



Climate Change and Health in Egypt

Threats and Mitigation Measures

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Environmental Papers

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Abbreviations and Acronyms

COP	Conference of the Parties to the United Nations Climate Agreement
COPD	Chronic obstructive pulmonary disease
EIA	Environmental impact assessment
EIPR	Egyptian Initiative for Personal Rights
GAHAR	General Authority for Health Accreditation and Regulation
GDP	Gross domestic product
HIA	Health impact study
ICESCR	International Covenant on Economic, Social and Cultural Rights
INC	Initial national communication
MoHP	Ministry of Health and Population
NDC	Nationally Determined Contribution

SDGs	Sustainable Development Goals
UN	United Nations
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
WHO	World Health Organization

I. Introduction

Climate change affects the social and environmental determinants of health, such as clean air, drinking water, sufficient nutrition and adequate housing. Because of this escalating impact, there is an urgent need to reform health systems to enable them to deal with any possible - if not inevitable - deteriorations resulting from the disruption of one or more of these social/environmental determinants of health.

According to the World Health Organization (WHO), climate change is the largest global health disaster that represents a serious threat on many levels. On the one hand, climate change causes physical and psychological diseases, as well as an increase in zoonotic (animal-transmitted) diseases and communicable diseases, whether through food, water or insects. It also causes an increase in mortality rates as a result of an increase in natural disasters and extreme weather patterns such as heat waves, storms and floods that become more frequent and fierce. On the other hand, climate change affects the quality of healthcare services and the availability of facilities. Disease control systems and the capabilities of healthcare workers are also negatively impacted, which may hinder access to health services.¹

¹ World Health Organization: Climate Change and Health

With the twenty-seventh session of the Conference of the Parties to the United Nations Climate Agreement (COP27) hosted in Sharm el-Sheikh approaching, the Egyptian government is picking up pace in integrating its environmental agenda in its ministries' future plans. For instance, as a reference for local climate action, Egypt launched the National Climate Change Strategy 2050 and the updated report on Nationally Determined Contributions (NDCs).²

In this context, the Egyptian Initiative for Personal Rights (EIPR) is publishing this policy paper on health and climate change in an attempt to contribute to the ongoing debate on health/environmental policies that regulate the intersection between public health and the environment in Egypt.

² Nationally Determined Contributions

II. Background

Health is defined as “a state of complete physical, mental and social well-being, not just the lack of illness or disability.”³ In addition, Article 12 of the International Covenant on Economic, Social and Cultural Rights (ICESCR) states that “everyone has the right to the enjoyment of the highest attainable standard of physical and mental health.”⁴

Recently, international health organizations have been working hard to accelerate scientific research that assesses health burdens resulting from climate change. Because of the ultimate impact of climate on our health, the WHO has invited the health community to sign a letter - the Healthy Climate Prescription⁵ - at the twenty-sixth session of the Conference of the Parties to the United Nations Climate Convention (COP26) in November 2021 in Glasgow. The letter called for placing health and social justice at the top of the priorities of the UN climate talks, listening to and supporting healthy communities and prioritizing climate interventions that bring

3 World Health Organization Constitution

4 United Nations: International Covenant on Economic, Social and Cultural Rights

5 Healthy Climate Prescription

the most substantial health, social and economic gains. The WHO also called for developing the healthcare sector's ability to withstand climate risks and recommended the mitigation of emissions of greenhouse gases and air pollutants.

The WHO's call ahead of COP26 came after a 2021 survey on health and climate change in 95 countries to assess the response of health systems to the challenges resulting from climate change. The results of the survey concluded that most countries are now including health in their national climate plans in accordance with the Paris Agreement (on climate change). These plans, however, remain theoretical and lack specific health procedures and interventions or support mechanisms.⁶ During COP26, the WHO launched an initiative calling on countries to make two commitments in the healthcare sector: the first is to build healthcare systems that can adapt to climate change, and the second is to build sustainable, low-carbon healthcare systems to reduce the contribution of the healthcare sector to pollution.⁷

⁶ 2021 WHO Health and Climate Change Survey Report

⁷ WHO: COP26 Health Programme

III. Methodology

The writing team reviewed the reports submitted by Egypt to the UN on its commitments to the climate change agenda in order to inspect the government's direct plans for the healthcare sector and the commonalities and intersections between plans for the healthcare sector and other sectors. According to the United Nations Framework Convention on Climate Change (UNFCCC), which was signed in Rio de Janeiro in June 1992 and entered into force on March 21, 1994, all parties to this convention need to submit national communications in accordance with Articles 4.1 and 12.1, containing the procedures and plans adopted by the country to meet the convention. Egypt submitted its initial national communication (INC) in 1999, the second national report in 2010 and the third in 2016.

