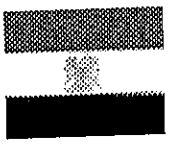

The Government of Egypt

National Report and Information on Disaster Reduction

Presented to

World Conference on Disaster Reduction

Kobe-Hyogo, Japan

18-22 January 2005

Executive Summary

This report aims to, first, review the current state of affairs in the area of disaster preparedness in Egypt, and second, focus attention on emerging risks and identifying solutions. The modality employed in elaborating the report is fairly participatory. This report consists of seven sections. Following the introductory section, the report presents the general characteristics of Egypt. It portrays the location and general demographic attributes of the country, and then moves towards presenting human-induced risks and listing major natural hazards in Egypt. The third section portrays institutional aspects and political commitment towards reducing risks associated with disasters. It shows the institutional setup responsible for policy formulation and execution, coordination functions, and efforts toward capacity development including, but not limited to, raising awareness, training and preparedness. This section also presents the national planning, sectoral plans and initiatives, a discussion of other involved stakeholders, codes of practice and standards, and concludes with the budget allocated for disaster risk reduction, sources of finance and modalities of disbursing these funds as well. The fourth section of the report reviews plans for disaster management including risk identification and management application. The section is followed by sections on preparedness and contingency plan and good practices. The report ends with a special section on issues that WCDR has to consider.

Geographically Egypt consists of four major parts: i) the Nile Valley and Delta, ii) Western Desert, iii) Eastern Desert and iv) Sinai Peninsula. The agricultural land base consists of old land in the Nile Valley and Delta; rain fed areas; several oases; and reclaimed desert land. The Nile is the main and almost exclusive source of fresh water in Egypt. The country relies on the available water stored in Lake Nasser to meet the needs of a growing population. Egypt is blessed with a wide range of major minerals. Egypt is a country that is rich in human resources. Human resources in Egypt have been improving. Human-induced risks are the outcome of human activities including production and consumption processes. Population growth and economic expansion of certain productive economic sectors, specifically agriculture and manufacturing, put extra pressure on the limited amount of water available to Egypt. Lacking proper systems and schemes for wastewater management pollute water bodies.

Environmental degradation is responsible for a set of hazards considered as 'slow-onset disasters', i.e., activities that cause localized incidents or pass un-noticed at the time but their negative impacts accumulate to reach a full-scale disaster. Solid wastes management in many Governorates of Egypt is still a problem. Human activities are also responsible for air pollution brought by emissions released from stacks of factories, power generating plants, vehicles, and so forth.

Natural disasters known in Egypt are: flash floods, dust and sandy storms, and earthquakes. The two biggest disasters in the past decade were the earthquake of 1992 and the flash floods that occurred two years later in Upper Egypt.

In Egypt, all institutions are committed to elevating disaster risk reduction as a policy priority. Public agencies, both central and local, and civil society organizations allocate necessary resources for preparedness. Disaster risk reduction is on the agenda of various institutions including, but not limited to, executing agencies, research centers and NGOs. Egypt has a national strategy and necessary legislations that address disaster risk reduction. At the Cabinet of Ministries, coordination and collaborative activities take place. There are sectoral contingency plans that incorporate concepts of disaster risk reduction, such as water resource management, the National Environmental Action Plan and the Strategy for Poverty Reduction. Egypt, following the 1992 Earthquake, developed and enforces strict building codes and specifications.

At the official and popular levels, Egypt understands the importance of preparedness. Egypt understands the importance of international cooperation in preparedness and prevention; and providing assistance and relief as well. After the 1992 earthquake, the international community provided Egypt with necessary aid and support. Also within the past decade, Egypt has provided support to the Palestinian people, and Turkey and Iran amid earthquakes. It also provided relief material to Mozambique. Currently, Egypt is providing assistance to the Government of the Sudan and relief to the people of Darfour, Sudan.

Almost each Egyptian agency, whether governmental or not, has a specific line budget for preparedness. These funds are not enough, where other pressing needs compete for the limited money available to these agencies.

The Government established an information database and hazard mapping for each Governorate, which includes data about residents of each village and their characteristics, administrative information, data on social and physical infrastructures and on economic establishments as well. The database also includes complete survey on vital target places, such as power stations, water plants, hospitals...etc. essential for coordination between these various entities.

Knowledge is crucial for proper decision-making. The production and use of knowledge is a function of proper communicative actions that have to be comprehensive, sincere, true and legitimate. Knowledge is instrumental for raising awareness, mobilizing resources, advocacy, participation and partnership; and capacity development. Egypt has disaster-risk information management where research institutions play a key role in information generation, and media channels disseminate it.

Egypt has developed an outstanding system for environmental and natural resource management. This system is the resultant of cooperation with and assistance from international community.

Based on the Egyptian experience, it is our belief there is a need for collective efforts at the international level to reduce disaster risks, and cooperate in the areas of relief. WCRD is an opportunity that should not be wasted. We need to capitalize on the momentum that will result from it. Disaster risk reduction is not the sole responsibility of a nation, but it is a global issue that requires international collaboration and cooperation. There is also a need for a modality and framework that assures information generation and sharing, and know-how transfer. Disaster risk reduction is conducive to sustainable development. Support for Research and Development (R&D) and establishing an institution for globally monitoring disasters are important for disaster risk reduction. This modality has to support capacities of national and local institutions aiming to result resilient societies. There is a need for financial support and technical assistance, particularly from developed countries, to developing countries.

Table of Contents

List of Figures

List of Abbreviations

AIDS	Acquired Immune Deficiency Syndrome
ANC	Authority for New Communities
ASRT	Academy for Scientific Research and Technology
ATC	Automatic Train Control
BCM	Billion Cubic Meter
CAPMAS	Central Agency for Public Mobilization and Statistics
CDA	Civil Defense Authority
CEMA	Crisis and Emergency Management Affairs
CPR	Cardiopulmonary Resuscitation
CPR	Contraceptive Prevalence Rate
CTC	Central Traffic Control
Danida	Danish Agency of International Development
EAEA	Egyptian Atomic Energy Authority
EEAA	Egyptian Environmental Affairs Agency
EHCE	Egyptian Holding Company for Electricity
EIA	Environmental Impact Assessment
EMS	Environmental Management System
EPF	Environment Protection Fund
ERC	Egyptian Red Crescent
GCR	Greater Cairo Region
GIS	Geographic Information System
GMDSS	Global Maritime Distress and Safety
GMOs	Genetically Modified Organisms
GOE	Government of Egypt
HCCL	Higher Council for the City of Luxor
HIV	Human Immunodeficiency Virus
HLWMC	Hot Laboratory and Waste Management Center
ISDR	International Strategy for Disaster Reduction
KfW	*Kreditanstalt für Wiederaufbau* (German Bank for Construction)
km	kilometer
MDGs	Millennium Development Goals
MHUUC	Ministry of Housing, Utilities and Urban Communities
MISA	Ministry of Social Affairs
mm	millimeter
MMR	Maternal Mortality Rates
MOFA	Ministry of Foreign Affairs
MWRI	Ministry of Water Resources and Irrigation
NARSS	National Authority for Remote Sensing and Space Sciences
NCNSRC	National Center for Nuclear Safety and Radiation Control
NCRRT	National Center for Radiation Research and Technology
NECNRAM	National Egyptian Committee for Nuclear and Radiological Accidents Management
NGOs	Non-Governmental Organizations
NRC	Nuclear Research Center
NTRA	National Telecom Regulatory Authority
NWRC	National Water Research Center
ODA	Official Development Assistance
SCCD	Supreme Council of Civil Defense
SFD	Social Fund for Development
SMOG	Smoke and Fog
TFR	Total Fertility Rate

TSP	Total Suspended Particulates
UN DMT	United Nations Disaster Management Team
UN	United Nations
UNAIDS	Joint United Nations Programme on HIV/AIDS
UNDP	United Nations Development Programme
USAID	United States Agency of International Development
VSAT	Very Small Aperture Terminals
WCDR	World Conference on Disaster Reduction
WHO	World Health Organization

1. Introduction

1.1. Why this report

This report was developed in accordance with the decision of the UN General Assembly, at its 58th session, to convene the World Conference on Disaster Reduction, Kobe-Hyogo, Japan, 18-22 January 2005. The report aims to, first, review the current state of affairs in the area of disaster preparedness in Egypt, and second, focus attention on emerging risks and identifying solutions.

1.2. How the report was developed

The modality employed in elaborating the report is fairly participatory. The questionnaire that ISDR developed is the basis for this report, where a series of meetings for the representatives of agencies mandated in the field of disaster risk reduction, including both governmental and civil society organizations, were held, to respond to the questionnaire and elaborate this report. Besides, official documents were reviewed.

1.3. The Layout of the Report

This report consists of seven sections. Following this introductory section, the report presents the general characteristics of the Egypt. It portrays the location and general demographic attributes of the country, and then moves towards presenting human-induced risks and listing the major natural hazards in Egypt. The third section portrays the institutional aspects and political commitment towards reducing risks associated with disasters. It shows the institutional setup responsible for policy formulation and execution, coordination functions, and efforts toward capacity development including, but not limited to, raising awareness, training and preparedness. This section also presents the national planning, sectoral plans and initiatives, a discussion of other involved stakeholders, codes of practice and standards, and concludes with the budget allocated for disaster risk reduction, sources of finance and modalities of disbursing these funds as well. The fourth section of the report reviews plans for disaster management including risk identification and management application. The section is followed by sections on preparedness and contingency plan and good practices. The report ends with a special section on issues that WCDR has to consider.

2. Characteristics of the Country

2.1. Location and Population

Geographically Egypt consists of four major parts: i) the Nile Valley and Delta, ii) Western Desert, iii) Eastern Desert and iv) Sinai Peninsula. The agricultural land base consists of old land in the Nile Valley and Delta; rain fed areas; several oases; and reclaimed desert land. Due, in part, to good climatic conditions and reasonable quality of land and water resources, Egypt is ideally suited to cultivate a wide variety of crops.[1]

The Nile is the main and almost exclusive source of fresh water in Egypt. The country relies on the available water stored in Lake Nasser to meet the needs of a growing population. Groundwater in the deserts and Sinai, rainfall and flash floods, and desalinization of seawater are other complementary sources of fresh water. Non-conventional water resources include renewable groundwater aquifers in the Nile basin and Delta, agricultural drainage water, and treated wastewater. Each resource has its limitations on use. These limitations relate to quantity, quality, space, time, and/or cost of use.

