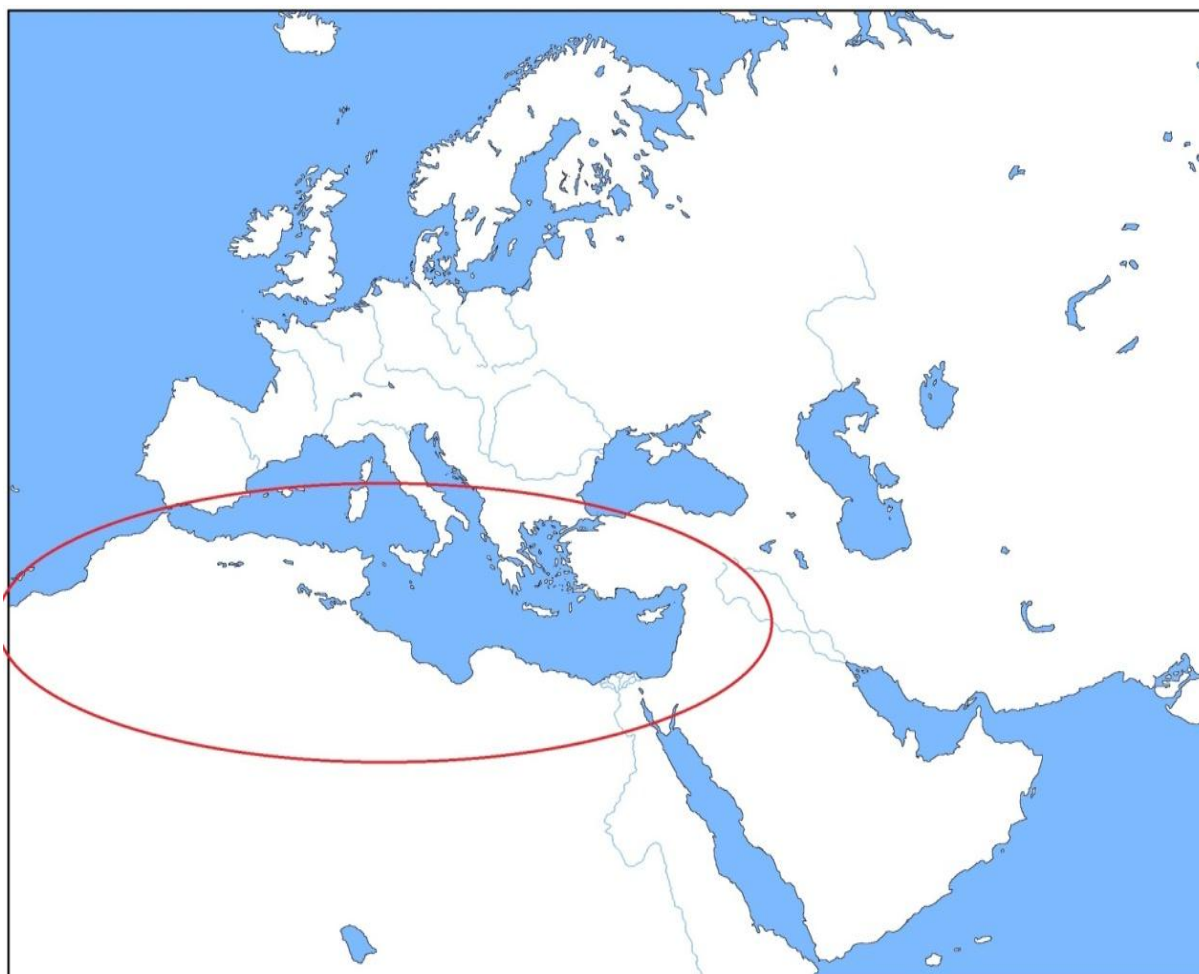


**EUROPEAN NEIGHBOURHOOD AND PARTNERSHIP INSTRUMENT
Towards a Shared Environmental System « SEIS »**

**PALESTINIAN NATIONAL AUTHORITY
COUNTRY REPORT**



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European Environment Agency
Kongens Nytorv 6
1050 Copenhagen K
Denmark
Reception

Phone: +45 33 36 71 00

Fax: +45 33 36 71 99

<http://www.eea.europa.eu>

More information regarding the ENPI-SEIS project: <http://enpi-seis.ew.eea.europa.eu>

ENVIRONMENT
AGENCY AUSTRIA **umweltbundesamt**^U

Spittelauer Lände 5
1090 Vienna
Austria

Author: Sabah Nait

Contributions: Khaled Salem, Aysar Atumeh, Ashraf Dweikat, Shahd Tibi, Samhan Zaghloul, Zahran Khleif, Ahmad Abutahar

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List of acronyms

ACS	Advisory Council on Statistics
EQA	Environment Quality Authority
ENPI	European Neighbourhood Policy Instrument
GSL	General Statistical Law
PCBS	Palestinian Central Bureau of Statistics
PNA	Palestinian National Authority
PSI	Palestinian Standards Institute
PWA	Palestinian Water Authority
OPT	Occupied Palestinian Territory
Mena	Ministry of Environment affairs
MoP	Ministry of Planning and Administrative Development
Molg	Ministry of Local Government
MoH	Ministry of Health
MoA	Ministry of Agriculture

Summary

This report was prepared by the Palestinian Environment Quality Authority (EQA) and Palestinian Central Bureau of Statistics. This report is considered the first cornerstone for an implementation plan paving the ground for next steps towards SEIS implementation on the national level. The report will first of all illustrate the present status of environmental monitoring and reporting in Palestine. The analysis of the current situation focuses on the thematic areas defined during the consultation meeting in Brussels in November 2010, which are waste management, water resources (fresh and marine waters), industrial emissions and waste water. This state of play will serve as living document and will define some objectives that will help improve data availability and data sharing in Palestine.

Environmental issues in Palestine are mainly: depletion of Water resources / water quantity, deterioration of water quality and land degradation, cross-border air pollution coming from Israeli factories into Palestinian airspace, especially in the region of Gaza due to coal power plants in Ashdod and Ashkelon and in the northern West Bank adjacent to Israeli Industrial Zones. The cross-border pollution makes it difficult to measure the levels of locally generated air pollution. There are not many WWT plants; one is efficiently working in El Bireh city while others are highly deficient. The region is characterized by an absence of pollution monitoring stations, degradation of biodiversity and loss of genetic resources, climate change and its impact, solid, hazardous and medical waste: There are several dumping sites and there is an absence of separation between solid, hazardous and medical waste. There is one sanitary landfill in Jenin with high quality performance, and another controlled landfill in Jericho City.

The complexity of the geographical settings, in terms of control over land, restricts the access to certain areas and therefore makes the gathering of data and information difficult. The geographical settings due to the political situation make it difficult to meet people face to face. And of course, the impact of Israeli violations on the Palestinian natural environment and resources causes environmental problems that Palestine needs to overcome.

The first chapter of the report is dedicated to inter-institutional cooperation and describes the activities of different institutions and Ministries and the link between them and gives an idea about the information exchange between the different stakeholders. The second chapter describes data availability and data flows and existing data sets and provides a description of environmental indicators. The third chapter, which is concerned with infrastructure, describes the existing networks and infrastructure and the main data sources and websites. The last chapter focuses on an analysis of the current situation and the planned action in order to improve the

situation. Some of the issues identified as having regard to the sharing and availability of environmental data are for example an absence of monitoring (water, waste water, solid waste, water abstraction and discharge), data gaps and the inability to build environmental data time series for comparison.

The last chapter is dedicated to follow-up steps in the framework of SEIS implementation in Palestine which will help Palestine to further develop water accounts and to support PWA in building its water information system.

I Institutional framework

Different institutions, NGOs and universities are active and in charge of environmental information issues. The main institutions are cited below:

I.1 Ministries and institutions

Environment Quality Authority, <http://www.environment.pna.ps>

The Palestinian Environment Quality Authority (EQA) was established by presidential decree in 2002 and has replaced the former Ministry of Environmental Affairs (MEaA), which was established in August 1998.