On another front, according to the 2015 Paris Agreement, which contained plenty of updates to the UNFCCC mentioned above, all parties to the convention should publish their NDC reports, which include their climate action plans to reduce emissions and adapt to the climate change impacts. All parties to the Paris Agreement are obliged to develop a nationally determined contribution and update it every five years. Egypt released its first NDC Report in 2017, followed by its first update this year in June 2022.

This paper was also based on a reading of the WHO's assessments of the Egyptian health sector. The almost exclusive reliance on international assessments and indicators was due to the difficulty of reaching and accessing information from the Ministry of Health and Population's (MoHP) bodies that are designated to work on climate change. Many official government statements and reports are not published publicly and are only circulated within specific entities.

For example, the latest Human Development Report, released by the United Nations Development Programme (UNDP) in 2021, was based on at least six unpublished health data sources, according to the report's references. One of those unpublished sources is a paper by the MoHP in 2019 titled: *The Strategic Vision of the Ministry of Health and Population in the Framework of Updating the Sustainable Development Strategy: Egypt Vision 2030*.⁸ This paper seeks to analyze local and international reports in an effort to assess the gaps within the healthcare sector's preparedness for potential climate change risks.

⁸ Egypt Human Development Report 2021

IV. The Health Burden of Climate Change

Climate change has multiple impacts on health, including the emergence of new diseases, premature deaths and malnutrition in all its forms, as well as threats to mental health and quality of life.⁹ Multiple compound risks affecting health due to extreme weather events have been observed in all populated areas and are expected to increase as temperatures rise even further and as extreme weather phenomena, in general, become more frequent.

Examples of the direct relationship between disease and climate change include the close link between climate variability (including temperature, relative humidity, and precipitation) and population mobility due to observed increases in Dengue fever globally and to the Chikungunya virus in Asia, Latin America, North America and Europe.¹⁰ Climate change is increasingly contributing to the exacerbation of negative health conditions and the emergence of communicable and non-communicable diseases in several geographic locations. Many chronic respiratory diseases, for instance, are non-infectious but highly sensitive to climate fluctuations (e.g., heat, cold, dust, fine particulate matter, ozone and allergens).

⁹ IPCC, Climate Change 2022: Impacts, Adaptation and Vulnerability

¹⁰ IPCC, Climate Change 2022: a threat to human wellbeing and health of the planet. Taking action now can secure our future.

Fluctuations in climate also contribute to food insecurity which can lead to malnutrition in the form of undernutrition or obesity. It can also lead to an increase in disease susceptibility in low and middle-income countries. A significant increase in ill health, premature deaths from diseases and climate-sensitive conditions due to climate change is expected. More than 250,000 deaths a year are projected to occur by 2050 due to climate change – only due to heat, undernutrition, malaria and diarrhoeal diseases that will increase with the change in weather, with more than half of these excess deaths expected to occur in Africa alone. Projections also point to an expected increase in the prevalence of many food, water and vector-borne diseases as a result of climate change, assuming no further adaptive measures are taken (although adaptation itself cannot provide a single comprehensive solution to these health problems).

The cost of the direct impact of climate change on health is estimated to reach US\$2-4 billion annually by 2030. Most of the areas with poor health infrastructure are concentrated in developing countries.¹¹

¹¹ Climate Change and Health-WHO

In Egypt, the heat wave that hit the country in August 2015 left 1,708 people injured and 92 dead nationwide due to heat stress, according to a statement from the MoHP at the time. All fatalities belonged to the elderly population, with the exception of a 26-year-old case with a brain tumor; no children were affected.¹² The intensity and frequency of heat waves are expected to increase over time with the increase in the severity of climate change phenomena.

¹² Shorouk News: Ministry of Health: 1708 affected and 92 dead as a result of the heat wave in a week (Arabic)

The health risks of climate change



Diseases linked to high rises in temperature including concurrent heat stress, fainting and maybe even death



Injuries and deaths resulting from extreme weather conditions like hurricanes and floods.



Malnutrition and foodborne diseases



Safety of stored food: These include infection from salmonella and campylobacter which may lead to diarrhea and food poisoning.



Diseases transmitted by insects like mosquitoes



Water-borne diseases: Climate change leads to noticeable fluctuations in water quality and quantities for drinking and general purposes leading to diarrheal diseases affecting all ages



Zoonotic (animal transmitted) diseases: Climate change will increase the likelihood of transmission of diseases between animals and to humans, leading to emergence transmissible diseases.



Effects on psychological and mental health including anxiety and depression



Effects on healthcare facilities including increasing patients' flows on hospitals, the need for more resources to attend to rehabilitation and preparedness of the healthcare system and increasing pressure on healthcare workers.

V. Climate change and the government: Health strategies and plans

This section reviews the health agenda in the three national reports and assesses the extent to which the national strategies shed light on health burdens, such as morbidity and mortality, as direct results of climate change. It also attempts to assess the indirect health effects associated with climate change that could result from rising sea levels, soil salinity, the deterioration of crops and, thus, malnutrition.

