044468

EACH-FOR
Environmental Change and Forced Migration Scenarios

Specific Targeted Project
Scientific support to policies – SSP

Deliverable reference number and title: D2.5.2.1

Egypt
Case Study Report

Due date of deliverable: 31.12.2008
Actual submission date: 30.01.2009

Start date of project: 01.01.2007
Duration: 2 years

Organisation name of lead contractor for this deliverable: UNU-EHS

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EACH-FOR is a project funded by the European Commission, by SERI (Austria) and by ATLAS Innoglobe (Hungary)
Project website: www.each-for.eu
Egypt
Case Study Report

Tamer Afifi¹

1. INTRODUCTION

1.1. Synthesis of context

The Arab Republic of Egypt is a member of a number of international organizations, such as the International Organization for Migration (IOM), the Organization of Security and Cooperation in Europe (OSCE) (as a partner), the United Nations (UN), the World Health Organization (WHO) and the World Trade Organization (WTO). It is also part of Treaties on environment protection such as Climate Change, Climate Change-Kyoto Protocol, Desertification, Endangered Species, Environmental Modification, Hazardous Wastes, Law of the Sea, Marine Dumping, Ozone Layer Protection, Ship Pollution, Tropical Timber 83, Tropical Timber 94, Wetlands.

According to the estimates of July 2007, Egypt’s population is around 80,335,036. The population density is 80 persons/km², which is not really a good indicator, since the majority of the population lives in the coastal areas, in the Nile delta and along the Nile River, where the soil is relatively fertile. Children up to 14 years of age make up 32.2 percent of the population, among which 13,234,428 are males and 12,631,681 females, which indicates a sex balance in the country. The age group 15-64 represents the majority of the population, at 63.2 percent, among which 25,688,703 are males and 25,082,200 females. Finally, the age group over 65 years makes up only 4.6 percent, among which 1,576,376 are males and 2,121,648 females. This indicates that Egypt has mainly a young population. The population growth rate estimated in the same year is 1.721 percent, the birth rate 22.53 births/1000 population and the death rate 5.11 deaths/1000 (CAPMAS 2008).

The majority of the population in Egypt is Egyptian (98 percent). Berber, Nubian, Bedouin, and Beja make up 1 percent, whereas Greek, Armenian, other

¹ The author would like to thank Mr. Shahidul Haque, Ms. Aziz and Ms. Fiona, all at the International Organisation for Migration (IOM) Cairo, Egypt, Ms. Tanja Dedovich at IOM Vienna, Austria, Dr. Jill Jäger at the Sustainable Europe Research Institute, Austria, Mr. András Vag at ATLAS Innoglobe Ltd., Hungary, as well as Dr. Koko Warner, Ms. Olivia Dun and Mr. Marc Stal, all at the United Nations University, Bonn, Germany, for the kind support.
European (primarily Italian and French) make up another 1 percent. These latter communities migrated to Egypt early in the past century, some of whom returned back to their countries of origin, especially after the revolution of 1952 took place. Although Arabic is the official and native language in Egypt, English and French are widely understood by educated classes due to the influence of the British and French colonization, respectively. The sex ratio at birth is 1.05 male(s)/females, under 15 years: 1.048 male(s)/female, 15-64 years: 1.024 male(s)/female and 65 years and over: 0.743 male(s)/female. From the total population, the sex ratio is 1.017 male(s)/female (CIA facts book - Egypt 2008).

The infant mortality rate in the total population is 29.5 deaths/1,000 live births. Among the males, there are 31.22 deaths/1,000 live births and among the females 27.68 deaths/1,000 live births. The life expectancy at birth for the total population is 71.57 years; among males life expectancy is 69.04 years and among females 74.22 years. The Egyptian life expectancy index is 0.75. Generally, Egypt takes the 112th rank out of 177 countries in the Human Development Index (UNDP 2006).

The total area of Egypt is about one million km², most of which is under arid and hyper-arid climatic conditions. There are six main agro-ecological zones in Egypt, which are the following:

1. The Nile Valley including the fertile alluvial land of Middle and Upper Egypt, where the main source of irrigation water is the Nile River. Agriculture production of Egypt is mainly concentrated in this zone in addition to the Delta.

2. The Nile Delta region, where the main source of irrigation water is the Nile River as well. Together with the Nile Valley, the agriculture production in this zone consists of about 6.6 million acres. Most of the soil in both areas is recent Nile alluvium.

3. The reclaimed desert areas in the fringes of the Nile Valley, where the only source of irrigation is the ground water.

4. North Coastal zone: including the coastal area starting from North-Western coast moving eastwards to North coastal area of Sinai Peninsula, where there are no reliable figures available on ground water quantity and usage.

5. The Inland Sinai and the Eastern Desert, where the main source for irrigation is the ground water, and

6. The Western Desert including oases and southern remote areas, where the groundwater is mainly extracted from the Nubian Sandstone and carbonate aquifers.
Egypt appears to be particularly vulnerable to climate change because of its dependence on the Nile River as the primary water source, its large traditional agricultural base, and its long coastline, already undergoing intensifying development and erosion.

Approximately 97 percent of Egypt is desert; only 5 percent of the land area in Egypt is actually occupied and less than 4 percent of the land is suitable for agriculture. Because such a small percentage of land is habitable, population densities in these areas (that is, the coastal zones and along the Nile River) is high, and in some areas along the Nile River even greater than 1,000 people per square kilometer.

The coastal zone is home to more than 40 percent of the population; this zone is particularly vulnerable to climate change, where the main challenges are sea-level rise, shoreline erosion, stresses on fisheries and saltwater intrusion in groundwater.

The Nile River is the lifeblood for Egypt; it represents the main source of freshwater for household use and irrigation, a source of power from the hydroelectric facility at Aswan, and a means of transportation for people and goods.

Egypt is a country of vast arid areas, and a narrow neck of very fertile land around the Nile River and Delta. Figure 1 below shows the distribution of arid and fertile lands and provides a graphic illustration of the bottleneck effect which further environmental degradation could cause in the region (Geology.com http://geology.com/share-geology.shtml). Environmental degradation increasingly concentrates the Egyptian population into small areas. About 30 percent of the irrigated farmlands in Egypt suffer from salinity. Of the Northern cultivated land and both Middle and Southern Delta regions, 60 percent and 20 percent, respectively, are considered salt-affected soils. Wind erosion affects about 90 percent of the total country area.

**Figure 1: Distribution of arid and fertile lands in Egypt**
The powerful Nile River nourishes a slim column of Egyptian territory, but the remaining part of the country faces extreme water scarcity. The rapidly growing population in Egypt uses the Nile as the main source of water. The vast desert hinterlands rely on deep aquifers for potable and irrigation water. While the Nile brings rich soil deposits to the delta, land degradation is a widespread and growing problem in the country.

1.2. A brief overview of the environmental problems

1.2.1. Air pollution: This environmental problem is especially severe in the greater Cairo area, home to 15 million people. The huge increase in population led to a consequential surge in the number of vehicles, with associated significant increase in street traffic, exceeding 3 million vehicles in 2004, resulting in significant air pollution.

1.2.2. Desertification due to the active encroachment of sand and sand dunes, has mainly effected the Western desert towards fertile sedimentary land. An area estimated of 16 percent of the old valley land has been influenced. Satellite images reveal the volume of this impact. The area influenced by this phenomenon is estimated to be 1.6 million Feddans. Land productivity has diminished by about 25 percent compared to its original productivity (ACSAD, 2000). Reclaimed desert lands have also been exposed to many pressures and degradation factors leading to their reduced productivity and an increase in the time required for reaching their acceptable productivity level and eventually their ideal productivity, which caused the loss of effort, money and time (usage of organic fertilizers, the adoption of irrational agricultural management techniques, the adoption of flood irrigation system, salinity due to excess irrigation).

