



# **REGIONAL – GOVERNANCE AND KNOWLEDGE GENERATION PROJECT (GEF GRANT)**

## **Component 1 Governance Sub-Component 1.2 Review of environmental issues at the sectoral and macroeconomic levels of the Beneficiaries Procurement Reference: FC018**

### **Terms of Reference for the activity “Inventory and Mapping of Industrial Pollution Sources in West Bank”**

#### **1 Context**

1. The Regional – Governance and Knowledge generation Project (ReGoKo) has been conceived to foster the integration of environmental issues into sectoral and development policies of Egypt, Lebanon, Morocco, Tunisia and West Bank and Gaza (Beneficiaries) and potentially of Algeria, Libya and Syria (potential Beneficiaries). The Project aims at achieving this objective via (i) the production of innovative knowledge on environmental issues, with specific reference to water related issues (freshwater, coastal, and marine resources), and (ii) the organization of conferences, seminars, workshops, etc. during which knowledge will be used to strengthen the capacity of key stakeholders at local, national, and regional level.

2. The Project’s implementation period is three years. It has become effective on March 29th, 2012 and will last until June 30th, 2015.

3. Plan Bleu is the implementing agency of the Project and is therefore responsible for the management, coordination and all procurement connected to the implementation of the Project.

4. As part of the Regional-Governance and Knowledge generation Project (GEF Grant), the Project Steering Committee has approved to conduct and finance the activity described herein which aims at supporting mapping and control of industrial pollution sources in the Palestinian Territories (West Bank & Gaza).

5. The environment of the Palestinian Territories is facing major challenges, including the degradation of environmental assets at an alarming rate coupled with Israeli occupation. The major causes of pollution are solid waste and waste water, as well as the transportation and industrial sectors. There is insufficient information and technical data on types, categories and quantities, of associated pollution sources as well as a lack of official standards or maximum acceptable levels for emissions. In addition, the state of the environment in the Palestinian Territories suffers from limited current monitoring and control programs on industrial processes and associated pollution discharges and inadequate enforcement of the environmental law pertaining to control and monitoring of emissions from industrial sites.

6. However, there are only few individual efforts on applications of cleaner production principles to minimize pollution discharges at source within selective industrial enterprises. Therefore, it is very important to establish a structure, such as an environmental map for the collection, production, analysis, management, and dissemination of environmental information in order to assess and reduce emissions from industrial establishments and on environmental hot spots.

7. The Environment Quality Authority (EQA) as well as the Ministry of National Economy (MoNE) are currently working on raising the profile of industrial pollution control practices in the Palestinian Territories, through inter alia, conducting a survey of industrial activities, developing EIA manuals or enhancing national procedures for industrial licensing and register. One key endeavor that was recently launched by the EQA with support from the Swedish Development Agency (SIDA) executing through UNDP is a program aiming at strengthening the regulatory function of the EQA by:

- Formulating short and long term strategies and action plan;
- Establishing clear monitoring processes and procedures including clarification of roles and responsibilities for line ministries and authorities involved in the implementation of environmental regulations; and
- Enhancing the capacity of the EQA environmental protection directorate with foresight to better environmental monitoring and inspection.

The above mentioned objectives were translated by implementing the following activities:

- Preparation of the national environmental awareness and education strategy;
- Strengthening the environmental monitoring and inspection through the development of a manual for environmental inspection, manual for EIA procedures for investors, manual for preparing EIA studies;
- Conducting a survey of about 400 industrial enterprises all over the West Bank;
- Holding structured training for EQA staff and other sector stakeholders; and
- Preparation of the framework for the environmental information system and preparing the basis for an environmental monitoring system.

8. In addition, the EQA will start in the first half of 2014 a project aiming at strengthening national reporting capacities with a view to establish Pollutant Release and Transfer Registers (PRTR) as a tool to carry out pollutant inventories in the Palestinian Territories. This will be conducted through a pilot project supported by UNEP Medpol, which shall be completed in December 2014.