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[1] Capacity 21 Unit, Environmental Profile of Egypt, 2001, Egyptian Environmental Affairs Agency and UNDP-Capacity 21 Programme, Cairo, 2001

Desalinization of seawater in Egypt as a source of freshwater, for example, has received a low priority due, in part, to its high cost that ranges between £E 3 to 7/m^3.[2]

Egypt is blessed with a wide range of major minerals, particularly petroleum, phosphate, iron and manganese. It is noticeable that most of those resources are in the eastern part of the country. The most important quarry products include granite, basalt, marble, limestone, and glass sand. Egypt is a substantial oil producer, and a net exporter of petroleum products.[3]

Egypt is a country that is rich in human resources. Human resources in Egypt have been improving through the increase in life expectancy and decrease in the rate of infant mortality. High rates for natural population growth put profound pressures on both the environment and the economy given the limited available natural resources. Accordingly, the Government of Egypt (GOE) is investing in human resources, by allocating funds for physical and social infrastructures to sustain the development of Egypt. Residents of rural areas and informal urban settlements suffer from harsh economic and environmental conditions, and are the most vulnerable sub-population groups to outcome of disasters. The residents of these human settlements need assistance to improve their living conditions.[4]

2.2. Human-Induced Risks in Egypt

Human-induced risks are the outcome of human activities including production and consumption processes. The National Environmental Action Plan 2002/2017 has pointed out to the problems of fresh water in both quantitative and qualitative terms. Population growth and economic expansion of certain productive economic sectors, specifically agriculture and manufacturing, put extra pressure on the limited amount of water available to Egypt. Lacking proper systems and schemes for wastewater management, i.e., collection and treatment, particularly in rural areas and small towns, pollute water bodies, such as the Northern Lakes, and ground water with wastewater. Organic wastes deplete dissolved oxygen by excessive growth of oxygen-consuming bacterial populations, thus killing fish and other higher aquatic organisms; destructing plant life; poisoning livestock; and developing a foul smell. [5]

Solid wastes management in many Governorates of Egypt is still a problem. Improperly managed municipal solid wastes will pollute the environment and generate methane gas that could be a fire hazard in many small human settlements. Many industrial and medical establishments still do not have proper means of disposing their hazardous wastes, which often are mixed with municipal solid wastes. Agricultural residues are another suite of solid wastes that often is the reason for rural fires and seasonal SMOG[6] episodes in the Greater Cairo Region (GCR), thus degrading the air quality of the metropolis. Construction and Demolition debris is not properly managed, and on windy days contribute to increasing the Total Suspended Particulates (TSP), which in turn degrade the air quality in human settlements.

Human activities are also responsible for air pollution brought by emissions released from stacks of factories, power generating plants, vehicles, and so forth. Oil spills, liquid wastes polluting freshwater sources and waterways; soil polluted with excessive use of agricultural chemicals; gaseous emissions polluting the atmosphere with toxic chemicals and suspended matter--all of these are the sources of potential disasters, which can be averted with proper environmental management and planning, and mitigation measures.[7]

Coastal erosion is less preventable, but is probably possible. Building the High Dam deprived the Northern shores from the silt received annually (approx 3.5 million tons of sand and 45 million tons of

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[2] Ibid.

[3] Ibid.

[4] Capacity 21 Unit, The National Environmental Action Plan 2002-2017, Egyptian Environmental Affairs Agency and UNDP-Capacity 21 Programme, Cairo, 2001

[5] Capacity 21 Unit, Environmental Profile of Egypt, 2001, Egyptian Environmental Affairs Agency and UNDP-Capacity 21 Programme, Cairo, 2001

[6] Smoke and Fog

[7] Riad, Samir, Report on Crisis and Disaster Management in Egypt, submitted to UN DMT, Cairo, November 2002.

mud and silt). Without this annual deposition, the Delta coastline is retreating, devastating coastal settlements such as Rashid, Borollos and Ras El-Barr, and much of the marine life of economic value has disappeared.[8]

There are also hazards which are kept under strict control, such as epidemics and veterinary diseases [9]that are kept out of Egypt by strict quarantine measures. Egypt spends over L.E. 647 million (US$ 104 million) annually on controlling these diseases.[10] A similar practice is applied to agricultural pest control. Insects, bacteria, fungi and viruses can cause economic devastation. The combat against locus attack starts in their breeding grounds of neighboring countries, particularly Saudi Arabia and the Sudan, and there are watch stations along Egyptian borders.

Another hazard is the presence of landmines that make many desert areas of North Western Egypt unusable, but thanks to recent Government-UNDP activities, their locations are being delineated and can be avoided. Yet, an estimated one million feddans[11] are not available for agricultural expansion because of landmines. Radiation is another hazard, which is currently kept at bay by governmental preventive measures.

2.3. *Natural Hazards in Egypt*

2.3.1. Flash floods

Flash floods are the result of short period of heavy storms that occur in the Red Sea area and Southern Sinai. Velocity of floodwater depends mainly on the topography of the basin (height, slope and capacity of drainage network), and its soil type and characteristics. Some of these flash floods cause severe damage to people and infrastructures. In 1979, a flash flood over El-Qusair and Marsa Alam led to the destruction of both the Red Sea Coastal Road and Qena-El-Qusair Road. In 1991, another flash flood hit Marsa Alaam where about 37,000 m^3 of water was received in a very short period. The heavy storm that hit Alexandria in 1993 caused severe cases. Similarly, in November 1994, the Governorate of Asyut received a very heavy storm that caused fires and losses in life and properties. Figures 1 and 2 show the annual precipitation and basic drainage basins in Egypt.[12]

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[8] Ibid.

[9] Some 150 of which are communicable to human beings, e.g. bovine plague, brucellosis, fasciola hepatica, rift valley fever, *toxoplasma* and parasites.

[10] Ibid.

[11] One feddan is 4,200.83 m^2, approximately an acre.

[12] Capacity 21 Unit, Environmental Profile of Egypt, 2001. Egyptian Environmental Affairs Agency and UNDP-Capacity 21 Programme, Cairo, 2001

Figure 1 Annual Precipitation (mm)

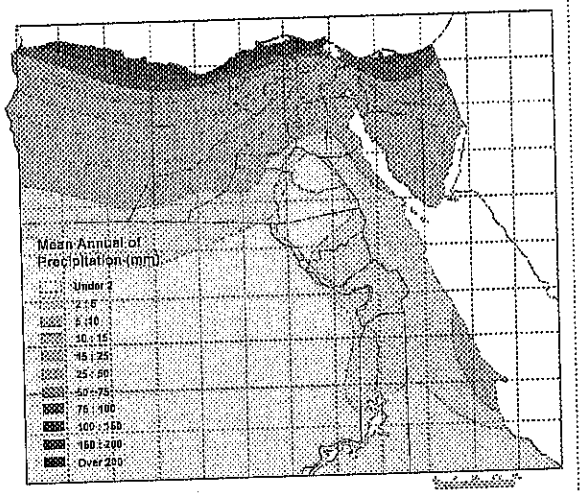
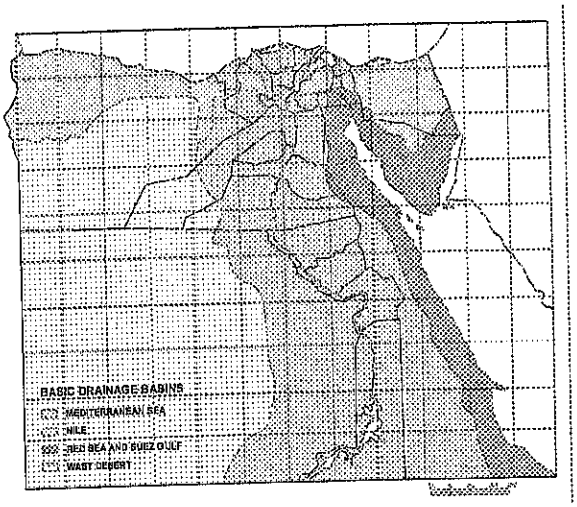


Figure 2 Basic Drainage Basins



Many studies have been undertaken to determine possible measures to avoid hazards that flash floods cause. Engineers developed mechanisms to harvest flash floods water. This water could be directly used to meet part of the water requirements, or recharge shallow groundwater aquifers. An estimated one BCM of water, on average, can be utilized annually by harvesting flash floods in Egypt.[13] This is an area for international assistance. Harvesting flashfloods is transforming a problem into a development opportunity by supporting the livelihoods of poor nomads by securing means to produce their foods.

2.3.2. Dust and sand storms

They are common phenomena in Egypt during the spring and late winter seasons. Dust storms can result in high concentrations of particulate matters, which affect the visibility contributing to increased road accidents, and negatively affecting air traffic.[14]

2.3.3. Earthquakes

Sudden movements along geological faults in rocks specifically near the surface of the earth result in earthquakes. Most movements are preceded by the slow build-up of tectonic strain that progressively deforms the crustal rocks and produces stored elastic energy. When the imposed stress exceeds the strength of the rock, it fractures, usually along a pre-existing fault. The point of sudden rupture, known as the focus, can occur anywhere between the surface of earth and a depth of 600-700 km. Shallow-focus earthquakes (less than 40 km below the surface) are the most damaging events, accounting for about 75 percent of the global seismic energy release. The source point for earthquake measurement is the epicenter, which lies on the surface of the earth directly above the focus.[15] The damage that earthquakes cause is directly propitiate to the location of its epicenter and amount of released energy.

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[13] Ibid.
[14] Ibid.
[15] Capacity 21 Unit, Environmental Profile of Egypt, 2001, Egyptian Environmental Affairs Agency and UNDP-Capacity 21 Programme, Cairo, 2001

Figure 3 Main Faults

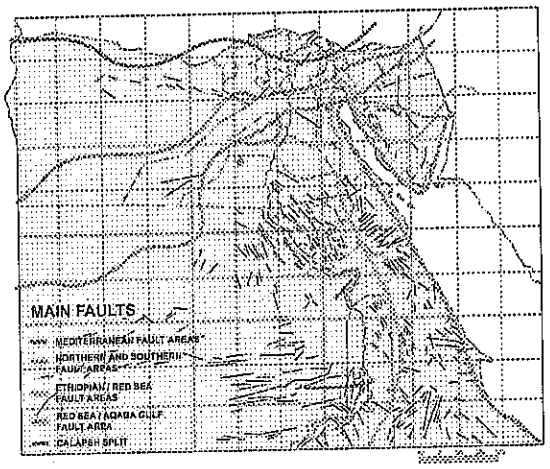
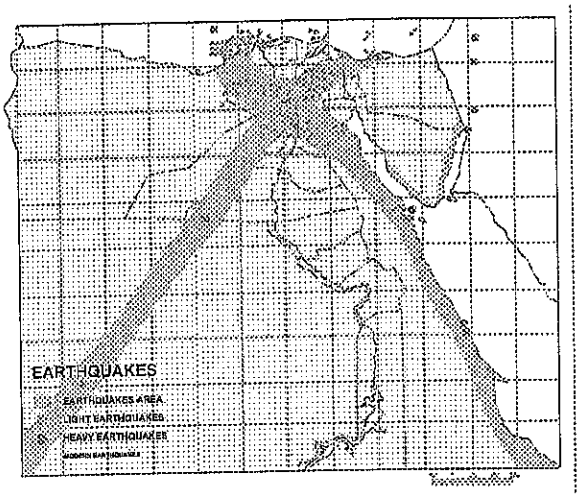


Figure 4 Seismic Trends and Earthquakes



The main faults of Egypt, Figure 3, and their tectonic setting and seismic records indicate there are at least three main seismic active trends, Figure 4:

(i) Northern Red Sea -Gulf of Suez -Cairo-Alexandria trend;
(ii) Eastern Mediterranean-Cairo-Fayoum depression trend; and
(iii) Gulf of Aqaba trend.

