Introduction

A region in danger !

Justice between environmental and economic aspects

منتدى البدائل العربي للدراسات
Arab Forum for Alternatives

GREENPEACE
غرينبيس

Arab Forum for Alternatives (AFA):
A think tank seeks to perpetuate the values of scientific thinking in Arab societies. It is working to address issues of political, social and economic development in the framework of the traditions and scientific rules. Away from the language of incitement and propaganda, in the framework of respect for political contexts and social systems, as well as universal human values.

It is working to provide space for the interaction of experts, activists and researchers interested in issues of reform in the Arab region, governed by scientific principles and respect for diversity. AFA is also keen to offer policy alternatives and the potential social, not just hoped for the decision maker and the elites of different political and civil society organizations, in the framework of respect for the values of justice and democracy.

Greenpeace MENA :

Individually and collectively, what we believe and how we see the world is reflected in our actions and behaviours. At Greenpeace MENA, we believe that a better world is not only possible, but that it's already beginning. We envision a world where a billion acts of courage can spark a better tomorrow for all. This optimism is what sets us apart in the region where many seem to have thrown up their hands in despair.

Since the early nineties Greenpeace has been campaigning in the Middle East and North Africa region, working to bring about change and calling for the implementation of sustainable solutions to tackle the region's environmental concerns, and highlight those that are shared throughout the globe.

In 2018, Greenpeace MENA was established as the latest regional office of the Greenpeace network to prioritise environmental problems from this important part of the world. We are working hand in hand with local communities, mobilizing and inspiring youth, and campaigning for a greener, more sustainable and more equitable future for everyone.

Greenpeace MENA aspires to help build, and be part of a vibrant environmental justice movement which puts the climate emergency and a just energy transition high on the social and political agendas. We rely on traditional and digital campaigning to reach out and engage with more than 400 million Arabs at home and around the world - bridging the gaps between borders.

A region in danger !

Justice between environmental and economic aspects

منتدى البدائل العربي للدراسات
(AFA)

West House 3 Build., 2nd Floor Jeanne D'Arc Street,
Hamra, Beirut, Lebanon, Olive Grove offices

www.afalebanon.org
Tel: +96176386477
Mail: info@afalebanon.org

منتدى البدائل العربي للدراسات
Arab Forum for Alternatives

GREENPEACE
غرينبيس

All photos included in the paper are from open sources on the internet.

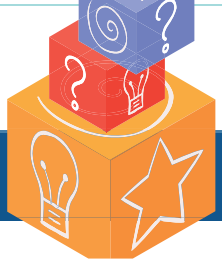


Table of contents

Introduction[1]:

Climate change is an urgent issue that cannot be addressed solely through long-term plans since, like Covid-19, its impact is manifested in almost all aspects of life. This impact is not the same across the globe, which also applies to Covid-19 that affected regions more than others and hit marginalized and fragile groups much harder. Similarly, climate change has a more damaging impact on the Arab region, which necessitates immediate intervention through formulating a new approach that deals with the crisis and addressing major questions related to its impacts. Environmental movements, and in some cases politicians and political parties, have already started exploring different channels through which the effects of climate change can be mitigated.

Linking the environment to the global economic system, in which the growth of the gross domestic product (GDP) became the topmost priority regardless of the broader needs of communities and individuals, is extremely relevant to the issue of climate change. The main characteristics of this system have a substantial impact, both direct and indirect, on the environment since radical globalization is based on the exploitation of human and natural resources in the Global South. This is made possible through free trade agreements and environmental violations committed by corporations, which in turn lead to the decline of biodiversity and the depletion of resources. This situation places the world on the verge of climate chaos that is bound to have detrimental effects on the entire planet. Other factors make the current situation more complicated, including the hegemony of international financial institutions and the effect of industrialization on nature.

There are several examples in the Arab region that underline the impact of the current economic system on the environment. This is demonstrated in the case of the Bisri Dam project in Lebanon. The dam was expected to destroy around six million square meters of farmland and 70 historical landmarks and the Bisri Valley is the second most important habitat for migratory birds in Lebanon. When the Lebanese government decided to start the project, neither the report on environmental impacts nor the ecological compensation plan had been finalized. The Bisri Valley, part of which is owned by the state, could play a major role in achieving food security for the Lebanese people since it can cover 60% of their needs of strawberry and 50% of their needs of broad beans, to cite a few examples. This puts into question the government's ability to invest in natural resources in a way that serves the common good.