1- Egypt's National Reports

According to the UNFCCC, the Egyptian government has issued three national reports on the state of emissions from different sectors on the local level and the preventive measures required to adapt to climate change. Reports issued by the Ministry of Environment indicated that the negative impact on the health sector is one of the expected risks resulting from climate change. This will be due to the changes accompanying the rise in temperatures, such as the rise in seawater levels in the Delta area and the resulting increase in soil salinity and its impact on the quality and quantity of crops.

The health agenda was addressed, to varying degrees, in all three national reports issued by Egypt by mentioning the health burdens of climate change, such as direct morbidity and mortality, or the indirect health effects associated with the change in weather and the resulting impacts, such as sea level rise, soil salinity, deterioration of crops and malnutrition.

- The first Egyptian national report was issued in 1999 without any explicit mention of the health dimension. It touched on the impact of climate change on health briefly and quickly, but it, at least, drew attention to the significant lack of studies and estimations linking climate change and health in Egypt.¹³

- In the second national report issued in 2010¹⁴, however, the health dimension was more present in the theoretical/scientific explanation of the effects of climate change. It also reiterated the same observation made by the 1999 report that there is a lack of studies on the effects of climate change on health in Egypt.

The report included various recommendations for necessary adaptive measures to be undertaken by the health sector, the most important of which can be summarized as follows:

¹³ The Arab Republic of Egypt: Initial National Communication on Climate Change - June 1999

¹⁴ Egypt Second National Communication - 2010

- Improving access to healthcare services and the need to reform the health sector.
- Improving the quality of the healthcare provided to people with chronic diseases (e.g., coronary heart disease, cancer and diabetes in rural areas).
- Improving vaccination programs.
- Developing early warning systems and infection prevention and control programs.
- Developing weather forecasting, disaster planning and early warning systems.
- Conducting research on heat-related diseases, non-communicable diseases, the social and economic impacts of extreme weather events, water and food-borne diseases, and vector and rodent-borne diseases.

- As for the third national report issued in 2016¹⁵, it covered the health dimension extensively and presented fundamental information on the relationship between climate change and health. The report presented, in more detail, the expected health damages and diseases. For example, it predicted that Egypt is vulnerable to vector-borne diseases such as malaria, lymphatic filariasis, Dengue fever and Rift Valley fever as the climate is suitable for vectors. The report also noted the possibility of this happening due to emerging weather-related phenomena, such as water short-

15- Egypt Third National Communication-2016

ages or floods. The report made the same old recommendation, as the 1999 and 2010 reports, of developing coping mechanisms in the health sector.

2 - The National Strategy for Adaptation to Climate Change and Disaster Risk Reduction (2011)¹⁶

This strategy is perhaps the most important official government document detailing the damages of climate change to health and providing recommendations and plans to adapt the health sector to climate change. The strategy, for example, provided a detailed account of the direct effects of climate change on the health sector, as referred to in previous reports. It also provided a comprehensive and accurate analysis of the healthcare sector in Egypt at the time and considered the weakness of public healthcare services, the fragmentation of the healthcare system and the double burden of disease in Egypt (the presence of both chronic and infectious diseases) as fundamental obstacles facing the implementation of adaptation programs in the sector.

What set the strategy apart is the proposal of seven basic programs as adaptation projects in

16- Egypt's National Strategy for Adaptation to Climate Change and Disaster Risk Reduction, 2011

the healthcare sector to be implemented over a five-year period, with total investments of EGP 1.184 billion pounds (See Annex 1).

However, more than ten years after the strategy came into effect, and given the structural problems and lack of transparency in public institutions in Egypt, it is not clear whether one step of the five-year plan or the strategy was implemented. It is probable that implementation was not done in a concrete way as the researchers did not find any evaluation studies for any of the programs. In addition, they couldn't find any news covering a phased implementation of any of the programs or mentioning the reason for the delay in their implementation.

3- Nationally Determined Contribution Report 2017

Egypt released its NDC report in 2017, which confirmed the same basic information about the link between climate change and health and provided a specific example of the damage that Egypt already faced in 2015 from the many deaths due to heat stress caused by very high temperatures.¹⁷

17- Egyptian Intended Nationally Determined Contributions as per United Nation Framework Convention on Climate Change

As for the most recent report issued on June 8, 2022, it mentioned mitigation and adaptation measures related to the healthcare sector in a brief and general way. It also stipulated the need to improve the efficiency of the healthcare sector in dealing with climate change and the importance of raising awareness of preventive measures to mitigate risks and confront crises and disasters at the political and societal levels.¹⁸

4 - National Climate Change Strategy 2050

This year, Egypt issued the executive summary of the National Strategy for Climate Change in Egypt 2050, the latest strategy prepared by the state to confront climate change, the full text of which has not yet been issued. The summary indicated a limited number of measures to be taken regarding the healthcare sector.

