



The Regional Intergovernmental Organization for the  
Conservation of the Environment of the Red sea & Gulf of Aden



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## **Promotion Of Strategies to Reduce Unintentional Production of POPs In The Red Sea And Gulf Of Aden (PERSGA) Coastal Zone (GF/RAB/08/006)**

### **FINAL EVALUATION**

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**This document has not been formally edited**

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The evaluator followed the steps of the midterm evaluation that he finds systematic, comprehensives and well organised. The evaluator trusts that the proposed recommendations will help PERSGA and UNIDO in targeting other GEF funded Projects in the same domain.

## ABBREVIATIONS AND ACRONYMS USED IN THE REPORT

ASEZA	Aqaba Special Economic Zone Authority
BAT	Best Available Technologies
BEP	Best Environmental Practices
CTA	Chief Technical Advisor
DAC	Development Assistance Committee
EA	executing agency
EEAA	Egyptian Environmental Affairs Agency
EU	European Union
GEF	Global Environment Facility
IA	Implementing Agency
LBA	Land Based Activities
LBS	Land-based Sources
LDC	Least Developed Countries
M&E	Monitoring and Evaluation
MoU	Memorandum of Understanding
MSP	Medium Sized Project
NGO	Non Governmental Organization
NIP	National Implementation Plan
NPC	National Project Coordinator
OECD	Organization for Economic Co-operation and Development
OP	Operational program
PCDD/PCDF	Polychlorinated dibenzo-p-dioxins and dibenzofurans
PCU	Project Coordination Unit
PERSGA	Regional Organization for the Conservation of the Environment of the Red Sea and Gulf of Aden
PMC	Project Management Committee
PNSC	Project National Steering Committee
POPs	Persistent Organic Pollutants
RPC	Regional Project Coordinator
RS	Regional Strategy for BAT/BEP implementation in the coastal zone of the Red Sea and Gulf of Aden
RSGA	Red Sea and Gulf of Aden
SAICM	Strategic Approach for International Chemical Management
SC	Stockholm Convention
TEQ	Toxic Equivalent Quantity
UN	United Nations
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNIDO	United Nations Industrial Development Organization
UP-POPs	Unintentionally produced POPs

## **1. EXECUTIVE SUMMARY**

### **Background**

Sustainable management of the resources of the Red Sea and Gulf of Aden called for a collective regional approach, which culminated in the establishment of the Regional Organization for the Conservation of the Environment of the Red Sea and Gulf of Aden (PERSGA). PERSGA has fostered a spirit of international cooperation and exchange of knowledge among governments, research institutions and civil societies in the region. Regional action plans on environmental matters have been developed and integrated into the national sustainable development plans of the PERSGA member states. PERSGA member states are Djibouti, Egypt, Jordan, Saudi Arabia, Somalia, Sudan and Yemen.

All PERSGA countries: Djibouti, Egypt, Jordan, Saudi Arabia, Somalia, Sudan and Yemen have become Parties of the SC and during regular consultation meetings of PERSGA, they have also agreed that close cooperation is needed to collectively implement the SC's measures concerning introduction of best available techniques (BAT) and best environmental practices (BEP) for the coastal zone industries.

The project aimed at building on the existing cooperation and collaboration experiences of these countries (and their effort on sustainable coastal zone management) and integrate the Stockholm Convention (SC) requirements to the industrial sector of the coast to reduce and/or eliminate unintentionally produced persistent organic pollutants (UP-POPs).

The countries have further agreed that it could be possible that a larger impact on the environment and the coastal zone economy be attained if the cooperation is made at regional level under PERSGA leadership rather than on the national level. Consequently, PERSGA has approached UNIDO for assistance through developing and implementing a Medium-Sized Project (MSP) to enable the introduction of BAT and BEP to the industrial sector of the coastal zone. It is important to note that Saudi Arabia is a self financed country, Somalia is politically unstable and Djibouti has expressed problems of language and preferred not to join the four countries.

The objective of the project is to reduce and/or eliminate the unintentional production of POPs (UP-POPs) in key sectors of industry (cement, incineration, metallurgy and pulp and paper) recognized as important source categories in Annex C of Article 5 of the Stockholm Convention through the introduction of BAT/BEP strategies. The project foresees the development and endorsement of a regional BAT/BEP strategy for BAT/BEP implementation and consequently reduction of Annex C POPs releases. The project was foreseen to contribute to the improvement of human health and environmental conditions in the coastal zone.

The project document was approved by the Global Environment Facility (GEF) in 2008. Project activities started in February 2009.

### **Objectives of the project**

The objective of the project was to reduce and/or eliminate the unintentional production of POPs (UP-POPs) in key sectors of industry (cement, incineration, metallurgy and pulp and paper) recognized as important source categories in Annex C of Article 5 of the Stockholm Convention through the introduction of BAT/BEP.

Project activities have led to the development and endorsement of a Regional Strategy for BAT/BEP Implementation in the Coastal Zone of the Red Sea and Gulf of Aden (RS). At the same time the project aimed at developing a regional inventory of UP-POPs releases, building capacity at

the national and regional levels to monitor UP-POPs, demonstrating that BAT/BEP implementation can lead to reduced releases of UP-POPs, while the competitiveness of the industries are improved.

## Resources

The total budget is as follows:

Source	Type of resource	Amount (US\$)
GEF	Grant	1,000,000
Co-financing	In kind and cash	2,030,000
<b>Total</b>		<b>3,030,000</b>

The co-financing of 2,030,000 US\$ before the project started was expected to be received from various sources as indicated below. GEF contribution of 1,000,000 US\$ includes the finances of 50,000 US\$ used for the preparation of the project document.

Source	Type of resource	Amount (US\$)
PERSGA	Cash	186,000
PERSGA	In kind	214,000
Egypt	In kind	500,000
Jordan	In kind	500,000
Sudan	In kind	300,000
Yemen	In kind	300,000
UNIDO	In kind	30,000
<b>Total</b>		<b>2,030,000</b>

## Results of the Implementation (Findings)

The evaluation concluded the followings:

1. The project was successful and met the expectations of the stakeholders. PERSGA has demonstrated outstanding accountability and widespread regional recognition supporting the implementation of the project. Commitment of the stakeholders continuously improved during implementation; the attainment of project objectives are in line with the project document.
2. The project strategy is logical; the activities were grouped under eight components which build on one another. The outputs are sound and have led to the objectives of the intervention.
3. Institutional capacity to manage UP-POPs at the regional level through support of the project and PERSGA has been created. Laboratory capacity in the region has also been strengthened. Ben Hayyan Laboratory has received on-the-job training in their facilities, which significantly enhanced their capability of analysing UP-POPs.
4. Legal frameworks at the national levels are being put in place for the management of UP-POPs releases. Besides project focuses on the coastal area, while countries develop their

legislations on the national level. The intervention of the project has provided directives through the Regional Strategy to the national legislative authorities to have better consideration of the coastal area in their national legislations.

5. Awareness raising and providing access to information is an important element of the project. There were five PMC meetings, two trainings on UP-POPs sampling and analysis two trainings on BAT/BEP strategies for the selected UP-POPs sources during the implementation. Private industries also received trainings over the course of inventory development and data collection. The project was hosted on PERSGA website where project related information have been made accessible. Countries partnering the project have continuous mobility of trained people to find job opportunities outside their countries which emphasises the need for continuous replacement of those who leave. Numbers of trainers capable of providing public awareness activities at the national level have reached a reasonable level that would provide for the replication of the project public awareness activities. A significant part of the public awareness activities has been included in the implementation of BAT/BEP with the selected industries.
6. Sampling and analysis for the monitoring of UP-POPs has been carried out in association with the BAT/BEP implementation. Some border matters concerning the transport of samples emerged during the process and needed to be handled.
7. The selection process of the industrial sectors for BAT/BEP promotion is scientifically and socially appropriate. The approach of selecting one common sector for the region and one country-specific sector is sound. There are small, medium and large scale industries among the beneficiaries of the BAT/BEP implementation. The Regional Strategy for BAT/BEP Implementation in the Coastal Zone of the Red Sea and Gulf of Aden has benefited a lot from the demonstration activities.
8. The project management structure was established early during execution of the Project and maintained throughout the Project Period and is still in place after the project ended as a Unit for Managing Chemical Pollution at PERSGA. PMC meetings have been held regularly on the regional level, the reports have been regularly on file. The implementation on the regional level has been transparent and effective.
9. The approach followed by the PCU in signing partnership agreements with industry is effective and helped in securing substantial co-financing of the project. This has reached 15,000,000 US\$. Most of it coming from the private sector. It is above the expectations. The governmental contribution is slightly less than what was expected but the governmental support was instrumental and without it approaching the private sector and signing partnership agreements with them wouldn't have been possible.
10. The resources provided as well as the expertise and momentum created by the Project are instrumental for implementation of the Regional Strategy. They also for a corner stone for targeting other PERSGA UNIDO GEF Projects in the same domain.

## **Recommendations**

By analyzing the conclusions the following recommendations could be made.

- The project has paved the ground for further collaboration. It is recommended here that Regional Projects Workplans should be developed on a way that allows for larger flexibility.
- Supporting the intentions of the PMC in undertaking more public awareness activities and BAT/BEP evaluation implementation, these components should be maintained in future joint Projects



- Since this regional project started with four participating countries plus the Kingdom of Saudi Arabia as a self financing country, utilizing PERSGA regional and interregional recognition could be a good starting point for expanding objectives of new projects to all PERSGA member states and even to other countries in different regions with varying needs and expertise.
- The Regional Strategy for BAT/BEP Implementation in the Coastal Zone of the Red Sea and Gulf of Aden containing recommendations for harmonizing the PERSGA countries' legislation on UP-POPs management is strongly recommended during implementation to encourage countries to benefit from provisions made for the coastal area as basis for legislation for the whole country.

## **PRESENTATION AND ANALYSIS OF THE PROJECT**

### **Project description**

#### **Project general information:**

Project Name	Promotion of strategies to reduce unintentional production of POPs in the Red Sea and Gulf of Aden (PERSGA) coastal zone
Project's GEF ID Number	2865
Country	Regional (Egypt, Jordan, Sudan and Yemen)
GEF Focal Area and Operational Program	OP 14, POPs-2
Agency	UNIDO
Project Approval Date	7 October 2008
Date of Project Effectiveness	February 2009
Total Project Cost	3,030,000 US\$
GEF Grant Amount	1,000,000 US\$

### **The funding organization**

The project is financed by the Global Environment Facility (GEF) and implemented by the United Nations Industrial Development Organization (UNIDO). The Waste Research Centre has been executing it at the national level.

The Global Environment Facility was established in October 1991 as a US\$ 1 billion pilot program in the World Bank to assist in the protection of the global environment and to promote environmental sustainable development. The GEF provided new and additional grants and concessional funding to cover the additional costs associated with transforming a project with national benefits into one with global environmental benefits. UNDP, UNEP, and the World Bank were the three initial partners implementing GEF projects. In 1994, at the Rio Earth Summit, the GEF was restructured and moved out of the World Bank system to become a permanent, separate institution.

As independent financial organization, the GEF provides grants to developing countries and countries with economies in transition for projects in selected focal areas related to biodiversity,

climate change, international waters, land degradation, the ozone layer, persistent organic pollutants and others.

GEF funded projects benefit to the global environment, linking local, national, and global environmental challenges and promoting sustainable livelihoods and development.

The GEF is today the largest funding organizations of projects to improve the global environment. So far, the GEF has allocated US\$ 8.8 billion, supplemented by more than US\$ 38.7 billion in co-financing more than 2,400 projects in over 165 developing countries and countries with economies in transition.

As part of its restructuring, the GEF was entrusted to become the financial mechanism for several international conventions such as the Stockholm Convention.

In partnership with the Montreal Protocol of the Vienna Convention on Ozone Layer Depleting Substances, later the GEF started also funding projects that are enabling Russian Federation and nations in Eastern Europe and Central Asia to phase out their use of ozone-destroying chemicals.

The GEF subsequently was also selected to serve as financial mechanism for The Stockholm Convention on Persistent Organic Pollutants (2001) and, therefore, in this framework, is financing this project.

During the project design due to the capacity building nature of the project, among the various GEF mechanisms, the medium-sized project (MSP) approach was selected. This allows a faster project development up 1,000,000 US\$ grant support.

### **Project rationale**

At the time the project document was developed the NIPs of the participating countries was prepared. Baseline assessment of the situation concluded that national governments were well-capacitated with the preliminary identification of UP-POPs sources and release estimates. Initial public awareness and participation has been achieved through the development process of the NIPs in these countries. The NIPs also highlights the general socio-economic status of the countries and provided a strong baseline for the GEF support.

Participant countries demonstrated that the reduction or elimination of POPs is a respective national priority and that they were committed to take appropriate actions. Due to the trans-boundary movement of POPs and the special nature of the coastal zone, it was of importance to take preventive measures to reduce the negative impact of industrial activities, human settlements and particularly in areas of uniqueness to the ecological integrity of the coastal zone. Project hypothesis is that these preventive measures can be more effective if undertaken in a coordinated manner at the regional level and coupled with the regular collection and interpretation of high quality scientific data to provide corrective feedback and enable effective decisions than undertaking the same at the national level. The participating countries have therefore decided to integrate their collective efforts under the regional umbrella of PERSGA and took united actions in reducing UP-POPs releases from the industrial sources.

The project responded to country requests, addressed to UNIDO through PERSGA, for assistance in meeting their obligations under Article 5 of the Stockholm Convention concerning the reduction of UP-POPs releases in the RSGA coastal zones as listed in Annex C of the Stockholm Convention. The countries indicated that the reduction of UP-POPs releases in the selected industries is among the top priorities in their NIPs. Knowing the special situation of the coastal zone, where the majority of the population and industries are present, a strong commitment has been conceptualized by initiating the UP-POPs release reduction measures in the four participating countries, Egypt, Jordan, Sudan and Yemen. PERSGA approached UNIDO seeking its assistance to develop a GEF

MSP to facilitate the reduction and elimination of UP-POPs in the RSGA region, in particular by promoting the use of BAT and BEP.

Barrier analysis of the project document highlighted the following:

- Source specific UP-POPs release inventories were available at the national context but these inventories lack the regional integration vision and conclusions to aggregate them. Source specific technology-needs and technology transfers were not identified in these reports. This hindered the planning and implementation of BAT and BEP at wider scope such as at regional level. Cumulative release estimates on the regional context were not available and time trend analysis of the releases has not been assessed.
- There was a limited technical experience and capacity to enable identification and rational use of available alternative technologies to the currently used ones and to ensure successful implementation of BAT and BEP.
- The roles of national and regional investment banks have not been fully understood and investigated as to the possibilities of mobilizing resources for BAT and BEP implementation in the industrial sector although these banks invest in the industrial production projects. There were no specific POPs related investment technology promotion policies for enterprises to support the transfer of BAT and BEP.
- UP-POPs and their effects were not regularly monitored in the coastal zone of the participating countries. There was no entity at the regional level to undertake the regular monitoring activities, to harmonize and provide an organizational back up for UP-POPs release reduction measures. General lack of information on the laboratory capacities and expertise in POPs analysis further encumbered the situation. Therefore, due to the lack of monitoring activities, the information on human and environmental health impacts of UP-POPs sources and the level of exposure were absent.
- There was a lack of information relating to socio-economic considerations associated with the introduction of new industrial control measures to inform the industries and local governments on decisions that need to be undertaken and their impact to the communities in the coasts. Such information should reflect the different capabilities and changing conditions among the participating countries to accommodate the socio-economic effects of the new technologies.
- There were no special indicators for coastal zones that would link together the positive and/or negative impacts on society when implementing the possible control measures such as their effects on public health, environmental and occupational health, agriculture including aquaculture, biota (biodiversity), economic aspects, movement towards sustainable development and their social costs.

UNIDO's expertise and experience with industries and cleaner production as well as its activities in establishing BAT/BEP forums all over the world provided the rationale to invite this organization to assist PERSGA countries in addressing these barriers.

The GEF funding through the project was planned to consolidate ongoing activities of the participating countries in implementing their obligations for the SC.

The project will implement the principles of both environmentally and economically sustainable development and critically review trends and lessons to integrate them in regionally coordinated actions. Information on key regional trends, including sources of UP-POPs, vulnerability and impacts of these sources on the environment, human health, socio-economic development and public participation will be readily available. Region-specific, but nationally connected indicators and their interpretation in forms that are understandable to decision-makers and the public will be clearly highlighted.

The project document foresaw the development of a regional strategy for the introduction of BAT and BEP which would generate and substantiate technical lessons and knowledge for further replication in other coastal zone regions. The practical application of the Regional Strategy for BAT/BEP Implementation in the Coastal Zone of the Red Sea and Gulf of Aden will largely contribute to the regional and international discussions on UP-POPs releases and the impacts of UP-POPs releases on coastal zones.

Since ecological effects of POPs would not disappear shortly but increasingly need to be brought to attention the project aimed to build capacity for regular reporting procedures, newsletters and web publishing, thus environmental problems are dealt with more anticipatory rather than reactive way.

The project document visualized that demonstration of BAT and BEP implementation open new, innovative economic incentives for the private sector that would increase their cost-effectiveness while reducing UP-POPs releases and thus the private sector would take over the implementation of the BAT and BEP measures from local and regional government authorities. Increased reinvestment at the local-scale would improve the quality of the environment in the coastal zone and would provide better livelihood for the locals, which might have positive impact on the tourism and open the possibility for economic diversification.

It was foreseen that the project would build capacity at PERSGA to integrate POPs into its current programme portfolio. Thus coastal zone of the Red Sea and Gulf of Aden and its ecosystem, socio-economic development and environmental status would be overseen in a broader way. PERSGA, as a regional entity has the capacity to add more value to the implementation of Annex C related obligations under the Stockholm Convention in the region. PERSGA can, based on scientifically proved data, effectively direct the participating countries' attention to priority areas of action within the region.

The project is expected to build widespread awareness of the nature of the POPs problem and provides for the possibilities of solving or mitigating them through the RS.

## **PERSGA**

The Red Sea and Gulf of Aden (RSGA) hosts some of the world's most important coastal and marine environment and resources. The high rate of population and economic growth in the coastal areas in the region has resulted an increasing pressure on the environment. There is a growing risk of marine pollution and environmental degradation due to several human and economic activities such as industrial pollution.

With the signing of the Cairo Declaration in September 1995, all parties to the Jeddah Convention officially established the Regional Organization for the Conservation of the Environment of the Red Sea and Gulf of Aden (PERSGA). Its Secretariat is hosted by Saudi Arabia in Jeddah. It is the official organisation concerned with the development and implementation of regional programmes for the protection and conservation of the environment of the RSGA. The Ministerial Council governs ministers handling environment affairs in each of the seven PERSGA member states namely Djibouti, Egypt, Jordan, the Kingdom of Saudi Arabia, Somalia, Sudan and Yemen.

PERSGA has prepared the "Protocol for the Protection of the Marine Environment of the Red Sea and Gulf of Aden from Land-Base Sources (LBS) of Pollution", which was approved in 2005 is under effect. The Protocol states that:

*"The contracting parties are: Committed to the precautionary principle and the 'polluter pays principle', and to the use of Environmental Impact Assessments together with the use of the best available technologies and ideal environmental practices, including clean technology production";*

*"Determined to take the necessary measures in a framework of close cooperation among themselves, to protect the Red Sea and Gulf of Aden from Land-Based sources of pollution".*

Article 5 of the Protocol, states that the contracting parties shall prevent pollution from LBS, with particular emphasis on the gradual elimination of inputs of toxic, persistent and bio-accumulating substances by implementation of work plans based on source control.

Article 19 of the Protocol, deals with the “*adoption of regional measures, work plans and programs*”. This creates the legal environment for the RS and for its implementation within the PERSGA portfolio.

PERSGA has collaborated with member states in preparing the NPA National Plan for Protection of the Marine Environment from Land Based Activities. The respective Governments adopted and endorsed the plans as national policy. The LBAs are already in place. They provide framework for integrated management of coastal areas: horizontally, among all related stakeholders and vertically, within the organization structure of each stakeholder. Regional capacity building programmes have been implemented, which resulted in strengthening the capacity of individuals as well as organizations in this field, to develop and undertake the LBAs measures.

### **Organizational arrangements for implementing the project:**

PERSGA as the regional coordinating body for the participating countries was nominated to be the Regional Executing Agency. PERSGA is foreseen to deliver specific inputs (services, expertise, procurement of equipment) to the project and produce specific outputs through a contractual agreement between PERSGA and UNIDO. PERSGA is responsible for the implementation of the activities financed through co-financing instruments of the participating countries and other stakeholders. PERSGA is accountable to UNIDO for the proper use of funds provided to it and for the quality, timely and effectiveness of the services it provides and the activities it carries out.

PERSGA was requested to establish a POPs unit which is acting as the project coordination unit (PCU) with one staff at management level, namely the regional project coordinator and two at general service level be provided for by PERSGA. The PCU will be responsible for the day-to-day project implementation and the timely and verifiable attainment of project objectives. The decision making at the regional level is undertaken by the Project Management Committee (PMC). The PMC hold at least two meetings in each year. The meetings are always links to the attainment of certain milestones of the project, thus at each meeting decisions could be made. The PMC comprises of PERSGA, UNIDO, and or POPs and PERSGA national focal points of the participating countries. During the implementation the national POPs focal points have entrusted the National Project Managers to represent the participating countries at the PMC meetings. The PMC oversees the project related work at the regional and national level, reviews, comments on and approves the workplan. All decisions of the committee, such as respective responsibilities, timelines and the budget are communicated to the parties concerned.