9. The proposed Activity under ReGoKo will synergize with the achievements and ongoing efforts of EQA and MoNE and will help make the extra step towards a comprehensive mapping and reduction of major pollution hotspots within the industrial sector in the Palestinian Territories. It will more particularly complement and expand the industrial survey exercise initiated under the SIDA project by enlarging it to additional enterprises and industrial units. Indeed, the survey

carried out with support from SIDA did not cover all governorates and all industries of West Bank. In some governorates the survey consisted of all industrial sectors, whereas in other governorates the survey concentrated on some sectors such as chemical industries and pharmaceutical industry. There is a need to complement this initial work both geographically and thematically, and also to apply innovative approaches to assess the environmental and socio-economic impacts of the most significant sources of pollution through a comprehensive analysis of pollution hotspots. This aspect will add a clear value to the work already engaged by EQA and will feed into the preparation of the Palestinian Territories' next National Action Plan to be conducted in 2015 under the Mediterranean Action Plan's Land-Based Sources of Pollution Protocol<sup>1</sup>.

10. The proposed activity will be implemented in full coordination with the other efforts deployed by EQA in West Bank, including the SIDA and UNEP-funded activities. All three activities will be placed under the supervision of the Director of the Environmental Monitoring and Inspection Department at EQA so as to ensure the highest level of coordination and synergy during implementation.

## 2 Objectives

11. The **general objective** of the activity is to safeguard the Palestinian environment in order to protect public health and to reduce economic losses that may be associated with environmental pollution.

12. The **specific objective** is to strengthen the national knowledge base about pollution emissions from industries in order to foster the integration of adequate pollution abatement policies and practices within the industrial sector and make information on industrial pollution more publicly available and transparent.

13. These objectives will be achieved through the provision of technical assistance to carry out the following activities:

- Conduct a field survey of industrial activities in West Bank;
- Develop a database of industrial polluters;
- Perform an industrial pollution hotspot assessment, as per the UNEP/MAP LBS protocol guidelines;
- Develop an operational internet GIS mapping portal to ease public access to information on industrial pollution emissions and hotspots ; and
- Support information of the citizens and awareness-raising of key stakeholders and decision makers at the national level.

## 3 Scope of Work

14. The consultancy will comprise 4 phases. Expected tasks and outputs during each phase are as follows:

15. Phase 0: Inception phase:

16. Within the first two weeks of the assignment, the consultants will review the terms of reference, conduct introduction and orientation meetings with a wide range of stakeholders in West Bank, and collect basic data to inform and guide implementation of the work. The inception phase will result in an inception note that addresses the following topics:

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<sup>1</sup> <http://www.unepmap.org/index.php?module=content2&catid=001001001>

1. Any changes to the methodological approach, work plan, deliverables and governance structure with regards to what has been stated in the technical proposal; and
2. The list of resource persons and key stakeholders to be solicited during the assignment.

17. Phase 1: Survey of industrial activities and related pollution releases

The expected duration of this mission is 6 months and comprises the following tasks:

*Step 1: Industrial sources inventory*

- Conduct a field survey of 600 industrial units located in the 11 governorates of West Bank, which will include the collection, assessment, update and establishment of baseline data on the classifications, categories and types of industrial enterprises and administrative data, such as number of employees, production, etc. It is intended that the scope of the survey would include the following industrial sectors:
  - Petroleum and gaz stations
  - Farming of animals;
  - Food industries and Food processing;
  - Manufactures of Fertilizers and Inorganic Chemicals;
  - Metallurgy;
  - Tanning and Leather processing;
  - asphalt t, stone and marble;
  - Textile dyeing;
  - Paper and pulp;
  - Manufacture of Organic Chemicals;
  - Energy production;
  - Gas production;
  - Pharmaceuticals; and
  - Urban centers :
    - Management of urban solid waste; and
    - Waste water treatment

The exact list of industrial sectors and enterprises to be covered by the proposed assignment will be provided by EQA at the start of the assignment. This work will build on the survey that has already been conducted by EQA under the SIDA-funded project mentioned above. The selection will give priority to large industries and emitters that were not surveyed under the SIDA initiative. In addition, the Consultant will review the field survey guide and datasheets developed by EQA and will tailor them to the specific needs of this ReGoKo activity.

For each industrial unit surveyed, particular attention will be given to the identification of its main production processes and description of the type of pollution generated (liquid, solid, atmospheric, noise, radiation, etc.) as well as the main categories of pollutants emitted.