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Feddan is an Egyptian/Arabic scale unit for measuring land size. 1 Feddan = 24 Kirat = 300 Kassabas = 4201 m² (0.42 ha)
1.2.3. Soil salinity due to the wide and unaccounted use of flood irrigation for water usage. Excessive flood irrigation from the Nile is leading to soil water logging and poor drainage of excessive water that exceeds the growing plants’ needs. Thus, soil salinity reaches a level that damages plant production due to the deterioration of some of the chemical and biological soil elements.

1.2.4. Urban encroachments: Urban encroachment occurred due to the expansion of cities and villages and the establishment of industrial facilities and infrastructure, in addition to soil surface stripping for manufacturing red bricks. Soil scrapping has been nearly overcome as a result of the legislation issued in 1983 and amended in 1985. Other encroachments started during the 1950s causing the loss of 15,000 Feddans annually. Rates of loss of such fertile soil during the past decades till the last decade of the twentieth century have increased estimated at about 45,000 Feddans annually (SRA 2000). A military order was issued to stop and eliminate such encroachments in 1996, significantly limiting such phenomena, but probably, after it was too late.

1.2.5. Sea level rise

A study on the vulnerability of the coastal zone in Alexandria, the second largest city in Egypt, revealed that a 30 cm rise in sea level is expected to occur by 2025, inundating approximately 200 square kilometers. As a result, over half a million inhabitants may be displaced and approximately 70,000 jobs could be lost (El-Raey et al., 1999). Rosetta, one of Egypt’s historical cities, is already suffering from shoreline erosion. An estimated 50-cm rise in sea level could affect one third of the city’s employment with significant economic losses estimated in billions of dollars (El-Raey et al. 1997). Similarly, the city of Port Said is vulnerable to sea level rise with possible impacts on its industrial, transportation and urban sectors.

Rising sea level would destroy weak parts of the sand belt, which, as an example, is essential for the protection of lagoons and the low-lying reclaimed lands. The impacts would be very serious. One third of Egypt’s fish catches are made in the lagoons. Sea level rise would change the water quality and affect most fresh water fish. Valuable agricultural land would be inundated. Vital, low-lying installations in Alexandria and Port Said would be threatened. Recreational tourist beach facilities would be endangered and essential groundwater would be salinated. Dykes and protective measurements would probably prevent the worst flooding up to a 50 cm sea level rise. However, it would cause serious groundwater salination and the impact of increasing wave action would be serious.

Figure 2 shows two scenarios of sea level rise in the Nile delta, namely in the cases of a 50 cm and one meter sea level rise, respectively.
Figure 2: Potential sea-level rise impact for the Nile Delta, Egypt

Potential impact of sea level rise: Nile Delta

Population: 3,800,000
Cropland (Km²): 1,800

Population: 6,100,000
Cropland (Km²): 4,500

Sources: Otto Simonett, UNESCO Geneva; Prof. G. Bertini, Florence; Remote Sensing Center, Cairo; DLR/IKV, Geoinformatics.
1.2.6. Land degradation:

There are different causes for land degradation in Egypt. A number of irrigated farmlands in the Nile Valley and Delta as well as the newly reclaimed desert lands are suffering from soil salinity. This has reduced the productivity. In order to compensate for the low productivity caused by soil salinity, the usage of organic fertilizers, the adoption of inappropriate agricultural management techniques and excess irrigation was exaggerated, which enhanced the problem and created a vicious circle.

Many nutrient elements of the Nile Valley and Delta soil were depleted by the extensive and frequent cropping, unsustainable irrigation water management and improper agricultural practices. The construction of the Dam itself decreased the annual additions of the fertile sediments to the soils that consequently lost much of their content of organic matter, total nitrogen and other nutritive elements.

With the beginning of the 1970s, the soil pollution impact started due to the excessive use of chemical fertilizers, namely nitrogenous, due to the farmers’ wrong impressions after the construction of the High Dam (SRA 2000). Excessive use of chemical fertilizers persisted due to agriculture production intensification and attempts to reach the highest production possible per unit area. Soil and water pollution has also increased due to the inappropriate use of different pesticides. In addition, wastewater and industrial drainage leakage into watercourses has exacerbated soil and water resource pollution, especially since there was a very poor implementation of pollution control regulations.

Wind erosion is a major cause of land degradation in Egypt, since it exists in the Western and Eastern deserts as well as inland Sinai and the coastal zones. It is mainly caused by the arid climate. The most vulnerable to wind erosion and deposition are sand dunes and other sand forms in the coastal and inland deserts. Since wind erosion clearly leads to the drifting of surface soil layers, the agricultural development, rural and urban settlements, road traffic and public health are negatively affected.

Water erosion occurs in the Northern coastal zone of Egypt where intense rainstorms cause excessive water surpluses, leading in turn to enormous soil loss. Nevertheless, the same lands - since these lands fully rely on pluvial irrigation - are very often exposed to periods of dryness, lower rain compared to their annual average and poor distribution of rains during rainy seasons.
Another factor that does not directly lead to land degradation but rather decreases agricultural activities is urban encroachment. It occurred in Egypt due to the expansion of cities and villages and the establishment of industrial facilities and infrastructure. Additionally, soil surface scrapping for manufacturing red bricks was a phenomenon that had a negative impact on fertile lands.

In concrete numbers, around 30 percent of the irrigated farmlands in Egypt suffer from salinity. Of the Northern cultivated land and both Middle and Southern Delta regions, 60 percent and 20 percent, respectively, are considered salt-affected soils. Wind erosion affects about 90 percent of the total country area. The average rate of soil loss due wind erosion in the Western desert Oases has been estimated from 4.5 to 66.9 ton/ha/year (Arab Republic of Egypt Ministry of Agriculture and Land Reclamation, 2002). The area influenced by the active encroachment of sand and sand dunes is estimated to be 1.6 million hectares. Land productivity has diminished by about 25 percent compared to its original productivity (ACSAD, 2000). The annual water erosion rate has been estimated between 0.8 and 5.3 ton/ha/year (Arab Republic of Egypt Ministry of Agriculture and Land Reclamation, 2005). Urban encroachments started during the fifties and caused the loss of 15000 hectares annually (SRA 2000). It is also found that the losses of plant nutrients; nitrogen, phosphorus and potassium are linearly proportional to soil loss (Arab Republic of Egypt Ministry of Agriculture and Land Reclamation 2005).

1.2.7. Water shortage

Since the dawn of history, a continuing struggle between the Nile and its inhabitants has taken place. As the Egyptians realized the importance of the Nile for their existence long ago, they gathered their efforts to regulate the use of its water and control its floods.

Dams in Egypt have served people for at least 5,000 years. No record has been found indicating exactly when irrigation systems and dams were first constructed. The very first reported attempt was about 3400 B.C. when King Menes, who united Upper and Lower Egypt, constructed of canals and dykes. In the 12th dynasty (2160-1785 B.C.) King Sesostris built the right river bank ridge. Then King Amenemhet III (1849-1801 B.C.) used Lake Moeris for the storage of a part of the flood water.

Over the centuries, basin irrigation methods were practiced during the river’s flood season. Along with the flood decrease, basin irrigated agriculture flourished up till the year 1820 A.D. When water became scarce during the summer, water channels were dug and provided with regulators to control water levels and distribution. This irrigation system was maintained up to the year 1843. The construction of the first barrages on the two Nile branches Damietta and Rosetta took place from 1843 until 1861. These were El-Qanatir and El-Khairiya, which
became the corner stone’s for the expansion of perennial irrigation in Lower Egypt. For the same purpose, Ibrahimiya Canal was dug in 1873 and was provided with the Dairut Barrages.

