



منتدى البديل العربي للأبحاث
Arab Forum for Alternatives



A region in danger !

Justice between environmental
and economic aspects

Industrial development from a social and environmental justice perspective

Dr. Sultan Al Salem

Researcher and director
Environmental Pollution and Climate Program
Kuwait Institute for Scientific Research

Dr. Amr Adli

Associate professor
Department of Political Science
American University in Cairo

Introduction:

Achieving justice and equality is linked to eliminating all forms of discrimination between members of the same community through the fair distribution of wealth and the creation of a healthy environment that warrants a dignified life for everyone. This necessitates striking a balance between individuals and laws that govern their lives. For example, environmental and income taxes have to take class disparities into consideration through turning them into progressive taxes as an attempt to bridge the gap between citizens. Conditions governing social issues related to the economy and industry, such as the size and population of a given country, also need to be considered. While the two countries discussed in this paper, Egypt and Kuwait, are different on many levels, they do share several characteristics as far as environmental justice in industrial development are concerned.

Case study (1): Energy-intensive industries in Egypt:

Egypt has witnessed a remarkable expansion in energy-intensive industries in the past two decades, These include cement, fertilizers, iron, steel, and aluminum, all industries in which energy used exceeds one third of the total production cost, hence they rely on the price and availability of energy. Those industries are closely linked to climate injustice on two levels. First, energy-intensive industries are among the main sources of air pollution, especially in impoverished areas where factories of extractive and transformative industries are usually located. Second, the type of development these industries boost is unsustainable since it depends on expanding the use of fossil fuel in order to attract local and international investments through subsidizing energy while not adopting measures that guarantee environmental and social protection. This results in short-term growth rates coupled with a decline in the efficient use of energy. Extensive consumption of energy comes at the expense of future generations since using up fossil fuel, which is already limited, and not investing in environment-friendly alternatives such as renewable energy will trigger an acute shortage that would necessitate importing energy in the future. Policies that prioritize providing investors with all facilities are also not expected to change in the near future.

Climate injustice in Egypt is strongly linked to external factors pertaining to the position of Egypt as a peripheral economy in the global capitalist system. This is attributed to Egypt's reliance on exporting raw materials or importing capital and technology to extract them through expanding the scope of energy-intensive industries that depend on fossil fuel, which is steadily decreasing, hence not changing Egypt's position in the global economy. This also means lack of industrial diversification through more reliance on labor-intensive industries or industries with more value added. On the domestic