The strategy did not bring something new to the table and did not build on the 2011 strategy. The biggest surprise in the new strategy, which was launched after Egypt pledged to build healthcare systems that can adapt to climate change during COP26 in 2021, was the absence of

18- Egypt's First Updated Nationally Determined Contributions

the healthcare sector from the adaptation and mitigation programs proposed.

Furthermore, no development was found in terms of the recommendations mentioned in the previous reports, such as the five-year project stipulated in the 2011 strategy. The strategy only mentioned nine general recommendations on the dangerous effects of climate change on health. For example, the strategy recommended that the MoHP should study the expected impact of climate change on health. A plan to effectively address these effects has been developed and adopted, similar to the recommendation that appeared in the first national report in 1999.

5- Guide for green and sustainable healthcare facilities

Egypt was not expected to issue a guide to green healthcare facilities because it did not sign a pledge obligating it to transform its already existing facilities to be low-carbon and sustainable at COP26, according to the WHO. It did, however, pledge to build a healthcare system that is resilient to climate change. The guide is concerned with reducing the carbon footprint of healthcare facilities and assessing the efficiency of establishments from the environmental aspect, such as energy and water consumption, waste disposal, the efficiency of medical devices and disaster preparedness.

According to the guide issued by the General Authority for Health Accreditation and Regulation (GAHAR), a green hospital is defined as “a building that improves the health and well-being of patients and helps in the treatment process while using natural resources in an environmentally friendly and efficient manner.” As per the guide, the purpose of its issuance goes in line with Egypt’s Vision 2030 and the Sustainable Development Goals (SDGs), and it comes in the context of linking comprehensive health insurance to environmental issues, i.e. the issuance of the guide was not part of Egypt’s pledge at the climate conference.

There is a general wave of expansion of green projects in light of Egypt’s hosting of the upcoming COP27 in Sharm El-Sheik, which is considered a positive trend on all fronts. The most important thing, however, is the development of adaptive policies for the healthcare sector that are mainly concerned with the implementation of universal health insurance, as previously stipulated in the national reports and strategies . As of yet, we have not seen any tangible outputs from the programs proposed in the 2011 national strategy.

VI. The gap in organization, evaluation and integration between sectors (Commentary on institutional preparedness and level of planning)

Current healthcare systems are required to respond to any possible deterioration resulting from the disruption of any of the factors affecting the social and environmental determinants of health, either by modernizing the infrastructure of healthcare facilities to respond to those risks, or by collaborating with other public health sectors to improve health interventions.

The assessment of health preparedness for climate change issued by the WHO in 2021, which evaluated the initial preparedness of health systems and assessed strategies, plans, sectoral coordination and surveillance systems for potential diseases emerging from climate change, indicates that Egypt has an institutional structure that can implement strategies to combat the risks of climate change. However, barriers for implementing these plans include shortages in human resources, lack of funding and COVID-19 among others.

The following section presents the different findings of the WHO's report on Egypt.

1- Government Policies

According to the WHO survey, Egypt has prepared a national strategy for health and climate change that was documented and issued in 2017. Going back to this date, it was the year in which Egypt submitted its first NDC report, in accordance with the Paris Agreement. The health component of the document, which consisted of only 13 papers, stipulated four main goals to enable the health sector's adaptation to potential environmental risks. The four goals are (1) identifying health risks, (2) educating the community about risks, (3) increasing the efficiency of the healthcare sector and improving its services, and (4) supporting the efforts of the MoHP to improve the social and economic statuses and demographic characteristics.

The four identified goals are not new. The 2011 national strategy was more detailed and even defined a five-year program and projects covering a period of twenty years (Annex 1). It is hard not to notice that every document issued by the state is dissociated from what came before and after it. This detachment comes as a result of the government's focus on adhering to the formal obligations of international treaties rather than the actual content of the said documents. Usually, the responsibility of preparing these reports falls on specialized consulting firms with the assistance of international institutions. Because there are deadlines for submitting reports to the

UN, the responsibility of issuing the reports falls on only one government agency for quicker results. Consequently, the timely completion of the written document becomes more important than community engagement, conversations and the selected programs themselves.

The successive strategies from 1999 until now, which were issued by the government in compliance with the international treaties on climate change, did not result in the implementation of any programs for several reasons, the most important of which is the insufficiency of government spending on the health sector. Furthermore, the proposed programs required extensive coordination between the concerned ministries, which, unfortunately, did not happen.

Also, serious community dialogue between healthcare professionals and the rest of the key stakeholders was required to ensure the implementation of effective programs that suit our local conditions but again, did not take place.

Reviewing the WHO assessment of the status in Egypt for the years 2015¹⁹ and 2021²⁰, we find that the situation is almost unchanged at the implementation level. There is always a strategy in

19- WHO: Health and Climate Change: country profile 2015: Egypt

20- 2021 WHO Health and Climate Change Survey Report

place but without specific mechanisms for implementation, monitoring, follow-up or identification of strengths and weaknesses. This persistent gap is the result of the lack of integration of intersectional policies and strategies that build on each other.