The EQA has the main responsibility for environmental protection and environmental administration in the Palestinian National Authority. EQA responsibility is to safeguard and protect the environment and human health and to control and limit the degradation of natural resources, combat desertification, prevent future pollution, enhance environmental awareness and ensure environmentally sustainable development. Palestine has enacted Environmental Law No. 7 (1999), which regulates all environmental issues and incorporates the polluter pays principle. The main responsibilities of EQA are in the fields of planning, monitoring, legislation, awareness, environmental approvals (the Ministry of Economy issues a license, and EQA gives the environmental approval) and enforcement. The EQA's main responsibilities are as follow:

- ✓ Develop environmental policy, legislation and environmental planning
- ✓ Develop standards, norms and guidelines for creating a sustainable environment
- ✓ Set norms to determine which projects should be subject to EIA
- ✓ Conduct environmental studies and researches
- ✓ Monitor the occurrence of environmental pollution, prepare and implement contingency plans.
- ✓ Cooperate with others on the supervision and coordination of environmental projects
- ✓ Enhance public awareness and the skills of EQA's human resources through education and training in environmental management

There are some constraints which hinder the achievement and the fulfilment of EQA mandates which are political constraints, resulting in a lack of - and difficulties to access - information and control (Israeli occupation and Israeli colonies), a lack of communication and coordination with the different institutions, as well as organizational, legislative, institutional and financial constraints.

The department of information systems of the Palestinian Environment Quality Authority manages data generated by various studies and projects and this has enabled EQA to produce a central database and a GIS database which is fed by data from projects. Although each project has its own objective, the information part is covered and the data generated is stored in a database.

The data produced by these projects is used for producing different publications and for developing strategies and plans.

I.1.1 Water pollution

EQA is responsible for giving environmental approval for waste water treatment plants' main trunk lines. EQA is also responsible for following up the environmental impact assessment or initial environmental examinations of projects. It is responsible for setting quality standards in collaboration with other stakeholders such as PWA and PSI, increasing public awareness in the water sector, protection of water resources and setting the required regulations. EQA conducts routine inspections and has prepared standards such as drinking water quality standards, waste water reuse standards and discharges of industrial sewage into the sewage system.

I.1.2 Solid waste

It is worth mentioning that the legal and legislative system regulating the work in this area is marred by some inconsistencies, contradictions and duplication, as well as a lack of inclusiveness and harmony. Roles and responsibilities vary from one law to another; interpretation of law provisions also varies between the different stakeholders, causing a gap between legal provisions and their actual implementation on the ground. The lack of a specific law or an endorsed system for solid waste management leaves room for discretion in the interpretation of these laws and, consequently, creates duplication and conflict of roles and responsibilities (see section national legislation).

Assigning clear and specific tasks and responsibilities based on a clear delegation of powers as prescribed by law, addressing certain problems of conflict and duplication with respect to solid waste management activities, and setting institutional arrangements that cover all levels and ensure regulated interaction between the competent institutions to facilitate cooperation and a flow of reliable information - all these activities represent top priority issues and are a key prerequisite for achieving effective management of this sector. The 2000 environmental strategy recommended establishing three to five sanitary landfills in the West Bank and one to three in Gaza Strip. In line with the environmental strategy, a national strategy for solid waste management has been developed, which was approved in 2010 and was the first attempt to plan the management of the solid waste sector on a national level. The strategy defines the roles and responsibilities of the relevant institutions in this sector for the period of implementation of this strategy (2010-2014).

An inventory and a master plan for hazardous waste management in Palestine were established in 2009. A draft list of hazardous waste was established as well.

A draft medical waste by-law was elaborated recently and is under review in cabinet.

The institutions dealing with solid waste management in Palestine as defined by the laws in the next chapter are EQA; MoLG, MoH, PSI, PCBS, JSC, local authorities and the Ministry of Planning.

I.1.3 Air pollution

EQA is responsible for the monitoring of air quality (see section infrastructure)

The Palestinian Central Bureau of Statistics, <http://www.pcbs.gov.ps>

The PCBS was established in 1993 by a decree issued by the PLO and was the first institution to be operational after the implementation of the PNA administration in the West Bank and Gaza Strip.

PCBS is committed to developing performance indicators to monitor, check and measure the achievement of quality objectives, and to review these objectives periodically to ensure their relevance. PCBS adopts and applies the principles and the quality management system, and ensure its effectiveness according to the requirements of the international standard (ISO 9001).

On 7 August 2000, a General Statistical Law (GSL) was passed. The law detailed the missions and functions of the PCBS and its financial and administrative organization. This law created an Advisory Council on Statistics (ACS) and proposed a framework for statistical activities. The law gave legal support to the use of administrative records for statistical purposes. The GSL introduced important rules with respect to the confidentiality of individual records and the obligation to respond to censuses and surveys.

The Environment Statistics Department (ENSD) which was established in 1996 conducts environmental surveys on the level of households, as well as establishment and localities surveys.

The Environment Statistics Department is responsible for creating and updating data on the statistical indicators of pressures on the environment, and mainly for the following subjects: Meteorology, Emissions to Air and Air quality, Water and Wastewater, Noise, Solid Waste, Fresh water (consumption, supply, and quantity), Biodiversity.

Statistical information is considered a “public good”; PCBS disseminates its collected data regularly as statistical reports, printed publications; the publications are prepared according to standard rules to make them understandable. ENSD disseminates data through internet via the PCBS web site giving the possibility to download publications in the form of PDF files.

PCBS is well organized, has good capacities and is very public-minded in making a large portion of their data accessible on-line to the public with relatively short time lags and also in English, e.g. Palestine in Figures 2010, Agricultural Census 2010, Statistical Atlas of Palestine 2009 etc. There certainly are also weaknesses, such as the lack of time series available, geographical gaps, and the ubiquitous issue with Israel either not allowing surveys or confiscating existing data. The leadership role by the Bureau of Statistics in dealing with environmental data and information may also take both initiative and some sense for problem-solving away from the environmental

authorities. There is a need for replacing surveys by an 'organically grown' flow of administrative data. It has to be added that in an EU-wide context, the strong role of the Bureau of Statistics in providing environmental data and information is relatively unusual.

Palestinian Water Authority www.pwa.ps

Article 7 of the Water Law No. 3, 2002 sets forth the functions and powers of the PWA for the management of water resources and sewage in Palestine, and the development of public water policy. The functions of the Authority include issuing licenses, utilizing water resources, studying water and sewage projects, and rehabilitating and developing water departments in order to provide water to all districts. Its function also includes cooperating with relevant agencies to develop plans and programs that regulate water use. PWA is also responsible for overseeing well drilling and the qualifications of contractors working on water facilities and installations. PWA is also responsible for the preparation of draft laws and regulations and the issuance of instructions.

The PWA is fully responsible for waste water management and the issuance of licenses for the (re)use of waste water including waste water treatment and use. The EQA is required to coordinate with the PWA collaboration with other stakeholders for setting environmental standards and specifications since the latter is one of the competent parties responsible for water management. The PWA has the authority to inspect any water resource if a contamination is suspected. Therefore PWA and EQA inspectors enjoy the status of judicial police officers and EQA conducts routine inspections on water facilities, including water resources, to ensure compliance with the standards of environment protection and prevention of contamination.

Jenin-Joint Services Council (JSC) for Solid Waste Management

There are several joint service councils for solid waste management and waste water and Jenin is one mentioned as one of them.

It is a quasi-governmental and regional entity established in accordance with the Palestinian Local Government Law. The mission of JSC is to provide and organize a sustainable waste management system. The JSC has organized the construction of a sanitary landfill and the rehabilitation and closure of several dumping sites. The JSC must provide data on landfilled waste

- to provide an organized and effective SWM service;
- to seek long-term sustainability of the service by building technical capacities at local authorities;
- to raise public awareness and promote effective public participation;
- to comply with pertinent laws and regulations prevailing in Palestine.

The Palestine Standards Institute

PSI was established in 1994 by Presidential Decree as an independent institution. PSI ensures consumer safety and protection of the environment through establishment of standards in cooperation with stakeholders (drinking water standard, industrial treated wastewater, treated wastewater, ambient air quality, air pollution emissions from stationary sources, and outdoor noise standards).

Other relevant institutions**Ministry of Planning and International Co-operation and the Higher Planning Council**

They are responsible for land use and planning, and hence the development of emergency natural resources protection plans and regional development plans.

Ministry of Local Government, <http://www.molg.pna.ps>

It deals with solid waste management and is therefore involved in the operation and financing of solid waste collection and disposal. Municipalities and village councils focus on the collection, transport and disposal of municipal wastes.

Ministry of Health, <http://www.moh.ps>

The development objective of the MoH is to improve preventive and curative health care for the entire Palestinian population. It is responsible for the domestic sources of pollution. Monitoring drinking water quality and its health impact is a major responsibility of MoH in the water sector. MoH is involved via its Department of Environmental Health, which is involved in the control and management of medical waste. It is also involved in management of water and food quality, wastewater quality and solid waste.