[1] This introduction is the outcome of discussions held during the project's preparatory session and is drafted by Zainab Sorour, assistant researcher at the Arab Forum for Alternatives.

It is important to stress the close link between economic and environmental systems, hence the importance of addressing both together and introducing a substantial change to the current approach to each. This can be done through adopting "green recovery" plans, acquiring an understanding of environmental sustainability, and countering hyper-consumerism and its impact on the environment. Environmental deterioration affects the issue of social justice since through excessive encroachment upon nature, the promotion of privatization and globalization, and the prioritization of economic growth, the current economic system continues to undermine the principle of equality through allowing the concentration of money and influence in the hands of the few while marginalizing more segments of society, hence increasing exclusion and impoverishment. That is why it is important to adopt an economy that gives precedence to people and the environment over short-term economic interests, that makes protecting the ecosystem a priority, and that is not solely based on profit and growth. This economy needs to be sustainable in itself, which becomes possible through the adoption of sustainable practices that include shifting to renewable sources of energy, eliminating toxic waste, and minimizing waste.

The main question posed by this project is as follows: Is there a contradiction between economy and the environment? This question leads to another important one that pertains to the Arab region, where economic growth and environmental protection are, in fact, contradictory: Is it possible to use the same criteria of economic growth in a developed country like Sweden in a country like Egypt, which is totally different in terms of industrial development and income levels? Because the Arab region is different from developed parts of the world, environmental issues need to be addressed through the reality in which its citizens live. In different parts of the world, a link is established between economic procedures required to achieve equality, including public services, tax reforms, and universal basic income, and making the environment a priority and a main component of the policy-making process. This means changing the criteria through which economic activity is measured so that it goes beyond the GDP and adopting a discourse that reflects this change and that becomes part of a broader one which covers the Global South. This, however, would not be feasible without local efforts in each country to lobby for policy changes and follow up on implementation.

Another question becomes relevant: Can new technologies allow for economic growth in a way that achieves social justice while not disrupting the environment? This is possible provided that consumption and extraction do not remain the main objectives and are replaced by the prioritization of improving citizens' living standards across the board. In order for this transformation to materialize, adopting approaches that render economy and the environment complementary rather than contradictory becomes a must. However, technology is not the magical answer to this crisis as is promoted by

several entities, especially international financial institutions, as technological solutions do not necessarily favor an alternative pattern. In fact, a form of "green grabbing" can take place, which means the appropriation of resources for environmental purposes. That is why examining the potential of technological solutions should include bearing in mind how capable the capitalist system is of reformulating environmental approaches so that they end up serving the current exploitative pattern rather than reforming it.

The solar energy project in Benban, a village in the south of Egypt, is a case in point. The project, which will result in the construction of Africa's largest solar energy power plant and is mainly implemented by foreign entities, is totally detached from the needs and reality of local communities. This because local communities are not the beneficiaries of generated solar energy and the state took hold of several lands from Benban and other neighboring villages, which resulted in several disputes that were not covered by the media. Eventually, locals and the state reached an agreement in which the former are to be exclusively offered menial jobs, as guards, drivers… etc., in the project and a technical school that teaches solar energy is established in the area. While the latter seems like a good development, locals are still fully excluded since not only do they not benefit from the energy generated by the plant, but many of them were unaware of the project, which is three kilometers away, to start with. Therefore, the Benban project constitutes a form of importing technology that mainly serves the interests of multinationals. While the generation of solar energy and the use of clean energy are in themselves positive steps towards protecting the environment, those steps are taken without involving the people or using the project to develop the skills of locals and improve their standards of living.

Several other projects in the region have the same problem such as the Ouarzazate Solar Power Station in Morocco. What is common between those projects is the fact that they are part of the "green capitalism" discourse, in which environmental causes are used as a pretext for exploitation and appropriation of land and resources at the expense of local communities. That is why it is not possible to think of a discourse that is both green and fair without looking into the creation of an alternative system that counters the impacts of capitalism. Such discourse must tackle the relations between the North and the South in which the balance of power consolidates the dominance of the former while overlooking the needs of citizens and local specificities in the latter.