With the fall of the Arabic Empire in the 1880s, the Egyptian Project for the Political and Water Union of the Nile Basin Region ended as well, and the British occupation in Egypt took place starting from the year 1882, in addition to control it already had in Sudan, Uganda, Kenya and British Somalia. Most importantly in this context was the British control over the waters of these countries. In the Egyptian case, Great Britain (GB) gave a special priority to the issue of water management by hiring a number of British experts and consultants in the Egyptian Ministries of Agriculture and Irrigation, especially because the population was increasing and thus the cultivated lands were extended (Ouda, 1999).

In order to meet the needs of the rapidly increasing population, the Aswan Reservoir was built in 1902. In the same year, the Zifta Barrages were built on the Damietta branch to feed the northern lands of the El- Daqahlia Governorate as well as the eastern part of the El-Gharbiya Governorate during critical periods. In 1908, the Isna Barrages were built on the Nile River, in addition to two upstream barrages on the Asfun and Kelabiya canals inlets to improve basin irrigation in the Qena and Aswan Governorates. In 1912, the Aswan Reservoir was heightened to add 2.50 billion m$^3$ to its yearly storage. Later, in the year 1925, the Sennar dam on the Blue Nile was built to provide water for the Gezira plain at the time of the year when the water level of the Blue Nile is low. In 1930, Egypt accelerated the project’s implementation to promote irrigation. The Nag Hammadi Barrages on the Nile were constructed together with the Foadiya and Faruqiya Canals (western and eastern Nag-Hammadi), provided with barrages at their inlets to secure basin irrigation in the Sohag Governorate. In 1933, the 2$^{nd}$ heightening of Aswan Reservoir increased the yearly storage up to 5 billion m$^3$. In 1937, the Jebel Aulia Reservoir was built on the White Nile to increase the yearly storage to 2.5 billion m$^3$ for the benefit of Egypt’s summer irrigation. In 1939, the Delta Barrages replaced the Qanatir El-Khairiya. In 1951, the Idfina Barrages were constructed on the Rosetta branch, thus replacing the earth dam, which used to be built once each year since 1885. The Owen Falls Dam was constructed in 1954, situated at the Victoria Nile just at the point where Lake Victoria waters flow into the river. It is used for generating hydropower for Uganda and for long term storage for Egypt. In 1964, the Khashm el-Girba dam was built on the Atbara, with a storage capacity of 1.3 billion m$^3$. In 1966, the Roseires Dam on the Blue Nile, (1$^{st}$ stage) was built with a storage capacity of 3.0 billion m$^3$.

In the year 1929 an Agreement was signed between Egypt on one hand and GB on behalf of Sudan, Uganda and Kenya, on the other, where the quota of each country’s water consumption was determined. A similar Agreement was signed in the year 1939 where some details were changed, followed by another Agreement.  

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3 The rest of Somalia was occupied by Italy.
signed by Egypt and GB in the year 1949 concerning the construction of small dams and waterfalls, in order to generate power. The Egyptian Revolution of 1952 triggered recognition of the importance of the Egyptian water as a ‘national’ asset. This led to the High Dam Agreement signed with Sudan in the year 1959 to determine both countries’ yearly shares of water consumption.

When the Aswan High Dam (AHD) was constructed it represented the summit of perennial irrigation. The construction began in 1960 and was completed on July 21, 1970, with the first stage finished in 1964. The reservoir began filling in 1964 while the dam was still under construction and first reached full capacity in 1976.

In the year 1978 Egypt commenced an Official Plan for Water Resources which was extended by a so called Master Plan that was initiated by the Egyptian Ministry for Irrigation and Water Resources in the year 1981 to save the water for the future generations and to use the most rational irrigation methods (Ouda, 1999). Egypt is planning the Toshka Canal as well, which is supposed to pump part of the Nile water into the Western Desert, a sensitive topic for some other Nile Basin countries (Stroh, 2004).

Most of the Nile water is consumed by the Egyptians. The 9 other Nile Basin Countries consume much less than Egypt, but they do have other sources of water, Ethiopia, from which 85 percent of the Nile water originates, wants to increase its consumption. Every Ethiopian attempt to achieve this has been rejected by Egypt till the 1990s, to the extent that the latter has even threatened with military invention in emergency cases. Therefore, the Nile is a ‘classic case of international resource competition’ (Stroh, 2002).

The annual volume of the Nile water in the Southern Egyptian city Aswan is around 84 cubic kilometres. This is only 4 percent of the original volume of the Nile water, which mainly evaporates on its way to Egypt. The Aswan High Dam saves Egypt from potential floods and allows it to save spare water for regulated consumption.

The conflict between the 10 Nile Basin Countries is mainly about ‘who’ consumes the water, in ‘which quantities’ and ‘how’. Each country has its yearly quota, but as mentioned above, Ethiopia demands to exceed its quota. Without consulting or alerting Ethiopia, Egypt has planned the Toshka Canal, where water from the Nile will be pumped in by the year 2017. Most of the Nile Basin countries complain about the fact that Egypt uses irrigation methods that lead to a waste of water. Hence, this conflict cannot be overlooked, especially since it could have implications on the farmers and their future activities.

Up to present, there has been no agreed-upon regime governing the actions of these countries and no integrated plan for optimum use and development of the waters. Egypt is the most powerful country in the region and has generally pursued its water policies even in the face of resistance from its neighbours.
However, according to the World Bank, a regional effort aimed at improving the management of international waters was successfully continued through the Nile Basin Initiative (which has engaged Egypt with the upper riparian countries of the Nile).” (The World Bank, Middle East and North Africa. Regional Brief 2007).

In spite of all the Agreements and plans related to the Nile river, and as much as the former has been a generous water resource for Egypt, the Egyptians are suffering from water shortage due to the continuous increase in population at high rates. Taking the expression ‘water shortage’ more broadly, it would encompass the access to clean water that is suitable for drinking and irrigation. Unfortunately, Egypt has been notorious for water pollution, since the Nile and its canals have been subject to industry, agricultural and individual wastes for the past decades. Poor water management due to inefficiency of the traditional gravity irrigation system, inadequate maintenance of irrigation and drainage networks and over-abstraction of ground water, especially in the newly reclaimed desert areas, are all factors that magnify the problem. Another natural factor that diminishes the availability of fresh water is water salinity, a phenomenon that largely exists in the newly reclaimed desert lands that rely on ground water.

Egypt is facing serious environmental problems directly related to the livelihoods of the people. The question would be: Could these environmental factors lead to migration in Egypt? Who would migrate and where would they go? This is what this study attempts to detect through field work that was carried out in different areas in Egypt and where a questionnaire was designed for migrants who moved from one place to the other within the Egyptian borders. The aim was to know from the migrants whether/to what extent the environmental problems influenced their migration decisions. This will be discussed in detail in the section devoted to the research findings later in this report.

1.2.8. How the Egyptian government deals with environment

In June 1997, the responsibility of Egypt's first Minister of State for Environmental Affairs was assigned as stated in the Presidential Decree no.275/1997. The new ministry focuses, in close collaboration with the national and international development partners, on defining environmental policies, setting priorities and implementing initiatives within a context of sustainable development. According to the Law 4/1994 for the Protection of the Environment, the Egyptian Environmental Affairs Agency (EEAA) was restructured with the new mandate to substitute the institution initially established in 1982. At the central level, EEAA represents the executive arm of the Ministry.