Ministry of Agriculture, <http://www.moa.gov.ps>

This Ministry is in charge of developing water resources for agriculture, controlling the quality of water for irrigation, as well as of monitoring the import and usage of agrochemicals. The Ministry has a laboratory for monitoring the quality of irrigation water and analysing pesticides. The Ministry is responsible for environmental management of the use of agro-chemicals and the protection of nature and biodiversity; it has data on the amounts of water used in the agricultural sector.

Ministry of Transport, <http://www.mot.gov.ps>

This Ministry is responsible for the management of all issues related to transport, including: import of transportation vehicles, licensing, and registration of vehicles.

NGOs

There are several NGOs working in the environmental field, some of them are mentioned below. Others are professional and experienced environmental NGOs or consultancies, which conduct assessments and collect data independent of the authorities. Some of the better known consultancies are the Palestinian Hydrology Group (<http://www.phg.org>), the Applied Research Institute Jerusalem (<http://www.arij.org>), the Palestine Economic Policy Research Institute (MAS) (<http://pal-econ.org/Newsite>) and the House of Water and Environment (<http://www.hwe.org.ps>).

Pengon, <http://www.pengon.org>

The Palestinian Environmental NGOs Network (PENGON) is a non-profit, non-governmental organization which was established in 1996 to serve the Palestinian environment by coordinating the scattered efforts of the different Palestinian NGOs working in the field of environment.

The Applied Research Institute Jerusalem (ARIJ)

This Institute is one of the Palestinian NGOs which has recognized the importance of gathering data related to environmental issues. ARIJ has been building the environmental information system for the West Bank since 1994.

Academia

There are several universities working in the environment sector as well such as the Birzeit University (BZU) which is one of the leading higher educational institutions in Palestine (<http://www.birzeit.edu>) among others; it offers graduate studies in Water and Environmental Engineering and Water and Environmental Sciences.

Al-Quds University with campuses in Jerusalem (Abu Dis) operates scientific-technological and engineering faculties relevant for the environment (<http://www.alquds.edu>)

I.2 Inter-institutional cooperation

There is no common platform for information exchange and communication between the different institutions, which is mainly assured by regular meetings; therefore some committees have been established in order to facilitate communication and information exchange between the different institutions.

As an example of good cooperation, the committee: "National Team for Environmental Information System" was established in 2008. It is composed of representatives from 13 institutions representing Government, Academia and NGOs. An important achievement for this body is the approval of a list of thematic groups of indicators and an agreed list of indicators. The working method of this team is based on sessions, and a Meta Data catalogue to be submitted and approved by the Palestinian Cabinet is an important deliverable to be achieved as well.

After the country visit carried out by the European Environment Agency in May 2011, a meeting of the Committee was organized during which it was agreed to add new indicators to the previous list of indicators. The added indicators cover SEIS thematic areas such as air emissions and waste indicators. During this meeting a linking of the existing environmental information systems was discussed and agreed on as well by the committee. A work plan and the distribution of the work were agreed among the institutions (see details on the last page). In regard to data sharing, cooperation needs to be improved. The current cooperation is based on ad hoc requests from one Ministry to another.

PCBS have signed cooperation memorandums with some of the Ministries and NGOs. These memorandums include data exchange between PCBS and these institutions.

All governmental bodies & NGOs and Academia cooperate and Interact with each other by participating, being actively involved in and - in certain cases – by leading the work of relevant committees, steering committees, councils and national teams. Many governmental bodies conduct joint projects with each other, and with NGOs and with Academia.

Such committees usually include all concerned stakeholders (Ministry of Planning, Palestinian Central Bureau of Statistics, Environment Quality Authority, Palestinian Water Authority, Ministry of Agriculture, Ministry of Health, Ministry of Local Government, Palestinian Standards Institution,...etc.), and the working scope of such committees regulates the relations between all stakeholders.

II Content

II.1 Reporting obligations

II.1.1 International reporting obligations

Palestine does not have any international reporting obligations since the PNA is not a contracting party to any convention; with regard to the reports on ROD Eionet website, these will be submitted on voluntary basis.

II.1.2 National reporting obligations

There are no national reporting obligations in Palestine but the national law and legislation (detailed below) gives the institutions the mandate to monitor and protect the environment. Some reports are submitted to the cabinet to report on the difficulties and achievements with respect to different environmental issues.

II.2.1 National legislation

In the field of environmental protection legislation further work is needed.

The Environment Law No.7 was published in 1999 and has been activated since then. It regulates all environmental issues. However, the law has not been effectively enforced. This law includes the protection of natural resources, forestry and drinking water, control of sewage, marine pollution, air pollution, industry, municipal and hazardous waste disposal (see details below). This law is considered to be the main umbrella for all environmental responsibilities and mandates of EQA. The EQA and the Ministry of Agriculture are working together on the elaboration of by-laws on biodiversity and its conservation.

II.2.2 Waste management

Environmental Law: Law No. 7 of the year 1999 regarding the Environment (Articles 7-13 see below). This law identifies waste, hazardous materials, and hazardous waste. It is also based on the polluter pays principle. The definition of hazardous waste based on this law is any waste generated by the various activities and operations or the ash thereof which preserve the characteristics of hazardous substances, where hazardous substance is defined as any substance or combination of substances which, because of its hazardous characteristics, poses a danger to the environment as a toxic, radioactive, biologically infectious, explosive or flammable substance. According to the law, the disposal method of this waste should be subject to approval by EQA. Also, this law specifies (Article 12) that handling hazardous waste should be in accordance with the terms, regulations, instructions and norms specified by EQA in coordination with specialized agencies.

This law aims at the protection of the environment, and it provides a legal framework for the environment sector within which the solid waste is one of the themes. The law gives the Environment Quality Authority (EQA) the responsibility to develop a national solid waste management strategy, and to monitor its implementation through the local authorities. Moreover, the law gives all related institutions the responsibility to take the necessary measures to minimize waste generation and maximize reuse, or to allow the recovery of waste components or recycling of waste. On the other hand, the law gives EQA the responsibility to determine specifications for solid waste dump sites. The hazardous waste listings, as well as instructions for hazardous waste processing or storage, or for its distribution, use or treatment, were given to EQA. According to the law, the shipment of hazardous waste through the Palestinian territory is subject to a permit for EQA. The law gives EQA a role in the monitoring and inspection of solid waste management facilities.

There is a need to have an agreement on the ministerial level or within the ministerial cabinet on the roles of EQA and MOH regarding waste management, including hazardous and medical waste. The law on environment gives this responsibility to EQA, while the Public Health law (No. (20) of the year 2004 (published on April 23, 2005) gives it (responsibility for hazardous waste) to the Ministry of Health (Article 2, 20, 42). It is worth mentioning that the law of environment considers the medical waste to be part of the hazardous waste.

Nowadays a by-law is being developing for solid waste management, including the roles and responsibilities of the stakeholders. It is a draft now, soon to be approved by the cabinet after the comments and ideas of all the stakeholders have been taken into account.

Solid Waste

Article 7: The Ministry, in coordination with other competent authorities, shall formulate an overall plan for managing the solid waste at the national level, including

the determination of methods and disposal sites thereof, as well as supervise the execution of this plan by the local entities.

Article 8: The competent authorities, each in so far as they are concerned, shall encourage the taking of appropriate measures to reduce the production of solid waste to the lowest level possible, re-use it as much as possible, and recover the components thereof or recycle it.

Article 9: The Ministry, in cooperation with the competent authorities, shall determine the specifications of solid waste disposal sites.

Article 10: All parties or individuals undertake, upon carrying out excavation, building, demolishing or mining works or upon transporting the resulting wastes or dust, to carry out the necessary precautions for the storage or safe transportation thereof in order to prevent any environmental pollution.

Hazardous Materials and Waste

Article (11): The Ministry, in coordination with the competent authorities, shall issue one or more lists of hazardous materials and wastes.

Article (12) No one may process, store, distribute, use, treat, or dispose of any solid or liquid or gaseous hazardous materials or waste except according to the regulations and instructions determined by the Ministry in coordination with the competent parties.

Article (13)A. The importation of hazardous waste into Palestine is prohibited.
B. the transiting of hazardous waste through the Palestinian territory, regional waters or specific economic zones is prohibited except in cases where a specific permit is obtained from the Ministry.
Penalties are mentioned in the law but there is no enforcement.

II.2.3 Air pollution

Article (19)

A. The Ministry, in cooperation with the competent agencies, shall specify standards to regulate the percentage of pollutants in the air which may cause harm or damage to public health, social welfare and the environment;

B. Each facility which will be established in Palestine shall abide by these standards; every existing facility shall make necessary changes in a manner that makes it conform to these standards within a period that does not exceed three years.