Table 1: WHO Assessment of Health and Climate Change for 2021

Has the country conducted an assessment of climate change, health vulnerability and adaptation?	Under execution	At what stage of implementation is the national health and climate change plan or strategy?	Medium/Moderate (some actions are being taken regarding the priorities of the plan/strategy)
Is there a national plan/strategy for health and climate change? When was it completed?	Yes, there is a strategy. In 2017.	Is there a designated focal point responsible for the agenda of health and climate change at the Ministry of Health?	Yes

Is the agenda of climate change and health included in the COVID-19 recovery packages in your country?	Data not available	Have any of the public healthcare facilities in the country been evaluated for their ability to adapt to climate change?	No
Has the Ministry of Health established a mechanism for stakeholders on health and climate change that is currently operating (such as a task force or committee)?	No	Has there been an evaluation of the common health benefits of climate change mitigation policies in the country?	Under execution
Have any public healthcare facilities been evaluated for environmental sustainability?	No	Does the Ministry of Health currently receive international funding to support the healthcare sector and climate change?	Yes

2- Institutional Capabilities

According to the WHO assessment, there is a bureaucratic structure in Egypt that allows for the integration of environmental policies in the MoHP, but there is a need to develop these departments technically, train the workforce and provide the necessary funding.

The mandate of many departments intersects with the climate change agenda, such as the food control, central laboratory, quarantine, infection control, epidemiology and surveillance, environmental monitoring and environmental health departments.

For instance, the environmental monitoring department is concerned with the monitoring of various pollutants of different elements of the environment (this term includes water, air and soil, as well as nutrient mediums). The state monitors air pollutants through the National Air Pollutants Monitoring Network and the Environmental Health Administration. However, there are no published reports detailing the activities of these departments, assessing their role, or listing plans for their development.

The WHO report also indicates that, so far, there is no joint cooperation between them and the meteorology department, which is the point from which any work related to healthcare

preparedness and climate change starts. Furthermore, there is a lack of coordination with the ministries concerned with the energy sector, which plays the biggest part when it comes to harmful emissions in Egypt.

The following table shows the extent of cooperation between the MoHP and various other sectors, such as environment and agriculture, in the collaborative planning of health and climate change programs.

Table 2: Is there a memorandum of understanding or any other agreement in action between the Ministry of Health and this sector/ministry that defines specific roles and responsibilities related to health and climate change policy or programs?

Agriculture	Education	Energy	Environment	National Services on Meteorology and Hydrology	Social Services	Transport	Urban Development and Housing	Water, Sanitation and Hygiene
✓	X	X	✓	X	✓	✓	X	✓

3- Execution

One aspect of preparedness for climate change that intersects directly with health policies is surveillance programs for diseases likely to be caused by a change in the climate or weather. The evaluation shows that Egypt has multiple surveillance systems for diseases in general (for example, surveillance programs for infectious diseases such as hepatitis C and others for which the MoHP has dedicated independent programs to respond to), but the general characteristic of these systems is that they are not linked to weather forecasts. Disease surveillance systems are preventive measures to anticipate the risk of disease from multiple sources, including the prediction of disease due to climate change. However, there are no early warning systems in Egypt to link disease surveillance to climate change. The survey shows that there are several “unknown” aspects, which means that the survey did not find a clear answer to the questions submitted to the MoHP.

Table 3: Evaluation of disease surveillance programs associated with climate change

	Are there health monitoring systems?	Does the health monitoring system include meteorological information?	Are early health warning systems linked to climate predictions?	Has the early health warning system associated with climate predictions been evaluated?	Is there a response plan in the health sector?
Airborne and respiratory diseases	✓	X	X	X	✓
Heat-related Diseases	✓	✓	X	X	✓
Injuries and fatalities from Extreme Weather Events	✓	X	X	X	✓
Malnutrition and food-borne diseases	X	Data not available	Data not available	Data not available	Data not available

Mental and Psychological Health	✓	X	X	Data not available	Data not available
Non-Communicable Diseases	✓	X	X	X	✓
Vector Borne Diseases	✓	X	X	X	✓
Water-borne diseases and other water-related health consequences	✓	X	X	X	✓
Zoonotic Diseases	Data not available	Data not available	Data not available	Data not available	Data not available
Effects on Healthcare Facilities	Data not available	Data not available	X	Data not available	Data not available

VII. Discussion of gaps and opportunities

In Egypt, the cost of adaptation to the expected health burdens or developing technology in the context of Egypt's climate strategy 2050 has not been estimated in order to be included in the climate funding needs.

There is an opportunity to harness the momentum of international climate action to support the health sectors in the countries of the Global South. The UNFCCC specifies the need for the development and transfer of adaptation and emission reduction technologies, including both financial and non-financial components. As a result, \$100 billion from industrialized countries are allocated annually to fund adaptation and mitigation needs in developing countries.