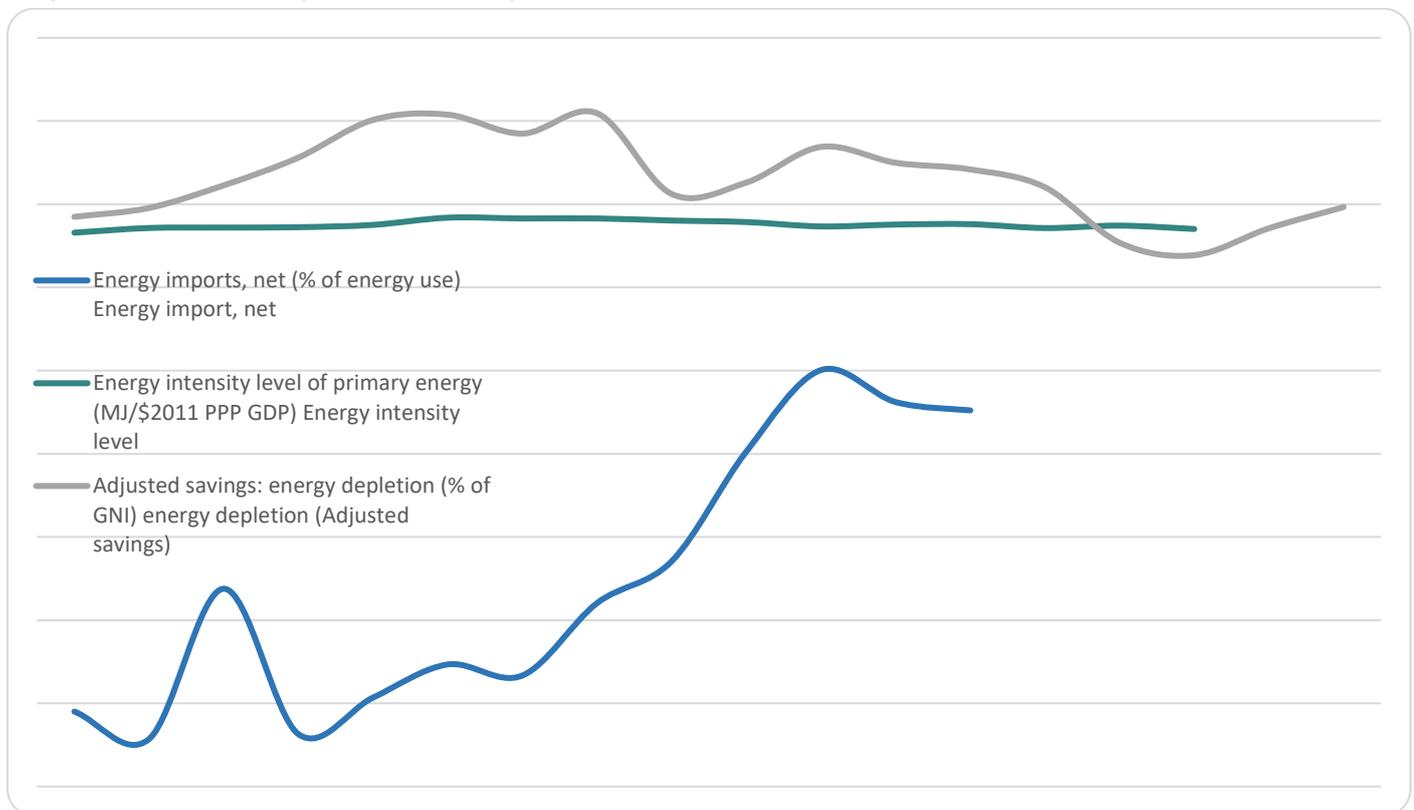
level, climate injustice is linked to unfair distribution of losses and gains. Environmental and health losses are always sustained by marginalized groups that already suffer from lack of resources and a deterioration of services. Meanwhile, gains go to owners of capital since energy-intensive industries are, by definition, more dependent on capital, both local and foreign or a mixture of both, and less dependent on labor. This unsustainable model of development accentuates the problem of distributing revenues resulting from economic growth. Added to that is the fact that employment opportunities in this type of industries are limited despite the support they receive, whether direct such as subsidized energy and tax exemptions or indirect such as overlooking health and environmental damages that are not included in growth and productivity calculations according to traditional neoclassical economy. Furthermore, different forms of government support for these industries only come in favor of investors while overlooking the social role subsidies are supposed to play. The situation gets worse for marginalized groups as more austerity measures are imposed and as public policies continue to give precedence to capital at the expense of workers and local communities.

The graph below reveals the uses of energy in Egypt throughout the past two decades. Net energy exports dropped from 27% in 2000 to 7% in 2013, meaning that the Egyptian economy is increasingly relying on importing energy with the decline of domestic oil production and an increase in consumption rates¹. In addition, energy consumption for each of the GDP units did not change between 2003 and 2015, which reflects expansion in activities that rely on intensive consumption of energy despite a drop in the domestic production of energy and the rising costs of energy imports, especially before 2014. This is demonstrated in the graph that estimates the consumption rate of non-renewable sources of energy, such as oil and natural gas, as a percentage of reserves for the coming 25 years, estimated in US dollars as a percentage of the GDP. It is obvious that the rate in 2018 is the same as 2000, which demonstrates the expansion of energy-intensive industries, among others, at the time when domestic consumption exceeded production by far. This means lack of sustainability potentials and prioritizing short-term growth rates over non-renewable natural resources, hence depriving future generations from their share on one hand and leaving them at the mercy of fluctuating global energy prices on the other hand.

¹ The discovery of a large natural gas field in the Mediterranean Sea is not expected to impact Egypt's reliance on energy imports since in the light of growing consumption rates, Egypt is not expected to turn into a major natural gas exporter. Based on estimates by the Ministry of Petroleum, recent discoveries will save around one billion USD of liquefied natural gas imports annually, which only constituted 3.7% of total Egyptian imports in 2017.

Absence of sustainability is mainly demonstrated in increasing reliance on fossil fuel in the past two decades. Until 2001, fossil fuel constituted 94% of Egypt's energy mix and this percentage increased to 97.9% in 2014 despite the growing cost of energy imports, especially between 2008 and 2014. Failure of plans to diversify sources of energy away from fossil fuel, through resorting to wind and solar energy, is attributed to state support for energy-intensive industries regardless of their environmental and health hazards. In fact, carbon dioxide emissions (measured by kilogram per equivalent kilogram of energy used) increased from 2.75 in 2001 to 3.5 in 2014, and the average did not drop in between. Energy-intensive industries, especially cement, play a major role in increasing carbon dioxide emissions, which constitute a prominent feature of pollution.