Article (20) Every facility owner shall provide all means to ensure the necessary protection for workers and the neighbours of the facility, in compliance with the conditions of occupational safety and health, against any leak or emission of pollutants within or outside the working place.

II.2.4 Water

Article (28) The Ministry, in cooperation with the competent agencies, shall specify the standards for the quality and characteristics of drinking water.

Article (29) The Ministry, in coordination with the competent agencies, shall set standards and norms for collecting, treating, reusing, or disposing of waste and storm water in a sound manner, which shall comply with the preservation of the environment and public health.

Article (30) No person shall be allowed to discharge any solid or liquid or other substance unless such a process conforms to the conditions and standards that the competent agencies determine.

II.3 Data collection, data availability and data sources

II.3.1 Water

Water information and water-related data are fragmented among different departments inside PWA and other related water bodies. Within PWA for example, the Standards and Specification Department, which is one of the Departments in the Technical General Directorate, has developed a separate Infrastructure Database shared between Departments in this General Directorate. No access to other PWA Departments is provided, and this includes the Data Bank Department. On the other hand, there is no direct coordination or link between the database used in the Licensing Department in the Regulatory General Directorate, and the Data Bank Department in the Planning Directorate. Outside PWA there are no agreements or regular arrangements for an exchange of data and information. Data is requested from the related entities on an as-needed basis.

The water information system is in progress. This system includes available historical data and assures continuity in data collection through the availability of a suitable monitoring network and defined sources of information. The system supports PWA and other potential users of this information (including local and international NGOs, donors and researchers) by providing, on a regular basis, data and information necessary for water resource planning, management, design, and decision making.

The databases available with PWA:

- Hydrological Database
- Water Supply Database
- Rainfall / Meteorological Database
- Socio-Economic Database
- Wastewater Database
- Projects Database
- Licensing Database
- Library / Resource Center
- Infrastructure database.

- Datasets available, geographical coverage
- Date of creation: 1996
- Date of last revision: 2006
- Size of database: differs based on the technology used in the database management system, for example: the size of the Access database is between 50-200 MB, where the size of the Oracle database is about 500 MB.
- In progress: building National water information system platform.

The future trend is to build an interactive spatial information system to manage water related data for better analysis and understanding.

Table 1: Sources of data for the different databases available at the PWA

Database	Responsible Department / Unit	Target Ministry
<i>Hydrological Database</i>	Hydrology studies Department Development of Water Resources Department Central Laboratory Department Licensing Department	Palestinian Water Authority (PWA)
<i>Water Supply Database</i>	West Bank Water Department (WBWD) Municipalities and local councils Utilities	Palestinian Water Authority (PWA) Municipalities and local councils
<i>Rainfall / Meteorological Database</i>	Meteorological Department	Ministry of Transport
<i>Socio-Economic Database</i>	Palestinian Central Bureau of Statistics (PCBS)	Palestinian Central Bureau of Statistics (PCBS)
<i>Wastewater Database</i>	Waste Water Department (WBWD)	Palestinian Water Authority (PWA)
<i>Projects Database</i>	Water Planning Department	Palestinian Water Authority (PWA) Local and International

Database	Responsible Department / Unit	Target Ministry
		NGOs Ministry of Local Affairs Ministry of Agriculture Ministry of Planning and Administrative Development
<i>Licensing Database</i>	Licensing Department	Palestinian Water Authority (PWA)
<i>Library / Resource Centre</i>	All Palestinian Water Authority (PWA) Departments	Palestinian Water Authority (PWA) Other Ministries, Universities, Research Centers, NGOs

After the establishment of PWA, the water quality monitoring program was developed further to fit the needs of PWA for data. This program is continuously being developed, with the addition of new parameters needed to monitor water quality that could support PWA in decision making. Parameters measured include chemical and biological parameters. Chemical analysis is done twice a year: one during the spring season and the other during the autumn season. Microbiological sampling and analysis is carried out every other month and whenever there is a need for checking water quality (see Table 2). However, the PWA lab has not been functioning during the last two years due to technical problems and this has caused a gap in the available data.

Table 2: Frequency of water quality sampling and analysis

	Chemical Analysis		Biological Analysis	
	Well	Spring	Well	Spring
Twice a year	316	122		
Six times a year			110	

Parameters normally measured by PWA Central Lab include: T, pH, DO, EC, TDS, Residual Chlorine, and Turbidity.

Table 3: Water quality data in the Hydrological Database

Parameter Name	Parameter Symbol	Date of first reading	Date of the latest reading	# of readings
Boron	B	11/26/1996	12/1/1996	2
Bromine	Br	10/21/1996	12/5/1996	94
Calcium	Ca	6/2/1970	7/7/2004	2859
Chloride	Cl	4/1/1968	7/7/2004	16417
Conductivity	EC	4/1/1968	7/7/2004	8351
Dissolved Oxygen	DO	2/6/1999	5/13/2000	675
F.Coliform	F-Col	4/14/1968	11/9/2002	490
Fluorine	F	10/21/1996	12/5/1996	96
HPC	HPC	4/14/1968	10/20/2002	38
Hydrocarbonate	HCO3	6/2/1970	7/7/2004	3010
Magnesium	Mg	6/2/1970	7/7/2004	2982
Nitrate-NO3	NO3	10/25/1971	7/7/2004	9325
pH	pH	4/26/1970	7/7/2004	2607
Potassium	K	6/2/1970	7/7/2004	3084
Sodium	Na	6/2/1970	7/7/2004	3082
Sulfate	SO4	6/2/1970	7/7/2004	2537
T.Coliform	T-Col	4/14/1968	11/9/2002	488
Temperature	T	4/13/1969	7/7/2004	5486
Total Dissolved Solids	TDS	10/25/1971	7/7/2004	2371
TU	TU	4/6/2003	7/7/2004	200

Water quality data is digitized in the Hydrological Database. Available information covers the period from 1998 until 2009. In 1998 two parameters were measured by means of chemical analysis, in 1999 and 2000 parameters were increased to 8 parameters and since 2001, 19 parameters have been measured through chemical analysis. For the biological analysis, 8 parameters are being analysed and included

in the database. Through its Standard Reference Samples (SRS) Program, PWA Central Lab ensures the accuracy and precision of the analytical methods used and the results of analysis.

In 2001, PWA Laboratory started to analyse wastewater samples from different locations. This program includes 23 parameters: pH, TSS, TS, Settable Solids, and TDS at 180 degrees Celsius, TDS, BOD, COD, Bicarbonate Chloride, Nitrate, Sulfate, Phosphate, Fluoride, Silicate, Surfactant, Sodium, Potassium, Calcium, Magnesium, Ammonia, Total Coliforms and Fecal Coliforms.

II.3.2 Waste

PCBS collects data on waste through administrative records and surveys. The available data is generally based on estimations. The new sanitary landfills can provide data on the amount of waste collected and landfilled.

Environmental statistics: PCBS gather data from different institutions. The table below shows the different areas and from where the data is collected

Table 4 shows the different thematic areas and from where the data is collected by PCBS.

Thematic Area	Description
Water and Waste Water	<ul style="list-style-type: none"> • Collected through administrative records • Waste water treatment plant • Amounts of water supplied to the different localities depending on the number of inhabitants). • Water use and wastewater discharge data • Surface water quantity data • Water use and wastewater discharge data • Surface water quantity data, surface water quality data, actual water use and wastewater discharge • Data inventory of groundwater resources, groundwater • Quality and quantity data, water systems used by the drinking water supply, irrigation water intake, drainage structures operating organizations and Water Users' Associations, drinking water quality monitoring, violations of sanitary norms

Thematic Area	Description
Waste	<ul style="list-style-type: none"> • Collected through administrative records • And from surveys such as household environmental survey , health care environmental survey, economic environmental survey, environmental survey for the education sector, local community survey, and from the population, housing, and establishment census). • Industrial waste, hazardous waste and waste production.
Emission	<ul style="list-style-type: none"> • Collected through administrative records • Atmospheric and climatic parameters

The following Table 5 gives brief information on existing data sets, the time interval in which they exist and information on the availability, and the website where the information can be found.