**Figure 1. Project Coordination Unit Members**

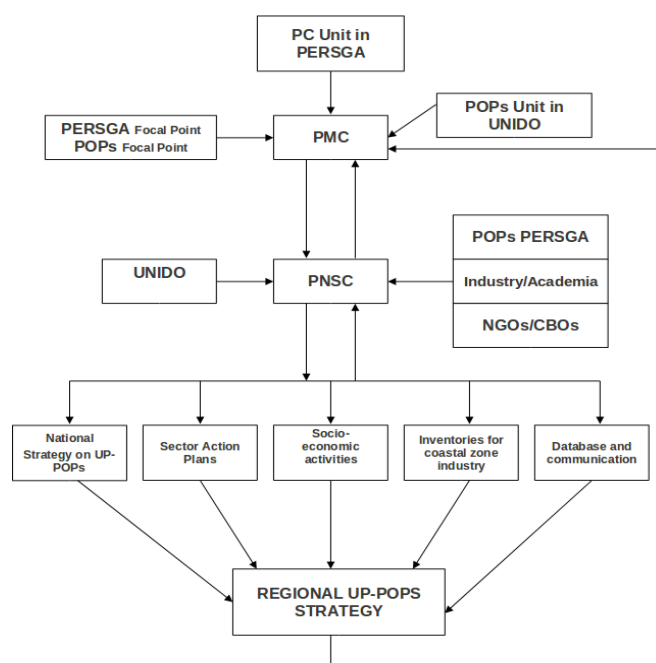
Each participating country was also requested to establish the national implementation mechanisms. In this regard national executing agencies were nominated that are cooperating with PERSGA at country level. In Egypt it is the Egyptian Environmental Affairs Agency of the Ministry of Environment, in Jordan it is the Aqaba Special Economic Zone Authority, in Sudan the Provincial

level authority in Port Sudan under the Ministry of Environment and in Yemen the Environmental Protection Agency in Sana'a. National Project managers have been nominated and they are responsible for the day-to-day implementation of the project at the national level. Project National Steering Committees (PNSC) were also established and act as the management committee for the national execution of this project. They are the decision making bodies of the project at national level.

Project activities are undertaken by either national experts or national expert teams. In this regard the modalities follow PERSGA procedures. The experts and team members are selected at the national level, and PERSGA signs terms of references with them. Certain activities such as laboratory analysis are implemented through subcontracts between PERSGA and the selected entity. Tenders are according to PERSGA procedures. Submitted tenders, contracts and terms of references are reviewed and evaluated by the PMC and processed in accordance with the existing UNIDO and PERSGA procedures. Any major changes in the project plans or programmes are also subject to approval of the PMC before they may take effect. PMC members facilitate the implementation of the project activities in their respective organizations, ensure that activities are implemented in a timely manner and facilitate the integration of project-inspired activities into existing programmes and practices.

The overall implementation of the project is undertaken and monitored by UNIDO. The project management structure is presented below.

UNIDO in consultation with PERSGA assigned a Chief Technical Advisor (CTA) to the project. The CTA worked part time, on contract by contract, basis and provided technical support, such as train people, draft ToRs, evaluates project related technical reports, etc.



**Figure 1: Organizational arrangements of the project**

## Analysis of concept and design of the project

### National context

The four participating countries have ratified the Stockholm Convention. Egypt ratified it on 2 May 2003, Jordan on 8 November 2004, Sudan on 29 August 2006 and Yemen on 9 January 2004. According to UNDP classification Sudan and Yemen are LDCs.

### Egypt

Egypt is one of the largest countries in Africa. It enjoys a unique geographical location, being situated on the north-eastern corner of the African continent. The country over decades has gone through a major economic development while the population increased from 60 million in 1996, to 76,699,427 million (inside and outside Egypt) in 2006. While the total area is more than one million km<sup>2</sup>, only 7.83% of the total area is habitable and most of it lies along both sides of Nile River. While the total area is more than one million km<sup>2</sup>, only 35,000 km<sup>2</sup> are habitable and most of it lies along both sides of the Nile banks.

Most of the industrial activities except some mining and oil exploration are concentrated in this area. Like in any developing country, chemicals are widely used in industry, agriculture, trade and health. While agrochemicals and pharmaceuticals are well controlled under the country's strict registration scheme, quality control laws, and periodic monitoring and registration schemes, the industrial chemicals used in various outlets have no strict control measures, causing lack of information on toxicity and environmental fate.

The country, through various Government decrees, is a signatory to many chemicals and environment related Global Conventions. In particular, Egypt is a major player in the region for Basel Convention on hazardous waste and also to the Rotterdam Convention on Prior Informed Consent in addition to the Stockholm Convention on POPs. Egypt is also playing an efficient role for preparing the Strategic Approach for International Chemical Management (SAICM).

Egypt has prepared its National Plan to reduce unintentional production of POPs in the Red Sea Coast and Regions within the borders of Egypt, specifically the governorate of the Red Sea. This plan integrates the country's National Implementation Plan (NIP) and is one of its proposed priorities. The plan identified the following barriers.



**Figure 2: NPC of Egypt**

- Lack of environmental awareness of the people, which increases the problem of dumping waste in the streets or at the sea.
- Lack of potentials needed to collect and transport waste especially in the random housing areas in the northern and southern cities away from Hurgada.
- The deteriorating state of available open public dumpsites that represent a source of pollution to the surrounding areas.
- Lack of potentials needed for the treatment of waste to transform it into organic fertilizers. There is only one plant available with limited potentials.
- Lack of an integrated system to deal with medical waste.
- Lack of a means to re-use construction wastes that pile up in public dumpsites.
- Lack of prepared harbours to receive liquid and solid waste from daily tourist and safari boats, as it is the case with the River Nile, which resulted in disposal of such waste in the water.

Red Sea region is blessed with a unique environmental system all along the coast of the Red Sea that extends to reach 1941 km. The total coastal area is shared between three governorates the Red sea, Suzie and South Sinai Governorates.

The inventory of dioxin and furan releases concluded that 955.38 g TEQ PCDD/Fs are released into the environment annually at the Egyptian Red Sea coastal zone. The highest emission was to air (595.4485 gTEQ/a, which represents 62.249 % of total releases), followed by the releases to land (350.6 gTEQ/a, which represents 36.772 % of total releases). The releases to residues were 8.8317



gTEQ/a, which represents 0.926 % of total releases then 0.512 gTEQ/a was released to water which represents 0.052 %.

According to the inventory results the priority sectors for BAT/BEP introduction in the Red Sea Coastal Zone in Egypt were as follows:

- Uncontrolled burning processes (public dumpsites) in the Red Sea Governorates, the ownership are the Red Sea, Suez and South Sinai Governorates , they need at least 3 secured sanitary landfills, and 3 Centres for waste recycling and establishing fertilizer plants with budget of about 15 million dollars for each ( for the 1st stage short term action plan ).
- Medical waste incineration in Suez Governorate, Ministry of Health is the competent responsible Ministry in handling hazardous waste in medical services (they need two units working as central system including the collection, transportation, storage, treatment, and safe disposal from the residues with budget of about 10.0 million dollars).
- Power generation in Suez Governorate (2 stations), the ownership is the Ministry of Electricity and Energy.
- Ferro Manganese company in South Sinai Governorate ( public sector )
- Petroleum refineries in the three governorates.
- Production of mineral products (like cement production).
- Sewage and sewage treatment.

## **Jordan**

The Kingdom of Jordan lies in the Middle East and the Arab world, extending between the latitudes of 29°11' N and 33°22' N, and the longitudes of 34°59' E and 39°12' E. The area of the country is 92,000 km<sup>2</sup>, of which more than three-quarters is desert.

The coastal area consists of one city Aqaba. In 2001 and under the direction and leadership of His Majesty King Abdullah II, the Aqaba task force was created. A team that shares one vision and that is, to turn the Aqaba Special Economic Zone into a world class Red Sea business hub and leisure destination enhancing the quality of life and prosperity of the community through sustainable development and a driving force for the economic growth of Jordan.

Today, Aqaba remains one of the most important cities of the region, ensuring its role as a distinctive destination for living, business and tourism. The Aqaba Special Economic Zone Authority functions as a one-stop investment and information centre.

In 2002, ASEZA adopted a new Master Plan to promote and stimulate investments in the Zone. The plan is a comprehensive vision that defines a long-term development throughout the area with respect to land use, zoning, density and design guidelines to simplify and streamline the planning approval process.

The new Master Plan removes development barriers and encourages investment in industrial and port activities, urban tourism, residential development, commercial and retail ventures, academic and institutional development, coastal communities, recreational and open space



**Figure 3: NPC of Jordan**



facilities. To date, detailed planning has been developed in five special areas: Aqaba Town, the Port Areas, the Coral Coastal Zone, the Southern Industrial Zone and the Airport Industrial Zone.

A list of permitted uses for each special area has been defined and is available from ASEZA's Physical Planning Directorate. Currently, all developments in the region must follow the ASEZA General Building Regulations and Design Guidelines.

Specific Priorities for the Jordanian coastal area include:

- Control of solid waste open burning, such as landfill fires, by looking for the best available technologies alternatives and the best environmental practices.
- Handle of sludge generated from wastewater treatment plants.
- Manage and incinerate the medical wastes according to the scientific basis and sound technologies.
- Enforce the minimizing related legislation and issue the necessary new ones. Training on environmental management and environmental public awareness.

The total releases of dioxin and furan in the coastal zone of Jordan was 0.112 g TEQ /a. Ferrous and Non-Ferrous Metal Production, Production of Mineral Products and Production and Use of Chemicals and Consumer Goods are not undertaken. The category with the highest estimated emission is the transport sector (i.e. Diesel engines). Transport sector is estimated to contribute to nearly 64.3% of total emissions to air. Port activities and ships consumed around 4,869,552 ton/a (the amount of diesel consumed by the ships was obtained from the Jordanian Maritime Authority). Waste incineration contributes to nearly 29.2% of total emissions to air. However, in Aqaba, there is only one late model waste incinerator. This incinerator no longer meets recommended practice standards and is situated too close to other buildings. As for the rest of the Zone's clinical waste, despite sorting efforts, the waste is indifferently disposed off in the Aqaba City Landfill, without any treatment whatsoever. An agreement between ASEZA and Royal Medical Services was signed, ASEZA will take the role of collecting these medical wastes from the generator and the RMS will transfer it to one of their incinerator outside the zone. The haulage of the waste will stop the release of dioxin from the medical waste incinerator and this will reduce the annual release of dioxin to air and residue. Heat and Power Generation contribute to nearly 5.6% of the total emission to air, the amount of diesel consumed by the boilers (industrial and non industrial) and power generators is 5588.6 ton/a and the amount of heavy fuel used in Heavy fuel fired power boilers and power generators is 214237 ton/a. The power generation in Aqaba has turned to natural gas instead of heavy fuel, this will lead to decrease the dioxin emission to air, the flares which are connected to the pipeline of the imported natural gas was included in this section with an amount of 793581.7 ton/a. Disposal and land filling is estimated to be the only source of dioxin emissions to water and highest estimated emission to residues with annual release of 0.007 g TEQ to water and 0.110 g/TEQ to residues. Sewage/sewage treatment contributes to nearly 43% of the total emission to water and 98% to residue. Open water dumping contributes to nearly 57% of the total emission to water. Open Burning Processes are estimated to be the only significant source of dioxin emission to land through the 77 accidental fires in houses and factories, and 50 accidental fires in vehicles which annually release 0.003 g TEQ/a .

## **Sudan**

Sudan is the biggest country in Africa and Middle East, with a plain land of 250.4 million hectares. It sharing the border with nine African countries: Eritrea and Ethiopia to the east, Kenya, Uganda and republic of Congo to the south the Central African Republic and Chad to the west, and Libya and Egypt to the north. Geographically Sudan lies to the eastern segment of the Africa within the tropical zone between longitude 22 °to 38 °east.

Sudanese Red Sea coastline is some 750Km long, not including all embayment and inlets. Numerous islands are scattered along the coast, the majority of which have no water or vegetation. The dominant coastal forms are coralline beaches, rocky headlands and salt marches, commonly boarded with mangroves.

The principal environmental issues are

- Coastal habitat destruction by development
- Pollution from land-base sources (e.g. waste open burning)
- Passing ships pollution

The main city at the coastline is Port Sudan with a population around 500,000. All activities are concentrated between Arous village in the North and Sawakin port in the South in distance of 100Km approximately.



**Figure 4: NPC of Sudan**

The coastal zone inventory on dioxin and furan releases estimated that 65.64 g TEQ of PCDD/PCDF was released into the environments of coastline. Uncontrolled combustion processes had the largest impact with an emission of 64.58 g TEQ/a, which is 98.4% of total emission followed by disposal/landfill 1.1g TEQ/L, transport (0.0333; 0.05% of total releases) and ferrous and non-ferrous metal production and production of mineral products (each 0.02%).

The releases to the five compartments/media – air, water, land, residues and products – were assessed. According to the toolkit approach, the main emission vectors were to air (40.4165 g; 61.58% of total releases) and residues (24.2216 g; 36.90% of total releases) and water (1.1g ; 1.6%) with no releases to land, product and water. However since PCDD/PCDF are semi-volatile compounds and can transgress from one media to another (Figure 2), the emission vectors only give an idea of the direct releases from the sources and not of the final contamination. For example the main emission source of the coastline is uncontrolled waste burning with a direct release of 24.22g (36.90% of total releases) to residues. However, this can also be viewed as a direct contamination of land since the residues of uncontrolled waste combustion are just scattered all over the land and mixed with soil and additionally distributed by the wind. Furthermore this widely distributed contaminated residues/soil/land has the potential to directly contaminate water by wash out via rain.

## Yemen

Yemen lies in the south-western part of Asia and in the south of Arabian Peninsula. It is bounded on the north by Saudi Arabia and south by the Arab sea and Aden Gulf, to the east lays Oman and to the west is the Red Sea. Yemen has many islands along its coasts on the Red Sea and the



**Figure 5: NPC of Yemen**

Arab Sea. The largest island is Socotra, which is on the Arab Sea. The new administrative division of Yemen consists of (20) governorates in addition to the capital secretariat. The length of the coastal strip is more than 2000 km and its width ranges between 30-60 km. The main coastal cities are Aden (north-western side of the Gulf of Aden) Hodeidah (southeastern side of the Red Sea) and Macula (northeastern side of the Gulf of Aden).

The Red Sea and Gulf of Aden region of Yemen represent a complex and unique tropical marine ecosystem with extraordinary biological diversity and a remarkably high degree of endemism.

The coastal zone inventory on dioxin and furan releases estimated that 594 g TEQ of PCDD/PCDF was released into the environments of coastline. The leading sector was open burning with 136,425gTEQ/a releases to air and 231,15 g TEQ/a releases to land.

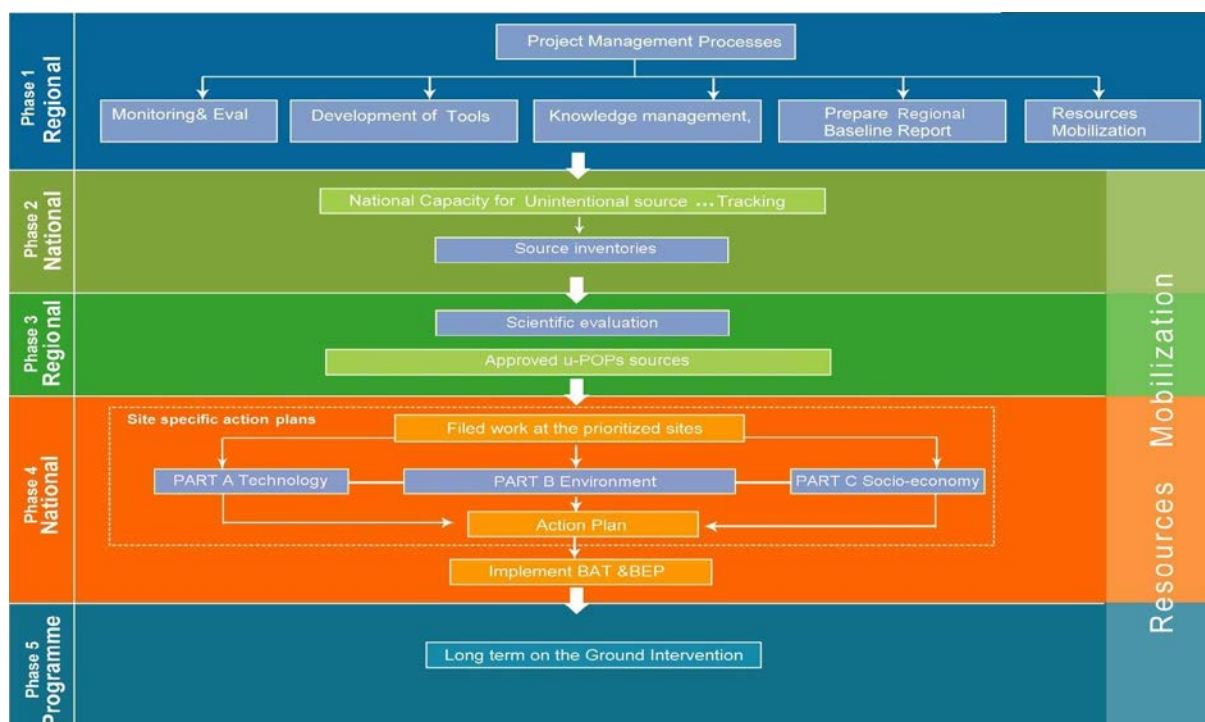
By becoming Party to the Stockholm Convention, participant countries have demonstrated that the reduction or elimination of POPs is a respective national priority and that they are committed to take appropriate actions. Due to the trans-boundary movement of POPs and the special nature of the coastal zone, it is of importance to take preventive measures to reduce the negative impact of industrial activities, human settlements and particularly in areas of uniqueness to the ecological integrity of the coastal zone. These preventive measures can be more effective if undertaken in a coordinated manner at the regional level and coupled with the regular collection and interpretation of high quality scientific data to provide corrective feedback and enable informed decisions. The participating countries have therefore decided to integrate their collective efforts under the regional umbrella of PERSGA and take united actions in reducing UP-POPs releases from the industrial sources.

The countries have received GEF assistance to develop their National Implementation Plans (NIPs). Article 12 of the Stockholm Convention states that appropriate technical assistance to developing country parties shall be made available, to assist them, taking into account their particular needs, to develop and strengthen their capacity to implement their obligations under the Convention. Article 13 indicates that new and additional financial resources shall be made available to enable these parties to meet the agreed full incremental costs of implementing measures, which fulfil their obligations under the Convention.

Consistent with the above-mentioned articles, the project reflects national priorities set out in the NIPs and country reports of the participating countries. It further elaborates the proposed measures and addresses additional issues that are not currently dealt with in the action plan such as resources mobilisation.

## **Project Design**

The design of the project concept was discussed on the workshop held in Jeddah, Saudi Arabia, 12-18 March 2006. It was then decided that the MSP resource mobilization scheme of the GEF would be used to access international financial resources. The project document was then drafted and discussed at the Regional Awareness Workshop for Financial and Industrial Sectors Institutions in Relation to the Stockholm Convention on POPs on 11-12<sup>th</sup> June 2008, which was a joint effort between UNIDO and PERSGA. The design of the intervention is as follows:



**Figure 6: Project implementation strategy**

The project foresees to have five phases, which are implemented simultaneously at the national and regional levels

- Phase I establishes the management structure and oversees the implementation.
- Phase II develops the inventories of UP-POPs sources, identify what types technologies are used in the industries, estimates the total impact of the industries on the coastal zones environment and human health. It also highlights the baseline of socio-economic implications of the industries and their public awareness and participation aspects.
- Phase III approves the UP-POPs priority sources for which BAT and BEP introduction is most important.
- In Phase IV, the source-specific BAT and BEP action plans are developed and implemented through the generated funding resources.
- Phase V represents continuity of the implementation of the initial MSP project, which turns into a sustainable programme and included in the PERSGA's regional portfolio.

In this regard the project design is sound. It builds on the resources and objectives of the Governments, wisely and cost-effectively utilizes other international and local finances. The project creates capacity at the national and regional levels for UP-POPs management.

The preliminary dioxin and furan inventories of the NIPs mainly identified the major sectors and confirmed that coastal zone industries have high contribution to environment pollution with UP-POPs. Due to lack of analytical infrastructure and human resources capacity, the inventory process has been unable to undertake site inspections and analysis. These shortcomings were identified during the project design and received great attention.

The involvement of the private sector was clear from the project design and the concept of assisting the private sector in investing in better and cleaner technologies that would also reduce the

environmental pressure is sound. Private sector involvement is foreseen for BAT/BEP implementation through direct investments.

Due to the environmental and health risks of UP-POPs the project planned to undertake socio-economic assessment of each location where BAT/BEP is introduced, which is in line with the Convention's objectives stipulated in Article 10. Trainings and workshops were foreseen at regional, local levels and enterprise levels, in order to build the necessary human resources expertise for the practical implementation of the project and for future activities.

The project implementation strategy was based on the following principles:

- Established and well-defined cooperation among governmental bodies involved in coastal zone management, local authorities, private sector, NGOs and local communities;
- Accountability of the project related work and expenditures of all involved parties;
- Transparency through clearly defined monitoring indicators and evaluation methodologies throughout the implementation.