- The field survey guide developed by the Consultant should also allow to collect information on :
  - o the impacts caused by the pollution released on the surrounding environment, including on:
    - the health and livelihoods of the surrounding or downstream populations (by capturing information on public complaints for respiratory issues, gastro-intestinal issues, birth defects, congenital diseases, etc.)
    - the drinking water quality;
    - the recreational function of the impacted areas;
    - Other beneficial uses;
    - the aquatic life (including biodiversity); and

- the economy and welfare (including natural resources of economic value).
- the type of pollution prevention and abatement measures undertaken by the inventoried industries as well as their pollution abatement efficiencies; and
- needed measures/equipment for reducing pollution from industries.

The results of this first step of phase 1 will be presented in a report comprising fact sheets for each of the surveyed enterprises.

*Step 2: Industrial pollution loads assessment*

- Evaluate the quantity of pollution released by the largest inventoried industries for selected pollutants. The Consultant will make recommendations on the size/production thresholds to be applied for selecting the most polluting industries that will undergo a pollution loads assessment. The scope of this assessment should be compatible with the person-days assigned to this task in section 7. The list of key pollutants to be studied will be provided by EQA at the activity kick-off.

As a minimum requirement, this list shall include the substances that are covered under the Indicator #6 “Industrial emissions” defined by the H2020 Shared Environmental Information System (SEIS) Project<sup>2</sup>, which is currently being implemented by the European Environmental Agency. These substances are:

- BOD5,
- Cadmium (gas),
- Chromium (gas),
- Chromium (liq),
- Lead (gas),
- Lead (liq),
- Mercury (gas),
- PAH (gas),
- Total nitrogen,
- Total phosphorus,
- TSS, and
- VOC.
- To conduct the evaluation, the Consultant will not perform field measurements or laboratory analysis of pollutants sampling. To the highest extent possible, the Consultant will use emissions monitoring data when available (pollution transfer and release monitoring, surface and groundwater quality monitoring, atmospheric monitoring, etc.). When no monitoring data is available from industries, the Consultant will :
  - Identify the most suitable emission factors that could be applied per selected category of industries and pollutants. The Consultant will review emission factors and typical effluents values available in Palestinian Territories as well as in the dedicated scientific literature. The Consultant will pay a particular attention to the updated emission factors and methodologies developed in the UNEP Medpol guidelines for conducting National Pollution Baseline Budget Assessment (NBB);
  - Estimate any missing emission factors and justify the values proposed for these factors;
  - Estimate technical efficiency ratios per type of pollution abatement measures currently existing within the selected industries; and
  - Calculate pollution loads by combining theoretical emission factors and de-pollution efficiency rates.

The Consultant will propose in its technical offer a robust method or numerical model for the calculation of pollution releases from industries. The proposed approach should be able to deal with industries for which no monitoring data is available, as illustrated above through the use of emission factors.

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<sup>2</sup> <http://enpi-seis.ew.eea.europa.eu/>

Furthermore, the Consultant will need to build upon and, when possible, update the pollution emission data generated by the NBB assessment conducted in 2003 for Palestinian Territories. The Consultant will also consider the outcomes of the regional study recently implemented by the Secretariat of the Union for the Mediterranean which aimed at assessing pollution emission loads for the waste water, solid waste and industrial sectors in Palestinian Territories, considering a selected sample of big industries.

The results of this second step of phase 1 will be presented in an assessment report. Additionally, calculations and hypotheses related to estimations made will be presented in the annex of this report.

### *Step 3: Industrial pollution database*

- Based on the information collected above, develop and populate an industrial pollution database for West Bank. The structure and design of this database will draw upon the lessons and best practices from similar tools available in the Mediterranean region and more particularly from countries implementing PRTR systems at the national and/or sub-national levels. The lessons learned and best practice will be presented in a way that the information is also useful for other Mediterranean countries. National experiences, such as the environmental information system developed by ECO Conserve for EQA, should also be taken into account.
- For each industrial unit surveyed by EQA before and during the proposed assignment, the database will include information such as:
  - Name of the industrial plant;
  - Industrial sector;
  - Geographic location (administrative district, city, river basin, etc.);
  - Geographical coordinates (X,Y);
  - Type of activity and sub-activity;
  - Type of production process/technology;
  - Types of pollutants released;
  - Type of receptor (sensible, non-sensible, etc.);
  - Quantities of pollution released and transferred (for the largest industries selected for the pollution load assessment);
  - etc.
- Within the database, industrial units and their pollution loads will be classified in three categories:
  - Highly polluting units;
  - Moderately polluting units; and
  - Nonpolluting units.