All of the above highlights the necessity of adopting an economic discourse that is more aware of the threats faced by the entire planet and that is based on justice, transparency, and democratic principles. This can be done through different mechanisms such as legislations that criminalize violations against the environment and public property. This should be accompanied by the creation a new tax system that does

not offer exemptions for projects that can potentially harm the environment and that shifts the burden from workers and civil servants to accumulators of wealth who also consume the highest percentage of energy and resources and whose businesses overlook environmental concerns. Such a system should also apply to financial transactions and biddings that have a negative impact on the environment and public property. Political systems and state institutions are to be restructured so that they become less hierarchical and more participatory, operate in accordance with democratic principles that include transparency, the right to information, and rotation of power, and adopt a decentralized approach to the distribution of food and energy.
In Tunisia, the quest for an alternative approach gained momentum after the ruling clique failed to address major social and economic problems. In the past few years, protest movements that call for environmental justice increased remarkably. Several solutions were proposed by these movements, including the introduction of alternative systems in several fields including production, agricultural marketing, and traditional crafts. The Tunisian case offers an example in which people reformulated the existing system away from political entities, which are not adopting an alternative discourse. While it is still possible to attempt such a change from within state institutions, many of which deal with environmental issues, it becomes clear in the Tunisian case that real change starts from the community. The same applies to raising awareness about pressing issues and looking into the possibility of changing the policy-making process. Civil society plays a major role in effecting such change as long as it addresses the reality of the context in which it operates and adopts a hands-on approach.

Regarding contradictions in the Arab region, it is extremely necessary to address the gap between the Gulf region and other Arab countries as far as the adoption of "green energy" is concerned. Economy in the Gulf region basically depends on nonrenewable energy such as oil and different oil-related industries. This is not the case in other Arab countries, especially those with an agricultural history and where consumption patterns are more linked to agricultural economy.

North-South relations remain an important component in any plan to adopt an alternative discourse, particularly in the Arab region where colonial history still shapes those relations, especially on the geopolitical level. This is demonstrated in the prevalent pattern of extractive economy, which includes industries, institutions, and funds related to the globalized extraction of natural resources. Such pattern involves the extraction of mineral and fossil fuels and applies to large-scale projects in agriculture, forests, and fishing. This, in turn, brings back to the forefront the question of why the achievement of development and the protection of the environment might seem contradictory.

Because the relationship between climate justice and social justice is multifaceted, it is important to examine the different angels that tie the two of them together and this is the purpose of this study. Papers in this book focus on six of the most pertinent aspects that underline that relationship: water, industrial development, biodiversity, urban planning, energy sovereignty, and food sovereignty.

A region in danger !
Justice between environmental and economic aspects

Social and climate justice
in the context of urban planning in the Arab region

Nadine Bekdache
designer and urbanist, co-founder of Public Works Studio, Lebanon

Layla Riahi
Researcher and activist, member of the Tunisian Platform of Alternatives, professor at the National School of Architecture and Urbanism, Tunisia

Introduction:

Urban planning or urbanization is a term currently used in relation to construction engineering, hence restricting it to buildings. However, this term encompasses several other aspects such as the relationship with the environment, economic systems, forms of organization, and the management of public affairs. For Ibn Khaldun, urbanization is the development of a given place through agriculture, industry, trade, population growth, and civilization[2] . It is a semi-organic social and economic dynamic based on cooperation between individuals and groups linked together through solidarity and a common goal of prosperity. Urbanization is founded on the three "natural" economic activities: agriculture, subsistence crafts (industry), and trade. Governance and architecture come next as the components that give urbanization a special character and form. According to Ibn Khaldun, this dynamic aims at improving living conditions and enhancing cooperation between individuals and groups in a way that allows all members of the community to make a living and earn money. For him, making a living and earning money should be linked to work while easy money whether through monopoly or economic rent is seen as an aspect of corruption and injustice that portend the destruction of urbanization.