## **METHODOLOGY OF THE EVALUATION**

### **Purpose and objectives of the evaluation**

The tasks of this final evaluation are outlined in the attached Job Description. (Annex I)

The purpose of the final evaluation is to enable the project stakeholders (Donors, Grantees, Government authorities, national counterparts, the participating regions and counties, industries, GEF and UNIDO) to appreciate the project's outcomes against design outlined in the project document and possible agreed on modifications during the project life, through the analysis of the achievements and lessons learnt from the Project.

The evaluation process offers the opportunity to the project stakeholders to learn about the possibilities of future re-orientation of the related activities and, in case, considering new projects. The evaluation process provides lessons and experiences for the eventual future design and implementation of the project aiming at building capacities for environmentally sound management.

This evaluation was foreseen in the project document to be undertaken in April 2012. During the implementation of the project delays were encountered mainly in selecting the national experts for inventory preparation and the inventory development, which took more time than expected. The mid-term evaluation that was linked to project milestone and the project was implementation was extended in such a way that the final Project Workshop was carried out in June 2012.

The primary purpose of any evaluation is:

- Assessing the achievements against the objectives and the expected results.
- Identifying factors that have facilitated the achievements of the projects objectives, or factors that hindered the fulfilment of these objectives.
- Determining which lessons can be learned from the existing experience, in order to improve the activities in further projects, with particular regard to the capacity of the structures supported to become self-sustainable.

Further, this evaluation is trying to determine, as systematically and objectively as possible, the relevance, efficiency, effectiveness, impact and sustainability of the project implementation regarding, among others, also:

- Whether the chosen strategies and target groups have been properly selected or should they had been promoted with different strategies or should other target groups have been selected.
- Whether the goals set in the project document and in the work plan have been reached.
- Whether the inputs provided (expertise, training) have been of good quality and according to the project document.
- Whether the activities have been undertaken in a controlled and coordinated manner by protecting human health and the environment from the harmful effects of POPs.
- Whether the PMC was put in place and completed its work adequately.
- Whether the POPs unit under PERGSA have been established and maintained for sustainability of the project's outputs.
- Whether the PNSCs formed in each participating country did its work adequately.
- Whether the project outcomes were put on a website and updated regularly.
- Whether a project e-stakeholders forum is in place.
- Whether Project related databases are in place.
- What funds mobilization plan has the project developed.
- Whether the appropriate tools for conducting the foreseen surveys were provided to the selected experts.
- Whether the capacities of the project stakeholders, such as the national executing agencies have been assessed.
- What kind of capacity building measures were undertaken to strengthen project stakeholders, and how many people were trained.
- Whether the laboratory capacity in the region have been strengthened for the analysis and monitoring of UP-POPs.
- How the data maintenance of the collected information is undertaken.
- How the industrial sources for BAT/BEP implementation were identified.
- What industries are the beneficiaries of the project activities.
- To what extent the BAT/BEP implementation have been achieved in the industries.
- How far has the monitoring program reached, how many samples have been analyzed.
- What kind of public awareness activities have been undertaken and how many people were trained.
- Whether the technical and financial reporting obligations of PERSGA have been met and been of good quality.

The evaluator considered the objectives stated in the project document and has analysed the results obtained in the implementation of the activities observed.

**This report is based on the following:**

- The project document dated 16 September 2008, indicating the basis and the strategy for the cooperation in this project, which should have focused, according to the signed document, on

*“ ..The main project outcome is to develop a regional strategy (RS) for the introduction of BAT and BEP in the industrial facilities of the coastal zone of four countries (Egypt, Jordan, Sudan and Yemen) as required by Annex C of Article 5 of the Stockholm Convention. The strategy will include measures ensuring public participation, provide targeted capacity building, study socio-economic implications of environment and monitor impact on human health. The RS will strive to maximize private sector involvement in the planning and implementation activities as well as devising a more integrated and comprehensive resource mobilization scheme. The RS would also support training for technical staff to enable them to carry out preliminary technical feasibility studies required for the introduction of BAT/BEP in the selected sectors and eventually enable the industries to fully select and transfer environmentally sound technologies. The RS will also make necessary provisions to document and disseminate, to PERSGA members, all the experiences gained and corrective measures taken during the implementation process. s...”*

- Mid-term Assessment Report prepared by Mr. Szabolcs Fejes April 2011.
- Information has been received from the following sources:
  - The documentation provided by the project parties.
  - The subcontract between UNIDO and PERSGA dated 22 March 2009.
  - Workshop and training reports prepared by the EA.
    - Inception workshop and first PMC meeting report dated: 29<sup>th</sup> March 2009.
    - Second PMC meeting report dated: 1-2 November 2009.
    - Third PMC meeting report dated: 30-31 March 2010.
    - Regional workshop: training of trainers on BAT/BEP implementation and preparation of action plans,
    - Fourth PMC meeting report dated: 16<sup>th</sup> July 2010.
    - Regional Inventory of PCDD/Fs releases in RSGA.
    - Progress Reports
    - Regional Strategy for the gradual and continuous cutting of UP POPs Emissions in Coastal Cities of the Red Sea and Gulf of Aden
  - Discussions with the Regional Project Coordinator, National Project Coordinators, National Consultants, National Counterparts and Stakeholders.
  - Meetings with national counterpart institutions and high-ranking officials.
  - Visits to some target beneficiaries and meetings with their managers, on their experience with the project.
  - Partnership Agreements with the identified source industrial stakeholders:
    - Jordanian Phosphate Mines Corporation / Industrial Complex Aqaba dated: 5<sup>th</sup> February 2011.
    - Egypt Suez Corporation for Oil Processing dated: 3<sup>rd</sup> January 2011.
    - Municipality of Port Sudan dated: 6<sup>th</sup> February 2011.
    - Elhandsia Elthager Company: dated: 6<sup>th</sup> February 2011.
    - Dari Environmental Protection Traffic Company dated: 6<sup>th</sup> February 2011.

The observations and findings of the evaluation are the result of this in-depth information collection. The views and opinions of the evaluation team do not necessarily reflect the views of the Governments, PERSGA or UNIDO.

## **Composition and timetable of the mission**

The Final evaluation was undertaken by **Dr. Mohammad al Khashashneh**, chemist, familiar in evaluating achievements, success and shortcomings of technical cooperation projects dealing with the management of chemicals and BAT/BEP implementation.

The location of the mission was Amman and Aqaba in Jordan, Khartoum and Port Sudan in Sudan. A questionnaire prepared by the consultant was also sent to the Project National Coordinators in Egypt and Yemen. Results of these discussions and the comments made by the participants have been taken, as far as possible, into account in this report. The list of the places visited and of the persons interviewed in the framework of this evaluation is in Annex II.

## **Evaluation Terminology and Glossary**

There is a generally accepted international evaluation terminology. For this reason, in order to help the readers, it is useful to give some definitions/explications of the meaning of the words used in this report. This terminology corresponds in large part to the terminology used in the evaluation methodology followed by the major international institutions (UN, DAC, EU, OECD, OSCE,..) involved in projects of technical cooperation. Explanations of the terms concerning the evaluation, concepts and terminology are summarised in Annex 1.

## **ANALYSIS OF THE ACTIVITIES AND FINDINGS**

The project implementation started in 2009 right after the start of the global economic crises. The lack of financial resources at the banking sector in the region could be felt specifically on investment promotion addressing the environment. During the implementation of the Project, in 2011 the economic slow-down further escalated into increased political instability. The uprisings in some PERSGA countries could be felt in the implementation performance. Particularly in Yemen the situation remained unclear for quite a long time. The Yemeni consultancy team could not complete the site-specific assessments of the selected locations. The agenda of the BAT/BEP implementation mission, which was planned in May 2011 covering all the four countries, has been revised due to security reasons. The mission finally cover three countries only: Egypt, Jordan and Sudan. For Yemen the BAT/BEP mission was postponed to a suitable time that would be agreed on between the RPC and Yemen's NPC. The 5<sup>th</sup> PMC meeting decided therefore, to rearrange project activities and the project activities in Egypt, Sudan and Jordan would continue as planned, while in Yemen the implementation would slow down until the situation improves. This situation in Yemen continued until the end of the Project and BAT / BEP in Yemen couldn't be completed. However, specialists from Yemen participated in the regional activities of the Project

## **Context, Concept and relevance of the project**

The project document was developed on the basis of the National Implementation Plans of the participating countries and discussions with national PERSGA focal points in Jeddah, Saudi Arabia, on 12-18 March 2006 and later in Manama Bahrain 11-12 June 2008. The NIPs of the participating countries called for actions on reducing the UP-POPs releases. On these workshops participants agreed that due to unique sensitivity of the coastal zones and due the increasing pressure on it through human activities they collectively address this problem under the infrastructure of PERGSA. They also highlighted that further information is needed to better understand the fate of these chemicals and their effect on the ecosystems of the Red Sea and Gulf of Aden. Participants have also noted that the project can build on the capacity that was created with GEF assistance. The



project has appropriately analysed the barriers of the participant countries related to the management of UP-POPs. On this basis the context of the intervention was correct.

At the time of starting the project the national governments had the capacity to undertake UP-POPs related inventory taking, but local authorities at the coastal zones mostly lacked the vision of the SC. The formulation of efficient UP-POPs management framework to prevent, reduce or eliminate their releases and to introduce environmentally sound management thereof should be based on adequate scientific and socio-economic data and information which was partly missing at the time of project start. In this regard the identification and quantification of the UP-POPs sources at the coastal zone as a first technical activity of the project was sound. Without a clear baseline information the appropriateness of the measures cannot be measured. As well as looking at the environmental quality and human health related aspects of UP-POPs releases before any intervention is undertaken is sound and expected.

Since the stakeholder analysis at the start of the project identified serious weaknesses in terms of UP-POPs management and analysis, the project on its second PMC meeting called for building adequate UP-POPs monitoring capacity. The selection of the experts for inventory taking took much longer than it was initially expected especially in Sudan since the knowledge and expertise for inventory development was missing at the coastal zone.

This deficiency was further compounded by the lack of adequate human resources at administrative and technical level that would be required to design, implement, monitor, and enforce relevant policies, regulations as well as to develop and formulate programs that would be crucial to the success of the project. In this regard the PMC decided that two laboratories should be strengthened in the region, one in Egypt and one in Jordan that can serve as basic pillars of UP-POPs monitoring. At the same time a German laboratory was selected to analyse most of the samples that are collected during the implementation. The idea of cross-testing the laboratory results in the region with a European laboratory is good. This could be the start of an inter-laboratory calibration which is anyhow required at accreditation.

Since PERSGA already had a monitoring programme for the quality of the marine resources of the Red Sea and Gulf of Aden, project vision of integrating UP-POPs in this system was sound and seems a cost-efficient approach. Since this regional project started with four participating countries plus the Kingdom of Saudi Arabia as a self financing country, utilizing PERSGA recognition in the region could be a good starting point for expanding the project objectives to the other PERSGA member states and even to other countries in the Gulf region. In this regard the context in which the project was implemented and its approach to address the problems were consistent with the objectives of the beneficiaries' requirements, country needs and priorities, stakeholders and partners.

Strong coherence was observed with ongoing initiatives. The project has created capacity at the coastal zone authorities for inventory taking of UP-POPs and to look at industries and pollution sources with the SC and UP-POPs in their minds. There is a positive feedback from the national counterparts that the project has broadened their knowledge and improved their expertise. Also at the national and regional levels the environmental and human health related risks of UP-POPs are now better understood.

Institutional capacity has been strengthened at all key implementation partners, i.e. the national counterpart institutions, Ben Hayyan Laboratory. UP-POPs source industries have been selected through consensus on the 3<sup>rd</sup> and 4<sup>th</sup> PMC meetings. The selection process was transparent and well documented.

The intervention of the project is logical; the activities are grouped into eight outputs (better to be called outcomes), which are building on one another. The outputs were also appropriately selected; however the first component and the last project management related components could have been merged.

Project management related activities of the Executing Organization have been transparent and followed its subcontract with UNIDO. There were delays during the project implementation, but these were mainly due to national counterparts and not to PERSGA. Working spirit of the individuals involved in the project implementation at the national levels was high, but some out of hand factors had frequently to be faced.

The project document included a logical framework analysis, which set objectively verifiable indicators of achievement. The stated objectives of the project have correctly addressed the identified barriers.

### **Extent to which the barriers have been removed**

The extent to which the identified barriers of the project document have been addressed by the project is presented in the following table:

<b>Barriers existing at the beginning of the project</b>	<b>Extent to which the problem has been faced by the project</b>
Lack of suitable harmonized legislative framework that would allow for UP-POPs release reduction	PERSGA countries have adopted several legislations concerning limit values to UP-POPs releases. Since the project addressing the coastal zone of the Red Sea and Gulf of Aden and UP-POPs are released not only to the sea national governments do not recognise and put in place special legislations addressing coastal zones. In this regard to put in place a harmonized legislation in all participating countries is beyond the objective of the project. However the regional strategy includes recommendations for improvement. This barrier has partly been removed.
Lack of comprehensive scientific and socio-economic data	The first half of the implementation of the project foresaw the preparation of a UP-POPs inventory, which has been accomplished on dioxins and furans releases. The project had built capacity for UP-POPs analysis in the region and has contract with two laboratories for analysis of approximately 100 samples. The sampling locations have also been identified by national stakeholders. Analysis has been completed and provided the first set of data on Dioxin and Furan Concentrations in the Coastal Area of the Red Sea and Gulf of Aden. Environmental and socio-economic assessments of the selected locations for BAT/BEP implementation have been undertaken. The barrier has been satisfactorily removed.
Lack of financial resources for BAT/BEP	The project foresaw to facilitate investment in

<b>Barriers existing at the beginning of the project</b>	<b>Extent to which the problem has been faced by the project</b>
implementation	<p>BAT/BEP in the private industrial sector, with the aim of improving production efficiency at the same time of reducing UP-POPs releases. The project was successful in this respect, more than 15 million US\$ investment was secured.</p> <p>The project also expected the active support of the banking sector. In this regard discussions are ongoing, but with limited success.</p> <p>The barrier has been greatly removed.</p>
Ineffective enforcement of regulations addressing Annex C POPs releases	<p>During the implementation of the project several legal infrastructure was put in place addressing Annex C POPs releases. The enforcement bodies of these legal measures were involved in the project implementation. All workshops and PMC meetings were organized with the view to create awareness among the local enforcement authorities. The enforcement therefore in this regard have been improved.</p>
Lack of awareness and information on UP-POPs	<p>The information level on UP-POPs has significantly been improved due to project activities. Several workshops and meetings were organized in this regard. Each national counterpart organisation undertakes awareness raising during regular inspections. The training of specialists and the involvement of industries in the project activities have also contributed to this. As part of the project the officials from Saudi-Arabia have also participated in the meetings. They received training on NIP development. This objective has very satisfactorily been achieved.</p>

### **Quality of stakeholders and target groups**

The project aimed at build capacity at the regional and coastal zone level for promoting BAT/BEP implementation to achieve significant reduction in the releases of Annex C POPs. Project has two major groups of stakeholders; Environmental organizations at the coastal zone and coastal zone industries. Project beneficiaries are the industrial stakeholders, Laboratories in the region, environmental authorities and public at large.

### **Environmental Organizations:**

**PERSGA**

The mission statement of PERSGA is to perform the functions necessary for the implementation of the Jeddah Convention on a sustained and cost effective basis, aiming at rational use of living and non-living marine and coastal resources in a manner ensuring optimum benefit for the present generation while maintaining the potential of that environment to satisfy the needs and aspirations of future generations.

PERSGA's legal basis stems from Article XVI of the Regional Convention for the Conservation of the Red Sea and Gulf of Aden, known as the Jeddah Convention, signed in 1982: "A Regional Organization for the Conservation of the Red Sea and Gulf of Aden Environment, the permanent headquarters of which shall be located in Jeddah, Saudi Arabia, is hereby established". It was not until September 1995, however, with the signing of the Cairo Declaration during the First Council Meeting in Egypt, that PERSGA's creation was formally announced. Falling under the umbrella of the Arab League, PERSGA has since become recognized as one of the leading marine conservation organizations operating in the Red Sea region.

The development of PERSGA's Strategic Action Plan in 1997 provides the operational mandates governing PERSGA's conservation activities and programmes. Taking a step-by-step approach, the Strategic Action Plan was prepared on the premise that it would be implemented in phases, each with its own set of particular priorities and areas of focus. The first Phase of the Strategic Action Plan was implemented during 1999-2005 with the support of GEF. As of 2006, PERSGA has been conducting its work under SAP Phase 2, which concentrates primarily on sustainable development and institutional strengthening.

The objective of PERSGA is improve the sustainable management and use of the RSGA's coastal and marine resources. Sustainable management and use will be reflected in reduced threats to the environment, improved livelihoods of participating coastal communities and improved institutional, legal and financial arrangements. To build PERSGA as a world centre of excellence in coastal and marine management based on real, measurable achievements in the RSGA region. The priority will be to establish a sound foundation of structures and systems from which to build regional capacity, promote local initiatives and transfer and embed their lessons across the region as a basis for sustainable development. PERSGA's primary aim, therefore, is to address the needs of the environment from the standpoint of those whose practices will ultimately decide its fate. This includes galvanizing wide-spread understanding and respect of the marine environment, so that conservation and sustainable use can be championed by government right down to the community level.

PERSGA has many programs in the field of environment such as Living Marine Resources, Marine Protected Areas, Monitoring, Navigation and Maritime, Public Awareness, Research and Monitoring, etc. PERSGA has experience and expertise in project management, it also had several GEF projects. The quality of PERSGA as a stakeholder in the project is very good.

## **National Implementing Organizations**

### **Egypt**

The Egyptian Environmental Affairs Agency of the Ministry of Environment has been entrusted with the project related coordination activities. The National Project Coordinator position at the beginning of the project was a senior officer but he left EAAA and was replaced with Mr. Mohamad Khalifa, a young officer, who had just been nominated to this position. Both were very active in all meetings and well trained on POPs. The training on UP-POPs received by the NCP helped him to catch up rapidly with the project implementation.

### **Jordan**

In Jordan the coastal zone has a unique administrative and economical status under the Aqaba Special Economic Zone Authority (ASEZA). ASEZA is a one point entry for businesses and investors that aim to settle in Aqaba. The project here was executed under the leadership of the Environmental Commissioner of ASEZA. Mr. Raed Damra has been acting as the NPC. He has the necessary qualifications and expertise with POPs and industries. The quality of ASEZA work towards the project has been very good.

### **Sudan**

In Sudan the project is under the Ministry of Environment, which is based in Khartoum. Since project activities are in the Red Sea State the daily coordination is undertaken by the provincial level authority in Port Sudan. The SC and UP-POPs were new topics for the provincial level authority. In the first year of implementation the NPC position was changed three times. In the rest of the Project period there was a consistency in Sudan's representation. The quality of their input has improved significantly during the Project life.

### **Yemen**

Project related activities are with the Environmental Protection Agency in Sana'a. The capacity which was created during the NIP development has been maintained and utilized especially during the inventory development and site-specific assessments. The NPC in Yemen Eng Salem Baqhaizel is a highly experienced officer. The quality of the input in Yemen as compared to the political difficulties is good.

### **Industrial stakeholders**

The project aimed at assisting selected industrial sectors to implement BAT/BEP. After the development of the dioxin and furan inventories, the project has selected industrial sources that have a comparatively high potential to release UP-POPs into the environment. The assessment of these industries were just completed at the time of the mid-term evaluation. The selected sources are as follows:

- Jordanian Phosphate Mines Corporation / Industrial Complex Aqaba (industrial boilers)
- Ben Hayyan Laboratory of ASEZA (UP-POPs monitoring)
- Egypt Suez Corporation for Oil Processing (flaring)
- Waste recycling company in Hurgharda (open burning)
- Municipality of Port Sudan : (open burning)
- Elhandsia Elthager Company (open burning)
- Dari Environmental Protection Traffic Company (asphalt mixing)

During the implementation of the Project municipal waste management responsibility in Port Sudan was assigned to a corporation especially created for that purpose Red Sea State Cleanness Corporation. This corporation continued as the Project partner replacing Port Sudan municipality and El Handesia Company

### **Stakeholders' ownership**

PERSGA and the NPCs are the key executing partners of UNIDO. PERGA has strong ownership of the project. The managerial infrastructure for the implementation was put into place at project start-up from February to April 2009. This ownership has been observed during the entire implementation of the Project and continued after the Project ended

The commitment of the national level is at different level. Changes in the human resources at the participating authorities hinder the flow of implementation and its quality. Private stakeholders are generally very committed and have high expectations from the project.

The project also connects the workshops and PMC meetings with awareness raising activities. This has its effects and the quality of stakeholder involvement is improving. Adding to this the main awareness raising component, this improvement had inevitably positive effects on the stakeholders ownership.

### **Project strategy**

The main objective of the project was to promote the use of BAT/BEP in selected industries in the coastline of the RSGA to achieve release reduction in UP-POPs. The project concluded the lessons learned from the implementation of BAT/BEP demonstration activities in drafting and endorsing a Regional Strategy for BAT/BEP Implementation in the Coastal Zone of the Red Sea and Gulf of Aden (RS). During the course of project activities a series of assessments provided the scientific evidence for the achieved release reduction. The project document also foresaw the establishment of a financial mechanism that would assist industries to make the change to BAT/BEP. Part of the demonstration activities the project aimed to undertake public awareness activities for stakeholders on POPs issues, thus creating an enabling environment for continuation of the activities and for paving the way for the private industries to take over.