Table 5: Existing data sets

Name of Data Set	Time Interval	Website	Contact Organization	Overview
Pal Info	1994-2015	http://www.pcbs.gov.ps/Palinfo/home.aspx	PCBS	Pal Info is a powerful database system for monitoring human development. It is a tool for organizing, storing and presenting data in a uniform way to facilitate data sharing at the country level across government departments, UN agencies and development partners. Pal Info has features that produce tables, graphs and maps for inclusion in reports, presentations and advocacy materials.
Census Info	2007	http://www.pcbs.gov.ps/CensusInfo/	PCBS	Census Data for year 2007
PCBS-Reports	1994-2011	http://www.pcbs.gov.ps/DesktopDefault.aspx?tabID=3354&lang=en	PCBS	PDF-Reports

EQA and data availability:

Data sets exist in EQA in two formats: paper and digital. Paper is produced during monitoring and checking activities and records of data are kept with each visited site in the General Directorate of Environmental Protection. Digital Data is acquired from Government bodies like MoP, PCBS, MoA...etc. in various digital formats: excel, word, access, GIS shapefiles.

Paper data is available at EQA's General Directorate of Environmental Protection (GDoEP) and is produced as a result of different forms filled in by EQA personnel visiting and inspecting facilities such as industrial sites and factories, stone quarries & stone crushing plants & cutting factories.

EQA gets data from the PWA. The data encompasses basic data on wells and springs such as code and groundwater basin name; description of use; governorate, owner name. EQA also gets the water level data for the wells and the discharge for the springs and the abstraction data on the wells, and we have obtained water quality parameters like Na, TDS, Ca, pH, K, HCO₃, SO₄, T-Col, f-Col, CL, NO₃. The data is collected in an Access data base.

EQA has estimated data on CO₂ per capita, and data on SO_x and NO_x.

Table 6: GIS data sets (Shapefiles) available at EQA

No	Name of Shapefile	Type	Projection, coordinate system
1.	Road Network	Line	Cassini, 1923 Palestine Grid
2	Built-up areas	Polygon	Cassini, 1923 Palestine Grid
3	Border-line	Line, polygon	Cassini, 1923 Palestine Grid
4	Governments	Polygon	Cassini, 1923 Palestine Grid
5	Oslo Interim Agreement areas (A,B,C)	Polygon	Cassini, 1923 Palestine Grid
6	Israeli colonies and Israeli Military Bases	Polygon	Cassini, 1923 Palestine Grid
7	Segregation wall	Line	Cassini, 1923 Palestine Grid
8	Contour lines	Line, polygon	Cassini, 1923 Palestine Grid
9	Agricultural suitability	Polygon	Cassini, 1923 Palestine Grid
10-	Significant biodiversity sites	Polygon	Cassini, 1923 Palestine Grid
11	Land use/landform	Polygon	Cassini, 1923 Palestine Grid
12	Landscape quality	Polygon	Cassini, 1923 Palestine Grid
13	Forests	Polygon	Cassini, 1923 Palestine Grid
14	Natural reserves	Polygon	Cassini, 1923 Palestine Grid
15	Water sensitivity	Polygon	Cassini, 1923 Palestine Grid
16	Cultural Heritage Sites	Point	Cassini, 1923 Palestine Grid
17	Dump sites	Point	Cassini, 1923 Palestine Grid
18	Protection plan	Polygon	Cassini, 1923 Palestine Grid
19	Rainfall	Polygon	Cassini, 1923 Palestine Grid
20	Evaporation	Polygon	Cassini, 1923 Palestine Grid
21	Temperature	Polygon	Cassini, 1923 Palestine Grid
22	Wells	Point	Cassini, 1923 Palestine Grid
23	Springs	Point	Cassini, 1923 Palestine Grid
24	Basins	Polygon	Cassini, 1923 Palestine Grid
25	Aquifers	Polygon	Cassini, 1923 Palestine Grid
26	Rock outcrop	Polygon	Cassini, 1923 Palestine Grid
27	Soil	Polygon	Cassini, 1923 Palestine Grid
28	Slope	Polygon	Cassini, 1923 Palestine Grid

II.3.3 Description of environmental indicator availability

The following Table 7 describes the different indicators and gives a an indication of related published reports (PCBS)

Table 7: Environmental Indicators

Domain	Indicator label	indicator Definition	Method of measuring the indicator	The unit of measurement of the indicator	Geographical coverage	Sources	Frequency of production	Time data Series	Related published Report
wastewater statistics	percentage of connection to wastewater network	indicator to describe the connection to wastewater network	division of the number of ,units (building, locality establishment, etc....) that are connected to the wastewater network on the these units number of total multiplied in a region and by 100	percentage	north, middle, south West Bank and Gaza Strip	survey or census	annually	, (1998,1999,2003 - 2006,2008,2009, 2011)	Household Environmental Survey Report, Environmental Economic Survey Report, Health Care Environmental Survey Report
wastewater statistics	number of wastewater treatment plants	number of wastewater treatment plants	total number of wastewater treatment plants	number	governorate	survey or administrative records	annually		
wastewater statistics	proportion of population connected to wastewater treatment	indicator to focus on the connection to wastewater treatment plants	division of population connected to wastewater treatment by the total number of population and the result is multiplied by 100	percentage	north, middle, south West Bank and Gaza Strip	survey	annually	Not available	
waste statistics	Solid waste produced from economic activities	indicator to measure the quantity of solid waste produced from the economic activities (industry, trade)	solid amount of the total waste produced from the economic activities	ton	north, middle, south West Bank and Gaza Strip	survey	two years	2001, 2003-2006,2008,2009, 2011	Environmental Economic Survey Report
waste statistics	quantity of separated solid waste	indicator to measure the quantity of separated solid waste into elements of treatable	the total amount of separated solid waste	ton	West Bank , ,Gaza Strip and Palestinian Territory	survey	two years	, (1998,1999,2003 - 2006,2008,2009, 2011)	Environmental Economic Survey Report, Health Care Environmental Survey Report
waste statistics	Percentage of facilities that	indicator to measure the extent of treatment	division of number of establishments that treat	ton	Palestinian Territory	survey	two years	,2000,2003 ,2008 ,2006	Environmental Economic

Domain	Indicator label	indicator Definition	Method of measuring the indicator	The unit of measurement of the indicator	Geographical coverage	Sources	Frequency of production	Time data Series	Related published Report
	process solid waste	of Economic Establishments for solid waste	total number waste by the of establishments within the population frame, multiplied by 100					2010	Survey Report, Health Care Environmental Survey Report
waste statistics	the total amount of domestic waste produced daily	the total amount of domestic waste produced daily	the total amount produced daily of domestic waste	ton/day	West Bank , Gaza Strip and Palestinian Territory	survey	two years	(1998,1999,2003 - 2006,2008,2009, 2011)	Household Environmental Survey Report
waste statistics	daily average of domestic waste (kg)per/capita	daily average of domestic waste (kg)per/capita	division of the total produced domestic waste the total by inhabitants by number of inhabitants	kg/daily	West Bank , Gaza Strip and Palestinian Territory	survey	two years	(1998,1999,2003 - 2006,2008,2009, 2011)	Household Environmental Survey Report
waste statistics	quantities of Municipality of waste	quantities of Municipality of waste	total quantities of Municipality of waste	ton	Governorate	Administrative records	two years	2003, 2005, 2008, 2010	Local Community Survey Report)
waste statistics	Number of waste dump sites	Number of waste dump sites	Total number of waste dump sites	number	Governorate	survey or administrative records	two years	2003, 2005, 2008, 2010	Local Community Survey Report
meteorology and air pollution	percentage of educational establishment exposed to noise	It is measured in decibels indicator to focus on educational establishments that are exposed to noise Audible which is sound from traffic, and so on ,construction that may generate unpleasant and harmful effects .((hearing loss	division of the exposed educational establishments to noise by that exposed the total educational establishments in the multiplied population frame by 100	percentage	Governorate	total counting	two years	2010 ,2008	Educational environment survey

Domain	Indicator label	indicator Definition	Method of measuring the indicator	The unit of measurement of the indicator	Geographical coverage I	Sources	Frequency of production	Time data Series	Related published Report
meteorology and air pollution	Average of maximum air temperature	indicator to focus on the average maximum air temperature	calculated by the summation of maximum air temperature on fixed periodicity in a station divided by the number of measurements	°C	station	Administrative records	annually	2010-1998	Meteorological conditions in the Palestinian Territory Report
Meteorology and air pollution	Average of maximum air temperature	indicator to focus on the average maximum air temperature	calculated by the summation of maximum air temperature on fixed periodicity in a station divided by the number of measurements	°C	station	Administrative records	annually	2010-1998	Meteorological conditions in the Palestinian Territory Report
Meteorology and air pollution	number of rainy days	number of rainy days	total number of rainy days	rainy day	station	Administrative records	annually	2010-1998	Meteorological conditions in the Palestinian Territory Report
Meteorology and air pollution	Relative humidity	percentage of water vapour in the air to the total vapour need reach saturation	percentage of water vapour in the air to the total vapour to reach saturation need	percentage	station	Administrative records	annually	2010-1998	Meteorological conditions in the Palestinian Territory Report
Meteorology and Air pollution	average wind speed	indicator to measure the average wind speed	calculated by the summation of wind speed measurements on fixed periodicity in a station divided by the number of measurements	Km/hr	station	Administrative records	annually	2010-1998	Meteorological conditions in the Palestinian Territory Report