The Consultant will propose in the methodology the set of criteria for supporting this classification.

- The database will have a user-friendly interface and will be developed in a way that can allow multiple queries and ensure an easy usage by the end-users. The Consultant will also recommend database management software that can easily be used and scaled up to support the future establishment of a pilot PRTR system in Palestinian Territories. It will also assess the hardware available within the EQA and advise on the type of new IT equipment needed for the deployment of the database.
- In parallel to the database, the Consultant will develop and suggest to EQA policy and technical guidelines and set up procedures for the monitoring and reporting of pollutant releases and transfers for all industrial sectors (list of chemicals, frequency of reporting, list of industrial sectors, size of industries subject to reporting, work flow of information, etc.) and their continuous feed-in into the database.
- One internal workshop for technical agencies (20 participants) and two national workshops with industries and national consulting firms (30 participants) will be organized in order to train the participants on the database use and functioning and main procedures set in place for the reporting of pollution data by industries (frequency and formats of reporting, roles and

responsibilities of industries vs. government agencies, workflow of information, analytical products, etc.).

The outputs of this third step of phase 1 will be:

1. A note on Mediterranean best practices and lessons learned in terms of industrial pollution monitoring and reporting tools;
2. Policy and technical guidelines for monitoring and reporting pollutant releases and transfers for all industrial sectors and West Bank;
3. Industrial pollution database in place and functioning; and
4. Workshops on the use and functioning of the database.

#### 18. Phase 2: Industrial Pollution Hotspot assessment

The expected duration of this task is 3 months.

- For the set of polluting industries surveyed in Phase 1 and those already surveyed by EQA, and based on the data gathered/estimated on pollution releases from industries, the Consultant will identify the major pollution hotspots using a dedicated ranking methodology that will need to be consistent with the most recent technical guidelines published or soon to be published by UNEP Medpol for conducting pollution hotspot assessment. Amongst the assessment criteria to be taken into account, the Consultant will consider the risks posed by pollution and will apply UNEP Medpol risk screening methodology in that regard :
  - Public health;
  - Drinking water quality;
  - Recreation;
  - Other beneficial uses;
  - Aquatic life (including biodiversity); and
  - Economy and welfare (including marine resources of economic value).
- Based on this assessment, hotspot description factsheets will be produced for each of the 11 governorates of West Bank, describing:
  - the list of major hotspots;
  - their geographic location and scope;
  - the results of the hotspot ranking exercise, in accordance with UNEP Medpol methodology;
  - the main pollution sources identified; and
  - possible de-pollution measures for the reduction of the hotspots.
- This analysis will be accompanied by a preliminary identification of the type of measures and investments needed for pollution abatement and mitigation of the highest priority hotspots.
- The outcomes of the hotspot assessment phase will provide important inputs into the updating process of the Palestinian Territories' National Action Plan under the UNEP/MAP LBS protocol, which is expected to start in 2015.

The results of phase 2 will be presented in form of a hotspot assessment report comprising hotspot description factsheets for each of the 11 governorates of West Bank as well as a chapter about needed actions for pollution abatement and mitigation.

#### 19. Phase 3: Mapping of industrial activities and pollution hotspots

The objective of this phase is to develop an internet information portal that would allow making the data and information gathered under Phases 1 and 2 widely and easily accessible on the web for the general public and practitioners. This phase will be implemented as much as possible at the same time as phases 1 and 2. Phase 3 will last approximately 3 months and will include the following activities:

*Step 1: Design study*

- Analyze three good examples of web-based GIS interface or environmental information system used by countries from the Mediterranean/MENA Regions for mapping industrial pollutions (e.g. EU E-PRTR Mapping interface);
- Present different tools for the Palestinian Territories, compare their strengths and weaknesses according to a set of criteria to be agreed with EQA (effectiveness, user friendliness, adaptability, cost, etc.), and suggest one preferred option;
- Prepare the technical and functional specifications for the tool previously selected by EQA. The design of the tool will need to be compatible with the structure, functionalities and contents of the database developed during Phase 2.
- Prepare the bill of quantities for the commercial licenses, equipment and hardware needed for the deployment of the tool.