UNIDO has been providing the necessary international expertise for trainings, workshops and assessments. UNIDO also provided a Chief Technical Advisor (CTA) to the project activities. The CTA assists PERSGA developing tenders, contracts, as well as technically and scientifically evaluates the reports which were generated and the national level. The CTA was also involved in preparing the regional inventory on PCDD/Fs releases and the Regional Strategy.

Technical activities of the implementation were undertaken by a national experts selected by the NPSCs and contracted by PERSGA. National experts always had received trainings before their assignment started. National specialists were also trained to take samples for UP-POPs analysis. Consequently sampling equipment were also procured and memorandum of understandings were signed with two laboratories for analysis of the collected samples to prepare for the monitoring activities. Capacity building activities at the national level in Egypt and Jordan have been built on the available infrastructure and capacities of the institutions. In Sudan office infrastructure was provided by the Project.

The national inventories on dioxin and furan releases have been prepared consequently the regional inventory has been developed. Based on the inventories of the coastal zone industrial sectors were selected for demonstration of BAT/BEP implementation and its effect on UP-POPs releases. The selection was undertaken on the 3<sup>rd</sup> PMC meeting. Then NPCs took the final decision at the national level. At the 4<sup>th</sup> PMC meeting in July 2010 in Jeddah the PMC decided on the sectors where BAT/BEP promotion should start. One common sector and one country specific sector were selected. These industries are as follows:

- Common source: Open burning of waste,
- Sudan: Asphalt mixing,
- Egypt: Flaring,
- Yemen: Quicklime production,
- Jordan: power generation by industrial boilers,
- Saudi-Arabia was in the process of developing the inventories, thus activities were postponed.

The Jordanian representation indicated that open burning was not a problem in Aqaba thus they would rather strengthen the Ben Hayyan Laboratory for UP-POPs analysis. This request was supported by all PMC members.

At the same meeting training was provided for the task teams that were requested to undertake the site specific assessments of the industries. The NPCs were requested to identify and sign partnership agreements with the industrial facilities.

Detailed assessments have been undertaken at each location in order to identify the most cost-effective options for BAT/BEP and to scientifically prove the effectiveness of the identified measures. The assessments considered the technologies and releases of Annex C POPs from the source locations, the environment and human health impacts of the releases as well as the socio-economic implications prior to and after the BAT/BEP implementation.

Based on the assessments and on site investigations international experts proposed BAT/BEP measures for the industrial partners. Samples have been taken to provide evidence on the effectiveness of the measures. The conclusions drawn from the demonstration activities have been utilised in the formulation of the Regional Strategy for BAT/BEP Implementation in the Coastal Zone of the Red Sea and Gulf of Aden (RS).

The project implementation strategy, therefore, is sound. The implementing agency, UNIDO, signed a subcontract with the EA. The EA has short term contracts with the national experts. The NPCs were paid by the national governments as part of their co-financing.

The project document included a logical framework, which provided a sound and objective tool to monitor the implementation. Project achievements have been evaluated against the logical framework. Detailed analysis of the achievements is included in the “rating project performance” chapter of this report.

The duration of the project was planned to be two years. The preparatory phase for project implementation started in February 2009, the project kicked off with the inception workshop and first PMC meeting on 21-22 March 2009. The activities on the national level started in April 2009, with putting in place the project related management and coordination, as well as forming the National Project Steering Committees. Selection of national experts took very long time, up to November 2009, which delayed the implementation of the project. The workplan has been updated on the PMC meetings.

In conclusion the project strategy is sound, though for projects that are undertaken on the regional level and on the national level at the same time, the work plan should have been developed on a way that would allow for larger flexibility.

## **Inputs and budget**

### **Financial inputs**

GEF provided 1,000,000 US\$ grant as support to the project. The project co-financing was planned at US\$ 2,03,000, which was foreseen from international, national and private sector sources. During the evaluation the financial inputs of all co-financing sources were looked at. The following table summarizes the planned and the actual co-financing.

<b>Source</b>	<b>Type of resource</b>	<b>Expected amount</b>	<b>Received amount</b>
		<b>(US\$)</b>	<b>(US\$)</b>
PERSGA	Cash	186,000	190,000
PERSGA	In kind	214,000	210,000
Government of Egypt	In kind	500,000	200,000

Source	Type of resource	Expected amount (US\$)	Received amount (US\$)
Government of Jordan	In kind	500,000	200,000
Government of Sudan	In kind	300,000	100,000
Government of Yemen	In kind	300,000	100,000
UNIDO	In kind	30,000	
JPMC Jordan *	Investment		7,000,000
Suez Corporation for Oil Production *	Investment		8,000,000
Total		<b>2,030,000</b>	<b>16,000,000</b>

\*Refers to contributions mobilized for the project from other multilateral, bilateral development cooperation agencies, NGOs, private sector

By the end of the Project 16,000,000 US\$ co-financing could be accounted for, mostly due to the large industrial partners' investments. The small and medium scale industrial partners could not provide this information. The figures are based on oral communication with the representatives of the industries and national project coordinators. Large scale industries have invested millions of dollars in technology upgrade which significantly improved the project co-financing ratio. The contribution of the national governments were less than what was expected at the mid-term of the project. Probably the project document was too ambitious in this regard. Worth mentioning is that the Industrial Investment was originally triggered for energy efficiency and cutting Greenhouse Emissions. Cutting UP POPs Emissions was an added value that the Project promoted

The actual co-financing ratio 700% is much higher than it was expected. It means that each US\$ from the GEF generated 7 US\$ investments. The grant co-financing of the Government was provided for the salaries of government officials, organization of meetings and workshop and logistical support.

The expected contribution from UNIDO was in-kind and included staff salaries for the persons involved and preparation of the technical reports. The banking sector has not contributed to the Project directly, but it has a significant role in financing industry.

### **Human, technical and administrative inputs**

UNIDO, as implementing agency, has provided a backstopping officer at its Headquarters. UNIDO in consultation with PERSGA has also appointed a CTA, short-term international experts for BAT/BEP implementation. UNIDO provided office infrastructure for Sudan from the project budget. In Yemen this couldn't be completed.

PERSGA, as the regional executing agency undertook technical and management related duties under the leadership of the Regional Project Coordinator. PERSGA also provided two staff members to the implementation as part of its in-kind contribution. PERSGA has established a project office in their headquarters in Jeddah. The RPC provided secretarial assistance to the Regional Project Management Committee as well. Project related electronic information is located within the PERSGA main domain [www.persga.org](http://www.persga.org).

National Executing Agencies have nominated National Project Coordinators furnished local offices for the project implementation. Local movement of the experts were also contributed to the project. The NPSCs were also supported by the national governments.

The project, in order to build laboratory and monitoring capacity in the field of UP-POPs, has provided laboratory equipment. The details of the equipment is as follows:



#	Name	qty
1	Stack emission sampler equipment	2
2	Ambient air sampler	5

Private sector was very active on the investment part of the implementation. They also contributed actively to the project implementation by commenting on the assessments and providing logistical support. They are key partners in disseminating knowledge on POPs.

### **Role of the Executing Agency**

PERSGA is a regional organization that has available human and technical infrastructure to undertake project management at the regional level. The project in order to utilize the international financial and technical resources has built on PERSGA's management system. UNIDO signed a subcontract with PERSGA on 22<sup>nd</sup> March 2009. The subcontract was built on the project document and provided the finances to PERSGA in six instalments. For the release of the instalments PERSGA has provide technical progress reports and financial reports.

PERSGA has been responsible for

- 1 The establishment of a Project Coordination Unit (PCU) at the PERSGA Headquarters with reasonable space with good infrastructure and communication facilities. It had basic furniture, utility services and support staff, which will be taken as part of PERSGA's in-kind contribution;
- 2 Providing a project coordinator and one more staff from its own resources as well as recruiting another staff at management level, namely a project management assistant form the GEF finances.
- 3 Implementation of the activities financed through co-financing instruments of the donor agencies;
- 4 Supporting UNIDO in its project evaluation and auditing duties.

The subcontract very clearly elaborated on the responsibilities and duties of the RPC, and two project staff. The reporting requirements including the content of the progress reports follows the indicators of the project.

PERSGA has submitted four progress reports including the final report. PERSGA and UNIDO have revised the subcontract and increase the finances. The terms of the amendment have been signed beginning of April 2011. In addition to the four progress reports PERSGA has also provided a separate report for the amendment.

The activity of the EA and the coordinating entity during the implementation is very good. Project management related documentation have been kept up-to-date and are of high quality. Technical reports and update of the electronic databases went parallel and significantly supported finalization of reports by consultants.

### **Effectiveness of the Project**

#### **Benefits delivered**

#### **To PERSGA**

PERSGA is very active in the RSGA region to provide information on its environmental quality. Regular monitoring is undertaken to collect data in this regard. The project has strengthened PERSGAs capacity in the field of POPs. Experts have been trained on sampling and sampling equipment has been provided to PERSGA. It has been agreed in the PMC that the two pieces of stack emission sampler equipment will be managed by PERSGA and shared in the region.

Ambient air sampling equipment was supplied and training provided in Jordan, Saudi Arabia, Egypt, Sudan and Yemen.

PERSGA has put in place a POPs unit with three staff member. They have started with working on the project and thus gained significant expertise and experience in this regard.

PERSGA is also actively involved in accessing additional financial resources for BAT/BEP implementation. Several meetings have been undertaken with the banking sector in this regard. This will create experience in the region concerning the ways how the banking sector could be involved in projects dealing with environment.

### **To national governmental organizations**

During the implementation the PMC meetings were also utilized to create awareness on the national level. It was therefore decided on the 1<sup>st</sup> PMC meeting that PMC meetings will be organized in different countries. The first was in Saudi Arabia, the second in Jordan, the third in Egypt, the fourth was linked to a regional training on BAT/BEP and thus was organized in PERSGA headquarters while the fifth was initially scheduled to take place in Yemen, but due to the political situation it was relocated to Egypt. Through these activities general awareness at the policy level in national governmental organizations have been created.

Trainings were also given to national experts on sampling for UP-POPs analysis. The training took place twice in Egypt and in Jordan. Participants from all PERSGA countries benefited from this training. POPs inventory development training and consequently a NIP development training were held for the Saudi team since the NIP development in the kingdom had been pending. The project has successfully delivered the benefits perceived by the stakeholders.

### **To private stakeholders**

National experts have started to work with industries when the PCDD/Fs inventory was developed at the national level. After the approval of the industrial sectors where BAT/BEP implementation was planned, national experts have visited several industrial facilities to foster their interest in implementing the project activities. All of these visits involved public awareness activities. As the representative from Jordan Phosphate Mines Co said “At the time when the project started we did not know of POPs and that we might generated them. Now we know and are ready to act “. Project, however, has more public awareness activities than those organized at the sites of industrial partners.

### **To public at large**

The project workshops and trainings received always attention in the media. In spite of the nature of the project that focused on industries and industrial technologies, public at large have also been targeted. Local groups of people, for example those that work at the facilities, university professors and students have joined project related awareness raising as they went parallel to BAT/BEP implementation.

Based on the above the conclusion is that project's delivery of the benefits is according to plan and highly satisfactory.

## **Beneficiaries**

The evaluator concludes that the intended beneficiaries have been participating in the project activities. The behavioural pattern of the beneficiaries has significantly changed. There is now a general understanding on UP-POPs. Selected industrial and diffuse sources UP-POPs are aware of their obligations to minimize and where possible eliminate the releases of Annex C POPs. Private sector investment in this regard is expected to increase.

The initial risks and assumptions were valid. Project experienced trained experts leaving, which hindered the implementation process. Two years for project implementation was too ambitious.

The balance of responsibilities between various stakeholders is appropriate.

## **Efficiency of the activities**

### **Primary outputs**

The project management structure was put in place and started working at the regional and at the national level early in the implementation of the Project. The PMC worked according to the expectation of the project document. National project coordination was also put in place early in the implementation and communication strategy has been effectively developed. The RPC acted as a clearing house mechanisms.

Institutional and human resources capacity was built up. Laboratory capacity has been strengthened, trainings were provided on technical matters that enabled national experts to deliver according to expectations.

Baseline survey has been developed. Inventory on the UP-POPs resources was prepared. The inventory of the environment and health related issues and inventory of the socio-economic aspects have been developed for the selected industries. These assessments have communicated to relevant stakeholders

Industrial sources of UP-POPs releases have been selected. Five pieces of agreements with the selected facilities have been signed. Since the industries in Yemen were suspicious it was decided that a contract will be signed with local union of NGOs representing the industries. But with the conditions on the ground even this couldn't be realised. Site specific assessments have been undertaken.

The development of site specific action plans have been completed between May and August 2011. Implementation of the site specific action plans is the responsibility of the partner industry. UP-POPs release reduction has been measured by collection and analysis of air and sediment samples from the Project Pilot Sites.

The development of the regional strategy has been completed building on the BAT / BEP implementation at the partner industries.

Monitoring of the implementation is in accordance with the project document. The project implementation and consequently the mid-term and final evaluations were delayed. Generally more time was needed to identify national experts for the inventory taking and to accomplish the site specific assessments. The midterm review was scheduled after the project implementation reached its half time. The activities have been speeded up after the midterm review. Based on the evaluation of the planned and achieved outputs the project completed all activities by July 2012. UNIDO has internally extended the project and the closing workshop was carried out in June 2012.

## Information dissemination

The project had two pillars of information dissemination. One is utilizing PMC workshops for awareness raising and two is dedicated training programmes. Dedicated training programs are two types. One is training for experts working on the project, two is training for private stakeholders implementing BAT/BEP.

Six PMC workshops were held during the implementation which was confirmed with the following reports:

- Inception workshop and first PMC meeting report dated: 29th March 2009.
- Second PMC meeting report dated: 1-2 November 2009.
- Third PMC meeting report dated: 30-31 March 2010.
- Fourth PMC meeting report dated: 16th July 2010.
- Fifth PMC meeting held in Hurghada 4-5 April 2011.
- Sixth, final PMC meeting and closing workshop held in Jeddah June 17<sup>th</sup> - 18<sup>th</sup> 2012

Three training workshops have been held during the implementation process. These are as follows:

- Training for PCDD/Fs sampling and analysis at the Central Laboratories of Residual Analysis of Pesticides and Heavy Metals in Food and Agricultural Products in Cairo. 28-31 March 2010.
- Training for Compiling POPs Inventories for the Stockholm Convention Jeddah, Kingdom of Saudi-Arabia 5-7th July 2010
- Regional training workshop on strategy development for BAT/BEP promotion in selected industries under the Stockholm convention Jeddah, Kingdom of Saudi-Arabia 6-7th July 2010

The training on PCDD/Fs sampling and analysis involved 12 experts in the Central Laboratories of Residual Analysis of Pesticides and Heavy Metals in Food and Agricultural Products in Cairo. The project provided on site trainings to more than 68 enterprises. Project approach of training of trainers was successful and efficient. Further trainings are expected after the Project implementation in the framework implementing the Regional Strategy and as an indicator of sustainability of the Project's results.

Six outreach and public awareness workshops have been held during the implementation process. These are as follows:

- Environmental Awareness and Public Outreach Cairo Egypt 20th November 2011.
- Environmental Awareness and Public Outreach Suez Egypt 21st November 2011
- Environmental Awareness and Public Outreach Aqaba Industrial Complex 23<sup>rd</sup> November 2011
- Environmental Awareness and Public Outreach Aqaba University of Jordan 24<sup>th</sup> November 2011
- Environmental Awareness and Public Outreach Hurghada Egypt 14th February 2012
- Environmental Awareness and Public Outreach Port Sudan 30th April 2012

Other activities related to information dissemination included the establishment of a project internet homepage under the main PERSGA domain ([www.persga.org](http://www.persga.org)), and the Regional Inventory of PCDD/Fs releases in RSGA.

Project implementation in this regard is in accordance with the project document and is highly satisfactory.

## **Monitoring**

Concerning project monitoring activities, there was a day-to-day communication between the Implementing Agency and the Regional Project Coordinator. The RPC has sent technical and progress reports to UNIDO. UNIDO has undertaken several missions to provide technical assistance and to assure timely implementation and the attainment of the results. The RPC has reacted timely on the circumstances when project approach needed adjustments. The project document indicated that quarterly progress reports should be filed at UNIDO. This was however overwritten by the subcontract between UNIDO and PERSGA. Reporting of PERSGA followed the subcontract and reports were submitted about twice a year.

Based on the discussions and documentation project implementation has been efficient on the technical as well as on the managerial side. More time was needed as per the original workplan. The conclusion here is that the project document was too ambitious. This was corrected by requesting extension.

## **Repeatability, Training and Public awareness**

Over the course of the implementation several activities have addressed transfer of information and knowledge. Several training programs, workshops and publications were developed and undertaken. The major elements of these are summarized below:

**Training:** The project has delivered training modules. The trainings were provided by international experts to local staff ('train the trainers') that is a resource for training beyond the project life. The integration of POPs into the existing training programmes of the environment and research organizations in the region such as environment authorities, laboratories and PERSGA was foreseen. In this regard the project has achieved its objectives and the results are highly satisfactory.

**Innovative financing mechanisms:** Repeatability of BAT / BEP measures beyond the project life requires capacity that includes not only know-how and a supportive policy environment, but also innovative financing mechanisms. Through exploring and piloting BAT / BEP in selected industries, the project aimed at setting models for mobilization of a broader set of financing options and establishing cooperation patterns with the private sector to take over the goals of the project and engage in replication of work in the future. In this regard private sectors own financial resources were utilized. The implementation environment has significantly changed compared to project development, when the banking sector was on heavy lending. The economic crisis however hit hard this sector and therefore project effort in securing additional mechanisms from banks have not been successful.

**Knowledge transfer through knowledge management and workshops:** Reports were foreseen to be presented in the form of workshop reports, newsletters, inventories and data collection reports. Conclusions of the scientific evaluations of the data and regular monitoring results was supposed to be published in scientific journals and was planned to be integrated into public awareness programmes beyond the project. The final phase of the project involved organizing a workshop on approval of the regional strategy and its integration into PERSGA regional portfolio. Project web page is in place. Technical reports are on file, though their publishing on the PERSGA web page has been not advisable by the PMC. Scientific publications have not been developed as the interpretation of UP-POPs analysis results needs more time and interrelation with other variables.

## Rating of the Project Performance

The project document included a logical framework analysis to assess and monitor its performance. The midterm and the final evaluations used the same concept to assess the rating of the accomplished performance.

## Objectives

The objective of the project was to reduce and/or eliminate the unintentional production of POPs (UP-POPs) in key sectors of industry (cement, incineration, metallurgy and pulp and paper) recognized as important source categories in Annex C of Article 5 of the Stockholm Convention through the introduction of BAT/BEP strategies in the industrial sector of the coast in the PERSGA eligible member countries.

The project has satisfactorily achieved this objective. The performance can be rated at 70%.

## Outcomes (Long -term impacts of the Project)

The project document has identified six potential long-term impacts as a result of project activities. The analysis, to the extent these outcomes have been achieved, is provided in the Table below.

Foreseen outcomes	Comments
<ul style="list-style-type: none"><li>• Project management structure</li><li>• Institutional and human resources capacity is available at various stakeholders for project implementation;</li><li>• UP-POPs related information is available for decision making ;</li><li>• Industries that are likely to release high amount of UP-POPs are aware of BAT/BEP;</li><li>• The implication of BAT/BEP implementation regarding, technologies, environment and socio-</li></ul>	<ul style="list-style-type: none"><li>• Project management structure was put in place early in the implementation. PMC is established, PERSGA has dedicated a POPs unit, National counterparts have also been put in place the national coordinating and management systems.</li><li>• Project offices have been created at the regional and national levels. Office infrastructure was provided for Sudan as an LDC. Laboratory capacity was created in the region for UP-POPs analysis. Two experts from each participating country were trained on UP-POPs sampling and preparation of samples for analysis.</li><li>• Comprehensive dioxin and furan release inventory was conducted for the coastal zone, environmental quality monitoring report are prepared annually for the whole PERSGA region. Environment and socioeconomic surveys have been undertaken for the specific locations. Decision making is assisted with UP-POPs related information.</li><li>• Expert teams have visited industrial facilities that had potential for comparatively high releases of UP-POPs and were belonging to the source categories that have been selected for BAT/BEP implementation on the 4th PMC meeting. These industries are aware of the objectives of the SC in this regard.</li><li>• Site specific assessments have been prepared for Egypt, Jordan and Sudan. Private industries have joined project activities on implementing</li></ul>

<b>Foreseen outcomes</b>	<b>Comments</b>
<p>economics is understood</p> <ul style="list-style-type: none"> <li>• UP-POPs releases are reduced</li> <li>• Regional BAT and BEP strategy</li> <li>• Adaptive monitoring and evaluation</li> </ul>	<p>BAT/BEP . Activities are ongoing.</p> <ul style="list-style-type: none"> <li>• Partner industries have realised this objective in conjunction with their efforts in energy efficient operations and cutting green house gases.</li> <li>• Strategy has been drafted and endorsed by PERSGA Board of Ministers.</li> <li>• Activities follow the workplan, which have been amended two times. UNIDO has extended the project until October 2012. Progress reports have been sent to UNIDO as per the subcontract. Reporting was based on the achievement of outputs. Five progress reports and a financial report have been submitted to UNIDO.</li> </ul>

At the outcome level the project has performed according to the work plan. The overall assessment can be rated at 80%.