Domain	Indicator label	indicator Definition	Method of measuring the indicator	The unit of measurement of the indicator	Geographical coverage I	Sources	Frequency of production	Time data Series	Related published Report
Meteorology and air pollution	per capita emissions of CO2	average per capita emissions of CO2 during a specific time	division of CO2 amount over a specific period by the total number population for the same time	Metric Ton	West Bank, , Gaza Strip and Palestinian Territory	Administrative records	annually	2003, 2005	Emission Accounts Report
Water	Number of Ground Water Wells	An Indicator measures Number of Ground Water wells	Total number of Ground Water Wells	Number	Governorate	Administrative records	yearly	2011-1999	Water Statistics in the Palestinian Territory Report
Water	Quantity of Yearly Pumped Water from Ground Water Wells	An Indicator measures Quantity of yearly Pumped Water from Ground Water Wells	Total Quantities of Pumped Water from Ground Water Wells	m ³ 1000 year	Governorate	Administrative records	yearly	2011-1999	Water Statistics in the Palestinian Territory Report
Water	Number of Springs	An Indicator measures Number of Springs	Total number of Springs	Number	Governorate	Administrative records	yearly	2011-1999	Water Statistics in the Palestinian Territory Report
Water	Quantity of Yearly Discharged Water from Springs	An Indicator measures Quantity of yearly discharged Water from Springs	Yearly Total Quantities of Discharged Water from Springs	m ³ 1000 year	Governorate	Administrative records	yearly	2011-1999	Water Statistics in the Palestinian Territory Report

Domain	Indicator label	indicator Definition	Method of measuring the indicator	The unit of measurement of the indicator	Geographical coverage	Sources	Frequency of production	Time data Series	Related published Report
Water	Percent of Connection to Public Water Network	An Indicator measures Percent of Connected Water People to Public Network	Dividing the Total Number of Units of Count (Building, Gathering, Establishment, Public etc.) Connected to Network, to the Total Water Units in a Number of Community and Research the Result Multiplied by 100	Percentage	West Bank, Gaza Strip, Palestinian Territories	Survey, Census	yearly	2011-1999	Water Statistics in the Palestinian Territory Report
Water	Number of Participants Connected to Public Water Network	An Indicator measures Number of Participants Connected to Public Water Network	Total Number of Participants Connected to Public Water Network	Number	West Bank, Gaza Strip, Palestinian Territories	Survey	yearly		Household Environmental Survey Report
Water	Quantity of Consumed Water	An Indicator measures Quantity of Consumed Water	Total Quantities of Consumed Water from Different Resources	1000 m ³ /year	Palestinian Territories	Administrative records	yearly		
Water	Average amount of Household Consumption of Water	An Indicator measures Average Amount of Household Water Consumption of	Dividing the Total Household Consumption specific Region and within Period into the Number of these Households	m ³	Governorate	Administrative records	yearly		Household Environmental Survey Report
Water	Number of Agricultural Ground Water Wells	An Indicator measures Number of Agricultural GroundWater Wells	Total Number of Agricultural Ground Water Wells	Number	Governorate	Administrative records	yearly	2011-1999	Water Statistics in the Palestinian Territory Report

Domain	Indicator label	indicator Definition	Method of measuring the indicator	The unit of measurement of the indicator	Geographical coverage	Sources	Frequency of production	Time data Series	Related published Report
Water	Quantity of Water Purchased (Imported) for Domestic Use From Israeli Water Company (Mekarot)	An Indicator Measures Quantity (of Water Purchased (Imported) for Domestic Use From (Mekarot)Israeli Water Company	Total Quantity of Water for (Purchased (Imported From Israeli) Domestic Use Water Company (Mekarot	1000 m3/year	Governorate	Administrative records	yearly	2011-1999	Water Statistics in the Palestinian Territory Report
Water	Daily Allocation of Water Per Capita (liter/capita/day)	An Indicator measures Daily Allocation of Water Per Capita (liter/capita/day)	Dividing the Total Quantity of Pumped Water for the Total to Domestic Use for Population in a region one day by the total number of the individuals	(liter/capita/day)	Governorate	Administrative records	yearly	2011-1999	Water Statistics in the Palestinian Territory Report
Water	Number of Ground Water Wells for Israeli Water Company (Mekarot)	An Indicator measures Number of Ground Israeli Water Wells for Water Company ((Mekarot	Total Number of Ground Water Wells for (Israeli Water Company (Mekarot	Number	Governorate	Administrative records	yearly	2011-1999	Water Statistics in the Palestinian Territory Report
Agriculture / land	area of cultivated land	An Indicator measures the percentage of agricultural land	Dividing the Total area of Cultivated Land by the total area of land and the result hit the hundred	percentage	Governorate	Survey & Administrative Records	yearly	2011-1999	Agricultural Statistics
Agriculture / land	Amount of Caught Fish	of Amount of indicator Caught Fish	Indicator of Amount of Caught Fish	Ton	Governorate of Gaza Strip	Administrative Records	Yearly		Agricultural Statistics

II.3.3 Sustainable environmental indicators

In a report (PCBS) (Arabic version) dated January 2011 and entitled “environment and sustainable development, reality, challenges and obstacles”, a set of environmental indicators are mentioned:

Agriculture / land (area of cultivated land data from 1999- 2009), use of fertilizers and pesticides showing data from 2000 - 2008: The use of fertilizers was higher and that of pesticides lower in 2008 compared to 2000; the coastal marine environment (fluctuation of the annual fish catch between 2000 and 2008), water (the proportion of water drawn from groundwater and surface water available in the land), quantity of water supplied for domestic sector, biodiversity (prevalence of natural parks in the Palestinian territory).

II.3.4 Publications and reports

Environmental Quality Authority Work Achievements Report is submitted by EQA to the Prime Minister’s Office on a quarterly basis.

PCBS reports submitted on a quarterly basis to:

- Palestinian President Office
- Palestinian Prime Minister’s Office

All environmental publications of PCBS contain information about water, wastewater, solid waste and air pollution.

The amount of available information depends on the data availability. The majority of our publications are bi-lingual.

Environmental statistics publications are:

- Household sector:
<http://www.pcbs.gov.ps/Portals/PCBS/Downloads/book1813.pdf> (published every 2 years)
- Economic Sector:
<http://www.pcbs.gov.ps/Portals/PCBS/Downloads/book1791.pdf> (published every 2 years)
- Educational sector:
<http://www.pcbs.gov.ps/Portals/PCBS/Downloads/book1698.pdf> (published every 2 years)
- Health care centers:
<http://www.pcbs.gov.ps/Portals/PCBS/Downloads/book1715.pdf> (published every 2 years)

- Locality sector:
http://www.pcbs.gov.ps/Portals/_PCBS/Downloads/book1754.pdf (published every 3 years)
- We published also a small booklet (on a one-time basis) about sustainable indicators in Arabic only:
http://www.pcbs.gov.ps/Portals/_PCBS/Downloads/book1762.pdf
- Concerning emissions, we are nowadays involved in preparing reports about emissions to air for all sectors (Arabic almost ready).
- Concerning SOER, we are planning to publish, at the end of this year, a report about the state of environment in the Palestinian Territory.
- A report about the state of the environment was published by another institute called ARIJ (<http://www.arij.org/>); the report is entitled : The Status of the Environment in the oPt – A Human Rights Based Approach, 2011 (<http://www.arij.org/publications/116-new/507-soer-2011.html>)

III Infrastructure

III.1 Water Monitoring

Groundwater is currently the main source of water in Palestine, with an estimated annual renewable capacity of about 669 million cubic meters in the West Bank. The non-conventional water sources such as treated wastewater are not being properly exploited.

There are two monitoring stations to monitor the flow and metrological data but the precipitation sensors in those stations are currently not functioning; the stations are located in Wadi Zeimer and Wadi Faraa’.

There is a data collection team that consists of technicians and engineers; this team is responsible for collecting, gathering and monitoring the local resources, where each groundwater well and spring is considered to be a station that needs to be monitored. The location of groundwater wells and springs is shown in Figure 1. Palestine does not have access to the Jordan River (the sole surface water resource) -even though it is within the shared resources.

The available Hydrometric Monitoring Program at PWA includes two major programs: (1) Water Resources Monitoring and (2) Water Quality Monitoring.

The responsibility for hydrometric monitoring is with the Water Resources General Directorate and, more specifically, with the Hydrological Studies Department. The Hydrological Monitoring Division is responsible for the hydrometric monitoring program. On the other hand, the Data Bank Department is responsible for secondary data processing, data archiving and data dissemination.

PWA works on the enhancement of monitoring programs and indicators for water related data such as: remote monitoring stations and the involvement of real time monitoring for hydrological and metrological data in the near future.

EQA has a department for environmental monitoring and enforcement that deals with all sources of pollution and carries out monitoring visits in case of complaints. There is no regular monitoring due to a lack of human resources.

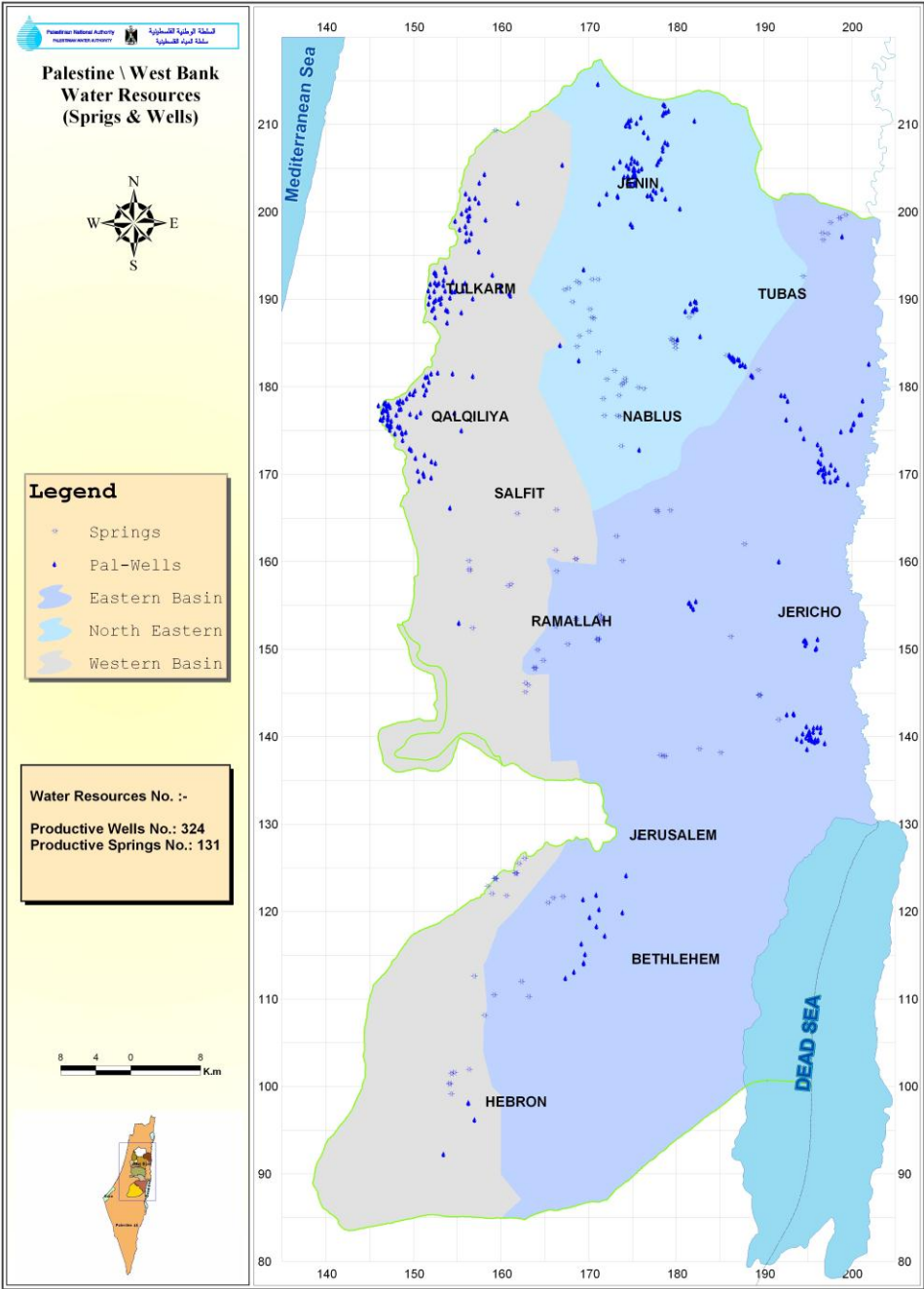


Figure 1: Palestinian Water Resources (springs and wells)

PWA started to build a National Water Information System in 2011; a different technology is used for this platform: an ARCSDE server associated with an Oracle database management system to organize historical PWA data based on spatial information. Originally, raw data is normally stored in the available databases; some preliminary calculations are done within some of the databases, as is done, for example, in the Hydrological database. MS ACCESS and MS EXCEL are the main softwares basically used for data analysis and the preparation of reports in the Data Bank Department. For each of the available databases in the Department a new separate copy of the data base is saved and used for data analysis with all analysed data and information stored in it. A formal copy of the Statistical Package SISTAT was obtained through one of the EXACT projects several years ago; the software was used for a while, but since the needed current analysis of data does not require the use of such a sophisticated package, it has been abandoned and MS ACCESS and EXCEL are now used instead. This procedure is used, for example, in hydrological, rainfall and water supply data analysis. Summary and detailed tables and graphs, in addition to illustration maps, are used for report preparation.

The Data Bank Department provides also data / information services to all individuals, institutions and organizations that require it; this includes researchers and students, local and international NGOs, Palestinian Ministries; in addition to the direct support that the Department provides for all Departments and staff at PWA.

According to the Head of the Data Bank Department, about 20 data requests are followed up and answered per month. Data / information are normally provided within one or two days. This amounts to a relatively large number of requests in general, which means that their processing normally consumes a considerable amount of time and effort, since in most cases data and information needs to be prepared in a certain format which is usually different from that of previous requests from other entities or individuals.

III.2 Waste Monitoring

There is no waste monitoring system in Palestine. Solid waste continues to be inadequately managed in many areas, although improvements have been achieved as a result of investments and institutional initiatives over last years. Open dumping of solid waste is the main disposal method used in Palestine. Many dump sites were closed after introducing sanitary landfills, for example the zahret Al Finjan Sanitary landfill. Over 22% of solid waste is disposed of in sanitary landfills.

According to the national solid waste management strategy in the West Bank, there is an operational sanitary landfill that serves the northern part of the West Bank. Another sanitary landfill in Ramallah is planned. The studies have already been completed.

In the southern West Bank a sanitary landfill that serves the whole area of Hebron and Beth leham is under construction and expected to be in operation by 2013.

In the Gaza Strip a feasibility study and an environmental impact and social assessment of the construction two sanitary landfills have been carried out and the project is under evaluation.

Hazardous and industrial waste management:

Industrial waste is collected, transported and disposed of together with other kinds of wastes at the dumpsites, since neither separation at source nor special handling exist for such waste. The same is true for hazardous waste among industrial waste. There is no proper handling of industrial hazardous waste, no separation or sorting, no proper treatment, and no proper disposal. This is the result of a lack of policies, strategies, clear legislation, and poor enforcement of relevant legislation. One of the objectives of the national strategy for solid waste management (NSSWM) is to develop and publish a list of categories of hazardous waste, and the second is to develop a hazardous waste management plan. These two interventions are assumed to be finalized by the end of this year 2012. In spite of the adopted and implemented policy of building regional sanitary landfills in Palestine, the sanitary landfills in operation or those being designed or under construction do not accommodate the hazardous waste. Therefore, there is a need for developing capacities within the industries for the handling of hazardous waste, including its identification, classification, segregation, storage, labelling, and proper disposal. Hazardous waste should be treated and handled in a different stream, which means that a suitable infrastructure for that purpose is needed. Despite the fact that Palestine is not a party to the Basel Convention, the Environmental law n°7/99 (Article 13) is in line with the Basel Convention.

III.3 Air Monitoring

EQA runs monitoring devices for radioactivity from telecommunication towers and a mobile laboratory for air pollution and measures SO_x and NO_x. EQA has established national standards in line with the international standard (WHO) for ambient air quality, standards for air quality (stationary emissions) as well as standards for noise.

EQA gets GIS data from MoP, PWA, PCBS, MoA and other organizations. The Environmental Quality Authority has 2 main GIS data sets dated 2000 & 2008 from MoP and an unfinalized one from the spatial planning project.

