



مركز الإحصاء  
STATISTICS CENTRE



# ENVIRONMENTAL

## Protection Expenditure

Results of the Annual Environmental Survey 2012

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## Editorial

The Statistics Centre – Abu Dhabi conducts a series of field surveys every year with a view to providing accurate and up to date statistics on the Emirate of Abu Dhabi. The results of this survey are deemed to be among the important pillars relied upon by policy and decision makers, the business sector, and researchers concerned with the environmental field in the development of plans, studies, and researches in all issues concerned with survey.

The environmental survey results provide a broad base of detailed environmental data on the size of sector-based environmental protection expenditure and the type of protection. These results provide also detailed data on occupational safety and health statistics and assess the quantities of water and the amount of energy consumed, as well as statistics on waste management for each economic activity included in the survey.

The environmental Protection Expenditure report includes a summary of the final results of five specialized economic surveys implemented in 2012, namely construction (construction and building), transport and storage, services, wholesale and retail trade, and repair and industry services. Through these results, we can measure the developments witnessed by these activities and the extent of development resulting in the environmental sector.

As we bring you this important report, which contains the fruit of strenuous field and administrative efforts made over several months, we wish that this issue met the needs of environmental data users at all levels. Allah is the Master of Success,

**Butti Ahmed Mohamed Bin Butti Al Qubaisi,**  
**Director General of the Statistics Centre - Abu Dhabi**  
**(SCAD)**

## Introduction

In the midst of the great economic development of the Emirate of Abu Dhabi and the growing interest in the environment, it has become necessary to expand the environmental database and meet the requirements of the Government of Abu Dhabi. The resulting environmental statistics enable the government to monitor environmental changes and make enlightened decisions on the protection of the environment.

The annual environmental survey is one of the most important sources for collection of information necessary to prepare environmental statistics in the Statistics Centre - Abu Dhabi, as the environmental survey collects data on an annual basis from Establishments operating in the Emirate of Abu Dhabi (Abu Dhabi, Al Ain and the Western Region). Based on the information collected by the survey, a wide range of statistics on environmental expenditure, occupational health and safety, energy consumption, water use, and the quantity and composition of wastes are produced.

## Key Points

### 1. Environmental Protection Expenditure Statistics

This report deals with the results of the environmental survey conducted by the Statistics Centre – Abu Dhabi, which is aimed at determining the value of disbursements and expenses spent on the protection of the environment in the Emirate of Abu Dhabi, the Expenditure direction, and providing the basic data and information required to that end so as to generate statistics complementary and integrated with the national accounts relating to economic activities.

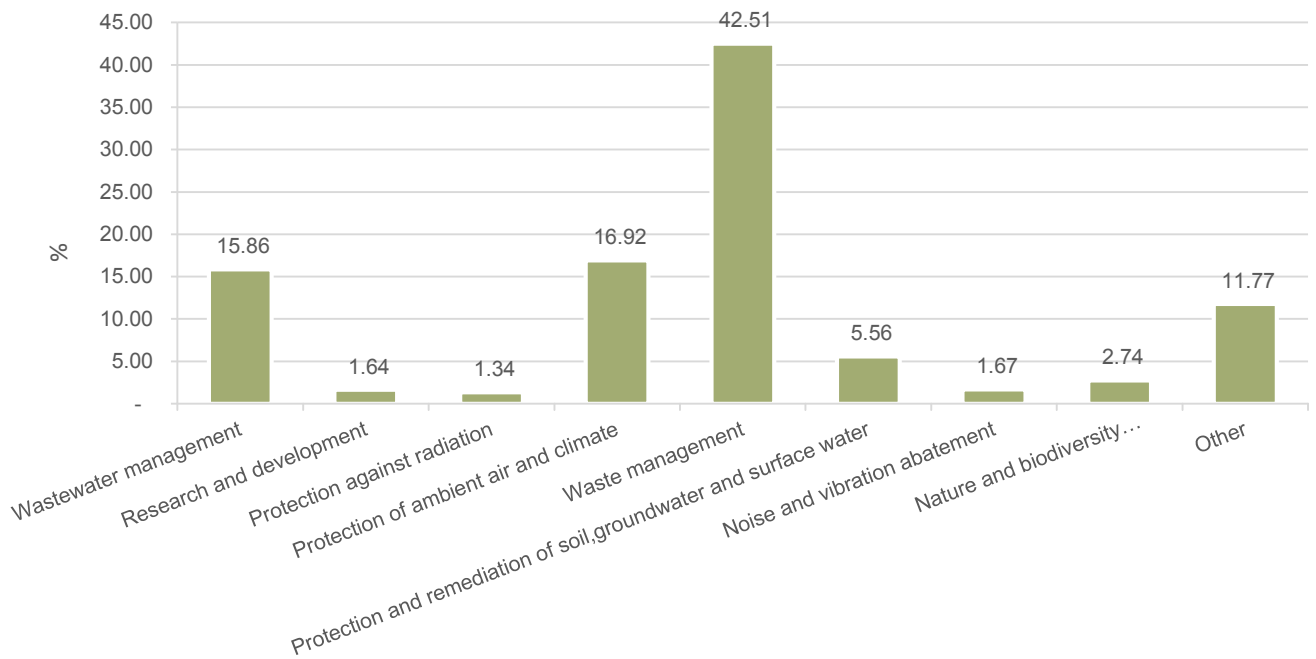
We define environmental protection expenditure as the overall measures and activities take and aimed to prevent, reduce, and eradicate environmental pollution and any other environmental deterioration. These include the measures taken to improve the environment that deteriorates due to pressure resulting from human and economic activities.