## Outputs

The project had five main components:

- Project Management Structure.
- Institutional and human resources capacity established for various stakeholders.
- Comprehensive baseline survey conducted for the coastal zone.
- Approved UP-POPs sources.
- UP-POPs source specific plans to promote BAT and BEP developed.
- Implementation of BAT and BEP action plans.
- Regional BAT and BEP strategy developed.
- Adaptive monitoring and evaluation.

Each component included several outputs which were to be achieved through series of activities. The analysis concerning the project performance in this sub-chapter is based on the attainment of the outputs. To this end the logical framework provided clear indicators of success. The rating of the performance is provided for each component.

<b>Activity #</b>	<b>Description</b>	<b>Output</b>	<b>Observation</b>
<b>1</b>	<b>Project Management Structure</b>		
1.1	Establishment of Project Management Committee (PMC)	PMC	PMC has worked effectively. Regular meetings were held.
1.2	Establishment of the Project National Steering Committees (PNSC) and its functions	PNSC	NPSCs have been formed and started working. They had meetings on a needed bases.
1.3	Knowledge management and reporting	Project website under PERSGA domain, E-stakeholders	Project website is working. Project stakeholders are included on the web page. ( <a href="http://www.persga.org">www.persga.org</a> ).

Activity #	Description	Output	Observation
		forum, Database for project related information	Project related information is stored at PERSGA main server.
1.4	Inception Workshop	Inception workshop	The inception workshop was held in Jeddah 21-22 March 2009. The workshop report is on file. Workplan for the project was revised and approved.
1.5	Funds mobilization, partnerships and sustainability plan	Three meetings with the banking sector	Three meetings have been undertaken. The first at the Inception workshop, the second in November 2010 and one in February 2011 in Jeddah with the Islamic Development Bank.
2	<b>Institutional and human resources capacity established for various stakeholders</b>		
2.1	Improvement of survey tools, data collection and monitoring	PCDD/Fs inventory guidelines in Arabic,  Environmental quality assessment tool of PERSGA adapted to UP-POPs,  Socio-economic assessment tool of PERSGA adapted to UP-POPs	The UNEP guidelines for Identification and quantification of dioxin and furan releases have been translated to Arabic and was used to collect data,  PERSGA assessment tools on environment and socio-economic have been provided to the national counterparts to undertake the site specific assessments.
2.2	Undertake stakeholder analysis and identification of roles and responsibilities at the national level (PERSGA existing guidelines will be adapted to include POPs matters)	Project stakeholders identified, their needs are assessed, equipment and training provided.	Regional and national stakeholders were assessed. It was concluded that PERSGA needed a new POPs unit that would allow for POPs related coordination at the regional level.  National counterpart institutions have also undertaken self-assessments.  Need for strengthening the laboratory capacity in the region was identified.
2.3	Assessment of the needs of the stakeholders on capacity development and improvement for the selected technical staff of the industrial sector	Regional and national offices put in place and working.  Laboratory identified and capable of analysing UP-POPs.	PERSGA has created a new unit that works on POPs. It has two professionals working on POPs issues. This unit was provided working space, office equipment etc.  Office equipment was provided to Sudanese office. National Project Coordinators have been appointed. Capacity for POPs management have been created with trainings and workshop.  Two laboratories were assessed in the region that had infrastructure for UP-POPs analysis. The Egyptian Environmental Laboratory had capacity and practice in UP-POPs analysis. The Jordanian Ben Hayyan Laboratory had the infrastructure, but lacked the human resources capacity in this regard.
2.4	Capacity building for stakeholders implemented at all levels (regional, national and factory)	National experts can take UP-POPs samples	The project had several PMC meetings that were also utilized for training. Two experts from each participating countries



Activity #	Description	Output	Observation
		and are capable of undertaking site assessments.	received training on UP-POPs sampling and analysis.  Approximately 500 people received some-kind of information on the project, UP-POPs and BAT/BEP.  Ben Hayyan Laboratory in Aqaba was strengthened in UP POPs analysis
<b>3</b>	<b>Comprehensive baseline survey conducted for the coastal zone</b>		
3.1.	Development of the detailed inventory of UP-POPs releases for the coastal zone industries	Regional dioxin and furan inventory.	National consultant were employed to develop the dioxin and furan release estimations at the coastal cities. The inventories were completed by March 2010. The regional inventory of dioxin and furan releases have been drafted and published on the web page of PERSGA in July 2010.
3.2	Development of environment and health related POPs inventory	Environment and health related inventory	PERSGA coordinates regional monitoring programme of the coastal zones of which annual reports are prepared.  State of the Environment Reports are published every five years.  Source specific environmental and human health related assessments have been undertaken by national experts and are on file.
3.3	Development of the socio-economic inventory	Socio-economic assessment of the coastal zone	Source specific Socio-economic assessments have been undertaken by national experts and are on file.
3.4	Desk-validation of the inventories	Inventory assessment reports	The national inventories were validated by a UNIDO expert. Based on the comments the inventories were finalized in March 2010.
3.5	Maintenance of technical data and information	Regularly updated UP-POPs, environment and socio-economic status reports of PERSGA	Expected in the future. It has been coordinated with the countries to initiate the monitoring programme on UP-POPs. National legislation amendment is needed before this could be realised.
<b>4</b>	<b>Approved UP-POPs sources</b>		
4.1	Scientific evaluation of the inventory results	Approval of the regional reports.	The 4 <sup>th</sup> PMC meeting approved the regional dioxin and furan inventory.  Environment and socio-economic report has not yet been developed.
4.2	Development of criteria for the prioritisation of identified sources	Set of criteria for UP-POPs source selection	The 3 <sup>rd</sup> PMC meeting addressed the issue of UP-POPs source selection. It concluded that one common source for the whole region will be addressed and one country specific source, which should be identified by the countries.
4.3	Approval of UP-POPs sources for action plan development	Selected sectors of Industry for BAT/BEP promotion.	The 4 <sup>th</sup> PMC meeting have concluded and approved the UP-POPs sources. The common source is open burning. The specific sources are as follows:  Egypt flaring,  Jordan industrial boilers

Activity #	Description	Output	Observation
			Sudan asphalt mixing Yemen quicklime production Since in Jordan open burning is not a problem, strengthening of the Ben Hayyan Laboratory was proposed instead, which was unanimously approved.
<b>5</b>	<b>UP-POPs source specific plans to promote BAT and BEP developed</b>		
5.1	Identification of project managers, sector experts and/or task teams and establishment of national executing offices in the relevant national executing ministries/ agencies	Task teams are formed for site specific assessments International experts are selected for BAT/BEP planning	Task teams have been formed in each participating country. Task team members received trainings concerning the specific industrial sectors that were selected for BAT/BEP implementation in Jeddah 5-7 <sup>th</sup> July 2010.
5.2	Part A: Report for BAT and BEP arrangements	BAT/BEP implementation plans for the selected locations	Expected in May 2011.
5.3	Part B: Establishment of environmental and health related research and monitoring system	Environment and health related monitoring program of each selected locations	The Project initiated collaboration with Universities and research institutes where this type of research could be conducted
5.4	Part C: Establishment of socio-economic and public participation initiative	Trainings and workshops held.	During the site-specific assessments awareness raising activities have already been undertaken. These have been conducted during the BAT/BEP implementation.
<b>6</b>	<b>Implementation of BAT and BEP action plans</b>		
6.1	Implementation of the site-specific action plans	Technologies upgraded, processes are optimized, work-force is trained at each selected locations.	Assessment studies including proposals have been prepared by the Project. Implementation is the responsibility of the partner industries
6.2	Site specific plans and additional financial resources mobilised	Financial mechanism is identified for BAT/BEP implementation.	Private stakeholders investment have increased. Co-financing of the project from the private sector side has increased substantially through industrial BAT BEP implementation
<b>7</b>	<b>Regional BAT and BEP strategy developed</b>		
7.1	Preparation of the regional strategy for BAT and BEP	Regional BAT/BEP implementation strategy is drafted.	Regional Strategy has been prepared and endorsed by PERSGA Board of Ministers
7.2	Development of a common legislative and regulatory framework	Recommendation for a harmonized legislative	This has been emphasised in the Regional Strategy, but it needs to be enacted at the national levels..

Activity #	Description	Output	Observation
		framework in the region to assure the continuous release reduction of UP-POPs.	
7.3	Endorsement of the regional strategy	Regional workshop Regional BAT/BEP implementation strategy is endorsed.	Endorsed by PERSGA Board of Ministers in its meeting in April 2013.
<b>8</b>	<b>Adaptive monitoring and evaluation</b>		
8.1	Monitoring and evaluation	Quarterly technical reports Quarterly financial reports Midterm evaluation Terminal evaluation	Quarterly technical and financial reports have not been prepared, because a sub-contract was signed between UNIDO and PERSGA, which included all the reporting that were necessary for monitoring. Project finances were provided on completing the reporting obligations by PERSGA.  Midterm evaluation was undertaken later than foreseen in the project document due to delays in project implementation. The extension has been granted by UNIDO until October 2012. Similarly the final evaluation is delayed till June 2014

As the result of the above the project progress of each component may be rated as follows:

#	Component Title	Rate
1	Project Management Structure	95%
2	Institutional and human resources capacity established for various stakeholders	75%
3	Comprehensive baseline survey conducted for the coastal zone	80%
4	Approved UP-POPs sources	90%
5	UP-POPs source specific plans to promote BAT and BEP developed	80%
6	Implementation of BAT and BEP action plans	75%
7	Regional BAT and BEP strategy developed	95%
8	Adaptive monitoring and evaluation	80%

Overall rate of project progress regarding the achievement of the outputs is at 85 %.

### **Contribution of the project to GEF focal area strategic targets**

The GEF-4 focal area strategies document of May 2007 was used to assess the contribution of the project towards the GEF strategic targets since the project started under GEF-4.

According to OP#14, the GEF shall provide funding, on the basis of agreed incremental costs, for three types of activities to address POPs issues – capacity building, on-the-ground interventions and targeted research. Under **Strengthening Capacities for NIP Development and Implementation** project has 1) strengthened human and institutional capacity; 2) built monitoring and enforcement capacity; 3) facilitates the transfer of viable and cost-effective options and management practices for BAT/BEP introduction in selected industries; 4) developed and implemented public awareness/information/environmental education programs; and 5) facilitated dissemination of experiences and lessons learned and promoted information exchange.

**Partnering in Investments for NIP Implementation** priority of the GEF has been addressed by promoting investments in the field of BA/BEP introduction in selected industrial sources. Since the sampling and analysis for confirming the release reduction has been included among activities of the project, this priority has been tangibly addressed. The main conclusion here is the reduced releases of UP-POPs and the unit cost of reducing the UP-POPs releases in each sector.

The reviewer concludes that the project is fully in line with GEF OP#14 strategy.

### **Global environmental benefits**

Global environmental benefit of the project would be to reduce the releases of UP-POPs from land based activities of the coastal zone of the Red Sea and Gulf of Aden. This is planned to be achieved through introducing BAT/BEP to selected industries that have comparatively high releases of these chemicals. The project has developed proposed BAT/BEP measures, thus tangible results in this regard have been achieved.

The project has strengthened the laboratory capacity in the RSGA region, thus the global POPs analysis and monitoring capacity has increased.

The training and awareness raising and publication activities of the project had significantly improved the global knowledge on POPs and thus generated benefits for the protection of the global environment and human health.

### **Possibilities of sustainability**

Project sustainability has four pillars: legal, technical, financial and institutional.

#### **Legal**

The project did not plan drafting or amending legal instruments addressing UP-POPs releases. Project however by drafting and endorsing the Regional Strategy for BAT/BEP Implementation in the Coastal Zone of the Red Sea and Gulf of Aden (RS) has recommend the modalities as to how governments of the participant countries shall govern the UP-POPs field.

#### **Technical**

Necessary technical capacity for POPs monitoring has been developed. Human resources capacity has been strengthened. Sampling equipment have been provided for UP-POPs monitoring. Ben Hayyan Laboratory has received an on-the-job training on PCDD/Fs analysis, whereby the UP-POPs monitoring capacity is in place.

## Financial

Financial sustainability of the project continuation is strongly in the hands of the private sector. Despite the promises of the banking sector at the writing of the project document, which was before the economic crisis, negotiations have not culminated in any tangible result. The private sector on the other hand had invested a lot in process optimization and cost efficiency. These investments have had their positive effects on the release reduction of UP-POPs. The financial sustainability of the project is assured.

## Institutional

Expert teams of the project have provided extensive trainings at different levels of the environment management sector. These trainings have created a reasonable mass especially within the government auspices, that would assure project continuation. A major achievement of the Project is awareness at various official, technical and educational levels.

## Indicators of success

The analysis of success based on the indicators for each project component, which were established in the project document, is included in the Table below.

Indicator	Sources of Verification
<b>Outcome 1: Project Management Structure</b>	
<ul style="list-style-type: none"><li>• Procurement files.</li><li>• Minutes of meetings of the PMC (at least two bi-annual meetings).</li><li>• Reports on fund raising activities (at least four events to be conducted).</li><li>• Report of the inception workshop.</li><li>• Information and reports are published and disseminated as per the communication strategy (website, publications, periodical progress reports, etc.).</li></ul>	<p>Subcontract between UNIDO and PERSGA is on file.</p> <p>MoUs with national consultants are on file.</p> <p>6 PMC meeting reports are available</p> <p>Inception workshop report is together with the first PMC meeting report.</p> <p>Project web site is working.</p> <p>Progress reports are on file.</p>
<b>Outcome 2: Institutional and human resources capacity established for various stakeholders</b>	
<ul style="list-style-type: none"><li>• Number of capacity building activities.</li><li>• Total number of institutions and human resources involved in capacity building activities categorised according to the list of stakeholders.</li><li>• Percentage of institutions/people involved in capacity building programmes that participated in the project activities.</li></ul>	<p>3 training workshop have been undertaken,</p> <p>6 PMC meeting were held, which received large audience.</p> <p>6 public awareness and outreach workshops have been organised</p> <p>At least 25 organizations have participated in the project. This includes governmental institutions, laboratories, banking sector NGOs and the industries.</p>
<b>Outcome 3: Comprehensive baseline survey conducted for the coastal zone</b>	
<ul style="list-style-type: none"><li>• Inventory of the UP-POPs sources developed.</li><li>• Inventory of the environment and health related issues developed.</li></ul>	<p>National coastal zone inventories are on file.</p> <p>Regional PCDD/Fs inventory is on file.</p> <p>Environmental and health related assessments of the</p>

Indicator	Sources of Verification
<ul style="list-style-type: none"> <li>Inventory of the socio-economic aspects developed.</li> <li>The three inventories are compiled into an electronic database.</li> <li>The database is accessible to all stakeholders.</li> </ul>	<p>selected UP-POPs sources are on file.</p> <p>Socio-economic assessments of the selected locations are on file.</p> <p>Electronic database is pending.</p>
<b>Outcome 4: Approved UP-POPs sources</b>	
<ul style="list-style-type: none"> <li>List of priority sources in scientific point of view prepared.</li> <li>PMC meeting reports</li> </ul>	<p>The national and the regional inventory include the list of priority sources.</p> <p>All PMC meeting reports are on file.</p>
<b>Outcome 5: UP-POPs source specific plans to promote BAT and BEP</b>	
<ul style="list-style-type: none"> <li>At least 4 action plans for the selected UP-POPs sources are prepared.</li> <li>Specialised research and monitoring system on environment and health (SRMSEH) developed.</li> <li>A comprehensive public awareness programme designed and tested.</li> <li>The socio-economic initiative for POPs established.</li> <li>Regional task teams established and maintained by PERSGA</li> </ul>	<p>Seven locations have been selected for BAT/BEP implementation.</p> <p>Ben Hayyan laboratory in Jordan and the Central Laboratories of Residual Analysis of Pesticides and Heavy Metals in Food and Agricultural Products of the Ministry of Agriculture in Egypt.</p> <p>Socioeconomic initiatives have been included in site specific assessments of the BAT BEP Pilot sites</p> <p>Task Teams are in place in each participant country.</p>
<b>Outcome 6: Implementation of BAT and BEP action plan</b>	
<ul style="list-style-type: none"> <li>One pilot site specific action plan is implemented.</li> <li>80% reduction of dioxin/furans is targeted at selected sites</li> <li>50% reduction of UP-POPs at regional level</li> </ul>	<p>Has been verified by industry partners</p>
<b>Outcome 7: Regional BAT and BEP strategy developed</b>	
<ul style="list-style-type: none"> <li>Regional strategy for the introduction of BAT and BEP is prepared and endorsed.</li> <li>Integration of POPs under PERSGA regular activities as a Regional Programme</li> </ul>	<p>Regional Strategy drafted and endorsed by PERSGA Board of Ministers.</p> <p>The UP POPs Unit created at PERSGA under the Project is maintained and operational after the Project</p>
<b>Outcome 8: Adaptive monitoring and evaluation</b>	
<ul style="list-style-type: none"> <li>Progress reports are on file.</li> <li>Midterm evaluation is on file.</li> <li>Project terminal evaluation.</li> </ul>	<p>Progress reports are on file.</p> <p>Midterm evaluation has been undertaken</p> <p>Terminal evaluation is subject of this report</p>

## CONCLUSIONS AND RECOMMENDATIONS ON GENERAL OUTCOMES AND SPECIFIC OUTPUTS

Based on the observation and the analysis on the achievements of the project the following conclusions and recommendations have been summarized:

- Concept and Design of the project
- Implementation of the activities
- Relevance and Strategy
- Monitoring and Reporting
- Awareness rising and training

- Financing
- Sustainability.

#	Conclusion	#	Recommendation
1	The project has been successful and met the expectations of the stakeholders. PERSGA has demonstrated outstanding accountability and widespread regional recognition supporting the implementation of the project. The commitment of the stakeholders is satisfactory;  Attainment of project objectives are in line with the project document.	1	<b>To UNIDO and PERSGA</b>  For regional projects the workplan should be developed on a way that would allow for larger flexibility.
2	Some components of the project implementation experienced delays as the selection of the national consultants took longer and the preparation of the coastal zone dioxin and furan inventory took more time than was foreseen in the project document. In this regard the project document was too ambitious. Project completion by July 2012 was achieved. Extension of the project in UNIDO was granted until October 2012.	2	
3	The project strategy is logical; the activities were grouped under eight components which build on one-another. The outputs are sound and lead to the objectives of the intervention. Project component No 1 and No 8 could have been merged as they are both related to project management and monitoring.	3	<b>To UNIDO:</b>  Preparation of new projects in the future could be more precise in grouping project activities into components.
4	Institutional capacity to manage UP-POPs at the regional level through support of PERSGA and the project have been created. Laboratory capacity in the region has also been strengthened. Ben Hayyan Laboratory has received on-the-job training in their facilities and are capable of analysing UP-POPs.	4	<b>To National Implementation Partners</b>  Central Laboratories of Residual Analysis of Pesticides and Heavy Metals in Food and Agricultural Products of the Ministry of Agriculture in Egypt and Ben Hayyan Laboratory in Jordan should maintain international standards of dioxin and furan analysis and providing information for decision making, which should extend beyond the life of the project.  Analysis cost in the region is high due to the limited number of samples received by the laboratories. Putting self monitoring in legislation will result in industry sending more samples for analysis, which will help in cutting analysis cost.

### Specific Conclusions and Recommendations concerning the outcomes of the project:

<b>Outcome 1: Project Management Structure</b>			
#	Conclusion	#	Recommendation
5	Legal framework at the national levels is being put in place for the management of UP-POPs releases. Besides project focuses on the coastal area, while countries develop their legislations on the national level. The intervention of the project here would be to provide directives to the national legislative authorities to have better consideration of the coastal area in their national legislations.	5	<b>To PERSGA and National Partners</b> The capacity the project created within PERSGA and national implementing partners should be maintained and utilized in the future.

<b>Outcome 2: Institutional and human resources capacity for stakeholders established</b>			
#	Conclusions	#	Recommendations
6	Awareness raising and providing access to information is an important element of the project. There were six PMC meetings, one training on UP-POPs sampling and analysis one training on BAT/BEP strategies for the selected UP-POPs sources during the implementation. Private industries also received trainings over the course of inventory development and data collection. The project has a website where project related information is accessible. Countries partnering the project have continuous mobility of trained people to find job opportunities outside their countries which emphasizes the need for continuous replacement of those who leave. Trainers capable of providing public awareness activities at the national level have reached to a reasonable critical mass that would provide replication of the project.	6	<b>To UNDIO and PERSGA</b> Supporting the intentions of the PMC in undertaking a series of public awareness activities after the end of the Project and through implementation of the Regional Strategy. This would assure the replication of the project's results.

<b>Outcome 3: Comprehensive baseline survey conducted for the coastal zone</b>			
#	Conclusion	#	Recommendations
7	Sampling and analysis for the monitoring of UP-POPs has take place in association with the BAT/BEP implementation. Some border matters concerning the transport of samples needed to be handled.	7	<b>To PERSGA and National Partners</b> The sampling program should be maintained, as it is the core indicator of the UP POPs Emissions reduction



**Outcome 4: Approved UP-POPs source industries for BAT/BEP implementation****Outcome 5: UP-POPs source specific plans to promote BAT and BEP****Outcome 6: Implementation of BAT and BEP action plan**

#	Conclusion	#	Recommendations
8	The selection process of the industrial sectors for BAT/BEP promotion is scientifically and socially appropriate. The approach of selecting one common sector for the region and one country-specific sector is sound. There are small, medium and large scale industries among the beneficiaries of the BAT/BEP implementation. The Regional Strategy for BAT/BEP Implementation in the Coastal Zone of the Red Sea and Gulf of Aden has benefited a lot from the demonstration activities.	8	<b>To UNDIO and PERSGA</b> Since this regional project started with four participating countries plus the Kingdom of Saudi Arabia as a self financing country, utilizing PERSGA regional and interregional recognition in the region could be a good starting point for expanding the project objectives to the other PERSGA member states and even to other countries in the Gulf region. In this regard it is recommended that the Gulf Cooperation Council member countries are also invited during activities the RS implementation.