Six centuries have passed since Ibn Khaldun formulated his theories on urbanization, but these theories are still pertinent to our understanding of the close relationship between urbanization, justice, and the environment and help in posing questions about why certain parts of the world failed to maintain such relationship. In the past few decades, capitalism had a substantial impact on urbanization with encouraging the accumulation of wealth through monopoly or speculation and undermining local economic, social, and environmental balances. The gap between the public and the private widened as industrialized areas that aim at integrating into the global market were created, hence subjecting the rest of urban space as well as rural areas to marginalization, impoverishment, and exploitation. This transformation was accompanied by the creation of illegitimate spaces that imposed themselves on cities in an attempt to coerce their inhabitants into adopting a unified lifestyle that suits capitalist objectives. Reshaping city spaces to overvalue assets and resources renders the city a sheer container whose job is to absorb and adapt to investment surplus. According to Henri Lefebvre, the state dominates urban spaces through division, unification, and hierarchical categorization. This requires the marginalization of spaces, activities, and communities that do not adopt capitalist ideologies. The new spaces become equipped to receive real estate developers and release products that attract particular segments of society or are only suitable for particular activities, hence creating a gap between citizens. In this case, the state gives up its duty to develop the city and assigns this role to developers while only focusing on resulting revenues. The more of those spaces the

[2] Ibn Khaldun. *Book of Lessons, Record of Beginnings and Events in the History of the Arabs and the Berbers and Their Powerful Contemporaries*, 1377.

state adds, the more deeply rooted this model becomes and the less the sate performs its original duties.

Segments of the population that are not included in these procedures do not find the channels through which they can voice different opinions, especially that the official discourse is promoted as representative of all the population in order to endow it with legitimacy. Even though those activities imposed by the state are often legalized, they are detrimental to nature, society, and economic and cultural networks. That is why they are always met with popular discontent. However, the effectiveness of resistance to those practices differs from one place to another. It is noteworthy that capitalist urban policies do not only affect current inhabitants but also extend to future generations. This is because resources that are used up to increase profits and accumulate wealth cannot be reproduced and because capitalist practices are always accompanied by violent measures such as evacuating locals from lands and houses, encroaching on forests, and dredging coastlines under the pretext of development and economic growth. Despite the dominance of official discourses that promise prosperity and improvement of living standards, locals come to see the stark contrast between those promises and reality on the ground and realize that promoted development models are far from sustainable. This is particularly the case in the Arab region as will be seen in this paper that focuses on the cases of Lebanon, Tunisia, and Egypt.

First: The multi-faceted Gulf of Gabes disaster in Tunisia:

Gabes is a seaside oasis that is distinguished by its ecological agricultural systems, which is mainly demonstrated in three-layer farming[3]. Gabes offers an ideal example of a comprehensive system based on fair distribution of spring water, communal ownership of infrastructure and buildings, and shared resources and knowledge. Gabes consists of several oases lined across the Mediterranean Sea and together they form the Gulf of Gabes, which is home to a wide variety of marine species. These oases are surrounded from the north, west, and south with rocky mountains, dry lands, and desert.

Gabes has been populated since ancient times and has since the Amazigh civilization been prosperous through the utilization of natural resources and its strategic location in trade routes. It witnessed the emergence of unique urban models that skillfully coped with the topographic and climate features of the area and utilized available resources such as rocks, clay, gypsum, wood, and others. Until the beginning of the twentieth century, Gabes was comprised of urban clusters of similar sizes, all connected with strong economic and social ties. Some of those clusters were located in the oases[4] and others in the mountains[5] and together they formed the city of Gabes. The city provided

[3] Palm trees shade henna and pomegranate trees that, in turn, protect crops that are cultivated horizontally such as vegetables, legumes, and grains from the sun.
[4] Such as Jara, Menzel, Chenini, Ghannoush, Bouchama, El Hamma, and Métouia
[5] Such as Matmata and Tujan

an ideal example of Bedouin urban planning on the agricultural, commercial, and cultural levels. It was also home to different ethnic groups including Berbers, Arabs, Jews, and Blacks. When the French colonized Tunisia, the region was militarized, and lands were expropriated. This led to a decline in grazing and trade activities and signaled the beginning of urban encroachment upon the oases, especially with consecutive waves of forced migration.