The principal functions of the Agency include:

1. Formulating environmental policies.
2. Preparing the necessary plans for Environmental protection and environmental development projects, following up their implementation, and undertaking pilot projects.
3. Promoting environmental relations between Egypt and other countries, as well as regional and international organizations.

1.3. A brief overview of migration processes

There is a lack of data about internal migration in Egypt. The rationale could be the fact that many Egyptians move from one region/city to the other within one day, due to work obligations, and therefore, it is hard to calculate the exact number of people who moved and really settled in the different cities. Moreover, it is easier to monitor the numbers of people who crossed the country borders, since all the movements are documented in contrast to the internal movements.

1.3.1. Egypt as a sending country

The Egyptian constitution considers emigration as a basic right for the Egyptian citizens. This was confirmed by Article 52 of the permanent constitution released in the year 1971, which states that: “…..The Egyptian citizens are entitled to emigrate permanently or temporarily…..”

To apply the constitution, the Law 111 for Egyptian emigration abroad was released in the year 1983. Article 1 of the Law 111 gives the right of the Egyptian citizens to emigrate individually or in groups, permanently or temporarily, reserving their right to keep the Egyptian nationality, and in this case they do not lose their constitutional or legal rights.

In order to encourage the Egyptian emigrants abroad to keep the ties with their mother country, Article 15 of Law 111 gives them the privileges of carrying other nationalities, receiving social assistance and pensions, having an Egyptian passport re-issued abroad, exempting their investments in Egypt from certain taxes and duties and re-occupying one’s job two years after resignation from the government sector (Egyptian Ministry of Human Resources and Migration).

The majority of Egyptian labor migrants are expected to return home, but thousands leave each year with the intention of permanently resettling in various Arab countries, Europe, or North America. These emigrants tend to be highly educated professionals, mostly doctors, engineers, and teachers (Zohri, 2006). Iraq is the Arab country most likely to accept skilled Egyptians as permanent residents. Besides the Arab countries, the United States is a preferred destination.

According to the official estimates of the Central Agency for Public Mobilization and Statistics (CAPMAS), the total number of Egyptian temporary migrant labourers (in Arab countries) is about 1.9 million (CAPMAS 2001). The top 5
destination countries are: Saudi Arabia (48.3 percent), Libya (17.4 percent), Jordan (11.9 percent), Kuwait (10 percent) and UAE (United Arab Emirates, 5 percent) (Table 1).

Table 1: Temporary Egyptian migrants by country of destination

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<tr>
<th>Receiving Country</th>
<th>Number of migrants</th>
<th>Percentage</th>
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<tr>
<td>Saudi Arabia</td>
<td>923,600</td>
<td>48.3</td>
</tr>
<tr>
<td>Libya</td>
<td>332,600</td>
<td>17.4</td>
</tr>
<tr>
<td>Jordan</td>
<td>226,850</td>
<td>11.9</td>
</tr>
<tr>
<td>Kuwait</td>
<td>190,550</td>
<td>10.0</td>
</tr>
<tr>
<td>UAE</td>
<td>95,000</td>
<td>5.0</td>
</tr>
<tr>
<td>Iraq</td>
<td>62,629</td>
<td>3.4</td>
</tr>
<tr>
<td>Qatar</td>
<td>25,000</td>
<td>1.3</td>
</tr>
<tr>
<td>Yemen</td>
<td>22,000</td>
<td>1.2</td>
</tr>
<tr>
<td>Oman</td>
<td>15,000</td>
<td>0.8</td>
</tr>
<tr>
<td>Lebanon</td>
<td>12,500</td>
<td>0.7</td>
</tr>
<tr>
<td>Bahrain</td>
<td>4,000</td>
<td>0.2</td>
</tr>
<tr>
<td>Total</td>
<td>1,912,729</td>
<td>100.0</td>
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</table>

From the beginning of the 1960s, political, economic, and social developments led Egyptians to migrate permanently to the USA and European countries. According to the estimates of CAPMAS, the total number of permanent Egyptian migrants in non-Arab countries is slightly more than 0.8 million (824,000) (Table 2). About 83 percent of them are concentrated in five countries: USA (318,000 or 38.6 percent), Canada (110,000 or 13.3 percent), Italy (90,000 or 10.9 percent), Australia (70,000 or 8.5 percent), and Greece (60,000 or 7.3 percent). The other 20 percent are mainly in Western European countries, such as the Netherlands, France, England, Spain, Switzerland, Austria, and Germany (CAPMAS 2000).

Table 2: Permanent Egyptian Migrants by Country of Destination

<table>
<thead>
<tr>
<th>Country of Destination</th>
<th>Number in Thousands</th>
<th>Percent</th>
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<tbody>
<tr>
<td>U.S.A</td>
<td>318</td>
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<tr>
<td>Canada</td>
<td>110</td>
<td>13.3</td>
</tr>
<tr>
<td>Italy</td>
<td>90</td>
<td>10.9</td>
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<tr>
<td>Australia</td>
<td>70</td>
<td>8.5</td>
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<tr>
<td>Greece</td>
<td>60</td>
<td>7.3</td>
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<tr>
<td>Holland</td>
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<td>4.9</td>
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<td>France</td>
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<td>4.4</td>
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<tr>
<td>England</td>
<td>35</td>
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<tr>
<td>Germany</td>
<td>25</td>
<td>3.0</td>
</tr>
<tr>
<td>Switzerland</td>
<td>14</td>
<td>1.7</td>
</tr>
<tr>
<td>Austria</td>
<td>14</td>
<td>1.7</td>
</tr>
<tr>
<td>Spain</td>
<td>12</td>
<td>1.5</td>
</tr>
<tr>
<td>Total</td>
<td>824</td>
<td>100.0</td>
</tr>
</tbody>
</table>


The statistics given by CAPMAS are just estimates which are drawn from the reports of Egyptian embassies abroad, records of cross-border flows from the Ministry of Interior, emigration permits from the Ministry of Human Resources, and some other sources. The receiving countries make different estimates than CAPMAS. For example, the Italian government estimates there are around 35,000 Egyptians in Italy whereas CAPMAS gives a figure of 90,000.

Logically, there are no concrete or reliable figures about illegal migration. Nevertheless, there are tens - if not hundreds - of Egyptians who have been

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Although the CAPMAS census for the year 2008 is available, there are no updated figures on the migrants and immigrants after the years 2000 and 2001.
caught illegally attempting to cross the Mediterranean to reach Italy, Malta and Spain. The source of information is usually the newspapers, but there are no real statistics that cover the phenomenon. When arrested, most of them mention poverty and unemployment as main reasons. None of them - to the knowledge of the author - mentions political or environmental reasons.

1.3.2. Egypt as a destination country

Throughout its history and into today, Egypt has hosted many foreigners and refugees. In addition to being one of the drafting members, Egypt is a party to 1951 UN Convention relating to the Status of Refugees. It is also a party to the 1967 Protocol and the Organization of African Unity (OAU) Convention of 1969, which entails an obligation on the part of the Egyptian government to offer asylum and resettlement to refugees who have fled to Egypt from their homelands. However, since resettlement is not an internationally recognized right, many refugees in Egypt are never resettled.

According to national law, there is no explicit encouragement of long term/permanent immigration, given the danger the country could potentially be facing when hosting foreigners for a long run in addition to the large number of its population.

Law 89 (1960) which was amended by Law 88 (2005), set some characteristics of illegal immigration, among which are:

1. Entering the territories of Egypt without an entry visa.
2. Not complying with the purpose of the stay, for example starting a work activity in the case of a tourism visa.
3. Not leaving the country within 15 days after the expiration of the visa.