The environmental protection expenditure statistics show the changes occurring in environmental activities in monetary terms. These statistics include a whole range of accounts, such as the national accounts and constitute an integral part of the integrated environmental and economic accounting system, which has been accepted as a statistical standard by the United Nations Statistical Commission in February 2012.

### Environmental Protection Expenditure

The results showed the types of challenges faced by the business sector in the field of environment, where the waste management and the reduction of air polluting emissions had serious impact on the economic Establishments' expenditure direction towards environmental protection and management, as the environmental protection expenditure in the Emirate of Abu Dhabi in 2012 was about 1.2 billion dirhams. Figure (1) shows the distribution of the total Expenditure on environmental protection means and methods, where the expenditure under the waste management title reached 42% of the total Expenditure on environmental protection, while the expenditure under the air and climate protection tile came second by 17%.

**Figure (1): Percentage distribution of Expenditure on environmental protection by type**



Source: Statistics Centre – Abu Dhabi

## 1.1 Costs of Environment Protection Activities in Economic Establishments

### 1.1.1 Wastewater Management Expenditure

It includes the costs of wastewater collection, treatment, and reuse or disposition thereof, including collection of waste relating to composition of wastewater infrastructure, which includes protection from pollution through adjustment of the wastewater production process and management and construction of drainage systems, treatment of wastewater and cooling waters in addition to the measurement, control, laboratory activities and any other activities. The overall wastewater management expenditure in the five sectors covered by this study reached about 98.3 million dirhams. Figure (2) shows that the construction sector expenditure constituted 64% while the industry sector expenditure was 32% of the total wastewater Expenditure.

**Figure (2): Percentage distribution of Wastewater Management Expenditure**



Source: Statistics Centre – Abu Dhabi

### 1.1.2 Environmental Research and Development Expenditure

It includes the value and costs of researches that help develop environmental protection systems in Establishments or in their surrounding environment, including Expenditure on research and development of many environmental areas such as protection of the surrounding air, the atmosphere, and water, waste management, protection of the soil and groundwater, reduction of noise and vibrations, protection of living creatures and the natural habitats of living species and organisms, and protection from radiation. It includes also conducting other researches on the environment. Figure (3) shows that the percentage distribution of expenditure on the environmental area research and development has reached 10.1 million dirhams in 2012, where the industry and construction sectors expenditure had equally constituted 80% of the overall expenditure by 40% each.

**Figure (3): Percentage distribution of Research and Development Expenditure**



Source: Statistics Centre – Abu Dhabi

### 1.1.3 Radiation Protection Expenditure

It includes the value of workers’ personal protection equipment, tools, and devices and the security measures taken to provide protection from radiation. The radiation protection includes protection of the surrounding areas, transportation and treatment of highly hazardous radioactive waste, as well as measurement, control, labs, and the like. Figure (4) shows that the Expenditure on the construction and industry sectors were 52% and 38%, respectively and that the Expenditure on the service sector, which includes the hospitals and clinics that use radioactive diagnosis devices, constituted 8% of the 2012 total expenditure of 8.3 million dirhams.