**Outcome 7: Regional BAT and BEP strategy developed.**

#	Conclusions	#	Recommendations
	The Regional Strategy for BAT/BEP Implementation in the Coastal Zone of the Red Sea and Gulf of Aden contains recommendations for harmonizing the PERSGA countries' legislation on UP-POPs management. This should enable countries benefit from such recommendations for the coastal area to form basis for legislation for the whole country..	9	<b>To PERSGA and National Partners:</b> Implement the RS in close coordination with the National Partners and expanded to other PERSGA countries

**Outcome 8: Adaptive monitoring and evaluation.**

#	Conclusions	#	Recommendations
9	The project management structure is in place, PMC meetings have been held regularly on the regional level, the reports are on file. The implementation on the regional level has been effective and transparent.	10	<b>To PERSGA and National Partners</b> During implementation of the RS look into possibilities of increasing the pace of the implementation process as much as possible without losing the quality of the interventions.
10	The approach followed by the PCU in signing partnership agreements with industry is effective and helped in securing substantial co-financing of the project. This has reached 15,000,000 US\$. Most of it coming from the private sector. It is above the expectations. The governmental contribution is slightly less than what was expected but without the		<b>To UNDIO and PERSGA</b> Build on the momentum created in the project and foster collaboration with the Private Sector focussing on Industry

<b>Outcome 8: Adaptive monitoring and evaluation.</b>			
#	Conclusions	#	Recommendations
	governmental support approaching the private sector and signing partnership agreements with them wouldn't have been possible.		

## LESSONS LEARNT

The following lessons could be derived from this evaluation:

- 1) Country ownership and expertise in implementing projects is very important to attain high quality results. In the case of regional project lower commitment of one partner may pull back progress of the implementation of the entire project .
- 2) The global economic meltdown has significantly changed the banking sector behaviour towards financing and investing in environment.
- 3) Proper and regular monitoring of the project gives the opportunity to adjust the production of the outputs on time.
- 4) Regional projects need much more effort to realise the project objectives and meet the project timelines than single country projects. However with well established Regional Organizations such as PERSGA regional projects can be more advantageous and realise objectives that cannot be realised by the courtiers working individually
- 5) Rapid changes in global political and economic environment have very strong effects on project implementation and many times cannot be predicted at project preparation.
- 6) Transparent project management, efficient coordination and commitment at the implementing partners can, to a far extent overcome difficulties and balance unexpected changes and their likely effects.

## Annex 1. Terms concerning Projects Evaluation; Concepts and Terminology

<b>Terms</b>	<b>Explanation of Terms</b>
<b>Accountability</b>	Obligation of the project managers to demonstrate that work has been conducted in compliance with defined responsibilities, rules, standards and performance expectations. For the evaluators it connotes the responsibility to provide accurate, fair and credible reports and assessments.
<b>Activities</b>	In the context of a project the activities are the main actions implemented to reach the foreseen outputs.
<b>Appraisal</b>	An assessment of the relevance, feasibility, design quality and potential sustainability of a project prior to the decision of approval and funding.
<b>Appropriateness</b>	<p>It is the tailoring of the activities to the local needs, which contributes in increasing the ownership, accountability, and cost-effectiveness of the project accordingly.</p> <p><b>Appropriateness</b>, together with Relevance is a complementary criterion used to evaluate both the wider goal of the intervention and its specific approach in terms of how it responded to the local context and needs.</p>
<b>Assumptions</b>	Conditions that are necessary to ensure that the planned activities will produce the expected results and that the logical link (effect – relationship) between the different levels of the project results will occur as expected, if not unexpected situations will happen.
<b>Audit</b>	Fiscal, administrative and procedural function relating to the overall policies and regulations of the Organization. It evaluates adequacy and effectiveness of the management control systems.
<b>Baseline</b>	Facts about the condition of a country's situation and the performance of target institutions and beneficiaries, prior to the provision of the services given by a project/programme.
<b>Baseline Data</b>	Data that describe the situation to be addressed by a programme or project and that serve as the starting point for measuring the performance of a project/programme.
<b>Beneficiaries</b>	Individuals, enterprises or organizations/institutions, whether targeted or not, that benefit directly or indirectly from the project.
<b>Best Practice</b>	Operational practices that have proven successful in particular circumstances. Are used to demonstrate what works and what does not work and also to accumulate and apply knowledge.
<b>Cause and Effect of environmental Aspects</b>	<b>Causes</b> of environmental aspects are the direct consequences at plant level (in terms of emissions or natural resources used), while <b>Effects</b> are their impacts on the eco-socio environment
<b>Clients</b>	The counterparts in the field receiving the services within the framework of a project/programme.

<b><u>Terms</u></b>	<b><u>Explanation of Terms</u></b>
<b>Client Feedback</b>	Feedback provided from clients and partners receiving the services. The method is used for involving the counterparts in the evaluation process.
<b>Coherence</b>	Assessment of coherence should focus the extent to which policies of different actors are complementary or contradictory. This may involve any type of policy such as on promoting participation, capacity building, disposal of wastes, possibilities of generating revenues, all in relation with the environmental protection. Evaluating the coherence of the project is of particular importance when there are a number of actors involved in the response, as they may have conflicting mandates and interests.
<b>Conclusions</b>	Conclusions and findings outline the factors of success or failure of the project under evaluation, with special attention paid to the intended and unintended results, in order to point out strengths or weaknesses.
<b>Cost- Effectiveness</b>	The ratio between the cost faced and the result obtained.
<b>Criteria</b>	Qualitatively expressed “Indicators”, when it is not possible to use quantitative data.
<b>Critical assumptions</b>	In the context of the logical framework refer to the general conditions under which a development hypothesis will hold true or refer to the conditions which are outside the control or influence of the implementing parties and which are likely to affect the achievement of results.
<b>Data</b>	Specific quantitative and qualitative information or facts that are collected
<b>Data Collection Tools</b>	Methodologies used to identify information sources and collect information during an evaluation.
<b>Design</b>	It is an analytical tool for the assessment and description of a development project/programme in support to the expressed needs of the counterparts and beneficiaries.
<b>Donor</b>	Is the funding Organization or Government whose role in the evaluation exercise is to participate in the evaluation, ensuring together with the executing agency, through the lessons learned, the necessary feedback on programme improvements, reorientation and funding.
<b>Effect</b>	General term to indicate what is changed by the project. It shows what the outputs have produced.  The change resulting from the production of the outputs.
<b>Effectiveness</b>	The extent to which the outputs of the project are used to achieve the purposes. The extent to which stated intervention objectives are met. Effectiveness is therefore linked to evaluation of impact and long-term effects of the intervention. Implicit within the criterion of effectiveness is timeliness.

<b><u>Terms</u></b>	<b><u>Explanation of Terms</u></b>
<b>Efficiency</b>	The relationship between the inputs utilized and the outputs produced, both in terms of quantity, quality and timeliness. It measures the outputs (qualitative and quantitative) achieved as a result of inputs. Generally requires comparing alternative approaches to achieving an output, to see whether the most efficient approach has been used. The assessment of efficiency measures how economically the inputs (human, financial, technical and material resources) were converted into outputs.
<b>Evaluation</b>	Analytical and objective feed-back on outputs, outcomes and impact of the implemented Technical Cooperation, used for accountability towards management, donors and counterparts, as well as for learning of lessons. Evaluation results are used to improve the quality of design and delivery of current and future activities.
<b>Evaluation Feedback</b>	Dynamic process which involves the presentation and dissemination of evaluation information, in order to ensure its application into new and existing Technical Cooperation activities. Observance of this process is ensuring that lessons learned are incorporated into new operations.
<b>Goal (also Purpose, or Mission)</b>	Endeavours at general level.
<b>Impact</b>	<p>The extent to which the improved performance of the counterparts and the solution of the critical issues have produced a positive effect (in quantity and quality) on the target beneficiaries and on the overall development of the country. It means the changes achieved in the targeted beneficiary sector.</p> <p>It is the result of the long-term effect of the project as described in the development objective. However, changes may take months or even years to become apparent.</p>
<b>Independent in-depth evaluation</b>	Independent assessment of performance, outcomes and impact, carried out by independent evaluators.
<b>Indicator</b>	Quantitative or qualitative variable that provides a simple and reliable basis for assessing results and/or performance of the project.
<b>Inputs</b>	Financial, Human, and Time resources that are put at the disposal of the project to implement the activities and produce the outputs.
<b>Lesson Learned</b>	It is a generalization based on the results of the evaluation that abstracts from a specific circumstance to a broader general situation. Normally, the lessons highlight strengths or weaknesses in formulation, design and implementation that affect performance and results. If lessons are to be learned from evaluations, assessment of relevance and appropriateness should involve the examination of <b>why</b> the interventions made by the project are relevant and/or appropriate in some cases, and not in other cases.

<b><u>Terms</u></b>	<b><u>Explanation of Terms</u></b>
<b>Logical framework</b>	Management tool used to design technical cooperation projects/programmes. It identifies inputs, activities, outputs, results and their causal relationships. It includes indicators and the assumptions or risks that may influence the success or the failure in achieving the project/programme objective(s).
<b>Milestones</b>	Important events or concrete results, marking the beginning or progress or end of activities and used to keep track that the activities are implemented as planned and according to the work plan.
<b>Monitoring</b>	Continuing implementation review function to provide the main stakeholders and the management with early indications of progress or lack thereof in the achievement of outputs and objectives.
<b>Objective</b>	It is used as general term for aiming at results at different hierarchical levels (General development objective, immediate objective, specific objective, etc.). It will help the beneficiary in achieving the selected long-term development objective(s).
<b>Outcome</b>	Effects related to target groups/beneficiaries assisted, showing the positive changes obtained by the counterparts in their performance and behaviour. Indicates their capabilities to have benefited of the assistance received.
<b>Output</b>	The final product in terms of activities executed, applying the input resources. It shows the improved capabilities of the Counterparts, after having received the assistance. The expected improved situation of the counterparts (government, institutions, pilot enterprises).
<b>Performance</b>	The extent to which the project has produced valuable and sound outputs and their contribution to the final impact.  Both, efficiency and effectiveness can be considered as measures for the performance of the project.
<b>Project/Programme Document</b>	A document that explains in detail and following the logical framework, the context, objectives, expected results, inputs, activities and budget of a project/programme.
<b>Quality Criteria</b>	Evaluation criteria applied in order to assess project/programme performance. (Relevance, Efficiency, Effectiveness, Impact, Sustainability)
<b>Recommendations</b>	Advisory proposals (not binding or mandatory), aiming at enhancing the quality and the effectiveness of the project, redesigning objectives or suggesting re-allocation of resources.  Any recommendation should be linked to a conclusion and should be directed to the party responsible for taking the respective action.
<b>Relevance</b>	The extent to which the project is consistent with the problem area identified in relation to the country's development goals and constraints and needs of counterparts, beneficiaries and

<b><u>Terms</u></b>	<b><u>Explanation of Terms</u></b>
	<p>services/expertise.</p> <p>Relevance is concerned with assessing whether the project is in line with local needs and priorities, i.e. the quality of the problem analysis and the project's intervention logic and logical framework matrix, appropriateness of the objectively verifiable indicators of achievement. (<b>See also Appropriateness</b>)</p>
<b>Result</b>	General term for the effects that result from the application of the project inputs. It indicates the performance of the project.
<b>Self-evaluation</b>	Process for continuous improvement by project managers and counterparts, aiming at reviewing progress and agree on reorientation requirements.
<b>Sustainability</b>	Capability of the counterpart (Institution or enterprise) to maintain and further develop outputs and outcomes produced with the support of the project and/or to adjust them in order to ensure the continuation of the benefits to the target beneficiaries, when the assistance of the programme will end.
<b>Target</b>	A specific objective. The mark at which is aimed by the activities of the project.
<b>Target Groups</b>	The main beneficiaries from the programme or project that are expected to gain from the results.
<b>Terms of Reference</b>	Definition of purpose, scope, method, team composition and timetable of the evaluation.

# الهيئة الإقليمية للمحافظة على بيئة البحر الأحمر وخليج عدن

## Regional Organization for the Conservation of Environment of the Red Sea and Gulf of Aden

Terms of Reference for:

### Consultancy for Final Assessment

Under the Project

### UP POPs Emissions Strategic Reduction in Coastal Cities of the Red Sea and Gulf of Aden



## **Jeddah, Kingdom of Saudi Arabia**

### **Consultancy for Final Assessment**

#### **Terms of Reference under the Project**

### **UP POPs Emissions Strategic Reduction in Coastal Cities of the Red Sea and Gulf of Aden**

#### **Introduction**

This document is prepared by PERSGA to outline Terms of Reference for final assessment of activities executed by PERSGA in fulfilment of contractor with UNIDO concerning the GEF project entitled “Promotion of strategies to reduce unintentional production of POPs in the Red Sea and Gulf of Aden coastal zone”. The ToR is based on the project document approved by GEF and on discussions between UNIDO and PERSGA. The project has been implemented by the United Nations Industrial Development Organization (UNIDO) as the GEF implementing agency.

Four of PERSGA countries (Egypt, Jordan, Sudan and Yemen) who had previously ratified the Stockholm Convention and concluded in their NIP development process that the reduction or elimination of POPs is a respective national priority and that they are committed to take appropriate actions towards the reduction of the releases of unintentionally produced persistent organic pollutants (UP-POPs). Due to the trans-boundary movement of POPs and the special nature of the coastal zone of the Red Sea and Gulf of Aden, it is of importance to take preventive measures to reduce the negative impact of industrial activities and human settlements on the environment of the coastal zone. These preventive measures can be more effective if they are undertaken in a coordinated manner at the regional level. It can be further improved if the regular collection and interpretation of environment related scientific data are also undertaken at the regional level, together with the development of harmonized legislations and interventions. The participating countries have therefore decided to integrate their collective efforts under the regional umbrella of PERSGA and take united actions in reducing UP-POPs releases from selected industrial sources.

These four PERSGA countries have agreed that close cooperation is needed to collectively implement the SC's measures concerning introduction of best available techniques (BAT) and best environmental practices (BEP) for the coastal zone industries. The countries have further agreed that it could be possible that a larger impact on the environment and the coastal zone economy be attained if the cooperation is made at regional level rather than each country intervenes alone at the industries of its own coastal zone. Consequently, PERSGA has approached UNIDO for assistance in developing and implementing a Medium-Sized Project to enable the introduction of BAT and BEP to the industrial sector of the coastal zone. It is important to note that Saudi Arabia is a self financed country and has participated in the Project using PERSGA finance. After two years project preparation and negotiation with stakeholders and the GEF, the GEF approved this project in October 2009.

#### **AIM OF THE PROJECT**

The aim of the proposed project is to reduce and/or eliminate the UP-POPs in key sectors of industry (cement, incineration, metallurgy and pulp and paper) recognized as important source categories in Annex C of Article 5 of the Stockholm Convention through the introduction of BAT/BEP strategies in the industrial sector of the coast in the PERSGA eligible member countries. By achieving this goal, the project will permit PERSGA member countries attain compliance with their obligations under the Stockholm Convention on POPs, particularly those related to the industrial sector releases of UP-POPs. The project will further contribute to the improvement of human health and environmental conditions in the coastal zone as the project is linked to national sustainable development plans of the participating countries

### **The immediate objective of the project**

The project objective is to develop a regional strategy (RS) for the introduction of BAT and BEP in the industrial facilities of the coastal zone of four countries (Egypt, Jordan, Sudan and Yemen) as required by Annex C of Article 5 of the Stockholm Convention. The strategy would include measures ensuring public participation, provide targeted capacity building, study socio-economic implications of environment and monitor impact on human health. The RS will strive to maximize private sector involvement in the planning and implementation activities as well as devising a more integrated and comprehensive resource mobilization scheme. The RS would also support training for technical staff to enable them to carry out preliminary technical feasibility studies required for the introduction of BAT/BEP in the selected sectors and eventually enable the industries to fully select and transfer environmentally sound technologies. The RS will also make necessary provisions to document and disseminate, to PERSGA members, all the experiences gained and corrective measures taken during the implementation process.

### **The objective is to be achieved through eight outputs given below:**

- Output 1:** Establishment of the management structure of the Regional Programme of POPs under PERSGA.
- Output 2:** Institutional and human resources capacity established for various stakeholder
- Output 3:** Comprehensive baseline survey on Annex C POPs conducted for the coastal zone
- Output 4:** Approved UP-POPs sources for BAT/BEP implementation
- Output 5:** BAT/BEP implementation plans for approved UP-POPs sources
- Output 6:** Implementation of BAT and BEP action plans
- Output 7:** Regional BAT and BEP strategy
- Output 8:** Adaptive monitoring and evaluation

### **Consultancy Specific Tasks and Outputs**

The consultant will work closely with PERSGA Program Officer responsible this activity and will consider the consultancy elements outlined in the Project Document. He / She will be responsible for drafting a final assessment report of the Project based on:

- Review of regular progress reports, midterm assessment report, regional strategy for gradual cutting of Up POPs Emissions and UNIDO Final assessment report
- Consulting with the Project Coordination Unit and some other stakeholders

### **Outputs Timeframe:**

The consultancy is expected to be completed in March 2014. The consultant may have consultations with stakeholders during the second half of the month and will develop his / her report within a week after consultations

### **Annex III. Schedule of The Field Missions In Jordan And Sudan**

#### **Jordan**

Date	Activity
10 March 2014	Travel to Aqaba, meeting with the RPC ASEZA Mr. Moed AL-KHATEEB Mr. Raed Damrah
11 March 2014	Meeting with Bin Hyan Laboratory Team ASEZA Dr. Aeman Sulaeman Director Eng. Khaldoun Bawaneh Mr. Qosai Yanes Eng. Mazen
11 March 2014	Meeting with ASEZA Environmental Commissioner Dr. Muhanad Hararh
11 March 2014	Meeting with the National project coordinator for Jordan ASEZA Mr. Raed Damrah
11 March 2014	Meeting with Environmental Directorate team ASEZA Mr. Moed Al-Khateeb Head of Section Mr. Basam Al- Saleem Head of Section Mr. Raed Damrah National project coordinator
11 March 2014	Meeting with Jordan University-Aqaba Team Dr. Tareq Hasan Al-Najar Dean of faculty Dr. Mohammed Zebdeh
11 March 2014	Wrap-up meeting with the commissioner and RPC

#### **Sudan**

19 April 2014	Travel to Sudan
20 April 2014	Meeting Higher Environmental Council Team –Ministry of Environment-Khartoum Dr. Ali Mohammed Ali –Adviser for POPs Eng. Rehab – National Coordinator for SC Dr. Khetmeh –Scio Economic Expert
20 April 2014	Meeting with Secretary General-Ministry of Higher Education Prof. Azhari
20 April 2014	Travel to Port Sudan- State of Port Sudan
21 April 2014	Meeting with the Ministry of Environment and Tourism Team H.E.Mr. Abdallah Kheneh, Minister Mr. Naser Addeen Director General of the ministry Mr. Wahajj NPC of State

- Mr. Ashbo Wahajj Director of the Environment at the ministry  
Employees of the Environmental Directorate
- 21 April 2014 Meeting with Ports Commission Team  
Mr.Saed Ahmed Abdel Gani Al-Hamadi –Director of the Monitoring of the  
ports Directorate
- 21 April 2014 Meeting with General Commission for Cleaning Team  
Mrs. Khaledeh Essa Coordinator of Southern part of the city  
Mr. Mustafa Mohammed Wahajj Coordinator of Middle part of the city  
Mr. Mobarak Abdel Mdjed Coordinator of Eastern part of the city  
Mr. Hashem Saed Ahmed Head of contracts Section
- 22 April 2014 Meeting with Red Sea State University Team  
Prof. Ahamd Abdel Azez Chair of the committee for the selection of  
Engineered landfill  
Responsible Person for sampling and analysis
- 22 April 2014 Meeting with Federal Environmental office team on Port Sudan  
Eng. Ikhlass Adam  
Mr. Ibtassam Osman
- 22 April 2014 Wrap-up meeting with the minster and his team

Annex IV. Form for Collection of Information Arabic

بسم الله الرحمن الرحيم

الهيئة الاقليمية للمحافظة على بيئة البحر الاحمر وخليج عدن

**Regional Organization for the Conservation of Environment of the Red Sea and Gulf of Aden**

مشروع -استراتيجية خفض الانبعاث غير المقصود للملوثات العضوية الثابتة في المدن الساحلية للبحر الاحمر وخليج عدن

**Strategic Reduction of UP POPs Emissions at the Coastal Cities of the Red Sea and Gulf of Aden**

استمارة استقصاء معلومات لغايات التقييم الختامي للمشروع

أ:معلومات عامة

الاسم:

الوظيفة:

مكان العمل:

العنوان:

البلد:

البريد الالكتروني :

ب:المعلومات الفنية :