In addition to these trends, there are several areas known to be active, such as Southwest of Aswan, for example. Historical data indicate that about 83 noticeable earthquakes occurred in and around Egypt causing damage of variable degrees.[16]

2.3.4. Natural Disasters in the Past Decade

The two biggest disasters in the past decade were the earthquake of 1992 in which an estimated 561 people died, 9929 injured, and 40 thousand homeless.[17] The flash floods that occurred two years later in Upper Egypt where about 253 deaths were recorded and another 302 injured. Egypt has also been slightly affected by earthquakes occurring in 1955, 1969, 1981, 1983, 1992, 1995 and 2002. Flash floods that occurred in 1972, 1979, 1991 and 1998 recorded fewer losses.[18]

Rural areas are prone to fires that get out of control. These are almost an annual event. Household fires, as a result of bottled gas explosions, are also a frequent occurrence. Urban fires were recorded in 1993 in industrial areas including 10th of Ramadan city, Helwan and 6th of October City. High-rise building fires occurred at the Sheraton Hotel, the Egyptian Radio and Television Headquarters Building and Ma'adi Residential Tower. Natural gas fires have occurred in Ma'adi, Damanhur and Cairo.[19]

Landslides have occurred at the Thebes plateau overlooking Temple of Hatshepsut at Deir El-Bahari; and in the Za'afrana region of South Suez. In 1993 a four thousand tons block of limestone rock slid and fell on 14 workshops in a squatter settlement at Al-Moqattam, East of Cairo.[20]

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[16] Ibid.
[17] ASRT, Egypt: National Report ,presented to the World Conference on Disaster Risk Reduction, Yokohama, Japan
[18] Riad, Samir, Report on Crisis and Disaster Management in Egypt, submitted to UN DMT, Cairo, November 2002.
[19] Ibid.
[20] Ibid.

2.4. Past and On-Going Activities

In January 1994, the Academy for Scientific Research and Technology (ASRT) elaborated the first national report in preparation to the World Conference on Disaster Risk Reduction held in Yokohama, Japan that year. The report included basic information concerning Egypt, a list of agencies and institutions that participated in the development of the report, and the institutional setup of the national commission that elaborated the report. The report identified earthquakes, fires, raising levels of ground water, flashfloods and desertification threats as the major risks that could lead to full-scale disaster, and devised means for managing these risks.

The report listed a number of areas where earthquakes took place, including Lake Nasser, Gulf of Aqaba, North of Alexandria and Shedwan Island in the Red Sea. It then listed fire in rural areas a direct result of mismanagement of agricultural solid wastes, such as straw and hey. Between 1965 and 1975, several fires demolished historical buildings, such as the Opera House, the Islamic Museum, Balloon Theatre, the Egyptian Museum, and Gohara Palace within the Citadel. Other hazards included in the report are landslides, wide-spread of diseases that affect humans, animals and plants; raising levels of ground water, coastal erosion and environmental pollution.

The report then presented the efforts of GOE to provide support and disaster relief to other countries. Based on the Prime Ministerial Decree No. 1191/1984, a committee for providing support to other countries was established at MOFA, which an Ambassador heads. This committee meets regularly to see into the aid to be provided in the form of technical assistance, food, medicine, and makes the recommendations that the Minister of Foreign Affairs presents to the Prime Minister for endorsement.

On November 2002, UNDP commissioned Professor Samir Riad of Asyut University, in association with a team of national experts, to prepare a report on disaster risk reduction in Egypt, and to submit it to the UN Disaster Management Team (DMT). The report looked at the status quo, and then made suggestions for how to proceed in responding to Egypt's unmet needs in the field of disaster risk reduction. The report concluded that Egypt has the potential to achieve real advances in the sphere of prevention and preparedness. It recommended UN-DMT to play a role in facilitating the coordination and cooperation between ISDR and Egypt to elaborate a national plan for disaster risk reduction. This could be made possible when UN-DMT agencies can provide the Government of Egypt with models and schemes for early warning; and then mitigation and prevention can be designed, executed and coordinated.

3. Institutional Aspects and Political Commitment

In Egypt, all institutions are committed to elevating disaster risk reduction as a policy priority. As this section shows, public agencies, both central and local, and civil society organizations allocate necessary resources for preparedness. As the section renders, disaster reduction is on the agenda of various institutions including, but not limited to, executing agencies, research centers and NGOs. Egypt has a national strategy and necessary legislations that address disaster risk reduction. At the Cabinet of Ministries, coordination and collaborative activities take place. There are sectoral plans for contingency that incorporate concepts of risk reduction, such as water resource management, the National Environmental Action Plan and the Strategy for Poverty Reduction. Egypt, following the 1992 Earthquake, developed and enforces strict building codes and specifications.

At the official and popular levels, Egypt understands the importance of preparedness. Egypt understands the necessity for international cooperation in preparedness and prevention; and importance of assistance and relief that More Developed Countries (MDCs) provide. After the 1992 earthquake, the international community provided Egypt with necessary aid and support. Egypt, therefore, extended its assistance to neighboring countries. For example, within the past decade Egypt provided support to the Palestinian people; Turkey and Iran amid earthquakes; and relief material to Mozambique and Morocco. Today, Egypt is providing assistance to the Government of the Sudan and relief to the people of Darfour, Sudan.

Figure 5 Humanitarian aid to Mozambique

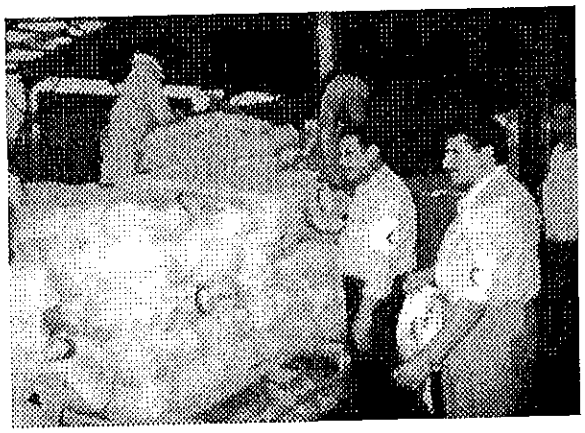

Figure 6 Humanitarian aid to Gaza, Palestine

3.1. National Policy and Legislation

The Egyptian Civil Defense was founded in 1936, and then in 1953, the Civil Defense Administration (CDA) was established within the Ministry of Interior. It is the implementing agency for laws dealing with disaster risk reduction as set out in Law No. 148/1959 and amendments by Ministerial Decrees No. 10/1965, 175/1981 and 107/1982. The 1982 Ministerial Decree added protecting civilian population from both human-induced and natural disasters in peace and wartime to the mandates of CDA.

The laws and decrees that govern the institutional setup for preparedness and disaster risk reduction are:

1. Law 148/1959: Article 3 gives CDA full responsibility for disaster risk reduction by protecting humans and both pubic and private properties. It also frees all financial transactions in times of disaster from all fiscal regulations stipulated by normal government practice (Article 9). Article 17 details the authority of the Minister of Interior to establish corps of volunteers, and Article 19 authorizes the Minister of Interior to implement a plan for civil defense and impose penalties on offenders against its provisions.
2. Law 30/1977 regulates the civil defense procedures inside industrial establishments to minimize human-induced risks, and means to protect workers and investments.
3. Decree of the Minister of Interior No. 11/1966 formulating the Civil Defense Committees in the Governorates; and Ministerial Decree No. 382/1970 detailing the membership of these committees, which the Governor chairs.
4. Ministerial Decree No. 1182/1981 establishing Civil Defense Units in industry and the same in certain Security Departments within industrial establishments.
5. Ministerial Decrees No. 1394/1981 and No. 1395/1981 establishing Civil Defense Committees in certain industrial zones; and in factories, utilities and plants, and establishments, respectively.
6. Ministerial Decree No. 2092/1983 re-organizing the Civil Defense Administration.
7. Ministerial Decree No. 20/1983 specifying the most important factories, establishments, utilities and plants.
8. The Joint Decree of both the Ministers of Interior and Defense No. 63/1983 organizing the cooperation between the Civil Defense and the Armed Forces.
9. The Ministerial Decree No. 142/1986, amended by the Decree No. 902/1986, concerning control of village fires.
10. Decree of the Minister of Interior No. 349/1986 regulating voluntary work in the field of Civil Defense.

In short, the Civil Defense Authority operates within the framework described above, it is the primary body responsible for:

1. Protecting civilians;
2. Safeguarding of transportation, communications and public utilities;
3. Protecting public and private properties including national museums, cultural heritage; and
4. Securing the sustainability of the life-support systems during air raids and other military assaults.

Law 148/1959, which regulates the functions and defines the mandates of CDA, set the measures to be taken for, inter alia; establishing an early warning system, fire brigades, and carrying out of evacuation plans, and search and rescue operations as well. Furthermore, it also iterates the responsibility to act in cases of "public catastrophe" when so declared by the President of the Republic.

Law 148/1959 has determined the relation between CDA and the Armed Forces on two levels which ar: 1) providing assistance to CDA; or 2) intervening in the response of the crisis. This depends on the situation and the nature of the disaster faced.

Locally, the Ministry of Interior signed several protocols with relevant agencies pertaining to disaster risk reduction including, but not limited to, Egyptian Atomic Energy Authority, the Academy of Scientific Research and Technology, the Ministry of Housing, Utilities and Urban Communities, the Egyptian Environmental Affairs Agency and the Armed Forces. These protocols intend to organize and coordinate the participation of these agencies in disaster risk reduction and elaborating necessary codes and plans for protecting humans and facilities in case of disastrous accidents.

Internationally, the Ministry of Interior signed an agreement with the International Organization for Civil Protection, thus establishing a regional center for training affiliated to the organization in Cairo to provide service countries of the Middle East and North Africa (MENA) region. Among the responsibilities of this center is to support communication between different countries and organizations in the MENA region; exchange of information and expertise in mitigating disasters among them; delivering training courses for rehabilitating and preparing cadres; organizing conferences, workshops and seminars related to the field of civil defense and disaster risk reduction issues; in addition to raising awareness of local communities with regard to contingency planning to reduce human losses when disasters occur. This center is one of five centers established worldwide. It is among the first developed centers.

3.2. Coordination and Collaboration

In addition to CDA, the Supreme Council of Civil Defense (SCCD), which the Presidential Decree No. 1651 in 1971 established it, consists of 18 ministries and agencies together with the Armed forces. The main responsibilities of SCCD are:

- To establish and endorse general policy, planning and preparedness for Civil Defense
- To determine the responsibilities of the various ministries and agencies.

The Presidential Decree No. 132/1992 re-formulated the Supreme Council for Civil Defense (SCCD) to be chaired by the Prime Minister to, first, elaborate and develop the general policy for Civil Defense; and second, to pass decisions and issue directives governing cooperation between various agencies and departments, on one hand, and co-ordinate their efforts, on the other.

In 2000, a Crisis and Emergency Management Affairs (CEMA) entity was established by the Prime Ministerial Decree No. 746/2000, to be managed under the guidance of a special advisor with the necessary professional knowledge and skills in disaster risk reduction experience. Necessary expertise is being assembled and the organization and command structure has been designed. When CEMA attains its full legal status and labor power, it will be the centralized structure that will provide a disaster response command structure that can receive, gather, compile, collate and analyze information, make decisions and mobilize resources to execute appropriate response to any form of wide scale disaster. It will also elaborate and develop strategies and policies that strengthen the protection of Egyptian society

from, and render it prepared for, potential disasters resulting from a wide range of hazards and risks. The broad objectives[21] of CEMA include:

- To develop national disaster and emergency management capacities under the Office of the Prime Minister.
- To enhance national and institutional cohesion and co-ordination in emergency management
- To establish policies and strategies in accord with relevant ministries, agencies and other non-governmental entities
- To assist in defining the roles of governmental agencies, Civil Society Organizations, and individuals to minimize the impact of disasters.
- To improve the quality of the analyses of previous disasters to reach reliable conclusions to deduce lessons learnt and record best practices.