**Figure (4): Percentage distribution of radiation protection expenditure**



Source: Statistics Centre – Abu Dhabi



### 1.1.4 Environmental Expenditure on Air and Climate Protection

It includes the value of air and climate protection and their methods through installation of purification tools or equipment to reduce emissions and pollutants into the air. The air, climate, and ozone layer protection can be categorized as the protection of pollution by making adjustments in the processes accompanied by production of pollutants and treatment of exhaust and ventilation gases, in addition to measurement, control, and the like. Figure (5) shows that the Expenditure on the industry sector represents 86.4% of the overall environment protection expenditure in the area of air and climate protection valued at 105 million dirhams. The industrial sector and its related emissions are among the biggest challenges facing the quality of air and the climate change phenomenon.

**Figure (5): Percentage distribution of air and climate protection expenditure**



Source: Statistics Centre – Abu Dhabi

### 1.1.5 Waste Management Expenditure

It is the value of hazardous solid waste treatment (all materials proven to be hazardous to human health and to the environment based on their nature or quantity and requiring special processing techniques) and the non-hazardous waste including the steps of waste collection, processing, disposition with, and recycling). The waste management can be categorized as follows: protection from pollution through adjustment of the processes of waste production such as collection and transportation and during the process.

It includes disposal of hazardous waste by thermal treatment, processing or landfill or by any other means of disposal. The value of measurement, control, and laboratories and the like must also be included in addition to any other waste management activities.

The waste management expenditure in the five economic sectors covered by the study reached 263.6 million dirhams where the industrial sector constituted 80% of the total expenditure while the expenditure of the construction sector constituted 14.8% as shown in Figure (6).

**Figure (6): Percentage distribution of the waste management expenditure**



Source: Statistics Centre – Abu Dhabi

### 1.1.6 Soil, Groundwater, and Surface Water Protection and Treatment Expenditure

It includes the value of equipment, machinery, tools, and measures necessary to protect the soil, remove chemical substances or leakage of hazardous waste in the soil, and prevent any leakage that would reach the surface water or groundwater. The soil and groundwater and surface water protection can be categorized as follows: prevention of leakage of pollutants, cleaning of the soil and water, protection of the soil against erosion and other physical deterioration, protection and treatment of soil salinity, and other measurement, control and other activities. Figure (7) shows that the percentage distribution of the expenditure where the construction sector represents 53% and the industrial sector represents 43% of the overall expenditure percentage valued at 34.5 million dirhams in 2012.

**Figure (7): Percentage distribution of the soil, surface water and groundwater protection and treatment expenditure**



Source: Statistics Centre – Abu Dhabi

### 1.1.7 Expenditure on Reduction of Noise and Vibrations

It includes the value of equipment and tools necessary to reduce the noise and vibration severity/intensity. The noise and vibration reduction can be categorized. It comprises the Expenditure on protective adjustments of the source of noise or vibrations and the operations undertaken in the facility. The expenditure also includes construction of roads and railways, traffic, and air traffic. It also includes industrial noise and the like, as well as building of anti-noise or noise-reduction Establishments. The expenditure includes also the measurement and control procedures and laboratories and the like. Figure (8) shows that the service and industry sectors make up the lion share of such expenditure by 34.2% each out of the overall noise and vibration reduction expenditure on 10.3 million dirhams.