1- ماهي في رأيك اهم التحديات البيئية المتعلقة بالملوثات العضوية الثابتة التي تواجه المدن الساحلية للبحر الأحمر أو خليج عدن في بلدك ؟

2- ماهي في رأيك اهم الأطر الفنية والتشريعية في التعامل مع التحديات البيئية الناجمة عن الملوثات العضوية الثابتة

3- هل أنت راض عن مساهمة المشروع في التعرف على أهم مصادر الانبعاثات غير المقصودة من الملوثات العضوية الثابتة وتحديد كمياتها في المدن الساحلية للبحر الأحمر أو خليج عدن في بلدك ؟

4- هل أنت راض عن الإضافة التي أدخلها المشروع لتحديد اهم مصادر الملوثات العضوية الثابتة و كمياتها والطريقة التي تم بها المسح من خلال المشروع؟

5- كيف ساهم المشروع في تحديد ووضع اجراءات الوقاية والحماية والتخفيض للحد او التقليل من هذه الانبعاثات في مجال التشريعات و البناء المؤسسي والبنية التحتية والتدريب وبناء القدرات والتوعية وتوفير البيانات والمعلومات ؟

المجال	المستوى المحلي	المستوى الوطني	المستوى الاقليمي
التشريعات			

			البناء المؤسسي
			البنية التحتية
			التدريب وبناء القدرات
			التوعية
			توفير ومعلومات بيانات

6- ما هي الجهات التي تم اشراكها او استشارتها اثناء تنفيذ المشروع عل المستويين المحلي والوطني ؟  
المستوى المحلي :

المستوى الوطني :

7- هل كان اختيار النشاطين لتطبيق مفاهيم افضل التكنولوجيا المتاحة (BAT) وافضل الممارسات البيئية (BEP) في بلدك موفقا؟

8- هل ساهم المشروع في تقوية التعاون والتنسيق مع اتفاقيات دولية اخرى كاتفاقية بازل للتحكم بنقل النفايات الخطرة عبر الحدود واتفاقية روتردام الخاصة باجراء الموافقة المسبق عن علم على تداول مواد كيميائية ومبيدات آفات خطرة في التجارة الدولية وغيرها ؟ كيف؟

9- كيف تقيم البعد الإقليمي للمشروع ودور الهيئة الاقليمية للمحافظة على بيئة البحر الاحمر وخليج عدن في تنفيذه ؟

11- ما هي في رأيك أهم مخرجات المشروع الناجحة في بلدك وعلى مستوى الإقليم؟

12- ما هي أهم الصعوبات التي واجهها تنفيذ المشروع ؟

13- هل تعتقد ان تنفيذ مرحلة ثانية من المشروع قد يساهم في خفض إضافي للانبعاث غير المقصود من الملوثات العضوية الثابتة في بلدك والاقليم ؟

14 - هل يمكن لك أن تحدد المجالات التي تحتاج إلى اهتمام أكبر في حال إعداد مشروع جديد؟

15- توصياتكم وتطلعاتكم بعد تنفيذ المشروع ؟

شكرا على تعاونكم في تعبئة هذا الاستبيان  
مع اطيب التحيات



تعباً من قبل الجهة التي نفذت النشاط الاول بالتعاون مع ضابط ارتباط المشروع الوطني ويمكن استخدام صفحات اضافية للتوضيح

## الهيئة الاقليمية للمحافظة على بيئة البحر الاحمر وخليج عدن

### Regional Organization for the Conservation of Environment of the Red Sea and Gulf of Aden

مشروع -استراتيجية تخفيض الانبعاثات غير المقصودة للمدن الساحلية للبحر الاحمر وخليج عدن

### Under the Project -UP POPs Emissions Strategic Reduction in Coastal Cities of the Red Sea and Gulf of Aden

اسم النشاط:

الجهة التي نفذت النشاط:

الموقع:

ضابط الارتباط في تلك الجهة :

- الاسم :
- الوظيفة :
- العنوان :
- البريد الالكتروني :

الجهات التي شاركت في تنفيذ النشاط مباشرة :

اهم مخرجات النشاط :

كيف ساهم تنفيذ هذا النشاط باستخدام BAT/BEP على اداء مؤسستكم البيئي بشكل عام وعلى الحد من الانبعاثات العضوية الثابتة غير المقصودة بشكل خاص ؟

كيف ساهم تنفيذ هذا النشاط باستخدام BAT/BEP في الاطار الاستراتيجي لتخفيض الانبعاثات غير المقصودة في بلدك و المدن الساحلية للبحر الاحمر وخليج عدن ؟

تقييمك لاداء ضابط الارتباط للمشروع

- في بلدك
- في الاقليم

ماهي الصعوبات التي واجهتكم اثناء تنفيذ المشروع ؟

هل تعتقد ان تنفيذ مرحلة ثانية من المشروع قد تساهم في خفض جديد للانبعاثات غير المقصودة من الملوثات العضوية الثابتة في بلدك والاقليم ؟ حدد؟

توصياتكم وتطلعاتكم بعد تنفيذ المشروع ؟

تعباً من قبل الجهة التي نفذت النشاط الثاني بالتعاون مع ضابط ارتباط المشروع الوطني ويمكن استخدام صفحات إضافية للتوضيح

الهيئة الاقليمية للمحافظة على بيئة البحر الاحمر وخليج عدن

## Regional Organization for the Conservation of Environment of the Red Sea and Gulf of Aden

مشروع -استراتيجية تخفيض الانبعاثات غير المقصودة للمدن الساحلية للبحر الاحمر وخليج عدن

### Under the Project -UP POPs Emissions Strategic Reduction in Coastal Cities of the Red Sea and Gulf of Aden

اسم النشاط:

الجهة التي نفذت النشاط:

الموقع:

ضابط الارتباط في تلك الجهة :

- الاسم :

- الوظيفة :

- العنوان :

- البريد الالكتروني :

الجهات التي شاركت في تنفيذ النشاط مباشرة :

اهم مخرجات النشاط :

ما هي كمية الانبعاثات من الغازات غير المقصودة الناتجة عن مؤسساتكم ؟

هل تم اتخاذ اجراءات للحد او التقليل منها باستخدام BAT/BEP

كيف ساهم تنفيذ هذا النشاط باستخدام BAT/BEP على اداء مؤسساتكم البيئي بشكل عام وعلى الحد من الانبعاثات العضوية الثابتة غير المقصودة بشكل خاص ؟

كيف ساهم تنفيذ هذا النشاط باستخدام BAT/BEP في الاطار الاستراتيجي لتخفيض الانبعاثات غير المقصودة في بلدك و المدن الساحلية للبحر الاحمر وخليج عدن ؟

تقييمك لاداء ضابط الارتباط للمشروع

- في بلدك

- في الاقليم

ماهي الصعوبات التي واجهتكم اثناء تنفيذ المشروع ؟

هل تعتقد ان تنفيذ مرحلة ثانية من المشروع قد تساهم في خفض جديد للانبعاثات غير المقصودة من الملوثات العضوية الثابتة في بلدك والاقليم ؟ حدد؟

توصياتكم وتطلعاتكم بعد تنفيذ المشروع ؟

**Annex V. Information form Filled Egypt.**

**بسم الله الرحمن الرحيم**

**الهيئة الاقليمية للمحافظة على بيئة البحر الاحمر وخليج عدن**

**Regional Organization for the Conservation of Environment of the Red Sea and Gulf of Aden**

**مشروع -استراتيجية خفض الانبعاث غير المقصود للملوثات العضوية الثابتة في المدن الساحلية للبحر الاحمر وخليج عدن**

**Strategic Reduction of UP POPs Emissions at the Coastal Cities of the Red Sea and Gulf of Aden**

**استمارة استقصاء معلومات لغايات التقييم الختامي للمشروع**

أ:معلومات عامة

الاسم: **محمد خليفة أمين**

الوظيفة: **مدير إدارة المواد الخطرة**

مكان العمل: **جهاز شئون البيئة**

العنوان: **30 طريق مصر حلوان الزراعى خلف فندق سوفيتل المعادى**

البلد: **القاهرة**

البريد الالكتروني: **khalifa10720@yahoo.com**

ب:المعلومات الفنية :

2- ماهي في رأيك اهم التحديات البيئية المتعلقة بالملوثات العضوية الثابتة التي تواجه المدن الساحلية للبحر الأحمر أو خليج عدن في بلدك ؟

- **الحرق المكشوق للمخلفات التي ينتج منها انبعاثات من الملوثات العضوية الثابتة .**
- **التداول الغير آمن والتخزين للمخلفات الخطرة .**
- **محارق المخلفات الخطرة والتي ينتج عنها انبعاثات من الملوثات العضوية الثابتة .**
- **الصناعات المختلفة ومنها صناعات البترولية التي ينتج منها العديد من الملوثات المؤثرة على التربة والهواء والمياه .**

3- ماهي في رأيك اهم الأطر الفنية والتشريعية في التعامل مع التحديات البيئية الناجمة عن الملوثات العضوية الثابتة

- **من الناحية الفنية يتطلب إعادة تقييم للعناصر المشار إليها مع دراسة افضل التكنولوجيات المتاحة التي يمكن تطبيقها للحد من تلك الملوثات مع تنفيذ مشروع نموذج pilot project يمكن الاستفادة منه كجانب عملى يمكن تطبيقه على نطاق أكبر .**
- **التركيز على التدريب الداخلى والخارجى للتعرف على أفضل التكنولوجيا فى هذا المجال فى الدول الأخرى .**
- **تكثيف برامج التوعية حيث أنها من اهم الموضوعات التي تواجهنا بجمهورية مصر العربية .**

- من الناحية التشريعية مراجعة التوجه العالمي في هذا المجال من ناحية الإتفاقيات الدولية ومطابقتها مع القوانين المحلية بما يتلائم مع الإمكانيات الإقتصادية والبيئة المصرية .
- فى ذات السياق نحتاج إلى إمكانيات مادية أكثر للتركيز على أنواع أخرى من الملوثات العضوية الثابتة المحدثه NEW POPs .

- نأمل بوضع مبدء التنمية المستدامة للمشروعات المقدمة مستقبلاً بحيث توضع خطة لذلك .
- الإستعانة بمدرّبين على مستوى علمى وأكاديمى مناسب مع بحث إمكانيّة التطبيق العملى .

4- هل أنت راض عن مساهمة المشروع في التعرف على أهم مصادر الانبعاثات غير المقصودة من الملوثات العضوية الثابتة وتحديد كمياتها في المدن الساحلية للبحر الأحمر أو خليج عدن في بلدك ؟

- هى مرضية على قدر إمكانيات المشروع المادية وتتركت إلى جوانب كثيرة هامة من تقييم للمواقع وتوفير أجهزة وكذا برامج التوعية .

5- هل أنت راض عن الإضافة التي أدخلها المشروع لتحديد اهم مصادر الملوثات العضوية الثابتة وكمياتها والطريقة التي تم بها المسح من خلال المشروع؟

- من حيث المبدء مرضية ولكن مستقبلاً نحتاج للتعرف وتطبيق التكنولوجيات الحديث فى عمليات المسح حتى نصل إلى أدق المعلومات التي تجعلنا نتخذ قرارات صائبة وقوية .

5- كيف ساهم المشروع في تحديد ووضع اجراءات الوقاية والحماية والتخفيض للحد او التقليل من هذه الانبعاثات في مجال التشريعات و البناء المؤسسي والبنية التحتية والتدريب وبناء القدرات والتوعية وتوفير البيانات والمعلومات ؟

المجال	المستوى المحلي	المستوى الوطني	المستوى الاقليمي
التشريعات	جيدة	جيدة على قدر الإمكانيات المادية المتاحة له	جيدة
البناء المؤسسي	مناسبة	مناسبة	مناسبة
البنية التحتية	تحتاج زيادة إمكانيات	تحتاج زيادة إمكانيات	جيدة
التدريب وبناء القدرات	جيد	جيد	جيد
التوعية	جيدة مع توسيع النطاق التوعوى	جيدة	جيدة جدا

توفير ومعلومات	بيانات	جيدة	جيدة
		جيدة	جيدة جدا

6- ما هي الجهات التي تم اشراكها او استشارتها اثناء تنفيذ المشروع عل المستويين المحلي والوطني ؟  
المستوى المحلي :

- الفروع الإقليمية لجهاز شئون البيئة – خبراء البيئة – المنظمات الغير حكومية NGOs – القطاع الخاص ( قرية الجونة كنموذج إسترشادى صغير لإعادة التدوير ) .
- الجامعات المصرية – الجهات الحكومية ذات الصلة ( اتحاد الصناعات ) – شركات القطاع العام ( شركة السويس لتكرير البترول ) – محافظة البحر الاحمر .

المستوى الوطني :

- الخبراء من الدول العربية فى مجال البيئة والمشاركين فى ذات النشاط .

7- هل كان اختيار النشاطين لتطبيق مفاهيم افضل التكنولوجيا المتاحة (BAT) وافضل الممارسات البيئية (BEP) في بلدك موفقا؟  
• نعم ---- موفقا فى ذات الوقت .

8- هل ساهم المشروع في تقوية التعاون والتنسيق مع اتفاقيات دولية اخرى كاتفاقية بازل للتحكم بنقل النفايات الخطرة عبر الحدود واتفاقية روتردام الخاصة باجراء الموافقة المسبق عن علم على تداول مواد كيميائية ومبيدات آفات خطرة في التجارة الدولية وغيرها ؟ كيف؟

المشروع ساهم فى التعرف على مصادر الانبعاثات للملوثات العضوية الثابتة وكيفية تطبيق أفضل التكنولوجيات المتاحة لخفض تلك الانبعاثات وساعد بجانب فى إعداد التقارير المعنية بذلك فيما يخص إتفاقية استكهولم المعنية بالملوثات العضوية الثابتة ولكن دعنى أشير إلى أنه مستقبلاً نحتاج إلى الإشارة إلى NEW POPs ونحتاج لمواكبة التطور العالمى فى هذا المجال

9- كيف تقيم البعد الإقليمي للمشروع ودور الهيئة الاقليمية للمحافظة على بيئة البحر الاحمر وخليج عدن في تنفيذه ؟

دور الهيئة الإقليمية فعال جدا ومتعاون على الجانب الإقليمي وله إدارة نموذجية من سابق الخبرات فى تنفيذ المشروعات .

11- ما هي في رأيك أهم مخرجات المشروع الناجحة في بلدك وعلى مستوى الإقليم؟

- توفير أجهزة ومعدات لتجميع وتحليل العينات .
- تدريب خارجى للتعرف على أحدث التكنولوجيا فى مجال التخلص من المواد والنفايات الخطرة .
- تطوير التكنولوجيا وإستبدالها بتكنولوجيا أخرى نظيفة صديقة للبيئة وتقلل من الانبعاثات الصادرة .
- نقل العديد من الأنشطة من مواقع داخل الكتلة السكنية إلى مواقع أخرى مطابقة للإشتراطات البيئية مثل مدابغ الجلود – ورش صهر الرصاص .
- التنمية المستدامة للمشروع .

12- ما هي أهم الصعوبات التي واجهها تنفيذ المشروع ؟

- توفير البيانات .

- عدم وجود إمكانيات أكثر لتجميع العينات .
- الإجراءات الإدارية .

13- هل تعتقد ان تنفيذ مرحلة ثانية من المشروع قد يساهم في خفض إضافي للانبعاث غير المقصود من الملوثات العضوية الثابتة في بلدك والاقليم ؟ نعم

14 - هل يمكن لك أن تحدد المجالات التي تحتاج إلى اهتمام أكبر في حال إعداد مشروع جديد؟

التركيز على NEW POPs وتكنولوجيات جديدة في المسح وتوفير أجهزة ووضع خطة للتنمية المستدامة للمشروع والتوعية المجتمعية على مستوى أوسع لمخاطبة جميع الفئات وكذا التدريب الخارجى .

15- توصياتكم وتطلعاتكم بعد تنفيذ المشروع ؟

- التعرف على مصادر جديدة للملوثات العضوية الثابتة .
- التدريب والتوعية المجتمعية .
- التركيز على تدريب المدربين ليكونوا لتدريب أكبر عدد من المتدربين .
- توفير التكنولوجيات المتقدمة فى عمليات المسح .
- تطبيق أفضل التكنولوجيات المتاحة لخفض الانبعاثات .
- إنشاء وحدة بحث وتطوير Research and Development فى المشروع .
- توفير الأجهزة المناسبة .
- عمل آلية تمويل متكاملة للمشروعات التى يتم تنفيذها بحث يتم عمل وثيقة المشروع والتنفيذ الفورى
- وضع خطة للتنمية المستدامة للمشروع .

شكرا على تعاونكم في تعبئة هذا الاستبيان مع اطيب التحيات

بسم الله الرحمن الرحيم

الهيئة الإقليمية للمحافظة على بيئة البحر الأحمر وخليج عدن

## Regional Organization for the Conservation of Environment of the Red Sea and Gulf of Aden

مشروع -استراتيجية تخفيض الانبعاثات غير المقصودة للمدن الساحلية للبحر الأحمر وخليج عدن

### Under the Project -UP POPs Emissions Strategic Reduction in Coastal Cities of the Red Sea and Gulf of Aden

استمارة تقييم المشروع- العقبة 10-11 آذار 2014

الجهات التي تم زيارتها والاشخاص الذين تم مقابلتهم:

سلطة منطقة العقبة الاقتصادية الخاصة

مفوضية البيئة :

- د. مهند حرارة- مفوض البيئة
- مؤيد الخطيب - رئيس قسم
- بسام السليم - رئيس قسم
- رائد ضمرة- المنسق الوطني للمشروع

مختبرات بن حيان – سلطة منطقة العقبة الاقتصادية الخاصة

- د.ايمن سليمان
- م.خلدون بواعنة
- السيد قصي يانس
- م. مازن

الجامعة الاردنية- فرع العقبة

- د. طارق حسن النجار – عميد كلية العلوم البحرية
- د. محمد زبدة

النشاطات التي تم تنفيذها و مخرجاتها :

سلطة منطقة العقبة الاقتصادية الخاصة

مفوضية البيئة :

النشاطات :

- اجراء مسح بيئي شامل في منطقة العقبة الاقتصادية بما يتعلق بالانبعاثات العضوية الثابتة غير المقصودة
- دراسة تقييم شامل للمجمع الصناعي في العقبة من النواحي البيئية والصحية والاجتماعية .
- تدريب مجموعة وطنية لعمل المسح

الايجابيات :

- تم تفكيك حارقة النفايات الطبية ونقلها الى منطقة الطفيلة

- تحول الكثير من الصناعات والنشآت الخدمية الى استخدام الغاز بدلا من الوقود (محطة العقبة الحرارية، المصانع، الفنادق،....)
- منع حرق النفايات والاطارات في المكب
- يجري العمل حاليا على وضع يصاميم هندسية لتوسع المكب وفقا لحدث المعايير البيئية
- تشجيع جمع الاطارات والبستيك وغيرها من خلال تشجيع صناعات تستخدمها كمدخل انتاج

#### التحديات :

- وضع او المساهمة في وضع تشريعات او مواصفات للانبعاثات غير المقصودة للرقابة عليها من خلال تطوير برامج رقابة ثابتة و طارئة عليها
- وضع الية تنسق مستدامة مع الجهات ذات العلاقة
- اظهار منطقة العقبة الاقتصادية كنموذج على المستوى الوطني فيما يتعلق بالوعي والتحليل واستخدام BAT/BEP والرقابة وتوفر المعلومات الخاصة بالانبعاثات غير المقصودة من الملوثات العضوية الثابتة
- تخزين المواد الكيميائية واحتمالية تسرب بعض المواد او الانعاثات من بعض الحاويات المغلقة

#### التوصيات :

- وضع تشريع وطني لمراقبة الانبعاثات غير المقصودة من الملوثات العضوية الثابتة ووضع حدود عتبية لها
- دعم مختبرات بن حيان لادامة عمل تحليلها للانبعاثات غير المقصودة للملوثات العضوية الثابتة
- تعميق العمل ب BAT/BEP بكافة المجالات الصناعية والخدمية وتضمن ذلك او الاسترشاد به في دراسات تقييم الاثر البيئي او التدقيق البيئي
- ادخال مفهوم BAT/BEP في التشريعات الوطنية
- زيادة اعداد الخبراء الوطنيين في هذا المجال من خلال رفد الجهات والاقسام بمزيد من الكوادر الشابة وتدريبهم والمحافظة وضمان ديمومة استمرارهم بالعمل وتدريب المدربين
- العمل لجعل العقبة مركز معرفة وتحليل بهذا الموضوع
- العمل لادخال مؤسسات جديدة قد تساهم في خفض الانبعاثات من UP-POPs
- تصميم وايجاد برامج رقابية ثابتة على هذا النوع من الملوثات
- العمل مع كافة الشركاء وخاصة مع الجهات الاكاديمية لزيادة الوعي بين الطلبة بهذا الموضوع وتركيز وتوجيه بعض الباحثين لبحث واجراء البحوث و الدراسات الميدانية فية

#### مختبرات بن حيان :

##### النشاطات :

- التدريب على جمع العينات من الملوثات العضوية المقصودة وتحليلها
- تدريب مدربين من كوادر المختبر لادامة العمل وتدريب الكوادر الجديدة
- المشاركة في وضع برامج التدريب والاطلاع على كل ما هو جديد
- اعتماد المختبر كذراع وطني لتحليل الملوثات العضوية الثابتة غير المقصودة
- المشاركة في الورشة الاقليمية التي عقدت لجمع العينات وتحضيرها