In response to the terrorist attacks that took place on 11 September 2004 in the USA, CEMA organized meetings to elaborate measures to reduce the risk of similar unfortunate events that could take place in Egypt. Through these meetings responsibilities were assigned, and resources were mobilized. CEMA orchestrated efforts to support the Palestinian people in the Gaza strip and West Bank amid the escalation of violence. CEMA also elaborated an agreement between Egypt and the Sudan in the field of disaster risk reduction.

The most significant institutional developed that CEMA initiated is establishing Disaster Risk Reduction Committees within each of the mandated central public agency to facilitate effective implementation of measures for disaster risk reduction. CEMA also initiated establishing Disaster Management Committees within each of the 26 Governorates and the Higher Council of city of Luxor (HCCL). These committees consist of senior local officials to give the necessary geographic coverage to disaster response mechanism. Currently, there is a CEMA committee in each Ministry and one in each governorate. Committees include representatives of private sector companies, NGOs and grass-roots organizations. In due course, a command structure and a full-scale system for monitoring, warning, preparedness and response will be developed for the CEMA.[22]

Furthermore, CEMA established seven high level scientific advisory committees of appropriately qualified academics and professionals to provide the necessary knowledge and expertise in devising long term disaster risk reduction strategies, in areas of earthquakes, flash floods, ferry and ships-sinking, storage and transport of hazardous substances, major fires, traffic road accidents and building collapse. The members of these committees are also available to provide technical input into specific disaster responses within their areas of expertise.[23]

CEMA and SCCD need massive efforts for capacity building and development. CEMA is not staffed with proper cadres. Egypt needs the assistance of the international community to institutionally develop these bodies to be fully capable to function properly and assume their responsibilities.

3.3. Sectoral Plans and Initiatives

The Government has paid greater attention to disaster risk reduction especially after the occurrence of two major disasters during the past decade that had devastating impacts and caused serious losses for both the national economy and the members of the community at large. As for the presence of a national institutional framework for coordination and collaboration among different sectors and ministries

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[21] As outlined by Dr. Mustafa Tag-Eldeen, Special Advisor to the Prime Minister for Crisis and Emergency Management Affairs, (See Riad, Samir, Report on Crisis and Disaster Management in Egypt, submitted to UN DMT, Cairo, November 2002.)

[22] Ibid.

[23] Riad, Samir, Report on Crisis and Disaster Management in Egypt, submitted to UN DMT, Cairo, November 2002.

involved in disaster reduction, there is coordination system between CDA and both Police Forces and the Armed Forces.

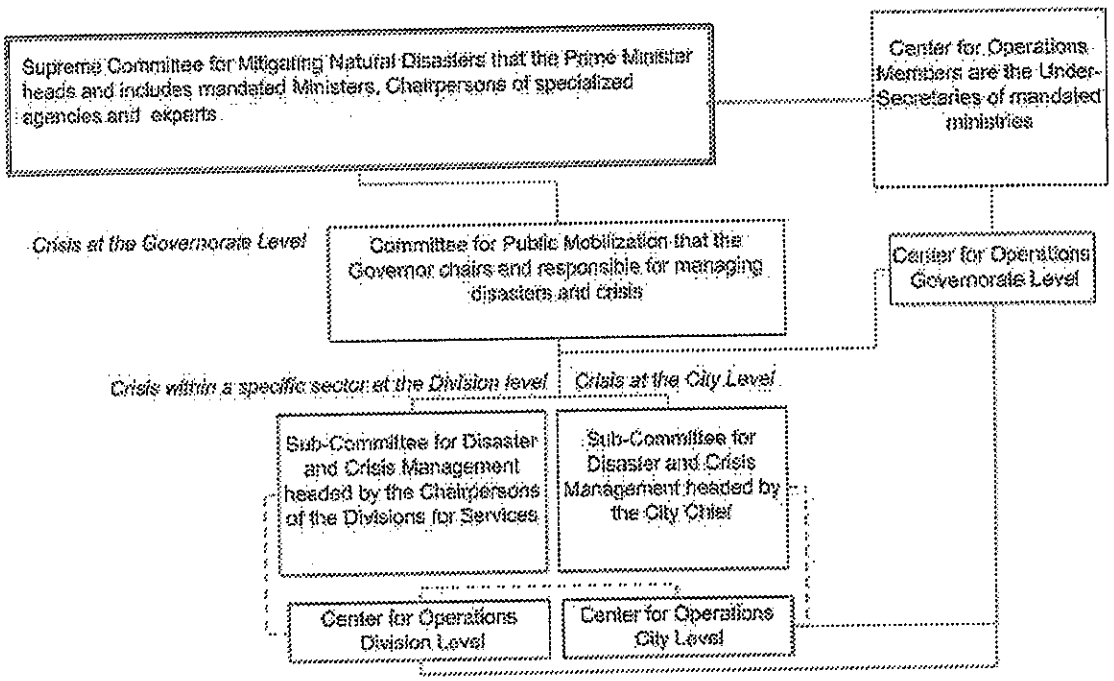
The GOE developed a national strategy and policy based on legislations addressing preparedness and disaster risk reduction. The National Plan for Disasters Risk Reduction that all sectors and ministries concerning with disaster risk reduction participated in its elaboration, in addition to legislations and bylaws, were put to assure preparedness and relief.

In Egypt there are several laws meant to conserving the irrigation and drainage infrastructures and the environment. The topmost laws are the Irrigation and Drainage Law No. 12/1984, and the Law for Protecting Water Resources against Pollution No. 48/1982. Both laws provide sufficient penalties against violators as a preventative measure to protect water resources, and irrigation and drainage infrastructure[24], and control the pollution sources.[25] Currently, an active dialogue is ongoing between the MWRI and NGOs involved in water management setting-up integrated plans and scenarios for emergency and disaster risk reduction.

GOE developed and implements initiatives through the Ministry of Health and Population that incorporate risk reduction concepts into each respective development area including preventive, emergency medical services, curative plans and also plan for the expected disasters according to the studies in this field. The disaster management committee within the Ministry of Health and Population involves all the concerning sectors, and is in line with committees at other ministries.

The Ministry of Local Development has established a Center for Operations to prepare an integrated comprehensive framework on the mechanisms of disaster management. The head of the Center for Operations reports regularly to the Minister of Local Development with regards to the progress achieved in contingency planning. Similar Local Center for Operations have been established at each Governorate consisting of officials of local administrations and headed by the General Secretary. The role of these centers is to take proactive and necessary measures in case of disaster occurrence, Figure 5.

Figure 7 System of Disaster Risk Reduction in Egypt



Source: Response of the Ministry of Local Development to the questionnaire

[24] River Nile and branches, canals, drains, regulators, pump stations, coastal shores, etc.
[25] Include municipal, industrial, river transportation, etc.

The GOE extends a social safety network to the inflicted population MISA, which helps reducing the negative impacts of the disaster. The resultant, therefore, is minimizing the undesirable economic, social and psychological problems. MISA coordinates its relief efforts with both CEMA and CDA.[26] MISA instituted 22 Emergency Aid Centers in all the Governorates of Egypt to ensure immediate and effective intervention in case of any disaster. Moreover, an Emergency Aid Committee has been established in each Governorate affiliated to the Division of Social Affairs to be responsible for receiving emergency calls and providing immediate aid for the injured citizens, besides following the appropriate procedures to manage and mitigate the impacts of a disaster.[27] Civil Society Organizations, including private sector companies and NGOs, work in close collaboration with MISA and its divisions at the local levels. Civil Society Organizations help governmental agencies in implementing strategies for disaster reduction. [28]

In the sphere of transportation, the GOE, through the Ministry of Transportation, operates along several laws and regulations that aim at disaster risk reduction among which is Law No. 227/1959[29] that governs travel using railroads. In addition, there is an integrated plan to build the capacities of all staff members working on trains, workshops and railway stations on fire fighting, first aid and civil defense actions to be able to face the disaster immediately, and therefore, reduce losses as much as possible. A protocol is being signed between the Armed Forces and the Underground Authority, which is an affiliate organization of the Ministry of Transportation, to identify the methods and options for disaster risk reduction.[30] A Ministerial Committee for Emergency Management was established according to Ministerial Decrees No. 248 and 249/2000 within the Ministry to collaborate with CEMA and CDA.[31]

Egypt has a National Strategic Plan for Telecommunications[32]. It considers covering all the populated areas of Egypt with telecom facilities, and in particular mobile networks. The expected outcome is a positive impact on disaster risk reduction. Article 68 of the new Telecom Act[33] defined the telecom requirements for public mobilization in case of disasters and national catastrophe. The new Telecom Act mandated the National Telecom Regulatory Authority (NTRA) to cooperate with concerned governmental entities in preparing a contingency plan for operating Telecommunication Networks. This plan will be executed during times of natural and environmental disasters, and periods of general mobilization according to the provisions of Law No. 87/1960 regarding general mobilization and any other cases related to national security. By the new Telecom Act, a Universal Service Fund was established to facilitate extension of telecom services to remote and underserved areas aiming to reduce disaster risks. The private sector companies in the Telecom field are also involved in disaster risk reduction. According to the new Telecom Act, Article 67, the State competent authorities have the power to administer all telecommunication services and networks of any operator or service provider; and call operation and maintenance employees of such services and networks in case of natural/environmental disasters; during declared periods of general mobilization in accordance with the provisions of Law No. 87/1960; or any other cases threatening national security.

Securing power supply and protecting power generating facilities and networks for distribution is of utmost importance during the time of a disaster. In 2000, a ministerial decree was issued establishing a permanent team for disasters risk reduction headed by the Chairperson of the Egyptian Holding Company for Electricity (EHCE) to coordinate with CEMA and CDA. The ministerial decree established also a Center for Operations for Disaster Risk Reduction within the Ministry, and similar subsidiary centers at each of the entities and companies affiliated to the holding company. The CEO of each company heads the center within his/her company. S/He is responsible for coordinating the working

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[26] Response of MISA to the questionnaire.
[27] Ibid.
[28] Ibid.
[29] This Law was then modified by Law No. 24/1971 that incriminates certain behavior, and thus was effective in disaster reduction.
[30] Response of Ministry of Transportation to the questionnaire
[31] Ibid.
[32] updated mostly in 5 years period
[33] issued in February 2003

processes with the Center for Operations for Emergency at the Ministry of Electricity, which in turn collaborates with CEMA and CDA. Furthermore, a communication network has been set to ensure constant coordination between the subsidiary operation centers and the central one, this was done through establishing an integrated database that includes the contact information of every member in these emergency centers that will facilitate reporting and communication in case of any emergency or accident.