**Figure (8): Percentage distribution of the noise and vibration reduction expenditure**

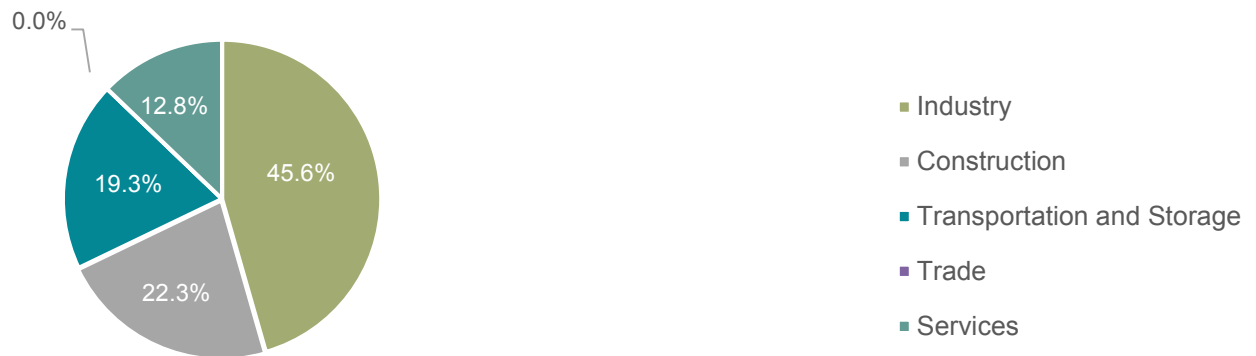


Source: Statistics Centre – Abu Dhabi

### 1.1.8 Protection of Nature and Biodiversity

It includes the value of all measures taken to protect the biosphere and protect the nature of terrestrial and marine life. The protection of nature and biodiversity is represented in the protection and rehabilitation of bio-species and natural habitats in addition to the measurement, control procedures, laboratories, and the like. The environmental Expenditure on the protection of biodiversity was about 17 million dirhams in 2012 where the industrial sector constituted 45.6% of the overall expenditure, followed by the construction sector by 22.3% as shown in Figure 9.

**Figure (9): Percentage distribution of the Protection of Nature and Biodiversity Expenditure**

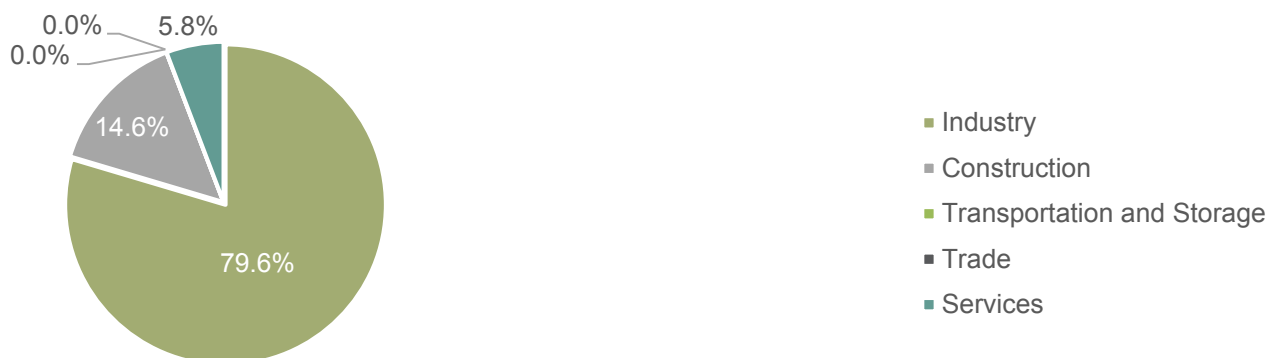


Source: Statistics Centre – Abu Dhabi

### 1.1.9 Environmental Expenditure on Other Activities

This item includes the environmental measures and promulgation of administrative resolutions and environmental legislation in addition to their improvement and application of the best practices that help protect and maintain the surrounding environment in addition to any other activities. In 2012, the overall Expenditure on the other environmental activities reached about 73 million dirhams where the industrial sector constituted 79.6% of the overall Expenditure followed by the sectors of construction and services by 14.6% and 5.8% respectively as shown in Figure (10).