So far, the rich countries are not paying the full amount owed, and most of the funding they provide is in the form of investments in the energy sector or in the field of reducing emissions. Developing countries are trying to call on developed countries to commit to and increase funding for adaptation. The file of climate funding will be a priority on the agenda among the delegations of countries at COP27, hosted by Egypt.

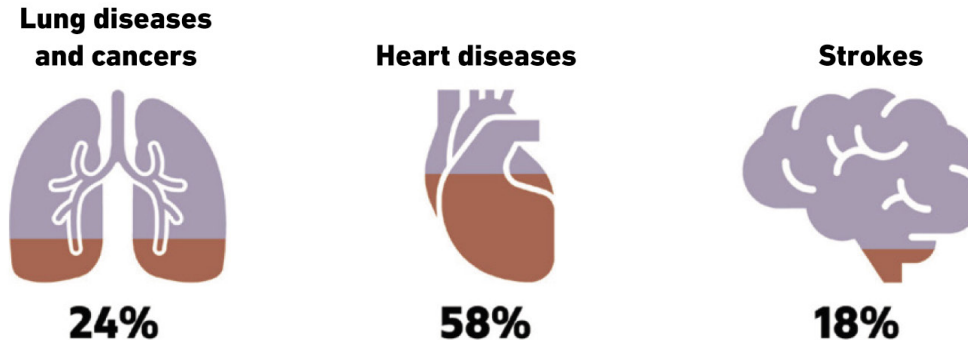
The healthcare systems in the countries of the Global South suffer from many problems, foremost of which are the shortage of doctors and the migration of medical talent as a result of the chronic deficit in funding the sector. Therefore, it is necessary for developing countries to try to assess their needs to adapt to climate change to use them as leverage while negotiating for climate funding and compensation resulting from loss and damage due to climate change. This assessment is also important as a reference for allocating budgets in the healthcare sector in the future.

In light of Egypt, an African representative nation, hosting the climate conference this year, the Egyptian government should have deepened the discussions around the climate change strategy 2050, integrated health programs with specific costs and cooperated with representatives of the healthcare sector from different African nations. This step was critical in order to assess the status of their healthcare systems, represent the demands and needs of their people and help put pressure on the countries responsible for climate change with regard to compensation and technology transfer in the health sector in the conference.

1- The Burden of Disease

Air pollution contributes to the occurrence of diseases that cause premature deaths in Egypt. According to the WHO database, the diseases that cause premature death as a result of air pollution in Egypt in 2016 are heart disease (57.9%), strokes (17.7%) and lung diseases, lower respiratory diseases and cancer (24.4 %).

Diseases causing premature deaths as a result of air pollution in Egypt in 2016



Source: The World Health Organization

However, we cannot access any documents indicating the presence of any coordination, planning or work programs between the health and environment ministries to clarify the relationship between air pollutants and non-communicable diseases. There were also no initiatives found aiming to set preventive measures to reduce the burden of disease resulting from air pollution, whether by introducing legislation to respond to this burden or at least coordinating between the different ministries and local administrations concerned with building air pollution mitigation systems.

As evidence of the significant health burden of air pollution-related diseases in Egypt, a scientific paper issued in 2019 reported a correlation between increases in the concentration of fine particles with a diameter of 10 microns (PM10) per 10 micrograms/m³ and the increase in hospital admission rates for chronic obstructive pulmonary disease (COPD) and bronchitis by 1-2 %.²¹

We do not find that the environment and health ministries have an effective voice in discussions on development policies that directly affect the aforementioned inputs. Perhaps the most striking example of this is the wave of urban development in Cairo and other major cities, which

21 Heger, Martin Philipp, Lukas Vashold, Anabella Palacios, Mala Alahmadi, Marjory-Anne Bromhead, and Marcelo Acerbi. 2022. "Blue Skies, Blue Seas: Air Pollution, Marine Plastics, and Coastal Erosion in the Middle East and North Africa." Overview booklet. World Bank, Washington, DC.

includes widening roads and increasing the areas allocated for private car lanes at the expense of green spaces and removing old trees. We do not know if the two ministries contributed to the development and implementation of these local plans.

The Opportunity:

Despite the burden and obstacles, there are still many opportunities present. There is already recognition by the government in most national climate change reports that the healthcare sector needs to adapt to climate change and its consequences on public health. It is mentioned extensively in the executive summary of the national strategy for climate change in Egypt 2050 and in the first report of the updated specific national contributions. In addition, there is already a clear plan for adaptation within the health sector that was issued in 2011, with specific time-lines and cost estimates for implementing the tasks previously set but not executed.

Many of the existing programs and recommendations can be built upon and operationalized, as well as incorporated into the funding needs required to adapt to climate change in the full document of the Climate Strategy 2050, which has not yet been published.

An important step in analyzing the expected health status in general, is setting certain health standards and obligating all concerned parties in any project to conduct a health impact assessment study before approving the project. Governments generally require environmental impact assessments (EIAs) for different projects to assess the potential environmental damage caused by different activities on more than one front.