The production of petroleum is among the major sources of national income. Preparedness in this sector is crucial. For this reason, the Ministry of Petroleum has established a main emergency operation center within the Headquarters of the Ministry, and subsidiary emergency centers distributed geographically. The Ministry has formed 13 committees distributed spatially among the location of various activities including, but not limited to, petroleum extraction, refinement and distribution. Each committee has its own contingency plan, which incorporates the collaboration between various bodies in case any disaster occurs. All these centers are equipped with necessary communication facilities and hazard mappings, beside the necessary information for disaster management. The Minster issued a Ministerial Decree No. 699/2000 to form a Disaster Management Committee and another committee for Industrial Safety and Environmental Protection. These centers are properly connected to CEMA. In case any accident occurs, there is complete coordination and collaboration between the Ministry and the other governmental agencies to manage the event. Furthermore, the Ministry established major centers to combat oil spills and other sorts of marine pollution through 14 subsidiary centers on the coasts of the Red Sea and Mediterranean.

Protecting the environment is strongly linked to disaster risk reduction. According to Law 4/1994, EEAA is the agency responsible for protecting the environment established within the Cabinet of Minister affiliated to the competent Minister of State for Environmental Affairs. EEAA has its role, as defined in Law 4/1994, in the case of an environmental disaster or accident resulting from natural elements, or human activities that cause severe damage to the environment and requires resources beyond the local means. EEAA special Environmental Protection Fund (EPF) is established within EEAA. The resources of EPF are allocated to confronting pollution (Article 8, Law 4/1994). In accord with Article 21, Law 4/1994, EEAA, in full coordination with other bodies, developed a contingency plan that addresses environmental disasters. The plan tackles the time prior to the occurrence of the disaster; when the disaster is at its peak; managing the effects of the disaster; and recording the results of the disaster and lessons drawn from it. EEAA, with the support of USAID and Danida, developed this Contingency Plan in 2002; besides, developing a National Environmental Action Plan 2002-2017 (NEAP), with the support of UNDP-Capacity 21 Programme, in 2001, and endorsed in 2003.

3.4. Other Involved Stakeholders

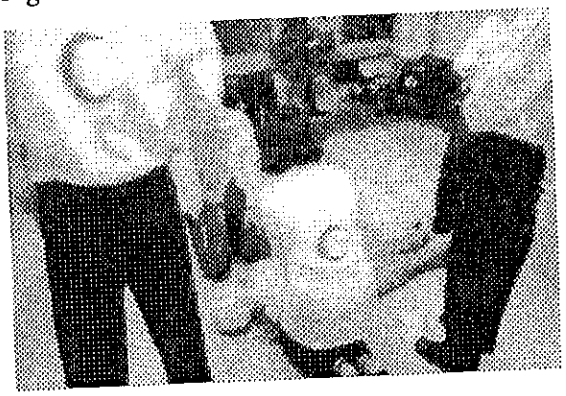
In addition to the central and local executive agencies mentioned above, there are several agencies that are mandated with disaster risk reduction in Egypt. Most of these agencies are research institutes and NGOs. For example, the National Authority for Remote Sensing and Space Sciences (NARSS), an affiliate to the Ministry of Higher Education and State for Scientific Research, is among the key agencies for the early warning and monitoring systems in Egypt. NARSS produces images used in risk assessment and is actively building up both its technical and human capacities in disaster warning and monitoring.

National Water Research Center (NWRC) is the main research arm of the Ministry of Water Resources and Irrigation. To support the professional staff of the National Water Research Center, Information Documentation Center with a highly specialized research library is being established in the new NWRC building at the Delta Barrage. The 12 research institutes are being connected through a network Information Documentation Center administers. The library taps international and national databases related to water resources management, irrigation and drainage, including information on disaster risk reduction.

The Egyptian Atomic Energy Authority (EAEA) is affiliated to the Ministry of Electricity and Power. It was established in 1955, to enable the country to efficiently and safely utilize peaceful applications of nuclear energy. Applications of this technology cover health, industrial, agricultural, mining, oil,

hydrology, environmental and other fields.[34] Decree No.131, which the Chairperson of the Egyptian Atomic Energy Authority issued on 15 February 1998, established the National Egyptian Committee for Managing Nuclear and Radiological Accidents (NECMNRA).

Figure 8 Training on CPR and First Aid at Red Crescent



The Egyptian Red Crescent (ERC) is a Non-Government Organization. It is responsible for cooperating with relevant Governmental Organizations especially the Ministries of Interior, Defense, Social Affairs and Health. Moreover, it is responsible for coordinating with relevant NGOs, accepting donations at the national and international levels for disaster risk reduction and implementing the Strategic Plan of the Egyptian Red Crescent for disaster risk reduction. Collecting accumulated municipal solid wastes, cleansing the banks of waterways, tree plantation, upgrading informal settlements and community development are among the various activities of ERC. This NGO plays a pivotal role in networking with local Community-Based Organizations (CBOs) and NGOs specialized in environmental management and community development.

Figure 9 Zenhom Informal Settlement

Figure 10 Zenhom settlement after upgrading

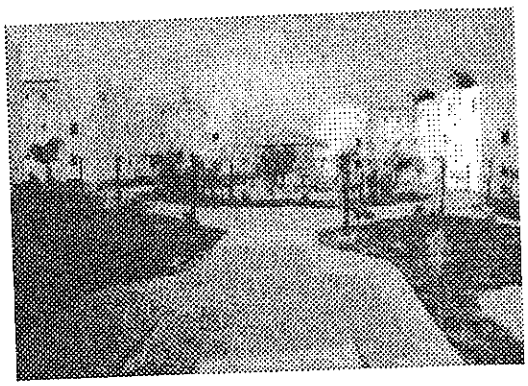
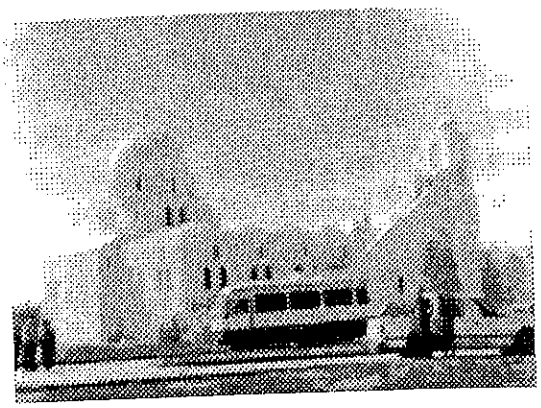


Figure 11 The site of a collapsed building

Figure 12 Mosque at El-Dabeiah village



[34] http://www.frcu.eun.eg/www/homepage/aea/aea.htm

Figure 13 ERC volunteers collecting accumulated municipal solid wastes

ERC played a leading role during the 1992 earthquake in coordination with relevant governmental and national authorities. It provided 24 hour emergency services, arranged for receiving national and international donations, established blood bank to work on 24 hours-seven days a week basis; and provided a number of young volunteers throughout the day. Moreover, ERC identified members and volunteers who were distributed spatially to participate in the activities of the organization. ERC established temporary equipped shelters for the sufferers in the inflicted governorates, and provided them with health and social care. ERC, then, provided care to inflicted population after the disaster. Finally, ERC implemented a comprehensive rehabilitation program for all families in health, social, cultural and educational fields.

ERC coordinates with relevant governmental bodies and Civil Society Organizations to provide urgent relief supply, organize shelter processes, and extend care to the inflicted areas. ERC played a significant role in the redevelopment and reconstruction of villages in Upper Egypt that the flood demolished, such as El-Dabeiah. ERC coordinates efforts with other Red Crescent organizations in the MENA region, and globally with Red Cross organizations.

3.5. National Plan

Based on the directives of the Prime Minister, the Minister of Planning formulated a committee to coordinate with CEMA. The role of this committee is to prepare a contingency plan to reduce risks of disasters; and to secure the sites and utilities affiliated to the Ministry; and handle any emergency in case it arises.

The role of the Ministry of Planning in disaster reduction has been made effective where it is currently included among the Millennium Development Goals and other international development plans. The Ministry of Planning has elaborated, with the support of the international community, an Anti-Poverty Plan. Egypt will probably achieve the first Millennium Development Goals (MDGs), and reduce poverty levels by increasing the per capita expenditure by 1.5 percent per annum. Although Egypt is on the track to achieve the second MDG: Achieve Universal Primary Education, the quality of the education system still needs significant improvements to respond to economic and social needs of Egypt. With respect to the third MDG: Promote Gender Equality and Empower Women, gender disparities have decreased, and Egypt will be able to eliminate gender disparity in secondary education by 2005. During the past decade Egypt succeeded in reducing child mortality rates, i.e., MDG No. 4, and is expected to reduce infant mortality rate to 25 per one thousand live births by 2015. Egypt is committed to further reduce Maternal Mortality Rates (MMR) and Total Fertility Rate (TFR). The goal of 75 percent reduction in maternal mortality rate will be achieved since the Government is committed to sustaining the rate of decline between 1997-2000 reaching 43 per one hundred thousand live births. The Government aims to reach TFR of 2.1 by 2017 indicated by the expansion in the use of Contraceptive Prevalence Rate (CPR). As for the sixth MDG, i.e., Combat HIV/AIDS, Malaria and other Major Diseases, Schistosomiasis is no longer a threat to public health. Efforts towards eradicating Malaria and Tuberculosis are also showing good progress. According to UNAIDS and WHO estimates, HIV/AIDS prevalence in Egypt is still below 0.01 percent of the population. With respect to the seventh MDG: Ensure Environmental Sustainability, Egypt elaborated and adopted a National Environmental Action Plan (NEAP) 2002-2017. All governorates will reach full access to improved water sources by 2015. The Government has embarked on executing several projects to improve the living conditions in slum and squatter settlements. Environmental issues are now integrated into all national policies and plans to protect natural resources from pollution and exploitative use. Finally, Egypt is benefiting from global partnerships for development. Official Development Assistance (ODA) to Egypt decreased during the

1990s. External debt levels also decreased during the past decade. The Government has adopted several measures to utilize the export capacity of the country.[35]

CAPMAS is the principal governmental body in Egypt responsible for collecting data in all fields, activities and sectors including governmental, private and investment to avoid duplication. Also, it is responsible for mobilization of human resources for all governmental sectors except the military sector. The effective role of CAPMAS in the field of disaster risk reduction has been enhanced as an outcome of the Presidential Decree No. 12/1999 concerning public mobilization. The decree specified events of disasters to be equivalent to those of war. This gave CAPMAS more responsibilities and authorities specifically in the area of public mobilization and preparedness.

3.6. Codes of Practice and Standards

The Ministry of Interior, in coordination with other stakeholders, has plans for disaster risk reduction. Drills to implement these plans are often carried out, and effectiveness of these plans are then analyzed.

Following the 1992 earthquake, the Ministry of Housing, Utilities and Urban Communities reviewed the code of buildings and standards. Today all structural designs should be based on the new codes to bear the impacts of earthquakes. Furthermore, licensing and permits for construction has utilized a tighter process that uses stern measures to avoid fire hazards and secure escapes and exists to minimize the impact of any unfortunate event. Newly developed human settlements, upgrading of informal settlements and developing rural areas require wider streets to enable processes of evacuating these settlements, fire hydrants and other measures to enable disaster risk reduction.