*Step 2: Development and Implementation of the mapping portal*

- Develop an operational internet public information portal using web-based GIS and collaborative technology; The GIS portal should make use of the information generated in the previous study modules, and include at least the following overlays:
  - o Topographic base map
  - o Overlay showing location and pollution type of the major hotspots
  - o Overlay showing demographics (population centers, schools, hospitals)
  - o Overlay showing environmentally sensitive areas (water supply catchments, major aquifers supplying domestic and/or irrigation water, conservation areas, etc)
  - o Meteorological overlays showing monthly wind roses, rainfall, temperatures.
- Test the online GIS portal; and
- Develop guidelines and organize a training session for the EQA webmaster and main portal contributors (10 participants max.), on the regular update and maintenance of the portal.

Phase 3 will produce the following outputs:

1. Design study report for the mapping portal;
2. Mapping portal developed, implemented and operational; and
3. Guidelines produced and EQA portal managers trained through one dedicated training session to able to operate, modify and develop the portal.

## 4 Monitoring and Evaluation

20. Throughout the implementation of this activity and upon its finalization, its impact shall be assessed. Therefore, the following monitoring and evaluation actions will be realized by the Consultant:

- During all workshops that will take place under this activity, the Consultant will distribute the project's evaluation sheets (provided by Plan Bleu upon contract signature), make sure they are filled-in by all participants, send the original sheets to Plan Bleu, provide a pdf file comprising copies of the evaluation sheets; and compile a summary table counting the answers of the filled-in evaluation sheets (summary table provided by Plan Bleu upon contract signature).
- Create an excel file compiling contact details of all stakeholders involved in the realization of the activity (workshop participants, representatives of surveyed enterprises, EQA staff, other stakeholders) that can be used for additional follow-up by Plan Bleu.

21. A preliminary list of output and outcome indicators for tracking the activity is provided in Annex I. The Consultant is invited to enhance this list and propose additional monitoring and evaluation (M&E) measures and indicators in the technical proposal. The M&E Plan can be presented as part of a logical framework, or in any other format that is deemed relevant by the Consultant.

## 5 Environmental and Social Safeguards Policy

22. Although the activity subject to these terms of reference does not have itself an adverse social or environmental impact, some of the actions resulting from this activity (downstream actions) could have potential environmental and social impacts. In order to avoid and mitigate such impacts, downstream actions need to comply with the safeguards requirements of the World Bank, whether or not they are funded by the World Bank. Therefore, a screening against the 10 safeguard policies of the World Bank<sup>[1]</sup> will need to be realized for downstream actions, and in accordance with the World Bank's safeguard policies (<http://go.worldbank.org/WTA1ODE7T0>). The safeguard screening and the possibly resulting remediation and compliance measures will be the responsibility of the organizations/institutions in charge of the downstream action.

## 6 Data to be provided by the client

23. The Client will be responsible of providing the following data:
- All general information, strategies, legislations and other issues are found on EQA website : [www.environment.pna.ps/ar](http://www.environment.pna.ps/ar)
  - Other key documents will be provided by EQA and Plan Bleu upon arrival of the Consultant.

## 7 Modalities, deliverables and duration

24. The total duration of the assignment will be 10 months. The first phase will take place preferably in June 2014. The activity must be fully completed by April 2015.