Article 2 of Law 89 allows the entry into the Egyptian territories only to persons who carry a passport and an entry visa, and Article 3 specifies the official entry points where the foreigners are exclusively allowed to enter into the Egyptian territories. Article 7 of the same law obliges the pilots and captains to hand in a list of the passengers on board and ships. They are also obliged to report any passengers suspected of illegal entry and are even subject to legal punishment if they do not obey these regulations.

2. METHODS

2.1. Justification of the selection
The 30 migrants\(^5\) that were interviewed were mainly in the centre of the Nile Delta, the Nile Valley (South and North), Eastern and Western Nile Delta, newly reclaimed desert lands and slums of Old Cairo. The questionnaire was semi-structured and covered other non-environmental factors that could have led to the migration of interviewees, such as poverty and social problems. The selection of the interviewees was random, due to the limited awareness of the topic ‘environmental migration’ and the difficulties of accessing the target groups in an organized way.

The target groups were people who left the Nile Valley and Delta for slums of Old Cairo, people who left the Oasis and moved to Cairo, people who moved from one area to the other within the Nile Valley and Delta, people who moved from fertile lands to the newly reclaimed desert lands, and people who stayed in the Nile Valley and Delta. Due to the relatively limited number of interviewees, the author did not only rely on the information about their personal experiences but also on their stories about their parents, relatives and friends.

Although sea level rise is expected to have an effect on the migration in the future, to date, this effect cannot be sensed and there is no practical evidence for it. Moreover, it was difficult to question the local population about this issue, since most are not really aware of problems and are instead more concerned with their daily living and how it is influenced by the already existing environmental problems such as water pollution or land degradation. Therefore, the field research in Egypt mainly focused on water shortage and land degradation (including desertification, soil scrapping, urbanization, sand dunes…etc.).

2.2. Discussion of methods

The 6-weeks field trip to Egypt was based on using two methods, namely running expert interviews (government officials, representatives of Non-Governmental Organizations (NGOs) and university professors) and distributing questionnaires to people who left their homes for other cities/regions\(^6\). The research was run within Egypt, and therefore, it was not possible to conduct interviews with people out of the country. However, from the questionnaires filled out, it was possible to ascertain the stories about their relatives/friends who crossed the borders. Since at the time of the field trip in Egypt, a non-migrant questionnaire had not been designed, the researcher tried to adapt the migrant questionnaire to the cases of

\(^5\) Due to time and financial constraints, the number of questionnaires was not big enough to run an econometric model.

\(^6\) Since Egypt was one of the first case studies run in the frame of the EACH-FOR project, only migrants questionnaires were designed and used. Nevertheless, the researcher of this case study recommended designing additional questionnaires to be filled out by non-migrants who resisted the environmental degradation and stayed in their villages/regions, since he found out during his trip in Egypt that even this category of people could be relevant to the research. The non-migrant questionnaire was designed indeed and used in other case studies that took place afterwards.
non-migrants using the conditional expressions ‘What would, if…’ in order to get as much useful and relevant information as possible.

It is difficult to use the same questionnaire for every country. Therefore, the questions were changed according to the culture of the people of Egypt, especially in remote rural areas, without changing the substance of the question. One example of such an alteration is not directly asking the interviewees whether environmental problems influenced their decision to migrate but asking them first under which circumstances they migrated and from the discussion the researcher starts approaching the issue. It was also ineffective to ask the interviewees to rank the importance of one phenomenon by saying for example, not important, important or very important. It was rather more useful to ask them generally about the phenomenon and observe their reaction and emotion in order to be able to judge. As another example, it was found that a question about religion did not fit into the Egyptian culture. Therefore, the religion of the interviewees was rather found out by knowing their names. Moreover, culturally, in some regions/villages it is not popular to ask about the number of children of a person and their sex, since many would fear the envy that might ‘hurt’ their children…etc.

Not all the questioned people had decided to migrate; some of them had to move with their parents years ago or were not even born when the move occurred, particularly in the case of the Aswan Dam construction, where the parents were officially displaced in the 1960s and 1970s or in the cases of soil scrapping and urbanization in the 1980s.

3. FIELDWORK FINDINGS & ANALYSIS

In total, 21 experts were interviewed. Most of the interviews were conducted with the support of the IOM office in Cairo. For the purpose of the study, Egyptian government officials from the Ministry of Environment, Ministry of Irrigation, Ministry of Human Resources and Migration, and the Ministry of Planning and Economic Development were interviewed. Moreover, the interviews included United Nations Officials in Egypt such as experts in the United Nations Development Program (UNDP) and the International Fund for Agricultural Development (IFAD), the office of the United Nations High Commissioner for Refugees (UNHCR) and the United Nations Information Centre (UNIC). In addition, interviewees from Non-Profit Organizations such as the Regional Communications Service Centre of the International Committee of the Red Cross (ICRC) and the Egyptian Humanitarian Relief and Rehabilitation Organization as well as Academic and Research Institutions in the fields of Development and Forced Migration. Academics interviewed in the Egyptian Universities found it ‘impossible’ to draw a direct causal link between environmental problems and migration, since - according to them - there are always other factors intervening in the migration decision.
A number of academics in Egypt (Faculty of Economics and Political Science, Cairo University) believe that there is very little impact of environmental degradation on migration, and instead that migration is fundamentally induced by poverty and unemployment, especially in the cases where people leave rural areas and are attracted to urban areas where they seek more and various job opportunities and better livelihoods. In addition, they argue that environmentally induced migration is difficult to monitor, since the most significant environmental problems in Egypt of soil degradation and desertification is a long-term problems, and it would take generations in order for such migration to be sensed.

Most of the rest of interviewees did not deny the link and provided the researcher with useful information and anecdotal evidence, as will be shown in the following sections that are classified according to the different regions affected by environmental problems. All the interviewees recognized the sea level rise problem, but most of them, especially interviewees at the UNIC and in the Egyptian Ministry of Environment, confirmed that it is too early to run field studies on this issue, since firstly, the phenomenon has not taken place yet, and hence, there is no experience that can be reported, and secondly, the people who might be mostly affected in the future are not aware of the problem.

In the following sections, the main outcomes of the interviews are provided according to the different regions that were later covered by the migrant questionnaires.

3.1. Eastern and Western Delta

According to interviewees from UNDP Cairo, many people migrated to two different regions in the Western and Eastern Delta respectively in the frame of the Mobarak National Project. The reasons why they migrated were mainly unemployment, poverty, and overpopulation in the regions of origin, which were mainly Cairo, Beheira, Kafr El-Sheikh and Qalioubia. However, since these two regions of destination lack access to potable water, proper infrastructure, public facilities, schools, health care and well functioning sewage systems, many of them left and others are expected to leave either to other regions or to return back to their original regions.

People who left for Western Delta were mainly farmers who were affected by a law released in the year 1996, which allowed land owners to easily dismiss the land renters. This displaced many, who were than relocated by the government to this new area – also called Western Nobaria. Each farmer was provided with 2.5 Feddans. Nevertheless, the area there is quite primitive and the government does not provide the necessary facilities. The houses that were built need rehabilitation and restoration. The International Fund for Agricultural

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As much as the research budget allowed, the researcher visited most of the regions, based on these interviews, in order to meet environmental migrants on the site and fill out questionnaires.
Development (IFAD) helps with the construction and infrastructure. It further provides the migrants there with the proper pesticides and pollination of the plants. In addition, IFAD sends medical and veterinary teams in order to support the settling of these people. However, only 50 percent of the land has been utilized so far. Moreover, the sanitary conditions are poor, and therefore, some of these migrants leave for other regions or return back to their original regions.