**Figure (10): Percentage distribution of Expenditure on other environmental activities**

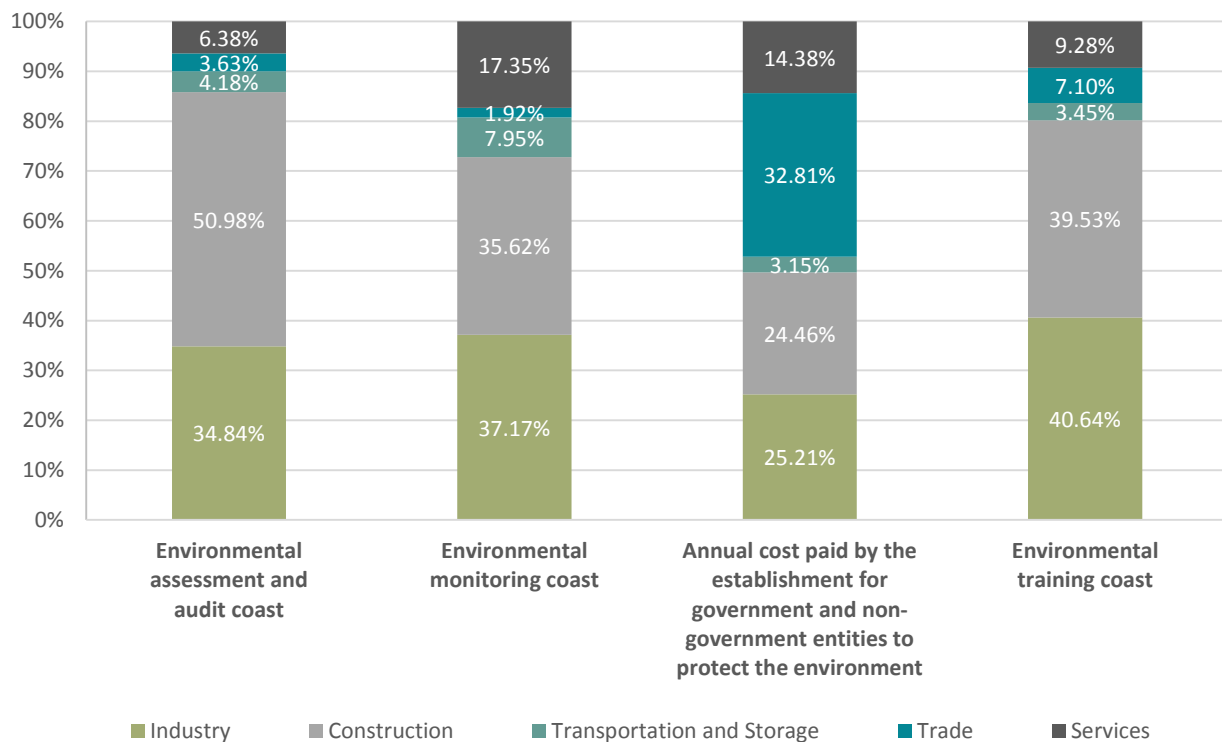


Source: Statistics Centre – Abu Dhabi

## 1.2 Expenditure on Environmental Management in Economic Establishments

Economic Establishments spend on internal environmental practices, in terms of environmental performance control, evaluation and auditing procedures, and conducting the studies necessary to know the environmental impact of the current operations or the instituted projects. The expenditure includes also the costs associated with conducting training courses for the workers to increase their environmental awareness or training on the latest tools and practices to protect and maintain the environment from the effect resulting from the establishment activity. The establishments pay to specialized governmental or non-governmental agencies to manage and maintain the environment such as the waste management and disposal as well as to undertake a number of operations with a view to treating or addressing the impact that would result from the practice of economic activity that causes environmental damage. The overall expenditure associated with such practices in the environment management in economic institutions covered by the study reached 573.8 million dirhams in 2012 out of which the government and non-government disbursements made up 89% of the total expenditure as shown in Figure (11).

**Figure (11): Percentage distribution of the Expenditure on environmental management by economic activity**



Source: Statistics Centre – Abu Dhabi

### 1.3 Revenues from the Application of Environmental Practices to Economic Activities

Some environmental practices and management in some economic Establishments generate returns by saving some activity expenditure or by benefitting from them in making profits that are added to the returns of economic Establishments from sound environmental protection or management. Such saving includes the monetary value of the by-products that result from environment protection activities either by selling them and collecting revenues or by using them internally and therefore reducing the costs. Among the examples to that, revenue-generating process is the energy generated during the production process and the use of the materials that result from waste treatment. The size of savings and profits from environmental practices in 2012 reached about 195.6 million dirhams out of which the industrial activities constituted about 64.6% of the overall expenditure volume.

**Figure (12): Percentage distribution of the saving and profit value from environmental protection by economic activity**



Source: Statistics Centre – Abu Dhabi

# Appendix

## 1. Objectives of the Survey

The importance of this survey is evident in the broad database it provides on various economic activities operating in the Emirate of Abu Dhabi, in addition to its important role in the measurement of development in various environmental fields. Given to this importance and the need to provide this database, the Statistics Centre - Abu Dhabi has started to implement environmental surveys for economic Establishments with a view to collecting data for the year 2012, so as to achieve a set of objectives, mainly the following:

1. Provide the database necessary to advocate, support, and make environmental policies and decisions in the Emirate of Abu Dhabi and measure the performance of these policies.
2. Provide the data necessary to measure the change in the areas of Expenditure on environmental protection and its emerging development.
3. Provide support to the Government of Abu Dhabi in projects related to environmental statistics such as the inventory of greenhouse gases emissions, occupational health, and industrial security.
4. Contribute to provide a strong environmental statistical data in the Emirate, with respect to economic activities.
5. Provide a basic database to measure progress in achieving the agenda of the Government of Abu Dhabi and Abu Dhabi 2030 vision.
6. Contribute to the building of a national statistical system in the United Arab Emirates, by providing detailed statistical data for the Emirate of Abu Dhabi.
7. Provide the necessary data for businessmen and investors to make appropriate decisions and evaluate their investment decisions.