25. The tentative schedule of the activity is presented below:

<b><u>Tentative date</u></b>	<b>June 2014</b>	<b>June –December 2014</b>	<b>November 2014-February 2015</b>	<b>December 2014-April 2015</b>
<b><u>Phase</u></b>	Inception Phase	Phase 1	Phase 2	Phase 3
<b><u>Deliverables</u></b>	Activity inception note; Minutes of kick-off meeting	Report comprising fact sheets for each of the 600 surveyed enterprises; Industrial pollution loads assessment report; Note on Mediterranean best practice and lessons learned in terms of industrial pollution monitoring and reporting tools; Policy and technical guidelines for monitoring and reporting pollutant	Hotspot assessment report: 11 governorate-based hotspot description factsheets and chapter about needed actions for pollution abatement and mitigation	Design study report for the mapping portal; Mapping portal developed, implemented and operational; Guidelines produced and user training realized; filled-in evaluation sheets to be provided with summary sheet

<sup>[1]</sup>The 10 safeguard policies are: Environmental Assessment (4.01); Natural Habitats (4.04); Pest Management (4.09); Indigenous Peoples (4.10); Physical Cultural Resources (4.11); Involuntary Resettlement (4.12); Forests (4.36); Safety of Dams (4.37); Project in International Waterways (7.50); Projects in Disputed Areas (7.60)

		releases and transfers for all industrial sectors and West Bank; Industrial pollution database in place and functioning; Preparation, organization and conducting of workshops on the use and functioning of the database, including workshop report; filled-in evaluation sheets to be provided with summary sheet		
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26. The consultant will develop all reports in English and Arabic, in close collaboration with the designated contact persons. In addition and for monitoring purposes, drafts will be shared with the EQA and Plan Bleu prior to submission of the final documents.

27. For all workshops and trainings to be organized under this activity, the Consultant will make sure to follow the indications referring to monitoring and evaluation of this activity, as stipulated in section 4 of these ToRs. Moreover, the organization and realization of all workshops, including all logistical aspects (identification of participants in coordination with EQA, drafting of invitation letters, drafting of workshop agendas, preparation and presentation of workshop content, animation and facilitation of workshops and follow-up), will be the responsibility of the Consultant. The Consultant's financial offer should thus include costs linked to the organization and coordination of these workshops as well as costs linked to printing workshop material and similar costs.

**Important:** Accommodation, travel cost and daily subsistence allowance for workshop participants shall be estimated for planning purposes, if applicable. These costs will be reimbursables upon presentation of relevant invoices, but shall not be part of the evaluation of the Consultant's financial proposals during the evaluation process.

28. It is expected that the assignment would take a total of 151 person-days for both International and National Consultants and 60 man-months for a team of 10 local data collectors in charge of conducting the field-survey on the ground. These data collectors will be junior professionals hired locally by the Consultant and remunerated on a monthly basis (6 working months each). The recruitment of collectors will be made directly by the Consultant, following a transparent and fair selection process. Selected candidates will have to be approved by both EQA and Plan Bleu.

29. The anticipated level of effort is divided as follows (the timing is indicative only and is modifiable depending on identified priorities):

ref	Tasks	Duration	
		International and National Key/Non – Key Experts [person-days]	Local Data collectors (Junior) [person-months]
<b>Inception phase</b>			
0(1)	Preparation of the activity inception note	3	
0(2)	Kick-off meeting	1	

0(3) Finalization of the activity inception note	2	
<b>Subtotal</b>		6
<b>Phase 1: Survey of industrial activities and pollution releases</b>		
1(1) Conduct inventory of industrial sources and pollution releases (6 junior data collectors)	10	54 months
1(2) Develop an industrial pollution database and its associated operational guidelines and reporting procedures	30	6 months
1(3) Organize and conduct one internal training workshop and two national workshops with industries (preparation of workshop programs, materials and presentations, invitations, distribution and collection of evaluation forms, drafting of workshop reports, etc.)	11	
<b>subtotal</b>		60
<b>Phase 2: Industrial Pollution Hotspot Assessment</b>		
2(1) Assess and prioritize industrial pollution hotspots sites	10	
2(2) Develop hotspot description factsheet per administrative regions	22	
2(3) Propose priority list measures and actions for pollution reduction in priority hotspots	10	
<b>Subtotal</b>		42
<b>Phase 3: Mapping of industrial activities and pollution hotspots</b>		
3(1) Review and analyze good mapping tool examples	7	
3(2) Propose an option and prepare technical specifications	15	
3(3) Develop and test the web-based GIS portal	15	
3(4) Develop guidelines and organize an internal training session for national partners	15	
<b>Subtotal</b>		52
<b>TOTAL</b>		<b>151 days</b>
		<b>60 months</b>

30. The Consultant will organize and facilitate at least 4 Project Steering Committee Meetings in West Bank (1 Kick-off and one SCM after each phase)

31. The number of international travels required for performing the required services should not exceed 10 in total.

32. All final deliverables of this activity will be disclosed on the Plan Bleu, ReGoKo and World Bank websites, once they are validated by EQA and Plan Bleu.