The "new" economic model:

Following independence, there were hopes that confiscated lands would be returned, essential economic activities would resume, and people would once more have equal access to natural resources. However, the state adopted a totally different policy under the pretext of "modernizing" the economy.

The most prominent features of post-independence economy in Tunisia were as follows:

- State expropriation of all lands controlled by the occupation
- Doubling the number of state employees while reducing wages
- Forced creation of agricultural and commercial cooperatives under state supervision (this was the case during the time of Ahmed ben Saleh[6] then the cooperative experiment was abandoned)
- More focus on extractive and transformative industries in the public sector
- The liberalization of the economy and reliance on the comparative advantage approach (during the time of Prime Minister Hédi Nouira[7])

Based on the above, a new development plan set new criteria for production and reconsidered the use of land. This plan was accompanied by a legal and institutional system through which the state monopolizes the use of resources and directs the economic process. The new developmental pattern mainly relied on funding from international financial institutions and northern countries.

The economic model adopted during the time of Bourguiba was not new, for it constituted a continuation of French occupation policies that focused on channeling production towards catering to the needs of French markets. True, Bourguiba took control of resources and production modes that were previously dominated by the French, yet he adopted the same approach through a segment of the population that played a major role in the new economic and social equation: civil servants and workers.

[6] A trade union leader to whom Bourguiba assigned key economic ministerial positions in the 1960s and was dismissed in 1969.
[7] Governor of the central bank in the post-independence era, appointed prime minister by Bourguiba in 1979, the orchestrator of economic liberalization

The impact of the new economic model:

The new economic model had a substantial impact on the structure, economy, and urban planning. Farmers were impoverished due to lack of access to land and resources and reduced pricing of their products in addition to the fact that they were forced to change their production modes[8]. Traditional craftsmanship declined as imported commodities invaded local markets and cross-border commerce deteriorated. The new model widened the gap between coastal and inland areas and between cities and the countryside. The case of Gabes demonstrates the disastrous effects of the new model as a result of environmental violations in the region and their social and economic repercussions.

In 1962, a decree was issued to establish an industrial zone around the Gulf of Gabes on a religious endowment estate[9] to include an industrial harbor and a chemical laboratory to transform phosphate extracted from the mining basin and export it. Work in the industrial zone started in 1972 and signaled the beginning of an environmental disaster that expanded through railway lines to include 44 chemical factories and more than 1,000 companies, most of which pollute the environment. The Tunisian chemical complex is a closed industrial-military zone that spans over 828 hectars and is a national company with a labor force estimated at 6,500, ranging between workers, employees, and handlers. It is the fifth largest exporter of phosphate in the world.

Recent economic analyses reveal that the social and environmental cost of the project exceeds its revenue[10] and has now become the center of several debates about health, environment, marine life, water, and land. Factories located in the complex have been releasing toxic waste for the past 40 years, pumping 6,000 tons of phosphogypsum into the sea, and burying solid waste under the ground or just dumping it above the ground. Since the industry requires large amounts of water, those factories depleted underground water, hence destroying the ecosystem in the oases. All this had a grave impact on locals from different sectors, including farmers, fishermen, craftsmen, small traders, and workers in the service sector[11]. The chemical complex is the major source of work in the area. That is why it has been the target of several protests especially by youths who demand jobs at the complex or with its handlers and at times can bring production to a standstill to force local and national authorities to respond to their demands[12] .

Because of the growing labor force at the industrial zone, residential communities started sprawling in the area at the expense of the oases. For example, the village

[8] This raised production cost and led to subordination to global markets.
[9] Property donated for charitable or religious purposes
[10] Etude de l'impact de la pollution industrielle dans la région de Gabes ; Commission européenne ; 2018: https://bit.ly/3slPDmu
[11] De l'anthropocène à l'écozoique. Reconquérir et habiter la zone industrielle de Gabès. Achref Gharib. Mémoire de fin d'étude. Ecole Nationale d'Architecture et d'Urbanisme; 2020.
[12] 2018, 2019, 2020.