Figure (1): Energy use in Egypt (2001-2018)



Source: The World Bank- Egypt

Cement and fertilizers:

In the past two decades, Egypt witnessed a remarkable expansion in cement production. Total cement production reached 81.2 million tons in 2018 while domestic consumption did not exceed 53.8 million tons, which means a surplus of around 30 million tons, a limited portion of which was exported². It is noteworthy that cement is not an export commodity because of high transportation costs on one hand and the availability of

² "Key Figures & Facts of Cement Industry in Egypt." Cement Industry Division, 2020: <https://bit.ly/3qjHe6R>

raw materials required to manufacture it in most countries across the world on the other hand. The expansion of cement industry in semi-peripheral economies such as Egypt, India, Turkey, and Mexico among others was partially a result of growing environmental restrictions at center economies. This coincided with the flow of foreign investments in the cement industry in Egypt until it reached 52% of the total production of the industry sector in 2018³.



Energy subsidies offered by consecutive governments played a major role in attracting foreign investors in addition to laxity of environmental restrictions. This led cement producers to make unprecedented profits during expansion years⁴. The same applies to the fertilizer industry, which relies on the intensive use of natural gas. In 2018, Egypt produced 32 million tons of fertilizers while domestic consumption was between 9 and 12 million tons and the rest was exported. Average Egyptian citizens are the ones who bear the direct and indirect cost of expansion in these industries, especially that while the government subsidized energy for investors, energy subsidies for citizens were reduced with the adoption of the World bank program in late 2016⁵.

From the perspective of political economy, it is not possible to separate expansion in energy-intensive industries from domestic and international alliances that tie the Egyptian state to domestic and foreign capital, especially that energy-intensive

³ Abdel Halim Salem. "Global demand for cement production increases, Egypt produces 21 million tons annually [Arabic]." *Al Youm Al Sabea*, March 4, 2018: <https://bit.ly/3sUmfcG>

⁴ Amr Adli. "Energy subsidies in the Egyptian budget: A case of social injustice [Arabic]." Cairo: The Egyptian Initiative for Personal Rights: <https://bit.ly/38dEO3s>

⁵ Reda Eissa El Gerzawy. "Supporting energy-intensive industries: Draining resources and favoring the rich [Arabic]." Cairo: The Egyptian Initiative for Personal Rights, September 2015: https://eipr.org/sites/default/files/reports/pdf/energy_subsidies.pdf

industries are also capital-intensive. For example, the number of cement producers in Egypt did not exceed 17 companies in 2017⁶ while eight companies monopolized the production of nitrogen fertilizers in 2018⁷. Aluminum industry is monopolized by the state while a few producers monopolize the iron market. It is noteworthy that cement, iron, and steel sectors were accused of monopolizing practices in the domestic market during the past two decades. This further reveals how the very concept of subsidies is undermined since in the case of energy-intensive industries, these subsidies allow investors to make more profit while harming average citizens who should be the main beneficiaries of subsidies. As previously mentioned, energy-intensive industries are not labor-intensive, which undermines the potential benefit of the expansion in countries like Egypt. In addition, the housing sector, the main target of energy-intensive industries, focuses on projects that aim at making profit rather than social housing projects.

From the perspective of social justice, expansion in energy-intensive industries reveals the alliance between the state and capital, both Egyptian and foreign or both combined, which is mainly demonstrated in the way growing support for investors was coupled with declining support for small producers and consumers as of 2014 with a remarkable increase in austerity measures that culminated in late 2016 with signing the World Bank agreement. State support for investors is not restricted to direct producers of cement, fertilizers, or iron, but extended to large foreign capital, especially from the Gulf region, and Egyptian private or state-owned capital. This was demonstrated in unprecedented expansion in luxury construction projects, many located in desert areas, which target upper classes and only aim at making profit. Such projects do not contribute to solving the housing problem the majority of Egyptians suffer from and which is only handled through informal building on agricultural lands that keep shrinking in the face of a growing population⁸.

From the economic development perspective, energy-intensive industries do not change Egypt's position in global markets since most production is used in local markets. These industries also contribute to the expansion of non-commercial sectors, such as the real estate sector that involves speculations on land and does not play any role in increasing exports or decreasing imports, hence not contributing to solving problems pertaining to the balance of payments.