After reviewing the standards necessary for conducting EIAs in the Egyptian Environmental Impact Assessment Foundations and Procedures Guide, which specifies the requirements of the study based on the text of the Environmental Protection Law No. 4 of 1994 and its executive regulations, we found that the guide does not include the expected health effects of building and operating projects within the required standards and procedures and this requires constant modification.

Obliging investors to conduct a health impact study (HIA) for industrial and service projects has many benefits at many different levels. From a health point of view, health assessments of projects give us an initial picture of the risks that workers or the surrounding population may be exposed to. This will help in building sustainable knowledge about the health statuses of different regions and building capacities in the field of environmental health.

It will also help the government - centrally - to take rapid action to mitigate injuries resulting from health emergencies such as epidemics, or to prioritize political interventions in moments of health crises. For example, workers in air-polluting factories such as cement, ceramic and fertilizer factories, who suffer from chest or heart diseases, have priority in vaccinations against an epidemic such as COVID-19 in keeping with the age classification agreed upon while setting vaccination priorities.

From a social point of view, these studies and the consequent standard conditions required before implementing projects will help the workers themselves benefit from preventive health measures, such as imposing periodic health assessments for workers and ensuring their rights to health insurance.

2- In terms of the Social Burden

Individuals in Egypt spend about twice the global average on health. According to the latest survey, the results of which were published in 2021²², direct out-of-pocket payments are estimated

²² Ministry of Planning and Economic Development: Human Development Report in Egypt 2021

to be more than 62%, and household spending on health is estimated to be 10% of the monthly income. Government spending on health in Egypt, however, does not exceed 1.5% of the gross domestic product (GDP), which is half the percentage set by the constitution.²³

The extreme rise in temperatures is expected to have health consequences for those with preexisting health problems and those working in direct sunlight, from farmers to builders, who are often low-income workers. With citizens bearing the burden of the cost of treatment and the chronic deficit in government spending on health, the socially disadvantaged groups will be at a further disadvantage, and the social burden will increase due to the aggravation of the health effects associated with climate change.

The Opportunity:

Universal health insurance can be one of the appropriate tools for integrating environmental policies in the healthcare sector on several levels. First, on the funding level, one of the sources

²³ The Egyptian Initiative for Personal Rights: Egyptian Social Protection Policies in the Face of Corona 2021 (Arabic)

of financing the comprehensive health insurance system is what's referred to as "other contributions," or community financing, or fees allocated to health within a package of goods and services that do not affect the interests of the poor as a form of social solidarity and the expression of social responsibility. Others are for the richer private industrial and commercial sectors in society, which achieve large profits that partially come from activities that pollute the environment.

Subtracting part of these profits to reduce the health and societal burden resulting from some economic activities does not lead to more inflation or impede investment. There are models of these taxes that exist in Egypt and most countries, even if they are not necessarily seen as environmental or health taxes - such as cigarette taxes and the percentage directed at financing the health sector from toll stations. It is possible to start a discussion on mechanisms that can increase funding of health insurance from activities and practices that harm the environment and expand the definition of those activities as a result of the growing awareness of their long-term damage. Carbon taxes imposed on industries and activities that increase carbon emissions is a simple example.

3- In Economic Terms

There is already a significant tangible cost that results from the degradation of the local environment by pollutants from the industrial, energy, transport and waste sectors. The cost of illness and death can be translated as a loss of economic opportunities, given that a patient's absence from work is considered a loss of productivity. In addition, there is significant economic loss resulting from the weak appeal of certain cities for tourists due to pollution or the pollution of archaeological sites and other forms of local damage. These are just two examples of the economic impact of the deterioration of the environment and health. This is not to mention the squandering of the rights of citizens who are caused to suffer health crises or premature death.

In a study prepared by the World Bank on the cost of environmental deterioration in Egypt in 2016/2017, the economic cost of air pollution in Greater Cairo was estimated at about EGP 47 billion, which is equivalent to 1.35% of GDP. The economic cost of insufficient clean drinking water, sanitation and hygiene at the national level amounted to EGP 39 billion, which is equivalent to 1.15% of the GDP. The report demonstrates that costs related to water are likely to be higher than this figure suggests due to non-specific exposure to lead and other heavy metals and

chemicals through drinking water.²⁴ Greenpeace estimates the cost of health losses caused by air pollution resulting from burning fossil fuels in Egypt at more than EGP 100 billion, which is equivalent to 2.8% of the 2018 GDP.²⁵

Increasingly rising temperatures and extreme weather patterns will introduce new health burdens, which will, in turn, increase pressure on health facilities and thus increase the need for increased spending on the health sector.