## 8 Qualifications of the Firm and staff

### 33. Firm general profile

The firm should have a proven experience and expertise in (1) all industrial sectors mentioned in paragraph **Erreur ! Source du renvoi introuvable.**, particularly food, stone cutting and chemical industries, and (2) in the reduction of waste water, solid waste and air emission from industries. Experience of clean(er) production particularly in the Mediterranean region is a plus.

### 34. Required staff

Coordination skills and Teamwork abilities are essential to carry out the consultancy. The following staff is required for the preparation of the above-specified deliverables:

- a. Key-Staff specialists required qualifications are the following (at least 4 key experts recommended):

- i. One environmental management specialist of international experience– Team leader
- ii. One Environmental Engineering Specialist
- iii. One Chemical Engineer
- iv. One web GIS and database management specialist

General qualifications of the specialists' team include:

- v. Advanced diploma in environmental engineering, sustainable and clean production as well as pollution assessment and management
  - vi. Domain(s) of expertise: GIS, environmental information system and database, industrial pollution abatement, etc.
  - vii. Previous experience in similar projects: at least 8 years
- b. Non-Key experts (at least 3 non-key experts recommended):
- i. Domain(s) of expertise: clean industrial production and pollution assessment and reduction; waste water treatment, solid waste management and air emission reduction, environmental impact mitigation, GIS, environmental information system and database, etc.
  - ii. Years of professional experience: at least 8 years
- c. Data collectors (at least 10 junior profiles recommended)
- i. Domain(s) of expertise: Environmental management, field-survey implementation, environmental data collection, entering and analysis, etc.
  - ii. B.Sc. or B.A. in a relevant field.
  - iii. Years of professional experience: at least 3 months in a linked field

Consultants are strongly encouraged to hire local junior data collectors. Such data collectors will have easy access to local information and would only require limited logistics to be mobilized. A list of such data collectors can be obtained at EQA and it is recommended that Consultants enquire about contact details of such data collectors at EQA prior to establishing their technical and financial proposal.

- d. Language requirements:
- i. Staff: English and Arabic.
  - ii. Reporting: English and Arabic.

The Consultant is free to propose any other profiles that he deems relevant for the successful performance of the required services.

## ANNEX I

### List of output and outcome indicators

FC018	Outputs	Outcomes	Measurement
<b>Phase 1</b>	<p>Report comprising fact sheets for each of the 600 surveyed enterprises</p> <p>Industrial pollution loads assessment report</p> <p>A note on Mediterranean best practice and lessons learned in terms of industrial pollution monitoring and reporting tools;</p> <p>Policy and technical guidelines for monitoring and reporting pollutant releases and transfers for all industrial sectors and West Bank;</p> <p>Industrial pollution database in place and functioning; and</p> <p>Workshops on the use and functioning of the database.</p>	<p>Knowledge and awareness about industrial pollution sources and hotspots enhanced, providing a required knowledge base for being able to reduce the pollution.</p> <p>Use of this knowledge</p> <p>Dissemination of environmental information improved</p> <p>EQA processes and policies informed</p> <p>Pollution reduction considered by polluting industries</p>	<p>Follow-up questions to participants of workshops about knowledge received and use of this knowledge</p> <p>Follow-up questions to enterprises surveyed (pollution reduction considered/envisaged following the survey/assessment)</p> <p>Database and mapping portal operational</p>
<b>Phase 2</b>	<p>Hotspot assessment report comprising hotspot description factsheets for each of the 11 governorates of West Bank as well as a chapter about needed actions for pollution abatement and mitigation.</p>		
<b>Phase 3</b>	<p>Design study report for the mapping portal;</p> <p>Mapping portal developed, implemented and operational; and</p> <p>Guidelines produced and user training realized.</p>		