Ministries of Agriculture and Land Reclamation, and Health and Population impose strict measures in approving the importation of livestock, poultry, frozen and cooled meat, seeds, and other food stuff. Exotic plants and seeds are also strictly scrutinized before being allowed to enter the country. EEAA, in collaboration with several central agencies, has developed a list of hazardous materials and means for handling these materials. The NEAP included programs to regulate the importation and release of Genetically Modified Organisms (GMOs)

3.7. Budget

Almost each Egyptian agency, whether governmental or not, has a specific line budget for preparedness. These funds are not enough, where other pressing needs compete for the limited available money.

For example, there is a budget allocated for the Egyptian Environmental Affairs Agency (EEAA) and its Environment Protection Fund (EPF) to enhance strategies for disaster risk reduction. Also, there is an annual budget at the Ministry of Health and Population, as in all other ministries, for disaster risk reduction as part of the national budget. While MHUUC has not allocated a specific budget for disaster management or reduction, it depends in this process on already existing heavy equipment presently owned by contracting companies, agencies managing new towns that are part of the Authority for New Communities (ANC), and training centers located near the place of the event.

MLD is in-charge of the managing in-kind contributions aiding residents of disaster areas. Figure 6 shows the modality employed to manage these contributions. According to the figure, MISA administers funds and receive financial contributions from within Egypt and abroad for disaster relief.

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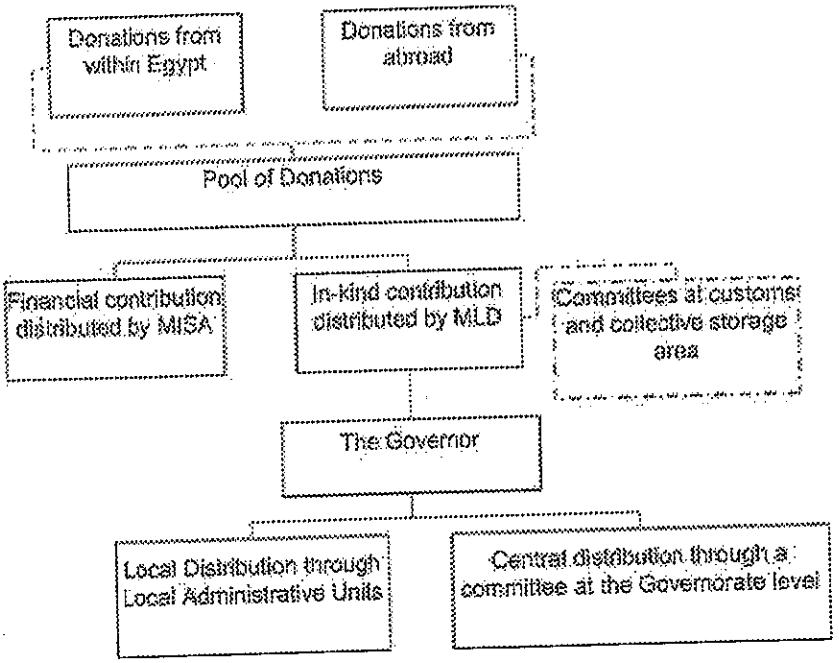
[35] United Nations, Millennium Development Goals, EGYPT, Country Report 2004

Figure 14 Modality of distributing aid



Source: Response of the Ministry of Local Development to the questionnaire

4. Review of Plans for Disaster Reduction

4.1. Risk Identification

The Government established an information database and hazard map for each Governorate, which includes data about residents of each village and their characteristics, administrative information, data on social and physical infrastructures and on economic establishments as well. The database also includes complete survey on vital target places, such as power plants, water plants, hospitals...etc. essential for coordination between these various entities and the security systems.

Central agencies, NGOs, research institutes, etc. have their mandate in the process of disaster risk reduction. EAEA, for example, is responsible for the task of surveying nuclear facilities and different nuclear applications in Egypt to be prepared for face potential accidents.

The Ministry of Planning has established an integrated hazard mapping system and a complete projection on the possible hazards that were divided according to their nature. Disasters are either simple accidents (fire incident or an earthquake) inside the ministry building, which can be managed internally, or serious accidents where buildings collapse in the aftermath of an earthquake or a strong fire. These kinds of accidents entail the support of the Ministry of Interior and the Armed Forces based on prior coordination with them and the Ministry of Planning. Other kinds of accidents are the catastrophic disasters that fall beyond the scope and capabilities of the Ministry of Planning, and affect the infrastructure of the nation requiring the participation of governmental and non-governmental agencies and probably international assistance, as in the case of the 1992 earthquake and 1994 floods.

The Academy for Scientific Research and Technology (ASRT) has developed two hazard maps, one for the seismic risk hazards and the other for the distribution of flash flood risks hazard. There are several projections for the scenarios of these risks; means to face them and the role of each governmental body carrying out this task. Economic, social and environmental impacts of these disasters undergo regular analysis aiming to identify reasons and means to overcome them. Moreover, there is an allocated budget for this purpose.

Ministry of Health and Population conducts vulnerability and capacity assessments according to studies of black points of recurrent disasters and red spots of prone disasters all over Egypt. The Ministry carries out systematic inquiries of social and economic impacts, and loss analyses regarding lost

working hours, costs of treatment and rehabilitation, somatic and psychological, resulting from disaster injuries, and expenses of hospital beds that disaster injuries occupy. The Ministry also conducts environmental impact assessment of disasters, particularly biological and chemical disasters with short- and long-term effects. The Ministry installed and operates an early warning system for fire and floods.

MWRI prepared a mapping system for the possible locations of flash floods and torrents, and their spillways in all Governorates, which is updated regularly. Furthermore, MWRI implements an annual plan for maintaining the spillways and their tail-escapes to avoid any disastrous consequences. This plan includes eradicating any buildings and structures from the flash flood spillways, and deepens these spillways to sufficiently accommodate the anticipated flash floods based on historical data analysis.

MWRI keeps a well-run monitoring system for water levels and discharges in all irrigation and drainage channels. Field observations are daily recorded and compared to previous years, to assess the trends for water overflow outside the watercourse and give early warning of possible deterioration in the banks of the watercourse. The Ministry established and operates a National Program for Water Quality Monitoring in the Nile, canals and drains, and Lake Nasser. The substantial laboratory work is carried out by the Central Laboratory for Environmental Quality Management affiliated to NWRC. The monitoring program includes 300 locations for surface water and 230 locations for groundwater.

MWRI has also founded a Nile Flood Forecasting Center to monitor and predict the water quantities arriving at the Aswan High Dam and set the operational procedures that allows for emergency releases downstream the dam or to the Toshka spillway. The Center also provides information on climatic changes that are to be taken into consideration when water is released into the canals.

In case of early warning against flash flood risk, the department of meteorology issues early warnings (before 48 hrs of the event) to the general public. The native experience of the Bedouins in the desert is also taken into consideration especially those of the Eastern Desert. The technology of early warning against fire is also considered in governmental buildings and key premises.

Among the responsibilities of the Disaster Management Committee at the Ministry of Petroleum is to identify the possible disasters that the petroleum sector might experience; in addition to elaborating plans and alternative scenarios for disaster management and reduction. A comprehensive list of disasters that occurred in the past decade, rate of occurrence and possibility of their occurrence in the future was already prepared by the Disaster Management Committee within the Ministry. Scenarios have been prepared to use in case any emergency arises and classified according to the nature of the disaster that might be earthquakes, fire accidents, raw material leakage accidents to the marine environment, reduction of the production of the oil fields, breaking down of oil transfer facilities, gas leakage from oil wells and various incidents in the refinements and laboratories.

Egypt, through EEAA and other central agencies, has carried out hazard mapping/assessment for risks to pollute marine environment and industrial areas. There have been environment vulnerability and capacity assessments carried out. Only EEAA is responsible for monitoring systems for environmental risks. There is a systematic environmental impact assessment for all newly developed establishments. There are early warning systems in the marine coastal areas in Egypt and river Nile for water quality and warning system for air quality.

The National Strategic Telecom Plan targets covering all of Egypt with telecom services, and hence can coincide with national hazard mappings. NTRA with other entities elaborated plans to avail alternative telecom facilities during times of disaster.

According to the Egyptian Red Crescent, the geographical map of disasters in Egypt include: torrential rains in the Governorates of Upper Egypt, Red Sea, Sinai and New Valley; fires in Sharqia and Suhag,; earthquakes in Giza and Aswan; beside other disasters of flood, draught, desertification, pollution, marine disasters and major cars, railroad and plane accidents.

4.2. Knowledge Management

Knowledge is crucial for proper decision-making. The production and use of knowledge is a function of proper communicative actions that have to be comprehensive, sincere, true and legitimate. Knowledge

is instrumental for raising awareness, mobilizing resources, advocacy, participation and partnership; and capacity development. As this section shows, Egypt has a system for disaster-risk information management where research institutions play a key role in information generation and dissemeniation.

The Institute for Civil Defense affiliated to CDA has 27 training centers distributed among the various governorates and the City of Luxor. This institute provides information and training to specialized cadres. In collaboration with local school system, Nile Centers for Information and other channels of media, the institute provides information to raise the awareness at the local popular levels. Competitions, leaflets, billboards, short video tapes, and other activities are the means for information dissemination. Furthermore, the school curricula have modified to include special lessons on disaster risk reduction and the worth of being prepared to survive a disaster.

ASRT translated some pamphlets prepared in other developed counties. These pamphlets were then distributed to the schools, few educational and training centers related to disaster risk reduction. These activities were executed on a sporadic ad-hoc basis. ARST and other entities concerned with the protection of the environment conduct research on disaster risk reduction practices. In addition, ARST distributes newsletters to all governmental agencies on regular basis aiming to enhance knowledge and improve practices in the field of disaster risk reduction.

Central agencies avail information on disaster risk reduction as a mean for preparedness. The Ministry of Telecommunications availed 20 wireless training institutes qualifying for operating Global Maritime Distress and Safety (GMDSS) systems. Maritime on-board radio officers in conjunction with the corresponding coastal stations and in addition to national rescue authorities form a system of disaster relief in the maritime environment. MISA has national programs directed to raising community awareness of the increasing danger of disasters. These programs are implemented through media, seminars and meetings. These programs emphasize means for disaster risk reduction. Ministry of Electricity and Power publishes advertisements in different public newspapers to raise the citizens' awareness with regards to the reduction of excessive electricity consumption and its negative impact on power stations and networks. The Ministry of Petroleum established an information bank to include all the data on previous disasters; and how they were handled. In addition, the Ministry surveys all facilities and equipments to be ready in the event of disasters that may occur in the future. The Ministry of Transportation has a special programme that aims to raise awareness of the citizens with regard to the importance of careful handling of both private and public properties. The staff members on trains receive special training with regards to fire fighting and civil defense actions to enable them to face disaster immediately, and inspectors on trains carry with them devices for wireless transmission to report any unusual event that takes place in the train. The Railway Stations Authority built up a fire-fighting train consisting of a locomotive and water tanks with pumps as wagons to extinguish fire accidents on trains. All trains are equipped with fire extinguishers, and workers were trained to use them as well.

All media entities take the role of implementing regular national programs for raising community awareness with regard to disaster reduction strategies and contingency planning. Distribution of acquired knowledge is the responsibility of media channels, such as Nile Centers for information. Meanwhile, public bodies implement several training programs in the area of disaster risk reduction.