The Opportunity

Egypt's vision in the 2030 Sustainable Development Strategy for the Environment, issued in 2015, was to integrate environmental dimensions into all development and economic sectors. Egypt introduced a single indicator, "the cost of environmental degradation," in its sustainable development strategy. Although we have not yet seen any outputs indicating that this indicator was developed to be actually used, it is necessary to build on the strategy in order to expedite

²⁴ Larsen, Bjorn. 2019. Egypt: Cost of Environmental Degradation: Air and Water Pollution. The World Bank.

²⁵ Greenpeace. Toxic air: the true price of fossil fuels. 2020 (Arabic)

the assessment of the environmental cost of the current situation and the development plans to be implemented. It can be detailed and specific by adding an assessment of the cost of the health burden along with environmental degradation to ensure that the political interventions would reduce both the environmental and health burdens.

No taxes are imposed on noise, emissions, wastewater pollutants or hazardous waste in Egypt. Environmental taxes represent an opportunity to increase tax revenues on the one hand, and reduce pollution on the other. It is believed that they are able to reach the informal sector in Egypt, and serious societal dialogue and sufficient studies are required to activate its role in the coming years.²⁶

²⁶ Hamdi Ahmed Ali El Hindawi, Environmental taxes as a Contemporary Approach to the Development of the Egyptian Tax System. *The Scientific Journal of Financial and Commercial Studies and Research, Faculty of Commerce, Damietta University 2022. (Arabic)*

Annex

Adaptation programs in the health sector included in “Egypt’s National Strategy for Adaptation to Climate Change And Disaster Risk Reduction, 2011” and the estimated investment costs of adaptation projects in the health sector in the 2011 accounts.²⁷

²⁷ Egypt’s National Strategy for Adaptation to Climate Change And Disaster Risk Reduction, 2011, <http://www.climasouth.eu/docs/Adaptation011%20StrategyEgypt.pdf>

The estimated investment costs of adaptation projects in the health sector

Activity / Project	Investment cost estimates (in millions of Egyptian pounds)				Total (in million Egyptian pounds)
	1st five-year plan	2nd five-year plan	3rd five-year plan	4th five-year plan	
A- Determining health risks expected to occur as a result of climate change:					
1. Providing information for effective planning and implementation:					
- Creating a database on the health status of the ARE including the current prevalence of diseases, risk factors, and the availability of preventive measures.	100*				100
- Providing information on health hazards expected to occur as a result of climate change					
2. Encouraging scientific research and field and demographic studies:					
- Determining the main issues which the provision of information requires through research and studies.	20	20			40

- Coordinating scientific and demographic research at both local and international levels to assess the present situation and determine the strong and weak points of research policies and capabilities.					
- Placing climate change at the top of priorities in terms of scientific research and studies in the field of health and population.					
B- Raising Community awareness about climate change risks and adaption means:					
- Launching awareness-raising activities at both political and strategic levels by activating the role of the media and civil society and coordinating the efforts of the Ministry of Health and other relevant different ministries and bodies.	20	20	30	30	100
- Raising citizens' awareness and encouraging healthy behavioral changes that would reduce damage resulting from exposure to climate change.					

- Coordinating with civil society organizations to take an active role in educating society.					
C- Increasing the efficiency of the healthcare sector and improving the quality of health services in dealing with climate change:					
- Placing health hazards resulting from climate change among the priority issues of the Ministry of Health plans and projects.	5	5			10
- Listing the necessary means of prevention and treatment of health hazards arising from climate change in health development programs, particularly primary health care packages and health insurance programs.	10	10			20
Increasing the efficiency of health units and improving the quality of service provided to adapt to climate change impact, in terms of infectious or non-infectious diseases, both in Upper and Lower Egypt and in rural and urban areas alike through:					
Completing the development of the infrastructure of healthcare outlets.	100	100	150	150	500

Developing a system for detecting infectious diseases and vectors.	10	10	15	15	50
Developing vaccination programs and increasing the budget for research and vaccine production.	10	10	15	15	50
Creating a comprehensive database for diseases accompanying climate change, and making it available for all those concerned, such as governmental bodies, private sector and civil or nongovernmental organizations, with a program for information exchange among all these various bodies.*					
Training medical teams on ways and means of dealing with the phenomena accompanying climate change.	25	25			50
Raising the efficiency of hospital emergency rooms in receiving and handling injuries resulting from unexpected and extreme events, such as torrential rain, storms and floods.		150			150

D- Supporting the efforts by the Ministry of Health and Population to improve the social and economic status and population characteristics:					
- Determining the current situation and the social and economic needs.	20	20	25	25	90
- Increasing the interest of the population and population control programs.					
Total investment cost estimates for the health sector					EGP 1.160 billion

* This item is included in enhancing and supporting the national plan for developing information technology.

Estimated investment costs of adaptation projects: projects, research programs and studies

Axis	Activity / Project	Investment cost estimates (in millions of Egyptian pounds)				Total (in million Egyptian pounds)
		1st five-year plan	2nd five-year plan	3rd five-year plan	4th five-year plan	
Health	Negative effects of climate change on the health sector	16	4	2	2	24