## 2. Statistical Units and Their Classification

The Statistical Unit from which data were collected is the institution involved in any economic activity that constitutes its main activity. The classification depends on the limit of the second level of the International Standard Industrial Classification of All Economic Activities, Rev.4) (ISIC Rev.4).

**The sectors covered by the survey are:**

1. The Industry Sector. It includes the following:
  - Mining and quarrying.
  - Manufacturing (processing industry).
  - Electricity, gas, steam and air conditioning supply.
  - Water supply; sewerage activities, waste management and waste treatment.
2. The Construction Sector
3. The Trade Sector. It includes the following:
  - Wholesale and retail trade; repair of motor vehicles and motorcycles.
4. The Transport & Storage Sector

5. The Service Sector. It includes the following:
  - Accommodation and food service activities.
  - Real estate activities.
  - Professional, scientific, and technical activities.
  - Administrative service and support activities
  - Education.
  - Activities in the field of human health and social work.
  - Arts and recreation and entertainment activities.
  - Other service activities.

### 3. Methodology

Due to the special care the Statistics Centre – Abu Dhabi pays in adopting and following international methodologies and standards, the international methodologies and recommendations relating to each economic activity were followed in terms of the concepts used and the basic data collection method, and the numbers and indexes presented were extracted from the real results of the survey.

#### 3.1 Sample Design

The framework of the survey is premised on the framework provided by the Framework Updating Project within the Emirate of Abu Dhabi in 2012, where the framework is divided into three large, medium and small categories according to the number of workers and the method of comprehensive survey of the large-category Establishments was used and well as the method of regular random class-sample for the two categories, the medium and the small, according to each activity.

#### 3.2 Year of Survey

Data were collected from establishments primarily collected for each calendar year of the survey years. In case the data of some institutions were provided on the basis of accounting years that are different from the calendar year, such data were then collected according to an accounting period that mostly falls within the year in which the survey was conducted.

#### 3.3. Documents of the Survey

The survey documents comprise the survey form, the instruction manual of field researchers and the office audit rules booklet.

The questionnaire was designed to contain all of the data that would achieve the objectives of the survey. The form includes the following:

1. Definitional and general data about the facility.
2. The environmental protection expenditure value.
3. Health and safety statistics.



4. Water use statistics.
5. Energy use statistics.
6. Waste management statistics.

### **1.3.3 Instruction Manual**

The Instruction Manual contains concepts used in the form so as to make it clear to those working in the statistical area and in office auditing; it also includes a detailed explanation of all the questions found in the form and how data are collected in a way that ensures obtainment of the highest levels of accuracy as well as the duties of cadres working in the survey such as supervisors, observers, researchers, and auditors.

### **2.3.3 Audit & Matching Rules Manual.**

The audit and matching rules manual contains the basic rules all researchers and auditors must follow while doing the jobs assigned to them. The matching rules contain the basic technical review rules such as the general rules of surveys and the technical reviews of the tables of each survey.

## **4. Work Stages**

### **4.1 The Preparatory Phase**

This phase included determination of the survey objectives, the survey form design, and preparation of the manuals of training, auditing, and field and office audits.

### **4.2 Fieldwork Phase**

The fieldwork was carried out by trained researchers selected according to pre-defined criteria and distributed into teams. The work course was overseen by a field supervisor and observers.

### **4.3 Office Supply**

The Audit Division was given the ready form from the field in the meantime to be fully audited. In case mistakes are discovered in the forms, the type of mistake is determined and corrected in the office and the facility is then contacted once again to correct the mistake or returned to the field. After that the forms are assigned a code and sent to the computer department where the data is fed into the system.

### **4.4 Electronic Data Processing**

Once the form is checked and assigned a code, the computer department staff timely feed the form into the system according to the program intentionally designated to the data entry process; then statements including the preliminary results are extracted and edited and verified to check the data accuracy, then the pre-designed reporting processes are entered and audited, and the results are finally extracted.

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