People who left for the Eastern Delta were mainly young men and their families who were suffering from unemployment or low income in their home regions. The whole region obtains its water from the Salam Kanal, which is extremely polluted. IFAD is currently constructing a water cleaning station that is expected to serve 100,000 consumers. People there are suffering from environmental problems, such as the lack of clean water. They irrigate their lands using the water of Bahr El-Bakar channel, which carries enormous quantities of factory and human wastes of the capital. According to one expert, some of them use the water of Bahr El-Bakar in fish breeding. People there are not only suffering from access to clean water for irrigation but also access for potable water. The situation has deteriorated to the extent that some mediators travel to other villages and harbors such as Port Said where there is relatively cleaner water and sell it in barrels to the inhabitants of the region.

3.2. Northern Lakes

An interview with an environmental analyst at UNDP Cairo explained the situation concerning the fisheries in the Northern Lakes (Manzala, Maryout, Edkou and Borollos) that are getting polluted due to the outlets of agricultural wastes as well as the sewage water. The quality and quantity of the fish is deteriorating; only the fish that can survive water pollution remain. Since these fish are cheap, the revenues of the fishermen diminish and they have to leave for better livelihoods, looking for better quality fish in the Nasser Lake (Southern Egypt). Some leave for Cairo and change their means of income. Others seek new livelihoods along the regional waters in Eritrea, Somalia, Ethiopia and Sudan and are subject to arrest by the border police. Some of these fishers try to escape to Europe (Mainly Malta and Italy).

3.3. Nile Delta and Valley

One other challenging environmental concern highlighted by the UNDP office as well as the Desert Research Centre in Cairo is the water shortage, particularly in the Nile Delta and Nile Valley Regions, where most of the population resides. Due to the enormous population growth in Egypt, the yearly quota of the Nile water is no longer sufficient for the rapidly increasing population that uses old and highly water-consuming irrigation methods.

Due to the pressure on the resources caused by population growth, the soil quality of the Egyptian fertile lands has deteriorated. Especially after the Aswan
Dam was constructed, the permanent irrigation has replaced the seasonal irrigation system, which further harmed the soil through the overuse of chemical fertilizers and led to more salinity as well.

In line with the general strategy in Egypt, covering the drinking water needs takes the first priority, followed by industry and agricultural needs as the second and third priorities respectively. Therefore, the agricultural sector suffers at most from water shortage, leading in turn to migration flows to Cairo, where farmers change their activities, seeking higher standards of living.

3.4. Cairo slums

Officials at the Ministry of Migration as well as the Ministry of Environment believe that the environment does not lead directly to migration. They stress however that economic factors are influenced by environment degradation, which, in turn, influence the migration decision. They underscore the migration flows of people leaving rural areas, due to the declining yields caused by soil degradation and water shortage, and moving to the Cairo slums which are massively suffering from ‘other sorts’ of environmental problems, such as limited access to clean air, potable water, in addition to other infrastructure and social problems, including no or low quality of schooling. Therefore, there is a high potential for these migrants to leave for their original regions or look for new regions where the conditions are better.

3.5. Western and Eastern Deserts

An interviewee in the Desert Research Centre highlighted the negative effect of the sand dunes occurring in the Western Desert and which lead to the complete ‘disappearance’ of some villages, such as the old Ganah and the Moschée village within the Kharga Oasis. This lead to migration flows of the original inhabitants, where there are no concrete statistics that show the number of displaced people or their destination regions. The same phenomenon occurred in the Eastern Desert, where an Egyptian NGO is willing to run a more elaborated study about a tribe called ‘Ababda’ which vacated the Eastern zone, due to sand dunes and droughts.

Beside the expert interviews, the research conducted in Egypt targeted migrants who left their home for other regions within Egypt\(^8\), in an attempt to find out whether environmental problems influenced their migration decision. 31 questionnaires were filled out, where 26 left their home regions while 5 stayed in their home lands. At this point, it is of great importance to highlight the drawback associated with the very limited number of questionnaires filled out in the field, especially considering that they were geographically scattered in the country.

\(^8\) The field trip did not cover migrants who left the country, due to financial constraints.
Answering the question whether at any point of time environmental problems affected one’s decision to move, 72 percent of the interviewed migrants had a positive answer, 69 percent of which took the decision on their own. Most of the rest just followed their parents while still in their care.

48 percent of the migrants expect environmental problems in the future to make them and their families migrate to different places, 63 percent of which are already planning to leave due to environmental problems. Interviewees who are not willing to leave as well as people who did not leave in the first place are either attached to their regions or adapted to the environmental problems they are now facing.

While 7 interviewees did not give details on the exact circumstances under which they moved, 19 told their stories.

According to the findings, most of the people who left the relatively fertile lands in the Nile Valley and Delta and moved to Cairo were mainly induced by unemployment and poverty problems. However, in most cases land degradation and water shortage were actually the causes for these problems. Even if the migrants did not mention that explicitly, one could deduce it from their answers. The interviewees who mentioned that they left their Oasis in the Western Desert mainly to seek better livelihoods and standards of living in Cairo referred implicitly to the sand dunes that hindered them from planting and shepherding properly in their original home areas. Unfortunately, the migrants who left for the slums of Old Cairo were shocked by the fact that they were running harder lives that they had expected. All of them were hoping to find the means to move to richer districts in Cairo, since at the time of the interviews they were suffering from environmental problems as well, such as poor access to clean water and other sanitary problems. For instance, an interviewee who moved to the Doweika Slum - Old Cairo, stated the following when giving information about his experience:

*I have many reasons. I used to live in the village Kafr Sakr - Sharkia - Eastern Delta. I was looking forward to moving away to Cairo in order to improve my standard of living and to see how it is in the capital. However, I discovered that it is too crowded here. Life is not easy at all in the area I am living in. It is a ‘forgotten’ area. The infrastructure is very bad. It is very difficult to have access to clean water. At the beginning, we used to go to other districts and get the water from there. Later they (the government) supported us with a pipe that provides us with the water. Nevertheless, the water is very scarce, and it is not the standard of living that I had dreamed of when I was in the village. At the same time, I can’t afford living in a higher level district in Cairo.*
A more severe case was presented by a former farmer and shepherd herder in the village Ganah - Kharga Oasis - Western Desert who used to suffer from water shortage there and therefore moved to the Doweka Slum to run a new life. He said:

*I find the place here very humiliating for me. I thought that Cairo would be more inviting and more pleasant. Since I do not have much money, I had to live in this slum. I was complaining about water shortage in my original place and thought that this would not be a problem when I get closer to the Nile. However, I discovered that this is not the case. Sometimes tap water does not appear for three continuous days. The same applies to electricity. I find it very hard to live here. In Kharga, the weather was very healthy; I spent a long time in the fresh air, but here there is no proper airing system. I hardly see the sun from my apartment that I am sharing with five others. I almost don’t get any fresh air. At the same time, I did not get any economic benefits from living here. The money that I get from my job I spend on daily stuff to survive, since here it is very expensive. I think I would like to go back to Kharga. At least I got used to the life there.*

People who moved from one area to the other within the Nile Valley and the centre of the Delta had different reasons; some had moved with their parents who worked as peasants or farmers in the early 1980s when the owners of the fertile lands decided to use the latter in construction buildings or soil surface scrapping for manufacturing red bricks. In these cases, their parents were displaced from the lands, since they neither owned them, nor possessed signed contracts that would preserve their right to stay or to be compensated.