of Ghannoush grew ten times its original size from 1951 till 2020. The villages of Chenini and Bouchama expanded until they became adjacent to each other. Jara, Menzel, Nahal, and Old Gabes were crushed by the environmental and urban disaster now called the city of Gabes. The housing program launched by the state did not respond to the new demographic demands of the area. Despite utilizing modern construction techniques, including the use of cement, iron, bricks, and asphalt, the program was still incapable of addressing the urban growth that resulted from the doubling of the population. Lack of adequate infrastructure and the deterioration of public services led to the rise of informal housing both inside and outside the oases and traditional urban communities were eaten up by concrete structures. Farming deteriorated, traditional lifestyles changed, and household waste witnessed a remarkable increase that it turned into a serious environmental hazard.

Social and environmental justice:

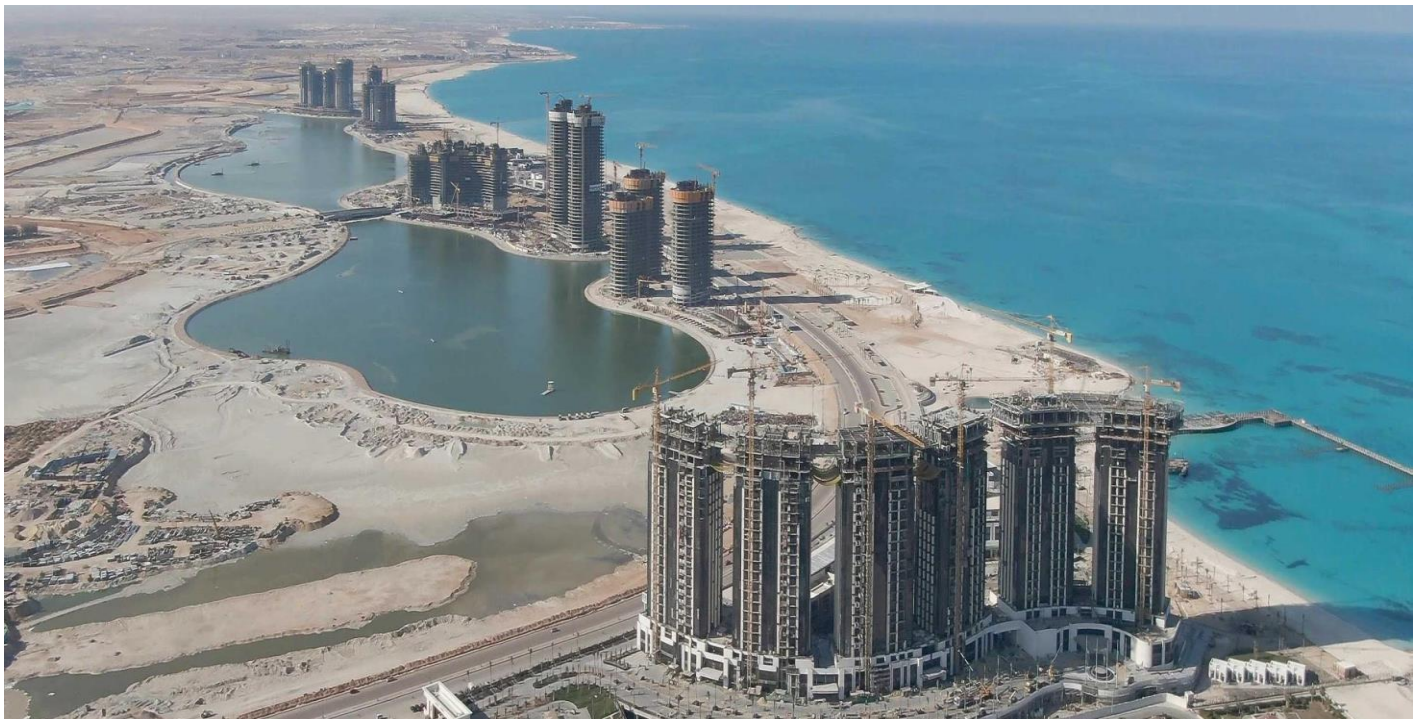
It is not possible to achieve social justice if environmental justice is absent. The case of Gabes constitutes a perfect example of drastic economic policies adopted in Tunisia and their role in destroying existing urban and environmental systems, hence disrupting the social and economic balance in the areas in which those policies are implemented. Since the establishment of the chemical complex in Gabes, almost all fishing activities ground to a halt due to the contamination of the sea. Farming and crafts witnessed a remarkable decline due to the depletion of water resources. Air, soil, and water contamination caused numerous environmental and health problems that were aggravated by the drastic population growth, lack of adequate of utilities, and informal