EEAA has a knowledge management system but just for the environmental risk reduction. EAEA is responsible for radiation level assistance through the National Egyptian Network for Monitoring, and data provision to decision-makers. EAEA is responsible for establishing preliminary databases for radiation sources. EAEA uses Geographic Information System (GIS) to produce digital maps with identified locations of the different sources, and in managing the conditions of radiological emergencies. EAEA established a Central Emergency Control Center with the necessary equipment and facilities to generate information necessary for proper decision-making. Through EAEA, two training sessions were organized. The first was on strengthening capabilities for radiological emergency planning in Egypt while the second was on training of trainers on practical response to radiological emergency. In addition, many training courses were delivered in the area of emergency planning and preparedness.

CAPMAS is responsible for surveying human and physical capacities in all sectors of the State. In addition, it carries out the task of developing comprehensive databases comprising hospitals, means of

transportation, equipment, occupations and qualifications, etc. One of its mandates is to play a part in elaborating contingency plans by establishing database for human resources in those sectors, and devising means to utilize those resources in case of emergency. An information system has been established at CAPMAS for disasters risk reduction in which recent database for human capacities in all sectors has been developed and published as digital maps. Furthermore, training programs have been executed to enhance knowledge in the field of disaster risk reduction.

4.3. Risk Management Applications/Instruments

Egypt has developed an outstanding system for environmental and natural resource management. This system is the resultant of cooperation with and assistance from international community. MWRI, for example, has put together a system to reduce risks associated with floods, while MHUUC has developed advanced building codes and enforces abiding with them. Furthermore, insurance companies are among the elements of a financial system that secure funds to decrease the negative impacts of disasters. This section renders how Egyptian institutions utilize a wide range of technical, social, financial and environmental instruments for disaster risk reduction.

4.3.1. Technical

The Maritime Disaster relief system that the Ministry of Telecommunications instituted include several Egyptian coastal stations to monitor distress-signals from ships and platforms, and coordinate with the rescue authorities in cases of distress or environmental disaster.

CAPMAS uses its Geographic Information System (GIS) to find stabile alternatives in the management of disasters. According to the location of the event and means to utilize the resources at neighboring sites, a plan for evacuation and reallocation of inflicted population is possible.

The Committee for Emergency formed at the Ministry of Transportation elaborates studies and proposes possible solutions and measures required to avoid the reoccurrence of such disasters, depending on previous experiences and lessons learnt in this field. Furthermore, the Committee issues binding decrees to be applied and followed by all facilities of transportation to secure safety for all.

MHUUC has issued many measures for securing facilities and buildings. These measures include setting up codes for constructing new buildings to be able to resist earthquakes; and execute plan for regular inspection of public buildings to ensure their safety. The Minister issued Ministerial Decrees No. 264/1989 and 8/1997 establishing a committee responsible for preparing the Egyptian Codes for Buildings and Construction. This committee modified the code and specifications to include the following elements:

- Classification of buildings according to the type of occupation.
- Emergency exits.
- Additional requirements for buildings.
- Security requirement according to type of occupation.

Moreover, MHUUC has carried out, in cooperation with the Arab Contractors Company (ACC), 23 fictitious experiments all over Egypt between July 2003 and June 2004.

In case of any natural or industrial disaster, the Ministry of Electricity and Power follows certain procedures and measures to ensure the safety of citizens. These include exerting the utmost efforts to reduce the damage that can affect the electric networks and power stations areas hit by a disaster and ensure the proper operation of the system after the event. In case of the presence of any threat on the lives of residents, the electric current is disconnected until complete evacuation and transfer of injured people is done. After the disaster, the affected area is reconnected to the electricity network by using alternative power stations and mobile power generators that are transferred to the site. Maintenance teams are sent to ensure the workability and effectiveness of the power stations and electricity networks in the affected area. In case of any radioactive hazards, these teams take on the task of measuring the radioactive level in the area. The Ministry is also responsible for taking the necessary precautionary security measures inside the nuclear energy facilities in addition to implementing the emergency plans

to face radioactive pollution accidents. It is also responsible for monitoring import/export activities to prevent any incoming products that might be radioactively.

EAEA has the authorities to approve offsite dose assessments, expect accident consequences that may occurred at the offsite areas. The agency can assist the user to respond to an emergency situation; help in providing medical care to the injured; advise on preparing, reviewing and approving emergency plans; assure 24 permanence for notifications; approve and control decontamination for members of the public; approve and control decontamination of offsite areas; review the dose assessment carried out by the user; monitor quality of water and food; establish acceptable exposure levels for the public; establish acceptable surface contamination levels; organize relevant training sessions, evaluate emergency severity and responsible for radiation level assistance through the National Egyptian Network for Monitoring.

4.3.2. Social

In case of any emergency, MISA dispatches the Committees for Emergency and Aid in the Governorates to locate where the disaster occurred immediately upon reporting. These Committees survey the losses in humans, properties and accordingly allow the distribution of supplies. The Committees are responsible for inquiring and researching social conditions of the inflicted families to assess their actual needs and provide suitable services and directing physically disabled individuals to rehabilitation centers. Also, the committees are responsible for contacting governmental agencies to facilitate procedures for these citizens.

The Egyptian Red Crescent plays a pivotal role in the area of extending support to the inflicted population. For example, thousands of households were homeless as a result of the 1992 earthquake. ERC in collaboration with the Governorate of Cairo extended infrastructures and social services a new development at the outskirts of Cairo, known as Al-Nahda within three months to re-house these homeless families. ERC utilized a participatory approach to identify problems and actions. Local administrations were part of this scheme. ERC, in collaboration with local authorities and the residents initiated several projects. The experience of Al-Nahda received international recognition at the UN-Habitat held in Istanbul, Turkey in 1996.

4.3.3. Financial

Safety, security and disaster risk reduction are elements for approving projects that different ministries and governorates submit. These plans are then integrated in the forthcoming National Five-Year Plan for funding.

The Social Fund for Development (SFD) has several success stories in dealing with natural disasters. An important example is the flash floods in Upper Egypt in 1996 that affected the Governorates of Asyut, Suhag and Qena. SFD participated with other governmental and non-governmental agencies in the reconstructing ten villages in these three governorates through a committee that coordinated different efforts to maximize the use of limited, available resurces. SFD financed another three villages that were built in Fayoum with the assistance of KfW, i.e., the German Bank for Construction. SFD worked with MWRI in maintaining the elements of the irrigation system as a precautionary procedure to contain flash floods disasters. SFD also financed the construction of a dam in Sinai to protect Ein El Khodirat, Qousima village from floods. The harvested water was used to plant 900 feddans.

Philanthropy and charity are among the major sources for supporting the inflicted population. Mosques, churches and Community-Based Organizations (CBOs) receive generous donations, both financial and in-kind contributions, from rich families and establishments. The proceedings are then used to improve the quality of life of the poor people, at large. In some instances, these proceedings fund relief and support to the inflicted population.

4.3.4. Environmental

Keeping a cleaner environment is one of the important strategic policies of the GOE as a precautionary measure. The Egyptian Holding Company for Electricity, for this reason the company implements all

effective treatment activities to protect the environment in accord with Law 4/1994 for protecting the environment and its executive legislations. Currently natural gas is substituting heavy oil with high sulfur content in all thermal power generating plants to reduce emitted harmful emissions including SO_x and TSP.

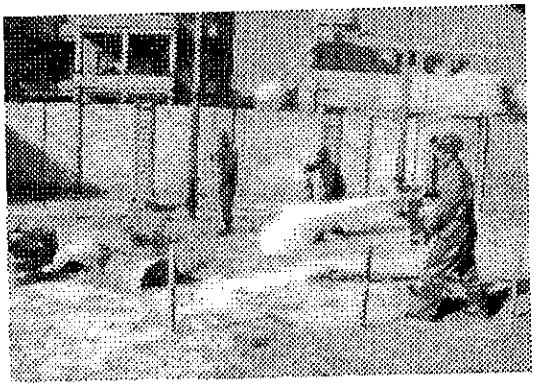
In case of any oil spills accident, the Ministry of Petroleum notifies the Egyptian Environmental Affair Agency with the accident. Standard procedures are followed to control the impacts and stop the leakage of hazardous materials. The National Plan to Combat Oil Spills and Pollution is put into effect with the providence of all possible equipments and measures necessary to manage the disaster. The Ministry of Petroleum immediately handles various oil disasters with all available resources.

EEAA links environmental management to risk reduction practices. Environmental Impact Assessments (EIA) and other elements of Environmental Management Systems (EMS) aim to reduce the risk of human activities that could develop into a full-scale disaster.

5. Preparedness and Contingency Planning

Egypt has advanced facilities for satellite reception of images and analysis of data collected by satellites. Egypt is also a participant in several international networks for regional monitoring to exchange information.[36]

Figure 15 Training on Civil Defense Activities



Ministry of Interior has identified the sources of possible disasters expected to occur at different locations including industrial establishments and facilities for petroleum extracting and refining, commercial buildings, such as malls and markets, power stations and agricultural areas; in addition to natural disasters resulting from earthquakes and flash floods. In the mean time, the Ministry of Interior has prepared an annual training plan targeting those who work in the field of Civil Defense to enhance their capability and build their capacities in the area of disaster risk reduction. This plan includes carrying out specialized training courses and attending conferences and seminars related to the field of civil defense. Furthermore, the Ministry of Interior has established a Center for Emergency Operations located at the Civil Defense Authority with 27 subsidiary centers distributed among the Governorates, and equipped with the recent communication facilities to ensure coordination between all the centers, fire brigades and facilities at the national level. This Center was provided with an accurate, up-to-date database that enables efficient and effective disaster management practices.

MLD has elaborated a complete integrated plan and an alternative plan in case of disaster occurrences. These plans include measures of re-housing residents of affected area to other new places, developing new residential units to provide shelter besides surveying schools and other physical and social infrastructures. The plan also includes modalities for switching to alternative plans to provide water from other resources. Training is also provided at the Local Development Centers to qualify local leaders to be prepared to cope with disasters through defining roles and implementations of workshops.

MISA established 22 Emergency Aid Centers in all the Governorates of Egypt to ensure immediate and effective intervention in case of any disaster. In addition, the Ministry organizes and implements training courses and seminars to exchange expertise. It participates with in the process of capacity building and developing technical specialized cadres to ensure effective intervention in disaster management. These

[36] Riad, Samir, Report on Crisis and Disaster Management in Egypt, submitted to UN DMT, Cairo, November 2002.

activities are carried out in collaboration with the Ministry of Interior and representatives of the Ministry of Health and Population with the primary target of raising community awareness with regard to disaster risk reduction.

Telecommunications links, which the Ministry of Telecommunications developed, include wireless and VSAT facilities for emergency situations. The Ministry of Health and Population operates a nationwide network useable in case of disasters. It incorporates vans with satellite connection devices to exchange data and enable videoconferencing with central hospitals for remote diagnosis and treatment.

The Committee for Emergency formed at the Ministry of Transportation holds a monthly meeting to discuss and review reports submitted on the work progress in general and unusual events, which occurred in the different transportation sectors. It also discusses the proactive procedures to avoid the occurrence of disasters. As for fire-fighting procedures, there are fire brigades, fire extinguishers, equipment and fans for aeration on all trains, railway stations, undergrounds and all facilities that the Ministry of Transportation operates. All stations are provided with entrances and exists wide enough to allow the passage of crowds in case of emergency. There are alert systems and internal communication system to alert passengers and evacuate stations when necessary. Regarding derailment accidents, there are hydraulic levers to readjust train wheels on the right path. In the disaster of releasing harmful gases, there is coordination between the Ministry and the Armed Forces. The mechanical system of the railway was replaced by an electrical one with a central system C.T.C, the staff on trains was provided by wireless transmission equipments to report any emergency. Provided training was on industrial safety, health and proactive procedures. Training sessions were held at several governmental institutions.