Although the number of people who left the land due to soil scrapping in the 1970s and 1980s is not documented, the researcher interviewed the second generation of the people who suffered from this phenomenon. The latter took place mainly in the Delta for the purpose of building red bricks as elaborated in section 1.2.6. An interviewee in Saft El-Melouk, Beheira, North-Western Delta, whose parents used to work in Beshla-Dakahleya, Northern Delta reacted as follows:

*It was sometime in the early eighties when my father and mother were working as peasants in a very fertile area. I lived with them there and can remember that we stayed there just before my elementary schooling. Then the soil was scrapped by the owner of the land in order to use it in red bricks for construction. I still remember that my parents were very sad and upset about it. They used to have many conversations about the future of the family and how they would raise and feed me and my siblings (I am the
oldest). My father was thinking of travelling to a Gulf country. I think he even tried but could not get a contract.

Most of the people affected by soil scrapping were working on the land and not owning it, since it was the decision of the owners to have their land scrapped or used for the construction of buildings, which they found more profitable at that time.

Another sort of urbanization was using the fertile lands in constructing buildings, which also had a negative effect on the peasants who used to live and work there, as this interviewee mentioned while telling the story of his parents:

Until 1982, my parents used to work in a fertile land in El-Santa, Gharbia, Mid-Delta. After a while, the owner of the land found it more feasible for him to use the land in constructing buildings. Since my parents did not have any legal rights on this land, they were ‘forced’ to leave. My father stayed a long time unemployed (six months). He was sitting on the road waiting for anyone to hire him (even on daily basis). The income of the family was quite irregular. Then a landlord in our current village (Hehya-Sharkia, Eastern Delta) was visiting the former one and looking for new workers and peasants. When he saw my father he offered him to go with him. After two years my father bought his own land here.

Others moved within the Valley and the Delta, since they were unemployed, but this group did not attempt to shift to a completely different ‘life style’ of Cairo. Therefore, they moved to similar areas, but where they could find better livelihoods. Among this group, some left their original towns in the Nile Valley and the centre of the Delta for Eastern and Western Delta, where the Egyptian government has initiated two major projects close to the Bahr El-Bakar Canal and the Noubaria Canal, respectively. The main reasons why they moved were poverty and unemployment. Nevertheless, most of the interviewees and their friends who currently live there were seriously thinking of going back to their home towns or moving to third areas, since they are suffering from environmental problems such as poor access to clean water. For example, Cairo uses the Bahr-El-Bakar Canal as an outlet for its sewage. Moreover, they claim that the infrastructure and housing in these areas are insufficient for a decent life. In addition, the schools are mainly primary rather than secondary. An interviewee there said: “We have enormous sanitary problems. The water is not clean. Besides, there are only primary schools here, and I don’t know whether there would be secondary schools for my children when they reach the age or not.”

Another interviewed group were the people who moved to the newly reclaimed desert lands, since they were unemployed in their home towns and were promised to work as peasants in these lands. However, most of them were suffering from soil and water salinity problems. Some of them already moved to
different areas within the newly reclaimed desert lands mainly because the owners of the lands decided to sell the land when they did not have enough financial means to dig for new ground water. None of these peasants could afford to own land, and therefore, they were quite mobile and were able to move easily, especially since working on these lands, was in most cases, the only financial resource for them. A farmer interviewed in this context said:

When I left my original village called Bassioun-Gharbia in Mid-Delta I started working in a newly reclaimed land in the desert. After a while the land was affected by the problem of ground water salinity. The owner of the land decided to sell the land and buy other properties instead. I had to leave the land and then I came here in Embaba, a desert location in Western Cairo.

It seems that this category of farmers feels threatened by the salinity problem, as the same farmer said:

Unfortunately, I do not own a land in the delta or in the Nile Valley, otherwise I probably would not have come here in first place. However, I will try to find someone who is willing to hire some peasants over there, which I think is quite impossible, since everyone already has the people s/he knows. I am getting tired of the water salinity problem in newly reclaimed areas. An option would be leaving for Cairo for some construction work, but I do not have any plans.

Some owners of these lands do not really need to make their living from the crops planted there because they have enough wealth to sustain themselves. Most of them originally lived in Cairo and preferred to spend the rest of their lives away from the air pollution there. Hence, they built their farms in the newly reclaimed desert lands and relied on their savings that they gained when they used to work in the capital. The salinity problem is therefore, not a problem. For example, an elderly business man who had spent most of his life in the relatively luxurious district Mohandessin-Cairo, mentioned the following in his interview:

I came here with my wife after we quitted our business in Cairo and our kids got married. We thought that we have enough money and it is time for us to enjoy our lives far from the air pollution, noise and other problems in Cairo. We bought this piece of land with the house built on it. When we came here, the land was already reclaimed and the house built on it. We run here a much more quite and peaceful life than in Cairo.

A group of interviewees in the Nile Valley and Delta were suffering from water shortage and land degradation. However, since they own the land and feel emotionally attached to it, they would not leave it, even if the pull factors in the
city or elsewhere were very strong. As long as they can afford their living, even if it worsened in the past years, they would stay. Specifically, for this group of people and the same category in other countries within the EACH-FOR project, the researcher recommended designing non-migrant questionnaires. In this case, the migrant questionnaire was adapted so that as much information as possible could be gathered about these people. An interviewee who has spent his whole life in Gerga - Sohag (Upper-Egypt) said:

> I would have the reason to move because of the water shortage and soil degradation. The soil is getting polluted and the sewage water level is increasing. Therefore, the yields are declining. However, I cannot leave my land. I have inherited this land from my father long time ago and cannot just leave it. I got used to the place, I have my big family and my friends here. I have never left this place, I have never gone to Cairo before, so how shall I simply leave it now and migrate to somewhere else? We will have to economize in our consumption and hope that things will get better.

One issue that can be classified as environmental migration due to development projects in Egypt is the movement of an entire population of the Nubia region\(^9\) (In the very South of Egypt) due to the construction of the Aswan Dam in the late 1960s/early 1970s. The people were completely displaced to Kawm Ombo (Upper-Egypt) and compensated by the government. An interviewee in this city said:

> It was my parents who migrated (got displaced) and I automatically migrated with them. When the Aswan Dam was built, the government relocated my family with many other Nubians from the region we used to live in (Nubia) to Kawm Ombo in the Southern part of Egypt. They left for Kawm Umbo with the support and help of the government that provided them with 5 feddans of fertile land to farm and to earn money. They also received a house here and later built another one when the family grew. Since then, my family settled down in Kawm Ombo and became integrated within the community here. The main reason why we had to be displaced was due to the flooding of the Nasser lake as a result of the Dam. The region where we used to live in got drawn by the water. Therefore, it was a must for us to leave and settle down here in Kawm Ombo.

None of the interviewees left the country. Nonetheless, when some of them mentioned their relatives/friends who crossed to borders, mainly to other Arab rich countries, they mentioned poverty and unemployment as the main reasons, even though these two factors may indirectly be caused by water shortage and land degradation.

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\(^9\) Currently this region is covered by the Nasser Lake that collects the flood water which is in turned used for permanent irrigation.
3.6. Analysis of findings

From the above sections, it is clear that most of the migrants did not mention the environmental problems explicitly as a cause for their migration. There are many other factors that intervene, such as poverty and unemployment, which are more striking for the interviewees, even if the poverty and unemployment are entirely or partially caused by environmental degradation.

There are considerable pull factors that support the migration decision of people who are affected by environmental degradation. For example, the style of life in Cairo, the higher living standards and income in the Gulf countries are strong reasons why people leave their towns/country and travel.