housing. The complex also poses a grave threat to the life and safety of locals[13] since a disaster similar to the Beirut Harbor explosion, or even worse, is likely to take place in Gabes.

On the socioeconomic level, the industrial complex resulted in:

- The development of industrial activities that are detrimental to other sectors
- The exploitation of an already fragile labor force through minimum wages and inadequate working conditions
- Appropriating the local value added through state monopoly of the industry and channeling revenues towards the center
- Adopting the approach of overemployment, which increases the burden on the state without actually improving its performance or increasing its revenues

Second: The environmental and social cost of New Alamein City in Egypt:



Construction of towers in New Alamein City

The Egyptian state is focusing, now more than ever before, on real estate investment. This approach has, however, been adopted for several decades as the period between 1970 and 2015 witnessed the creation of 23 new cities, hence remarkably expanding the real estate business in the country. The new cities are designed to include hundreds of thousands of residential units located in housing projects or lands for private investment. Some of these cities are even designed to house millions. Many of the new cities failed

[13] The Beirut Harbor explosion is likely to take place in Gabes.

to attract targeted numbers as occupancy reached minimum levels, hence defeating the purpose of expansion, which is housing as many people as possible[14]. Despite that, the state introduced the concept of fourth generation cities[15] that include 20 new cities which aim at attracting 30 million people and which are to be inaugurated in the coming few years[16]. This puts into question the viability of adding more cities when already-existing ones have failed to attract people, which means that there will be a surplus of urban areas. The question of the impact of new cities on society and the environment also becomes inevitable.

Environmental impact:

"Cities alone account for 78% of anthropogenic carbon emissions."[17]

Fourth generation cities fall under two categories: cities resulting from the urban expansion of already-existing cities and cities aimed at luxury real estate investment. The New Capital in the outskirts of Cairo and New Alamein City on the North Coast are examples of the latter. New Alamein City, located on the Mediterranean coast, aims at housing two million people and is marketed as the first eco-city in the country[18] because it contains solar energy and water treatment plants in addition to being investment-oriented cities that contain hotels, resorts, entertainment facilities, and luxury residential and office towers[19]. Despite its seemingly promising future, environmental and climate experts raised concerns about rising sea levels that might eventually lead to the sinking of the northern Nile Delta[20]. This, in turn, puts into question the economic feasibility of the project.

The proposed plan of New Alamein City also raises several environmental concerns. These include the effect of the construction of skyscrapers and other urban facilities in close proximity to the sea on biodiversity especially as a result of dredging. The proposed architecture in this city as well as other new cities is not suitable for the hot climate in this area since most buildings, whether currently constructed or depicted in the city layout, are glass-fronted, which makes them hotter, hence contributing to the

[14] Amr Adli, 2016.

[15] According to a 2108 statement by Egyptian Prime Minister Moustafa Madbouli, fourth generation cities are based on sustainable planning and the utilization of modern technologies. These cities, which are devoid of all forms of informal housing, aim at attracting investments to Egypt, linking development centers with production zones, and encouraging development outside the Nile Valley.

[16] According to the New Urban Communities Authority, 2018.

[17] Stern N., 2009. "A Blueprint for a Safer Planet: How to Manage Climate Change and Create a New Era of Progress and Prosperity". London: Bodley Head

[18] "Eco-cities" is a relatively new term coined by the World Bank to help developing countries on the environmental, social, and economic levels.
Dabayeh, M. Mahdy, D. Maguid, D, 2018. "Towards Adaptive Design Strategies for Zero Carbon Eco Cities in Egypt. Sustainable Cities: Authenticity, Ambition and Dream". *IntechOpen*.

[19] Moustafa Madbouli, 2018. Op. Cit.

[20] