the development and design of contaminated sites (especially for POPs) remediation plans, as well as the supervision/monitoring of the site remediation process, packing of the hazardous waste, and in the TFS (Trans Frontier Shipment) procedure.
The Bidder must prove compliance with Sustainability criteria. i.e. experience in supervision/monitoring of the site remediation process and packing of the hazardous waste. Reference list of all contracts relevant to this ToR, stipulated in the last five years, must be submitted within the Form D - Previous Experience Form.
- At least two reference projects demonstrating knowledge of international / national contaminated site legislation and management practices, such as EU regulation on contaminated sites or Stockholm Convention on POPs or Basel Convention on the Control of Transboundary Movements of Hazardous Waste and their Disposal or Dutch soil intervention values and groundwater target values (Dutch Ministry of Housing, Land Planning and Environment, 2009);
- The references must include at least one reference project with HCH-stockpile management and destruction technologies experiences.
- In-depth knowledge on the internationally/nationally accepted guidelines and protocols for contaminated site management, e.g. UNIDO's "POPs contaminated site investigation and management toolkit", FAO Pesticide Disposal Series, UNEP's "Selection of POPs Disposal Technology for the GEF", etc.
- The Bidder must possess sufficient financial capacity and liquidity: the ratio Average Current assets / Current liabilities over the last 2 years must be equal or greater than 1. Bidders should also have total sales turnover in the last two years of minimum USD 40,000.00 (or equivalent in other currency). Bidders must include in their Bid copies of audited financial reports or any valid proof issued by the relevant authorities demonstrating the solvency and turnover, covering the last 2 years.

The Proposed team

The Bidder must have within its proposed key team an Overall team leader, a Health & Safety Officer and Team member responsible for the verification and control on a daily basis of activities on site.

The Supervision Contractor shall assign the number of personnel which possess relevant qualifications required for performing the requested activities. All engaged team members must be independent and free from conflicts of interest in the responsibilities they take on.

The team leader must be permanently employed, while the team members can be either permanently employed or be engaged on a service contract basis with the company.

The working language for the bidder's proposed personnel shall be English. Knowledge of the Macedonian language is desirable.

Requirements for the key-personnel:

Overall Team Leader

The Team leader must be an engineer and with the experience in supervision of minimum five years. The Team leader must possess the following qualifications:

- Minimum 5 years of working experience, and specific experience from similar HCH site clean-up management including excavation, packing, transport, in-situ and ex-situ destruction of HCH wastes and HCH contaminated soil
- University degree in a relevant technical discipline (i.e. chemical engineering, chemistry, environmental sciences, engineering)
- Minimum 5 years experience with project planning, environmental management planning and monitoring plans for similar projects, including working with environmental enclosures Experience with multi-stakeholder engagement
- Fluent English language (speaking, reading and writing) demonstrated in the CV. Proof of the language proficiency might be requested in the evaluation stage
- Knowledge of Macedonian language is desirable

Health & Safety Officer

- University degree in relevant technical disciplines (i.e. chemistry, environmental sciences, industrial occupational health and safety, engineering) or Certificate from relevant institution or State Licence Exam certificate on Occupational Health and Safety measures
- Minimum 2 years of proven experience with Health and Safety management planning for similar projects
- Fluent English language (speaking, reading and writing) demonstrated in the CV. Proof of the language proficiency might be requested in the evaluation stage
- Knowledge of Macedonian language is desirable

Team member responsible for the verification and control on daily basis of activities on site

- University degree in relevant technical disciplines (i.e. chemistry, environmental sciences, industrial occupational health and safety, engineering)
- Minimum 3 years of proven experience with Environment management projects
- Fluent English language (speaking, reading and writing) demonstrated in the CV. Proof of the language proficiency might be requested in the evaluation stage
- Knowledge of Macedonian language is desirable

Required documents

Returnable Bidding Forms:

1. Form A: Joint Venture Partner Information Form (optional, to be completed and returned with your Bid if the Bid is submitted as a Joint Venture/ Consortium/ Association)
2. Form B: Bid Submission Form
3. Form C: Price Schedule Form
4. Form D: Technical Bid Form
5. Form E: Format for Resume of Proposed Key Personnel / CV for each team member
6. Form F: Statement of Availability signed by the Bidder and countersigned by the proposed Team leader and each of the key Team members, for the provision of services described within this ToR
7. Form G: Past Contracts Form / List of contracts completed by the Bidder or ongoing contracts, related to development and design of the contaminated sites (especially for POPs) remediation plans, as well as the supervision / monitoring of the site remediation process, packing of the hazardous waste, stipulated in the last five years, must be submitted

Additional documentation:

8. References for minimum two similar projects related to the development and design of the contaminated sites remediation plans, or supervision / monitoring of the site remediation process, packing of the hazardous waste. Out of the two reference projects, at least one concerning HCH-stockpile management and destruction technologies experiences must be submitted. The references must be in the form of the final payment certificate or reference letters, issued by the Client to the Bidder.
9. For the Team leader: proof of permanent employment (copies of the contract) and copies of the decisions of appointment as a responsible supervisor for at least two similar contracts
10. For the key Team members: copies of the service contracts or the permanent/temporary employment contracts
11. For the Health & Safety Officer: copy of the Certificate from the relevant institution or State Licence Exam certificate.
12. Business Registration document (certificate of incorporation) issued by the relevant government body.
13. Copies of registered financial reports or any valid proof issued by the relevant authorities demonstrating the solvency and turnover, covering the last 2 years

Timeframe

Contract for professional service will be issued for the period of up to ten months, ending in June 2022. The exact contract duration will be available upon selection of the Supervision contractor.

Background documentation

The ToR for the selected Remediation activities of the Contractor:

[UNOPS TOR for Remediation activities, Contractor Polyeco](#)

OHIS SITE REMEDIATION PROJECT-CONCEPTUAL DESIGN-D'APPOLONIA (2010)

[OHIS Site Remediation Project - Conceptual Design](#)

[OHIS Site Remediation Project - Presentation of the Conceptual Design & Remedial Options - Drawings](#)

OHIS FEASIBILITY STUDY-ENACON (2009)

[OHIS FS GW final draft - Deconta](#)

[OHIS FS constr materials draft final - Dekonta Annexes](#)

[Macedonia OHIS URA report final 2009](#)

[Update OHIS FS dumps final](#)

[Update OHIS FS HCH dumps Annexes](#)

FEASIBILITY STUDY OHIS PLANT-EPTISA (2007)

[CARDS 2006 FEASIBILITY STUDY - Volume I - OHIS Plant](#)

FINAL RESULTS OF THE SITE INVESTIGATION – POLYECO (2017-2018)

[UNIDO Final Investigation Report OHIS rev.2](#)

[Appendix A: HSE Plan Sops](#)

Content: "Emergency Response Plan OHIS", "HSE Plan OHIS" and "SOPs & RAs"

[Appendix B: Laboratory Protocols](#)

Content: "SGS analysis certificate", "COA Standard" and other data.

[Appendix C: Measured Field Data](#)

Content: "Measured Field Data OHIS v.3"

[Appendix D: Soil analysis results comparison with dutch](#)

Content: "Undisturbed samples codes description", "Outside soil samples", "Perimeter soil samples", "α,β-HCH soil samples" and "δ-HCH soil samples"

[Appendix E: Groundwater Analysis Results Comparison with Dutch](#)

Content: "Groundwater samples"

[Appendix F: Vegetables Analysis Results Comparison with EC 369.2005](#)

Content: "Vegetables samples"

[Appendix G: Air Analysis Results Comparison with TLV](#)

Content: "Air samples"

[Appendix H: Soil Contamination Maps](#)

Content: "A collection of Soil Contamination Maps"

[Appendix I: Groundwater contamination maps](#)

Content: "Groundwater 1st Campaign" and "Groundwater 2nd Campaign"

[Appendix J: Groundwater Contour Maps](#)

Content: "Contour Map 1st campaign" and "Contour Map 2nd campaign"

[Appendix K: Cross Sections of \$\delta\$ -HCH Dump](#)

Content: "Cross section δ -HCH_NE-SW" and "Cross section δ -HCH_SE-NW"

[Appendix L: 3D Schemes-Models of \$\alpha\$, \$\beta\$ & \$\delta\$ -HCH Dumps](#)

Content: "A&B_3d_HCH_final", "A&B_3d_structure_final", "delta_3d_HCH" and "delta_3d_structure"

[Appendix M: Soil Properties - Boreholes Profiles](#)

Content: "a&b HCH dump boreholes profiles v.2", "HCH range at different stratigraphy δ -dump v.2", "Moisture at different stratigraphy", "Perimeter dumps boreholes profiles v.2", " δ HCH dump boreholes profiles v.2" and other data.

[Appendix N: Topographic plan of \$\alpha\$, \$\beta\$ & \$\delta\$ -hch dumps](#)

Content: "Coordinates_all_OHIS" and "Ohis topographic plan (pdf, dgn and dwg files)".

RISK ASSESSMENT ANALYSIS - EMGRISA (2019)

[Risk Assessment Analysis - Update final](#)

In case of doubts or troubles, please go to the original website of these documents at: <http://pops.org.mk/activities.html> and scroll down until you find an ongoing project. You can download each document from there.