People would be leaving their home and moving to another place only if there are absolutely no more livelihood possibilities for them, such as the example of soil scrapping or urbanization, where it is not their decision but the land's owners. In this case, they have to leave for other places/regions in order to make their new living. Another case is the official displacement that occurred during and after the construction of the Aswan Dam, and where the people living in Nubia had to leave for Kawm Umbo after their land was covered by the water of the Nasser Lake.

The migrants who leave their villages/regions/the country can only do so if they have the financial means, which is in many cases not possible, since the environmental degradation had a negative impact on their income, creating a vicious circle. Usually, the farmers and cattle herders belong to poor families, and therefore, borrowing money for traveling is not a common option.

The ownership of the land is a very important fact that influences the migration decision. As long as the farmers are hired on the land, they are very mobile and flexible to environmental changes. Hence, there is an inverse relationship between the ownership of the land and the willingness to migrate. Nevertheless, owners of the land would not leave unless there is no other way or they are officially displaced by the government.

It is quite obvious that the state does not regard environmental migration to be a serious problem, or at least, the issue is not one of the important priorities. This can be concluded from the interviews with the different experts. The state is more interested in internal and international migration in general without really directly relating it to the environmental degradation. For example, the projects that have been established in the Western and Eastern Delta as well as the desert reclamation are projects
related to improving the general conditions of the farmers. Nevertheless, they are a step forward to help these people, apart from the reason why they were established. The issue is to what extent these projects are successful. It is clear that there is still a lot to be done concerning the infrastructure in Western and Eastern Delta and the salinity in the newly reclaimed desert lands. An option could be digging canals that connect these lands with the Nile River.

It seems from the field research that distance does not really play an important role when moving/migrating from one place to the other, as long as: Firstly, the movement takes place within the country. Secondly, people have the financial and social means to move. Thirdly, the new places offer them better conditions of living. An evidence for the latter is that a number of the interviewees are seriously considering going back to their home towns, since the conditions of their new destinations did not meet their expectations. In this case, the distance between the new and old places has relatively no considerable impact on the decision to leave/return back.

It is a hard task to foresee the future concerning environmental migration in Egypt, since there are many factors playing a role. As mentioned above, sea level rise could have an enormous effect on migration. However, in the context of the field research and interviewing potentially affected people, it was not possible to tackle this problem, since people are not aware of it, and it is not clear how people would react/cope in this case. Concerning the other ‘tangible’ factors, such as land degradation and water shortage, it can be expected that people will keep moving from one region to the other, as long as they can afford it. If the conditions in the original homes would improve, most of them would return back, unless the reason why they migrated were rather the pull factors in the regions of destination, such as higher living standards and style of life. As for the phenomena related to forced migration or displacement, such as soil scrapping and the construction of the Aswan Dam, lessons can be learned from the past. People may be displaced again under such circumstances, since there are political and economic factors intervening when designing development projects. Talking specifically about soil scrapping, the law released in the 1980s explicitly forbids such practices, and therefore, the phenomenon has not really occurred afterwards.

4. CONCLUSIONS AND FUTURE RESEARCH

Environmental problems, such as water shortage and land degradation are certainly important challenges facing the Egyptians, especially given the rapid population growth. From the results of the field work in Egypt it can be concluded that people in Egypt would be moving/migrating from one place to the other within the country in case of water shortage and/or land degradation only under certain conditions. They would only do that, if they are not land owners, if they
can socially and financially afford to leave their place of origin, and/or if they are forcibly displaced by the government or the owners of the land. The water shortage and land degradation factors in Egypt are presently not strong enough to make people decide to leave the country. This would need additional pull factors in the receiving countries such as a big financial return and/or higher living standards on one hand, and/or additional push factors in Egypt, such as poverty or unemployment, on the other. In general, as long as the people are not facing a sudden natural disaster, such as earthquakes or floods, they would not be willing to leave their home.

An important question would be: What implications would the environmental problems in Egypt have on the migration to Europe? As referred to in section 1.3.1., thousands of Egyptians leave their country each year with the intention of permanently resettling in various European countries. However, this estimate is general and does not refer particularly to the environmental migrants. Moreover, the data are based on the most recent CAPMAS census covering this issue and which was released in the year 2001; since this time the visa requirements for non-Europeans to enter Europe - and non-Americans to enter the USA - have got stricter due to the different economic and political global changes that have occurred during the past seven years. There is definitely a large -but unknown- number of illegal 'migrants' to Europe, but the extent to which environmental problems contribute to the migration decision in such cases remains vague, simply because the access to this category of 'migrants' is very difficult. Although Australia and New Zealand are geographically far from Egypt, it is still easier for Egyptian citizens to migrate to these countries, as the demand for foreign labor there is higher than in the case of Europe, and hence, the visa requirements are not as strict.

There are many gaps that need to be filled in the future through the undertaking of more comprehensive studies. The time allocated for field research should without doubt be longer, in order for the researcher to be able to run more in-depth analysis and meet different target groups. Moreover, the number of questionnaires filled out is not sufficient for running econometric analysis due to the low number of observations. Adding questionnaires of different case studies is not an option, since the different countries with their environmental problems and migration patterns as well as other factors are not homogeneous. It would also be useful to run the research over a longer period of time in order for the study to be comparative by questioning the same target groups twice with a time distance, for example three years, especially given that the environmental impacts in Egypt are usually a matter of process rather than sudden natural disasters.
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Expert Interviews in Egypt

**Dr. Abir Etifa:** Senior Regional Public Officer: Office of United Nations High Commissioner for Refugees (UNHCR) - Cairo.

**Tamara Refaei:** Head of Regional Communications Service Centre of the International Committee of the Red Cross (ICRC) - Cairo.

**Dr. Essam Khalifa:** Minister’s Office Director for Research and Special Studies, Arab Republic of Egypt Ministry of Irrigation - Cairo.

**Dr. Ashraf El Araby:** Executive Director and Minister’s Consultant, Arab Republic of Egypt Ministry of Planning and Economic Development - Cairo.

**Maher Nasser:** Director of the United Nations Information Centre (UNIC) - Cairo.

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**Prof. Dr. Barbara Harrell-Bond:** Distinguished Adjunct Professor, Forced Migration and Refugee Center (FMRC), American University (AUC) - Cairo.

**Dr. Mohamed Bayoumi:** Environment officer, United Nations Development Program (UNDP) Office - Cairo.

**Dr. Philippe Fargue:** Director of Forced Migration and Refugee Center (FMRC), American University (AUC) - Cairo.

**Dr. Mohamed El-Iraqi:** Head of the International Fund for Agricultural Development (IFAD) – Cairo.

**Dr. Hussein Abdel Hay:** First Undersecretary, Arab Republic of Egypt Ministry of Manpower and Emigration - Cairo.
Dr. Mohamed Deraz: Head of the Environment Section - Center of Desert Researches - Cairo.

Dr. Seinat El-Sharief: Head of the Socio-Economic Section - Center of Desert Researches - Cairo.

Dr. Saleh El-Shaikh: Director of the Egyptian Humanitarian Relief and Rehabilitation (HRRO) - Cairo.

Mrs. Rehab Mohamed: Technical Unite Officer, the Egyptian Humanitarian Relief and Rehabilitation (HRRO) - Cairo.

Dr. Ola El-Khawaga: Professor of Environmental Economics, Faculty of Economics and Political Science, Cairo University - Cairo.

Abdel-Karim Rassmy Ahmed: First Secretary General, Arab Republic of Egypt Ministry of Irrigation and Water Resources - Cairo.

Dr. Youssif Hamdy: First Secretary General, Arab Republic of Egypt Ministry of Agriculture - Cairo.