



Department of  
Statistics  
Jordan



# DEPARTMENT OF STATISTICS- JORDAN



Agriculture & Environmental Statistics Directorate

Environmental Statistics Division ( ESD )

## Data Base Creation & Management

**Damascus 04-08 /4/2004**



## MISSION STATEMENT

**Creating of environmental data base which releases statistical data that are relevant and timely for use in research, planning, monitoring, analysis and decision taking with respect of life in Jordan and needed by data users.**



## ESD CONSIDERS THE FOLLOWING ELEMENTS IN ITS PRACTICES

- **Accuracy**
- **Timeliness**
- **Confidentiality**
- **Objectivity**
- **Accessibility**
- **Consistency**
- **Evaluation**



## HOW TO SUCCEED

Promote the utilization of statistical data , it is important that we heed the users of statistical data

Knowing the Data users needs ( opinions and requests ), how to contact them and how to provide our data to them

Provide the data according to the situation of data users and their knowledge



## Objectives of the Environmental Statistics

- . Provision of statistical data on various environmental aspects and its distribution in Jordan.
- . Provision of data on available resources, deposits and safe exploitation of these resources.
- . Provision of data on environmental pollutants by type, sources and its effects on environment.
- . Provision of data on various environmental indicators.



# ACTIVITIES OF ENVIRONMENTAL STATISTICS DIVISION

## TOPICS COLLECTED BY ESD

1. Natural Conditions
2. Population and Health Indicators
3. Economic Indicators
4. Pesticides Residues
5. Agricultural Indicators
6. Transport and Passengers
7. Air Pollutants
8. Biodiversity, Natural Reserves, Environmental Tourism and Forests
9. Water Quality and Quantity
10. Pollution of Aqaba Port Water
11. Energy and Minerals
12. Medical Services and Services Sector
13. Industrial Sector
14. Construction Sector



## DATA BASE METHODOLOGY

**COLLECTED:** From different sources by ESD staff.

**CHECKED:** To match different data fitness by ESD staff, through  
Classification & Correction of data.

**CALCULATED:** Using Excel & Access software.

**RE-TABULATED:** In the form of tables for inclusion in the environmental statistics report (Excel & Word Document).



## Sources of Environmental Statistical Data

**Environment Division collects the required data from the following sources:**

### **1- Official, Semi-Official Institutions and Associations Interested in Environment governmental institutions**

The Environment Division obtains statistical data from various governmental institutions according to their specialty, and from semi-official institutions and associations dealing with this subject. Continuous coordination with these institutions is maintained to obtain up-to date data and information for inclusion in the environmental statistics report, such as:

**Ministry Of Health**

**Great Amman Municipality**

**Ministry Of Water & Irrigation**

**NGO's**

**Ministry Of Agriculture**

**Ministry Of Environment**





## Sources of Environmental Statistical Data

### 2 – Data Providers Within the DOS

Data are collected from various directorates in the DOS whether these data are published or not. These directorates are:

- A. Directorate of Agricultural and Environmental Statistics.
- B. Directorate of Economic Statistics.
- C. Directorate of Population & Social Statistics.
- D. Directorate of Economic Surveys.



## Sources of Environmental Statistical Data

### 3 - Surveys and Studies

Many surveys are carried out by the Environment Division,  
these surveys as follows:

- A. **Hazardous solid and liquid wastes survey  
in the medical services sector.**
- B. **Hazardous solid and liquid wastes survey  
in the chemical manufacturing sector.**
- C. **Non-Hazardous wastes survey  
in the services, industrial and construction sectors.**



# Surveys General Background

## Introduction

Many surveys have been implemented at national level for various economic sectors (construction, services and industry) in order to provide data pertaining to uses of water, energy, hazardous and non-hazardous solid and liquid wastes.



## Surveys Coverage

The Environment Division surveys cover a sample of activities from the services, industry, and construction sectors. In addition to the activities of medical services and chemical industries at regional level.