#### الايجابيات :



- وجود كادر مدرب على تحليل الانبعاثات العضوية غير المقصودة
- توفير الاجهزة والمعدات والمواد الكيميائية اللازمة لاجراء التحليل
- اعتماد المختبر كمختبر وطني لاجراء هذا النوع من التحاليل

#### التحديات :

- انتقال الكوادر الفنية المدربة الى اماكن اخرى للعمل
- عدم وجود عدد كافى من العينات لتحليلها يرفع من كلفة التحليل
- اعتماد المختبر كمختبر اقليمي لهذه الغاية
- توفير الموارد المالية الكافية للاستمرار بتحليل هذا النوع من الملوثات

#### التوصيات :

- المحافظة على الكوادر الفنية المدربة ورغد المختبرات بكوادر جديدة وتدريبها باستمرار
- اعتماد المختبر كمختبر اقليمي لهذه الغاية
- توفير الموارد المالية الكافية للاستمرار بتحليل هذا النوع من الملوثات

#### الجامعة الاردنية- فرع العقبة

#### النشاطات :

- نشر الوعي في الجامعة بما يتعلق UP-POPs
- دور الجامعة في البحث واجراء الدراسات وتطوير المناهج اللامنهجية التي من شأنها تسليط الضوء على هذا الموضوع

#### الايجابيات :

- تدريس مساق علم البيئة وتسليط الضوء في هذا المساق على UP-POPs
- تدريس مساق التلوث البحري
- تدريس مساق قوانين البيئة البحرية

#### التوصيات :

- تضمين كافة المسابقات ذات الصلة بالبيئة باهمية التخفيض من الانبعاثات غير المقصودة من خلال استخدام مفاهيم BAT/BEP في كافة الممارسات والانشطة
- اشراك الجامعة في كافة الانشطة المرتبطة بالبيئة من قبل السلطات المعنية
- ان تلعب الجامعة دورا اكبر في البحث واجراء الدراسات وتطوير المناهج وغيرها من النشاطات اللامنهجية التي من شأنها تسليط الضوء على هذا الموضوع واثراء

#### الاستنتاجات العامة :

- ساهم المشروع في فهم المشكلة بعمق وضرورة اجراء او التاكيد على الاجراءات والخطط الحالية او اقتراح ادخال بعض التعديلات عليها بما يتلاءم والوضع الجديد لتحسن ادارة النفايات
- ادخل مفهوم BAT/BEP في دراسات تقييم الاثر البيئي
- سهلت عملية الانتقال الى استخدام الغاز الطبيعي الى تقليل الانبعاثات
- لازال هناك مجالات واسعة من الفرص للعمل مع جهات اخرى وشركاء لزيادة الوعي في هذا الموضوع وتخفيض الانبعاثات

## التوصيات :

- وضع تشريع وطني لمراقبة الانبعاثات غير المقصودة من الملوثات العضوية الثابتة ووضع حدود عتبية لها
- دعم مختبرات بن حيان لادامة عمل تحليلها للانبعاثات غير المقصودة للملوثات العضوية الثابتة
- تعميق العمل ب BAT/BEP بكافة المجالات الصناعية والخدمية وتضمن ذلك او الاسترشاد بة في دراسات تقييم الاثر البيئي او التدقيق البيئي
- ادخال مفهوم BAT/BEP في التشريعات الوطنية
- زيادة اعداد الخبراء الوطنيين في هذا المجال من خلال رفد الجهات والاقسام بمزيد من الكوادر الشابة وتدريبهم والمحافظة وضمان ديمومة استمرارهم بالعمل وتدريب المدربين
- العمل لجعل العقبة مركز معرفة وتحليل بهذا الموضوع
- العمل لادخال مؤسسات جديدة قد تساهم في خفض الانبعاثات من UP-POPs
- تصميم وايجاد برامج رقابية ثابتة على هذا النوع من الملوثات
- العمل مع كافة الشركاء وخاصة مع الجهات الاكاديمية لزيادة الوعي بين الطلبة بهذا الموضوع وتركيز وتوجيه بعض الباحثين لبحث واجراء البحوث و الدراسات الميدانية فية

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الهيئة الاقليمية للمحافظة على بيئة البحر الاحمر وخليج عدن

## Regional Organization for Conservation of the Environment of the Red Sea and Gulf of Aden

مشروع -استراتيجية تخفيض الانبعاثات غير المقصودة للمدن الساحلية للبحر الاحمر وخليج عدن

### Under the Project -UP POPs Emissions Strategic Reduction in Coastal Cities of the Red Sea and Gulf of Aden

استمارة تقييم المشروع- السودان 20-23 آذار 2014

اولا: الجهات التي تم زيارتها والاشخاص الذين تم مقابلتهم

المجلس الاعلى للبيئة -وزارة البيئة السودانية

- د. علي محمد علي - مستشار لشؤون الملوثات العضوية الثابتة
- المهندسة رحاب - المنسق الوطني لاتفاقية ستكهولم
- د. ختمة - الخبير الذي اعد الدراسة الاجتماعية

وزارة التعليم العالي

- أ.د. ازهري - وكيل وزارة التعليم العالي

وزارة البيئة والسياحة - ولاية البحر الاحمر

- السيد عبدالله كنة - وزير البيئة
- السيد ناصر الدين - مدير عام الوزارة
- المهندس وهاج - المنسق الولائي للمشروع في الولاية - مستشار
- المهندس اشبو وهاج - مدير البيئة
- موظفو دائرة البيئة - وزارة البيئة - ملحق

هيئة الموانئ البحرية - ولاية البحر الاحمر

- سيد احمد عبد الغني الاحمدي - مدير ادارة الرقابة البحرية

الهيئة العامة للنظافة - بورت سودان- ولاية البحر الاحمر

- السيدة خالدة عيسى - منسق القطاع الجنوبي لمدينة بورت سودان
- مصطفى محمد وهاج - منسق القطاع الاوسط لمدينة بورت سودان
- مبارك عبد الماجد - منسق القطاع الشرقي لمدينة بورت سودان
- هاشم سيد احمد - رئيس ادارة التعاقد

جامعة البحر الاحمر - ولاية البحر الاحمر

- أ.د. احمد عبد العزيز احمد - جامعة البحر الاحمر - رئيس لجنة اختيار موقع المكب
- د.م. .... - المسؤول عن اخذ العينات والتحليل

مكتب وزارة البيئة الفيدرالية في ولاية البحر الاحمر

- المهندسة اخلاص آدم
- السيدة ابتسام عثمان

## ثانيا:النشاطات التي تم تنفيذها و مخرجاتها المجلس الاعلى للبيئة :

### النشاطات :

- الدراسة المسحية للملوثات العضوية الثابتة UP POPs للحرق الفتوح للنفايات ومعمل انتاج الاسفلت في ولاية البحر الاحمر
- الدراسة الاجتماعية – الاقتصادية

### الايجابيات :

- التعرف على مصادر الانعاثات العضوية الثابتة غير المقصودة في ولاية البحر الاحمر
- تطوير المفاهيم والوعي الخاص بالملوثات العضوية بين الجهات ذات العلاقة

### التحديات :

- عدم توفر المعلومات الكافية للدراسات
- عدم وجود الية قوية للتنسيق بين كافة الجهات المعنية

### التوصيات :

- تطوير ادارة النفايات الطبية
- تطوير ادارة النفايات المنزلية
- تحسين ادارة المكاب المنزلية والتوقف عن الحرق المفتوح للنفايات
- ايجاد قاعدة بيانات وطنية خاصة بالكيماويات

## وزارة التعليم العالي :

### النشاطات :

- تنفيذ بعض الدراسات في بعض الجامعات كدراسة تاثير عمليات رش الجراد بالمبيدات – جامعة كسلا

### الايجابيات :

- توفر بعض الكوادر الاكاديمية المدربة على موضوع الرقابة على الملوثات ويمكن تطوير هذه القدرات لتشمل الملوثات العضوية الثابتة
- وكيل وزارة التعليم العالي على تماس مباشر مع الاذرع الفنية الدولية لاتفاقية ستكهولم كونه عضو ونائب رئيس لجنة استعراض المواد الكيميائية للاتفاقية (POP-RC) ممثلا للسودان والقارة الافريقية
- هناك بعض المخصصات المالية للبحث العلمي يمكن استثمارها لتطوير مراقبة والحد من الملوثات العضوية غير المقصودة من قبل جامعة البحر الاحمر وجامعة كسلا ومعهد الدراسات البيئية في جامعة الخرطوم

### التوصيات :

- ادخال الجامعات في تنفيذ الاتفاقية واية مشاريع مستقبلية وخاصة في مجالات الرصد وبناء القدرات والتحليل والدراسات

## وزارة البيئة والساحة – ولاية البحر الاحمر

### النشاطات :

- مسح كامل للنفايات والمصادر
- اعداد دراسة خاصة بالنفايات الصلبة من قبل خبراء دوليين
- توفير جهاز لجمع عينات ملوثات الهواء
- تشكيل فريق ولائي لاختيار موقع جديد وفقا لمعايير اختيار مكاب النفايات الصلبة المعتمدة دوليا
- مكون من سبعة جهات مختصة

### الايجابيات :

- المساهمة في تشكيل الهيئة العامة للنظافة في المدينة
- الوقوف على واقع ادارة النفايات في المدينة
- معرفة حجم المشكلة التي كانت تسببها ادارة النفايات السابقة والتلوث التي كانت تسببها في المدينة
- وعلى بيئة البحر الاحمر
- ارتفاع مستوى النظافة
- توفر خطة ارشادية لمواقع مكاب النفايات المحتملة والمناسبة من خلال الدراسة الذي اعددها الفريق الولائي
- زيادة مستوى الوعي لدى اصحاب القرار والجهات المعنية لتنفيذ خطة بيئية مناسبة للنهوض بالمحافظة على البيئة بشكل عام وادارة النفايات بشكل خاص لتقليل مستوى الانبعاثات الى الهواء والبيئة

### التحديات :

- الموارد المالية والبشرية المدربة المحدودة لتنفيذ الخطة
- تطوير التشريعات المحلية
- التوعية والاعلام النوعي لممارسات البيئية فيما يتعلق بادارة النفايات والحرق المفتوح وانعكاس ذلك على مسوى التلوث وانبعاث وزيادة تركيز الانعاثات غير المقصودة
- تواضع البنى التحتية والمؤسسية المناسبة لتنفيذ الخطة والادارة السليمة للنفايات
- ضعف في التواصل والتنسيق الدائم بين وزارة البيئة الولاية ووزارة البيئة المركزية

### التوصيات :

- التوقف عن الحرق المفتوح فورا والبدء بطمر النفايات بدلا من حرقها
- تغيير موقع المكب الحالي واختيار موقع جديد من المواقع التي اوصى بها الفريق الولائي الذي تم تشكيله لهذه الغاية
- توفير التصميم الهندسة لانشاء المكب الجديد
- توفير الموارد الماية لتنفيذ المكب الهندسي
- فصل وجمع النفايات الطبية بصورة مستقلة
- الاستفادة من الحارقة الموجودة في المستشفى الحكومي لحرق النفايات الطبية المتولدة في المستشفى والمراكز الصحية الاخرى
- توفير البنى التحتية والمؤسسية المناسبة لتنفيذ الخطة والادارة السليمة للنفايات
- وضع وصف وظيفي لكافة الموظفين العاملين في مديرية البيئة

- وضع اللوائح التشريعية للرقابة على عناصر البيئة بما فيها الانبعاثات غير المقصودة من الملوثات العضوية الثابتة
- وضع الية تنسيق ثابتة بين الجهات المعنية بموجب تشريع خاص
- توفير قاعدة بيانات خاصة بالبيانات والمعلومات المتوفرة
- التواصل والتنسيق الدائم بين وزارة البيئة الولاية ووزارة البيئة المركزية

## هيئة الموانئ البحرية – ولاية البحر الاحمر

### النشاطات :

- وضع لائحة حماية البيئة بالموانئ البحرية في ولاية البحر الاحمر
- وضع مسودة امر ضوابط سحب المخلفات والمخلفات النفطية الراجعة من السفن والمواكين البحرية حسب متطلبات اتفاقية ماربول وتعديلاتها
- الاشراف على عمل الشركة التي تقوم بتنظيف الموانئ
- البدء بوضع خطة بيئية لرفع قدرات العاملين في الموانئ

### الايجابيات :

- البدء بوضع اللوائح التشريعية ذات الصلة بحماية البيئة والتقليل من الانبعاثات
- توفر جزء من الامكانيات البشرية والمادية لتنفيذ الخطة البيئية

### التحديات :

- توفير اجهزة قياس للملوثات في الموانئ
- انشاء مركز لمكافحة التلوث البحري
- ايجاد الية تنسيق مستدامة للعمل مع الجهات المعنية بالبيئة في الولاية

### التوصيات :

- المباشرة بتنفيذ اللوائح البيئية التي تم اعتمادها
- استكمال اللوائح التشريعية ذات الصلة بحماية البيئة البحرية
- وضع خطة بيئية متكاملة لانجاز العمل المطلوب مقرونة بجدول زمني لضمان حماية البيئة البحرية في المنطقة
- زيادة التنسيق مع الجهات الاخرى ودعم جهودها

## الهيئة العامة للنظافة – بورت سودان- ولاية البحر الاحمر

### النشاطات :

- جمع النفايات بكافة انواعها من المدينة بصورة منظمة
- توفير وتوزيع الحاويات والاكياس الخاصة بجمع النفايات في ارجاء المدينة

### الايجابيات :

- زيادة مستوى النظافة في المدينة
- تقلص عمليات الحرق داخل المدينة وخاصة الاحياء التجارية التي تجمع فيها النفايات بصورة مكثفة
- البدء باجاءات مكب جديد
- الرغبة القوية في زيادة وطوير ادارة النفايات

#### التحديات :

- توفر حاويات ثابتة بدلا من الأكياس في الأحياء السكنية
- فعالة أجور جمع النفايات
- محدودية عدد دورات اليات الجمع للأحياء السكنية
- حرق النفايات في الأحياء السكنية
- فصل النفايات الطبية والصناعية عن المنزلية
- الية فعالة للاستفادة من النفايات الممكن إعادة استخدامها أو تدويرها
- توفر ادوات العمل الحديثة كالكابسات والخراط الرقمية وقواعد البيانات وغيرها
- المخصصات المالية المناسبة

#### التوصيات :

- التوقف الفوري عن حرق النفايات في المكب والمباشرة بطمر النفايات بدلا من حرقها إيجاد الية فعالة لجمع أجور جمع النفايات
- زيادة فعالية الجمع من خلال زيادة مرات الجمع الاسبوعية للأحياء السكنية
- وضع الية مناسبة وفعالة للتوقف عن حرق النفايات في الأحياء السكنية
- فصل النفايات الطبية والصناعية عن المنزلية
- إيجاد الية فعالة للاستفادة من النفايات الممكن إعادة استخدامها أو تدويرها
- التسريع بإنشاء المكب الهندسي
- توفير ادوات العمل الحديثة كالكابسات والخراط الرقمية وقواعد البيانات وغيرها
- توفير المخصصات المالية المناسبة

### جامعة البحر الاحمر – ولاية البحر الاحمر

#### النشاطات :

- تشغيل جهاز اخذ عينات الهواء وارسل العينات الى مختبرات مناسبة
- رئاسة الفريق الولائي لختيار موقع مناسب لمكب هندسي مناسب وفقا لمعايير بيئية محددة
- المشاركة في تدريب كوادر الولاية

#### الايجابيات :

- التنسيق المباشر والقوي مع وزارة البيئة الولائية
- تخريج الكوادر من التخصصات المناسبة لحماية البيئة في الولاية
- الاستجابة والعمل على توفير المساعدة الفنية للجهات الرسمية العاملة في الولاية
- توفر الخبرات الاكاديمية المناسبة لدعم اية برامج قادمة لحماية البيئة في الولاية وتنفيذ برامج رقابية

#### التحديات :

- الامكانيات والدعم المالي المقدم من الحكومة الولائية
- ضعف قدرات التحليل والرقابة على عناصر البيئة

#### التوصيات :

- الامكانيات والدعم المالي المقدم من الحكومة الولائية
- زيادة ودعم قدرات التحليل والرقابة على عناصر البيئة

## مكتب وزارة البيئة الفيدرالية في ولاية البحر الاحمر

### النشاطات :

- التنسيق وتسهيل مهمة المجلس الاعلى للبيئة لاجراء المسح الميداني الاولي لمصادر الانبعاثات غير المقصودة

### الايجابيات :

- وجود مكتب لوزارة البيئة المركزية في الولاية
- توفر الخبرات المناسبة وخاصة في الاتفاقيات الدولية متعددة الاطراف كاتفاقية ستكهولم وبازل وروتتردام
- الخبرات المناسبة في الية الحصول على تمويل لمشاريع بيئية من الجهات المانحة واليات التمويل التي توفرها الاتفاقيات
- الخبرة في اليات وبرامج عمل PERSEGA

### التحديات :

- ضعف في التنسيق بين مكتب الوزارة المركزية ووزارة البيئة الولاية
- تداخل الصلاحيات مع وزارة البيئة الولاية
- وضع برامج ومشاريع مشتركة

### التوصيات :

- زيادة ووضع الية تنسيق ثابتة بين مكتب الوزارة المركزية ووزارة البيئة الولاية
- وضع اوصاف وتشريعات تحدد فيها مسؤولية كل طرف تداخل الصلاحيات مع وزارة البيئة الولاية
- وضع برامج ومشاريع مشتركة للاستفادة من الخبرات المتوفرة

### الاستنتاجات العامة :

- المشروع اسهم وبصورة فعالة في بيان حجم المشكلة واهميتها وخاصة فيما يتعلق من الانبعاثات غير المقصودة من الملوثات العضوية الثابتة الناجمة عن الحرق المفتوح
- المشروع اسهم وبصورة فعالة في وضع حلول للمشكلة من خلال المساهمة في تشجيع تاسيس الهيئة العامة للنظافة والتي اسهمت وبصورة واضحة في الحد من المشكلة
- شجع المشروع وساهم في التوقف بشكل جزئي عن الحرق المفتوح
- وضع خطط وبرامج للنهوض بقطاع النفايات
- اسهم المشروع في ابراز ضرورة تظافر الجهود والتنسيق على مختلف المستويات الولاية والمركزية
- رفع المشروع من مستوى الوعي بالبيئة بشكل عام والانبعاثات غير المقصودة بشكل خاص لكافة المستويات بدءا باصحاب القرار وانتهاء بالطلاب في المدارس والجامعات.
- سلط الضوء على محدودية برامج التحليل والرقابة وضرورة تطويرها
- سلط المشروع الضوء على ضرورة ايجاد البنى التشريعية والمؤسسية والتحتية المناسبة للنهوض بالبيئة وقطاع النفايات بشكل خاص

### التوصيات :



## على المستوى المركزي :

- زيادة ووضع الية تنسيق ثابتة بين الوزارة- المجلس الاعلى للبيئة ووزارة البيئة الولانية
- وضع اوصاف وتشريعات تحدد فيها مسؤولية كل طرف تداخل الصلاحيات مع وزارة البيئة الولانية
- وضع برامج ومشاريع مشتركة للاستفادة من الخبرات المتوفرة
- العمل على ايجاد قاعدة بيانات وطنية خاصة بالكيمائيات
- اقتراح وتقديم مقترحات جديدة لتنفيذ مشاريع ذات صلة بتنفيذ الخطة الوطنية للملوثات العضوية
- الثابتة بالتعاون مع الجهات الدولية والجهات المانحة والنظمات والهيئات الاقليمية ك PERSEGA

## على المستوى الولاني:

- التوقف عن الحرق المفتوح فورا والبدء بطمر النفايات بدلا من حرقها
- تغيير موقع المكب الحالي واختيار موقع جديد من المواقع التي اوصى بها الفريق الولاني الذي تم تشكيلة لهذه الغاية
- توفير التصميم الهندسة لانشاء المكب الجديد
- توفير الموارد الماية لتنفيذ المكب الهندسي
- فصل وجمع النفايات الطبية بصورة مستقلة
- الاستفادة من الحارقة الموجودة في المستشفى الحكومي لحرق النفايات الطبية المتولدة في المستشفيات والمراكز الصحية الاخرى
- توفير البنى التحتية والمؤسسية المناسبة لتنفيذ الخطة والادارة السليمة للنفايات
- وضع وصف وظيفي لكافة الموظفين العاملين في مديرية البيئة
- وضع اللوائح التشريعية للرقابة على عناصر البيئة بما فيها الانبعاثات غير المقصودة من الملوثات العضوية الثابتة
- زيادة ودعم قدرات التحليل والرقابة على عناصر البيئة
- وضع الية تنسيق ثابتة بين الجهات المعنية بموجب تشريع خاص
- توفير قاعدة بيانات خاصة بالبيانات والمعلومات المتوفرة
- التواصل والتنسيق الدائم بين وزارة البيئة الولانية ووزارة البيئة المركزية
- اقتراح وتقديم مقترحات جديدة لتنفيذ مشاريع ذات صلة بتنفيذ الخطة الوطنية للملوثات العضوية
- الثابتة بالتعاون مع الجهات الدولية والجهات المانحة والنظمات والهيئات الاقليمية ك PERSEGA
- على ضوء النجاح الي تحقق ان تقوم PERSEGA بالعمل مع الجهات الدولية الاخرى والجهات المانحة لتنفيذ مرحلة اخرى من المشروع