⁶ "Key Figures & Facts of Cement Industry in Egypt." Op. cit.

⁷ Abdel Halim Salem. Op. cit.

⁸ See Galila El Kadi's "Market mechanisms and spontaneous urbanization in Egypt: The Cairo case": https://horizon.documentation.ird.fr/exl-doc/pleins_textes/divers17-06/010033068.pdf

Case study (2): Fish kills in Kuwait:

Kuwait is characterized by biodiversity, especially in terms of marine life. Kuwait is also a member of the Gulf Cooperation Council (GCC) and the Organization of Arab Petroleum Exporting Countries (OAPEC), which makes it a significant economic power. Kuwait is a rentier economy that relies on oil and refining and petrochemical industries, which naturally affects the environment and poses a challenge to the ecological system. The population of Kuwait is around 4, 100,000, yet citizens make up only a quarter of this number⁹. Living standards in Kuwait are high and its GDP was estimated at 120 billion US dollars in 2017¹⁰. The high level of consumerism in the country is reflected in the consumption rates of water as well as the production of waste as municipal solid waste reaches 1.55 kilograms per person daily. It also ranks high on pollution and carbon footprints resulting from greenhouse gas emissions¹¹¹²¹³.



⁹ "Population estimates in Kuwait by age, nationality, and sex on 1/1/2020." Central Statistical Bureau, Kuwait: <https://csb.gov.kw/Pages/Statistics?ID=67&ParentCatID=1>

¹⁰ Kuwait GDP, GDP nominal (2017), World meter. <https://www.worldometers.info/gdp/kuwait-gdp/>

¹¹Al-Salem, S.M., (2015). Carbon dioxide (CO₂) emission sources in Kuwait from the downstream industry: Critical analysis with a current and futuristic view. *Energy*, 81; 575-587.

¹² Al-Salem, S.M., Zeitoun, R., Dutta A., Al-Nasser A., Al-Wadi, M.H., Al-Dhafer A.T., Karam H.J., Asiri F., Biswas A. (2020) Baseline soil characterization of active landfill sites for future restoration and development in the state of Kuwait, *International Journal of Environmental Science & Technology*, 17(11); 4407-4418.

¹³ Al-Salem S.M. (2020). Valorization of End-of-Life Tyres (ELTs) in a Newly Developed Pyrolysis Fixed-Bed Batch Process, *Process Safety & Environmental Protection*, 138: 167-175.

Kuwait's coastal, semi-tropical location (longitude 28 & 30 N, latitude 47 & 49 E)¹⁴ led to the booming of sea-related activities such as pearling, maritime travel, and fishing. Kuwait's biodiversity is reflected in its rich marine life that resulted from the merging of the northwestern part of the Arabian Gulf and freshwater estuaries in the north, especially in the Shatt Al Arab area¹⁵. Kuwait's coast extends along 195 kilometers from the furthest point in the north to the south. It includes the Kuwait Bay, which is home to different fish species and where fish farming started in the early 2000s. The water of Kuwait Bay is distinguished by a semi-constant anti-clockwise circulation most of the year, which allows several pollutants to enter the bay from the Arabian Gulf. Fish species inhabiting Kuwaiti water are mainly used for domestic consumption rather than as strategic reserves, including orange-spotted grouper, Silver pomfret (*Pampus argenteus*/Stromateidae), Fourfinger threadfin (*Eleutheronemaa tetradactylum* Polynemidae), and *Lutjanus quinque-lineatus*/Lutjanidae^{16,17}. Based on the latest statistics, fishing and fish consumption is estimated at 7.7 kilograms annually, which translates into around 670 grams per day.¹⁶

Sales of farmed tilapia reached 2.9 million Kuwaiti dinars in 2017. In 2018 and 2019, sales of squid reached 88,000 Kuwaiti dinars and sales of other species reached 3.3 million during the same interval¹⁸. Labor force in the fish farming industry is made up of 602 workers, only three of whom are citizens and the actual market value exceeds 10 million Kuwaiti dinars. As a result of price fluctuations and disparities within the working class, fish consumption became linked to particular segments of the population, which makes the impact of industrial capital one of the most important aspects of environmental justice. It is noteworthy that environmental taxes are not imposed in Kuwait and that different industrial sectors pay the cost of pollution and the ecological disruption it causes, reflected on the quality of life across the country. The most shocking incident in this regard took place in August–September 2001 with the death of more than 2,500 tons of mullets in the enclosures of the Kuwait Bay. Studies conducted about the incident, which coincided with the red tide, specified a particular chronological order: first, the death of breams inside fishery enclosures; second, the death of mullets; and third, the start of the red tide. Studies looked into potential pollutants that existed in fishery enclosures and that accompanied and caused the red tide at Al Salam Beach

¹⁴ Al-Salem, S.M., Al-Hazza'a, A., Karam, H.J., Al-Wadi, M.H., Al-Dhafeeri, A.T., Al-Rowaih, A.A. (2019). Insights into The Evaluation of The Abiotic and Biotic Degradation Rate of Commercial Pro-Oxidant Filled Polyethylene (PE) Thin Films, *Journal of Environmental Management*, 250; 109475.

¹⁵ Al-Salem S.M., Uddin, S., Al-Yamani, F. (2020). An Assessment of Microplastics Threat to the Marine Environment: A Short Review in Context of the Arabian/Persian Gulf, *Marine Environmental Research*, 159: 104961.

¹⁶ Al-Salem S.M., Uddin, S., Lyons, B., (2020). Evidence of microplastics (MP) in gut content of major consumed marine fish species in the State of Kuwait (of the Arabian/Persian Gulf), *Marine Pollution Bulletin*, 154; 11052.

¹⁷ Alosairi, Y., Al-Salem, S.M., Alruqum, A. (2020). Three-Dimensional Numerical Modelling of Transport, Fate and Distribution of Microplastics in the Northwestern Arabian/Persian Gulf, *Marine Pollution Bulletin* 161; 111723.

¹⁸ Dina Hassan. "Fish consumption reaches 670 grams/person in Kuwait [Arabic]." *Al Qabas Newspaper*. <https://bit.ly/3efy9cM>

on the Kuwaiti coast. These included nitrates, ammonia, phosphate, and silicate minerals¹⁹.

The main cause was identified to be streptococcus agalactiae bacteria that spread in enclosures and led to the contamination of fish feed²⁰. This affected the market and led to the fluctuation of prices, hence making some groups incapable of consuming fish and consequently undermined social justice. This naturally had an impact on environmental and political justice²¹. Major capital investments that aim at making direct profit through surplus values are those that rely on state support such as fish farming in Kuwait Bay. The fish kill incident had a critical impact on the market, yet no laws were drafted to govern environment-related practices. Awareness of the dangers pertaining to exploitation of natural resources is also not enough. That is why it is necessary to establish a fishing industry that is environment-friendly and that has the ability provide sustainable food security for all the people without making the consumption of fish indicative of socio-economic status.

¹⁹ Moemen Bani Mustafa. "Environmental justice and its importance for the environment [Arabic]": <https://bit.ly/30mgeZK>

²⁰ Gilbert, PM. et al. 2002. A fish kills of massive proportion in Kuwait Bay, Arabian Gulf, 2001: the roles of bacterial disease, harmful algae, and eutrophication. Harmful Algae Volume 1, Issue 2, June 2002, Pages 215-231

²¹ "David Naguib Pellow's environmental justice: Between theory and practice [Arabic]": <https://bit.ly/3sZwbBJ>

Conclusion and findings:

The two countries subject of this research are different in terms of population, environmental factors, income levels, consumption patterns, and production structures, yet they have three main issues in common. First, in both countries, like in the rest of the Arab region, the industrial sector disrupts the ecological system, hence leading to lack of environmental justice. Second, damages sustained by the environment in both countries are deeply rooted in political economy and public policies throughout the past decades and which initiated an environmentally unsustainable model of production and consumption. Third, the environmental impact of industries in both countries is directly linked with the global position of their economies. In the case of Egypt, expansion in energy-intensive industries is linked to attracting foreign investments and achieving short-term growth. In Kuwait, reliance on a rentier economy based on extractive activities led to a decline in the fishing sector and high consumption levels that did not allow for sustainable development. These factors led to the creation of social movements that started raising awareness about the necessity of addressing environmental impacts of different industries and stressing the role of environmental justice in achieving social justice.

The two case studies merge the ecological and biological aspect on one hand and the economic and political aspect on the other hand. In doing so, they aim at theoretically and conceptually taking part in revising environmental issues in the Arab region and contributing to the debate between decision-makers on one hand and civil society, scientists, and activists on the other hand. Such an approach combines the politicization of environmental and climate justice with civil society activism and addresses the losses sustained by vulnerable groups that suffer from environmental deterioration and the decline of natural resources.