## The Surveys Frame

The Economic Establishments Census carried out by DOS in 1999 has provided a comprehensive frame for economic establishments. This frame has been used to design the environmental surveys samples.



## The Surveys Sample

The method of stratified sampling for the economic establishments has been employed in these surveys. The establishments were divided according to the number of employees in each establishment. The sample has been distributed among strata by using the method of proportional distribution to workers number in each stratum as follows:

- A. A stratified sample has been drawn for the economical establishments in services, industries, and construction sectors, according to the number of employees. The total number of establishments in non- hazardous solid and liquid survey was 2638.



- B.** A stratified random sample of clinics and medical labs on regions level has been drawn. Where the comprehensive survey method was used for private and governmental hospitals in the Kingdom. The total number of establishments covered by the survey was 345 establishments whose major activity falls within the following activities:
- Hospitals (governmental and private).
  - Medical laboratories (private).
  - Clinics (private).
- C.** A sample was drawn from chemical factories for establishments engaging 19 employees and less, using the stratified random sampling method, where the comprehensive survey covered all establishments engaging 20 employees or more. The total number of surveyed establishments was 283 whose major activity falls within activities



## Data Collection Method

Data were collected by trained interviewers who have visited the establishments within the sample and interviewed concerned technicians in each establishment. They have explained the study objectives and items of the questionnaire which have been completed in a subsequent visit.



# The Preparatory Stage

## Surveys Main Documents

### Surveys Questionnaires

The questionnaire of the water and energy uses and non-hazardous solid and liquid wastes survey. contains the following components:

- Identification information data of the establishment.
- Quantity and value of water used in the establishment and quantity of sewage produced by the establishment.
- Disposal method of sewage.
- Wastes and method of disposal.
- Quantity, type and value of used energy.





## Instructions, Editing Rules and Coding Manuals

A separate instructions manual for each survey was prepared, containing the following:

- Instructions for completing the questionnaire and explaining the concepts and terms mentioned therein.
- Editing rules for data in respect of consistency, logic and others.
- A special coding manual for the identification information, used units and methods of wastes disposal.

## Selection and Training of Interviewers

The surveys were carried out by trained and experienced university graduate staff. They were accompanied by a technical supervising team during the field work to ensure good work. The team also checked a sample of the completed questionnaires to be sure that the interviewers have grasped all work aspects.



# Data Collection Stage

## Organization of Field Work

Data were collected by field teams. Each team consisted of a supervisor and four interviewers. The fieldwork was superintended by a technical and administrative team. Before the beginning of fieldwork, co-ordination was made with the concerned parties to facilitate the task of the interviewers and to assist them while currying out the surveys. The team supervisor distributed work to the interviewers daily and accompanied them during their visits. He submits a weekly report reflecting the achievements of his team and any remarks concerning difficulties and obstacles faced him during his task.

## Field Editing

The field supervisor checks the questionnaires at the end of each working day, then hands them over to the field editor to check them again. Any questionnaire believed to have a mistake was returned to the field to correct the data or to verify any suspected data. Remarks were discussed with the interviewer and transmitted to all interviewers.



## Data Processing Stage

### Office Processing

#### A- Editing of Questionnaires

The completed questionnaires were checked according to written editing rules which were distributed to office editors who received adequate training on this type of work. Questionnaires containing any suspected data were returned to the field teams for verification.

#### B- Coding

Upon completion of editing operation, questionnaires were coded according to used coding guides at DOS, then codification was also edited..



## **Electronic Processing**

The edited and coded questionnaires were delivered to the Data Entry Division, to be entered using special pre-prepared entry programs and electronic edit rules. Upon completion the data entry and data cleaning, the programmer extracted sheets consisting preliminary data using pre-prepared raising factors for editing and verification of the results.

## **Tabulation of the Final Results**

Upon the completion of the data entry process, preliminary cross tabulations of the survey results were generated for review by the subject-matter persons. Any suspected findings were checked with regard to data entry, tabulation program, and raising factors. After obtaining a clean data file, the final results were tabulated in accordance with the pre-prepared dummy tables with using data base programme as Oracle or Access. Then the final report was prepared containing detailed tabulations as well as the methodology of the survey



## Preparation of Report and Dissemination of Results

After the editing and tabulation operations are completed, the publication's tables are prepared. These tables are comprehensive and meet the needs of data users in the private and public sectors, in addition to international agencies who use such a publication. The results of this survey have been loaded on the DOS web site.



# PUBLICATIONS OF ESD

- **Annual Environmental Statistics Report**
- **National Environmental Compendium, Published Produced in cooperation with Plan Blue**
- **National Environmental Technical Reports Published in cooperation with Plan Blue**
- **Website of DOS ( [www.dos.gov.jo](http://www.dos.gov.jo))**
- **Website of Environment Committee in Jordan formed in cooperation with National Information Center ( [www.environment.gov.jo](http://www.environment.gov.jo))**



## BUILDING TRUST THROUGH PLANNING AND USER CONTACT

- **The Process of Interaction**
- **Direct contact through Meetings, Seminars and workshops with;**
  - **Government officials.**
  - **Academics and researchers.**
  - **Business executives.**
  - **Mass media.**



## CURRENT APPROACH IMPLEMENTED BY IN ESD

- **Transparency through consultancy**
  - **Meet with data users to design statistical programme.**
  - **Meet with data users before implementation of an activity (e.g., Questionnaire design).**
  - **Meet with data users prior to dissemination of data.**
  - **Take the initiative – you need them.**





# CURRENT METHODS FOR USER CONTACT

- **Reports**
- **E-mail & Internet**
- **Tele Fax & P.O.Box**
- **CD-Rom & Diskettes**
- **Personal Visits**



# COOPERATION

**ESD WORKS WITH MANY ORGANIZATIONS.**

- **Government Institutions**
- **Business Enterprises**
- **Eurostat**
- **NGOs**
- **GTZ**
- **IDRC**

**ESCWA**



# CURRENT SITUATION

## Impact of Med- stat

The ESD now has made a good progress through:

- Experts and Consultant
- Courses
- Continuously monitoring and evaluating the ESD
- Data-Base and Comparison software (El-shams, Access & Oracle )
- Analysis software ( SPSS )
- Computers, Printers and Scanners

27 Questionnaires and Publications



# PROBLEMS OF DATA EXCHANGE

- **ADMINISTRATIVE PROCEDURES (OFFICIAL LETTERS).**
- **TRADITIONAL METHODS OF DATA EXCHANGE IS WIDELY USED (FAX).**
- **MOST REQUESTS ARE NOT ANSWERED ON TIME BY OTHER DATA PRODUCERS.**
- **SOME DATA PRODUCERS DON'T PROVIDE DATA ACCORDING TO THE FORMAT REQUIRED (REPORTS).**
- **ARABIC APPLICATIONS ARE STILL IN USE.**



## ESD PROBLEMS

- **Lack of sufficient qualified personnel**
- **Lack of adequate funding**
- **Lack of advanced equipment**
- **Lack of public statistical awareness**
- **Conflict in published figures**
- **Rigid statistical law**



## SUGGESTED SOLUTIONS TO DOS/ESD PROBLEMS

- **Seek external financial resources.**
- **Approach advanced statistical agencies for long term technical assistance.**
- **Coordinate all statistical work through DOS.**
- **Enhance existing tools for serving data users.**
- **prepare new programmes for public statistical awareness.**



## ASPIRATIONS

- Secure additional funds for future projects.
- Establish a unit for science and technology statistics.
- Incorporate GIS technology into data for dissemination.
- Consistency of all data disseminated.



# THANK YOU