All monitoring and assessment activities in EQA are mainly conducted by the Environmental Protection Directorate, where GPS and other digital and chemical test kits and equipment are used, but the data is as yet not all saved in digital format or in one place (some on paper forms, some are fed into PCs using special software and format).

The information system department at EQA manages all information systems. This includes also networking and the IT part. The basic capacity for database management, GIS and map production is available at the EQA.

The existing networking equipment within EQA includes:

- EQA runs 3 servers with Windows 2003 & 2008.

- LAN in EQA HQ -Ramallah, a project is underway to connect all offices with the HQ and to the internet through fiber optic cable.
- No working GIS work station is available (this is a urgent need), A0 scanner and A0 plotter are available
- There are no remote sensing licenses, and no licenses for SQL and Oracle data bases
- Commercial GIS software is used; EQA would like to use, in the future, open sources software but will need capacity building and proper training.

A project named "National Spatial Planning project" is underway in the PNA, funded by the Palestinian Government, and its activities are proceeding but it is facing some financial problems because of the general financial problems of the PNA. The beneficiaries are all the Governmental bodies that use mapping. The achievement of this project will allow all the PNA bodies to use the same data and can be a big step towards establishing SEIS in the PNA.

In addition, PCBS has 15 servers running Windows 2008.

IV Overall Cross-Analysis

Strength and weaknesses summary

Strengths:

- Availability of Environmental Statistics Department within the Palestinian Central Bureau of Statistics.
- Harmonizing the methodology and concepts and definitions.
- Cooperation between the institutions.
- Availability of a complete environmental statistical system including manuals, classifications, and guidelines for standardization and methodology.
- Avoid duplication of data collection on the environment side.
- Share environmental data on country level.
- Availability of a huge data base and good infrastructure.
- Legal status.
- Strategies.
- Steering Committee of specialists in various environmental sciences.
- Information technology infrastructure.
- Human Resources.

Weaknesses:

- Inability to build environmental data time series for comparison.
- Administrative data have a lot of geographical and periodical gaps.
- Lack of data because of the Israeli occupation of the Palestinian Territory. Inability to collect data about Israeli closed military areas and the Israeli settlements located in the Palestinian Territory, and even from some areas located in the (C) and (B) zones.

- Many of the Palestinian Institutions and Ministries are still at the stage of building databases or central registers.
- Absence of monitoring of water, waste water, solid waste, water abstraction and discharge.
- Lack of equipment and devices.
- Lack of regulations on the sharing of data information between institutions.

Some difficulties were encountered while compiling this report, especially the access to the necessary information was a big problem. A shared environmental information system is part of the national Palestinian work plan. A national team has been created for this purpose and a national work plan has been agreed on (Table 8).

A report on the state of the environment in Palestine will be issued at the end of the year 2012 and a chapter on environmental indicators is planned. Therefore, it is important to urgently review the existing indicators. In this way, data gaps will also be identified.

A lot of work has already been completed by the national team for the development of environmental and resources data and some difficulties the team was faced with were data gaps or weaknesses of administrative records. The Palestinian Bureau of Statistics is currently working at establishing statistical units in governmental Ministries and other institutions. Establishing such units per institution will contribute to the strengthening of data sharing between all components of the national statistical system and will help close the data gaps and improve data quality in priority areas.

Besides working on data gaps and indicators, it is very important to work on water accounts. The development of water accounts will help to enhance cooperation between the Water Authority and the Palestinian Bureau of Statistics. The water accounts will improve both economic statistics and water statistics by introducing consistency. They will also facilitate international comparison. The organization of information according to SEEA-Water facilitates integrated economic and environmental analysis. The assistance of the European Environment Agency in further developing the water accounts is considered to be very important. Proposed activities are described in table 9.

As mentioned above, a meeting of the committee took place on February 7th at the PCBS and all the institutions agreed on streamlining the existing indicators and assessing the existing data. The first agreed activities are mentioned in the table below.

Table 8: Activities agreed upon by the Committee

Activity	Institution and name of the responsible person	Deadline
Review indicators of solid waste and provide written	M. Suleiman Abou Mafrah Ministry of Local	9.02.2012

Activity	Institution and name of the responsible person	Deadline
observation records	Government	
Address comments to the Committee on the suggested indicators list, especially the solid waste indicators list.	Members of the committee	16.02.2012
Regular meetings of the heads of the groups to prepare indicator descriptions (data sheet) to be approved internally by their organization	Members of the committee	3.5.2012

Furthermore, water needs in the Palestinian territory have reached a critical point. Water resources in the Palestinian territory are particularly limited along with the continuously increasing demand of water, in view of the growing population. Also, water supply and sanitation services are insufficient and moreover, water losses are extremely high. In addition, water safeguard and reuse activities are deficient, as is wastewater treatment. Therefore, the development of water accounts has been defined as an activity to be carried out under the SEIS project that will allow Palestine to define indicators that show trends and gives the right message.

Given the situation in the waste management sector, the development and definition of a waste information system in line with the national waste strategy will facilitate the monitoring of waste.

V Implementation plan 2012-2014

V.1.Environmental Information System

- 1- Assess the existing information system and recommend a suitable information system (local, regional, international)
- 2- Help EQA and other related institutions in developing the national environmental information system (software, hardware)

V.2 Water Accounts

Provide support to PCBS and PWA for further developing water accounts (see table below)

V.3 Water Information System for Palestinian Water Authority and EQA

The goal is to develop a national Water Information System for data sharing across institutions. Key stakeholders are the Palestinian Water Authority, EQA and PCBS (for Water Accounts).

Support to the Palestinian Water Authority

1. Technical visit to see best practice example in the field of water information system.
2. Workshop with local, regional and international organizations in the field of knowledge sharing and know-how exchange in the field of information system.
3. Expert mission to do in-job training and knowledge transfer for reporting and data dissemination skills.

Support to EQA in the establishment of a water quality information system:

Activity 1: carrying out an IT environment & requirement analysis and preparing a system analysis & specification for a database holding monitoring data.

The experts will assess the need for hardware and software development in respect of data collection, data processing and storage as well as interfaces. The assessment will consider existing network systems in Palestine and requirements for reporting.

Activity 2: developing a database for keeping monitoring data

Depending on the results of the prior activity and the options chosen by Palestine an optimum database structure will be defined with relevant tools.

Support to EQA in the establishment of a waste information system

An expert mission will be needed in order to assess the current situation in terms of information and data needs, and to define the future information system.

Activity	Time of Implementation	Aim	Output	Needs	Progress
1. Approving the action plan to implement National SEIS in Palestine	4 th Quarter 2011	To have an action plan and road map for the implementation of SEIS in Palestine	Action plan & Road Map for National SEIS in Palestine		This activity is part of our national work plan
2. Identification of data needs and data gaps	1st Quarter 2012	To have an idea about the current status of data and indicators of the data gaps in each theme	List of data needs and required data for each theme	<ul style="list-style-type: none"> * Providing training course or technical assistance in the national environmental accounts in the fields of: <ol style="list-style-type: none"> 1. Waste Accounts 2. Emission Accounts 3. Water accounts * Providing training course in the field of selection indicators, data gaps and analysis. 	PCBS is working on water accounts and identifying the indicators. About the Waste accounts and emission account, we have not started yet.
3. Activation of the National Team for the development of Environmental Information System.	4 th Quarter 2011 - 1st Quarter 2012	Developing the national environmental information system.	Adopt a list of metadata of environmental and natural resources indicators.		PCBS & EQA are working with the national team to fill in the gaps in administrative records of institutions and ministries.
4 Preparing and approving a list of indicators for the priority themes	1 st Quarter of 2012- 2 nd Quarter 2012.	Gathering the indicators that are related to the themes	list of indicators for the priority themes	<ul style="list-style-type: none"> • Help Needed: A technical workshop on infrastructure technologies for automatic collecting of data (for ex. logging of emissions, water quality) 	
5. Establishing of National	2 nd Quarter of 2012- 3rd	Joining National SEIS and shared	Data base of National SEIS	<ul style="list-style-type: none"> • Help Needed: Workshop on 	

SEIS.	Quarter 2014	data with other Palestinian institutions		inter-institutional interaction and data exchange technologies will be greatly appreciated. <ul style="list-style-type: none"> • Help Needed: A technical workshop on integration of above mentioned activity with WebGIS portals based on open-source technologies. 	
6. Current status report about the implementation of National SEIS	4 th Quarter of 2012	Sharing the environment data with all users.	Methodological report and action plan for the future activities		The main output will come at the end of May 2012.