The Ministry of Transportation established an A.T.C system on all trains, which is an automatic system that stops the train immediately in case of any danger and without the help of the train driver. Establishing wireless communication system between inspectors on the trains and their drivers to report any emergency is among the precautions taken to properly manage and limit risks of disasters.

The Ministry of Planning monitors the implementation of the plans for preparedness through Disaster Management Committee, which was mentioned in Section 3.5. In addition, there are funds allocated specially for this purpose at the concerned bodies. There is a national and local storage of the emergency aid materials to relief inflicted people in the Egypt or other countries as well. CAPMAS is playing an effective role in supplying information useful for contingency planning.

The Ministry of Petroleum has carried out several risk evaluation studies, which survey possible risks and disasters and define the precautionary procedure to prevent and/or minimize their harmful impacts. It has also carried out special studies and researches to evaluate the environmental impacts of the new petroleum projects in different areas of the petroleum sector (production, refining, manufacture, transfer and distribution...etc). The Ministry adopts recent and up-to-date technologies in the area of disaster risk reduction among which is the use of the Hazard Operability Study, the Hazard Analysis and the Hazard Control in each stage of project implementation.

The Ministry of Petroleum takes proactive measures to prevent accidents; and it provides training and education of the workers and equipment necessary to ensure safety of the working environment. It applies specific stern measures to ensure Industrial Safety and Protection of the Environment. The Ministry has formed committees in different areas of petroleum activities each of which has its own contingency plan incorporating the collaboration of various bodies and organizations in case of any disaster. Regular inspection is done by the General Authority for Petroleum. The plan of the Petroleum sector is updated on a regular basis to abate marine pollution by spilling and leakage of raw oil into water bodies. Moreover, there is a sufficient number of fire brigades and equipment to combat fire accidents and mitigate their subsequent environmental pollution.

EEAA has National Environmental Disaster Contingency Plan. Moreover, there are national funds for disaster response and storage facilities for emergency relief items. EEAA is responsible for the coordination of disaster response preparedness.

EAEA has elaborated a National Contingency Plan for Nuclear and Radiological Accidents two years ago. Planning basis depends on a brief description of the accidents that occurred within each category.

The responsibilities of users, local and national authorities were defined, and concept of operations and emergency preparedness were prescribed. A national notification-scheme was established and approved for the use of emergency systems. Two main scenarios were prepared by EAEA emergency specialists: the first one in cooperation with the Armed Forces about transboundary release of radiation brought by accidents from outside the country. The second scenario was about the responsibilities, procedures, facilities and equipments needed to respond to a major disaster.

The Ministry of Electricity and Power, and its various agencies and organizations, is involved in the overall national contingency planning and preparedness for facing disaster. Its role involves insuring constant electric supply to the affected area during and after the occurrence of disaster. A Control Center has been established at the Ministry and prepared to work 24 hours/7 days a week in case any emergency arises. In addition, the sector has taken into consideration contingency planning to ensure the security of workers and safety of equipment. This is done through the preparation of emergency plans, stress on following security procedures, raising awareness of the public about the important role of the electric facilities and the coordination between workers in these facilities, Civil Defense Authority and citizens to keep these facilities safe plus preparing evacuation plans in collaboration with the Civil Defense Authority for different buildings in case of emergency and disaster occurrence. In accordance with the general policy of the Government to enhance the national economy, the Holding Company has designed a strategy to encourage the local manufacture of equipment needed for the electric power projects and networks with the purpose of making spare parts available for instant and emergency repair in case of disasters. The Company is a member of the Disaster Management Team formed under the Ministry of Electricity, which cooperates with the Ministry of Defense and Ministry of Interior to secure vital sites affiliated to the Electricity sector.

The Egyptian Red Crescent formulated its own disaster management strategy. Warehouses were established in the 27 Egyptian Red Crescent branches. The three Headquarter buildings in Cairo are equipped with disaster relief items and equipments, which can be replaced whenever needed. Moreover, all young members and volunteers of the Egyptian Red Crescent, especially residents of disaster prone Governorates, received training on disaster management and First Aid. Communication and transportation facilities are available in all the branches to ensure instant response and damage control at an early stage.

6. Best Practices

In Chinese two brush strokes are used to write the word "crisis;" the first is for danger, and the other stands for opportunity. As presented earlier, Egypt is not subject to major natural disasters as in the case of other countries. The two major natural disasters in the past decade, i.e., the 1992 earthquake and 1the 1994 floods impacted ultra-poor population. Efforts exerted in rehabilitating those inflicted population had paid off.

The 1992 earthquake, ERC in collaboration with governmental bodies, provided curative care to the injured, psychological-follow-up and support. More than 50 temporary shelters were developed for the victims. A system for recording was established. To each camp, a physician, nurse and volunteers were assigned to provide health care and nutrition. All camps were supplied with safe drinking water, and appropriate canned food. Volunteers, who received training from psychiatrists according to the guidelines of the International Federation of Red Cross and Red Crescent Societies, provided assistance and help to the victims aiming to minimize the well-known psychological effects of disaster syndrome, particularly those who lost a family member or sources of income. The Government resettled families in four settlements around Cairo in apartment buildings, which lacked basic infrastructure, due, in part, to insufficient funds. ERC, using a participatory approach, developed partnership with the settlers. Residents elected a community leader from each cluster of buildings. Social clubs were developed where meetings were held to decide on issues and means of action. As a result, infrastructures, both social and physical, were established serving the people of the area. Attempts to overcome poverty and unemployment were carried out through various innovative vocational training courses aiming to encourage income generating activities. Twenty two illiteracy

classes were erected to eradicate illiteracy, especially among females. An estimated 650 persons received illiteracy education.

7. Priorities and Issues to Address at WCDR

Based on the Egyptian experience, it is our belief there is a need for collective efforts at the international level to reduce disaster risks, and cooperate in the areas of relief. WCRD is an opportunity that should not be wasted. We need to capitalize on the momentum that resulted from it. Disaster risk reduction is not the sole responsibility of a nation, but it is a global issue that requires international collaboration and cooperation. There is also a need for a modality and framework that assures information generation and sharing, and know-how transfer. Disaster risk reduction is conducive to sustainable development. Support for Research and Development (R&D) and establishing an institution for globally monitoring disasters are crucial to disaster risk reduction. This modality has to support capacities of national and local institutions aiming to result resilient societies. There is a need for financial support and technical assistance, particularly from developed countries, to developing countries. Specifically, Egypt would like to address the following concerns:

7.1. The worth of preparedness and prevention

Efforts, within Egypt and abroad, have, to certain extent, created a dent in raising awareness pertaining to the concept of preparedness in the sphere of disaster risk reduction. Most institutions within Egypt and international organizations embrace the need for preparedness. Budget allocated for activities for preparedness and prevention compete against other needs, thus are generally low in the national budget--appreciation of risk is not balanced by other pressing concerns. Furthermore, few donor agencies are committed to support initiatives for preparedness and prevention. There is a need to show that preparedness is more cost effective compared to emergency response.

Precisely illustrating the benefits of preparedness and prevention is at the crux of communicating disaster risk reduction. Reliable and valid information is essential for support the argument, and effectively communicate the worth of preparedness and prevention. By the same token, reliable and valid information helps donor agencies to show the relevance of programmes to their people and government back home. Last but not least, precise, relevant, reliable, valid and updated information is crucial for decision-making that greatly impacts the quality of life.

7.2. Integration and Synergies

It is noticeable that most of the affected population group by disasters is the poor. The buildings that collapsed in 1992 were the residence of poor families residing informal settlements. Those impacted by the floods of 1994 were poor rural families in Upper Egypt. Poor people suffer from environmental degradation, where their communities lack proper levels of service delivery, such as safe drinking water, and proper scheme for solid and liquid wastes management. Strategies for disaster risk reduction, therefore, have to be closely integrated with strategies for poverty reduction.

The aim of programmes for poverty reduction environmental regeneration, conservation and protection; and disaster risk reduction is to sustain the livelihoods of poor people that will result sustainable communities. The causes of the problems these programmes address are often common and interrelated. Thus properly managing human settlements is the gateway towards a resilient community.

Without proper coordination, integration and synergies, human settlements run the risk of redundancy and overlap on one hand, and falling to address a key issue, assuming that it is taken care by another initiative. This calls for proper coordination between central government agencies (horizontal relations) and local administrations (vertical relations); and in the mean time, requires proper coordination and integration with Civil Society Organization, such as NGOs.

Building synergies thus requires engagement of related sectors and departments, and recognizing links between the different levels of government; while synchronizing efforts with NGOs to reach those that the market and the Government cannot reach, such as the residents of informal settlements. This

requires establishing linkages between the different initiatives that aim to establish a sustainable community.

7.3. Applications and Decision-Support Systems

Reaching a complete understanding of the relationships and interactions as discussed above require actions at the executive levels. There is a need to support decision-making by the best available information. Proper forecasts and projections are instrumental in a process for elaborating an informative decision not an educated guess. There is a need for continuous development of tools for decision support designed to satisfy needs of a range of decision-makers, who have to participate in developing these tools for decision support. It is important that decision makers understand the skill, validity, limitations and assumptions of these tools.

7.4. International Assistance

Egypt is not subject to serious natural disasters. Despite the existence of an institutional setup for environmental management and a strategy for poverty alleviation, Egypt needs assistance in terms of building the capacities of its institutions to be able to prevent human-induced disasters.

A country's capacity to develop more sustainable depends on the capacity of its people and institutions to understand complex environment and development issues to make appropriate development choices. Egypt is in need to build the capacities of the institutions, both governmental and non-governmental organizations, to play a more effective role in setting the country on a path of development that is sustainable.

Egypt seeks to develop real partnership with the nations of the world for efficient and equitable global economy to achieve sustainable development. It is important to review the current trading system and modify it into a system that favors optimal distribution of global production under the conditions of sound environmental policies. The new trading system should favor efficient producers of developing countries to successfully market their products. Developing countries, including Egypt, need investments to stimulate economic growth and meet the basic needs of their populations in a sustainable fashion.

Annex

List of Participating Agencies

Academy for Scientific Research and Technology
Authority for New Communities
Central Agency for Public Mobilization and Statistics
Crisis and Emergency Management Affairs
Egyptian Atomic Energy Authority
Egyptian Environmental Affairs Agency
Egyptian Holding Company for Electricity
Environment Protection Fund
Environmental Management System
Hot Laboratory and Waste Management Center
Ministry of Defense
Ministry of Foreign Affairs
Ministry of Health and Population
Ministry of Housing, Utilities and Urban Communities
Ministry of Interior
Ministry of Local Administration
Ministry of Planning
Ministry of Social Affairs
Ministry of Water Resources and Irrigation
National Authority for Remote Sensing and Space Sciences
National Center for Nuclear Safety and Radiation Control
National Center for Radiation Research and Technology
National Egyptian Committee for Nuclear and Radiological
Social Fund for Development
Red Crescent

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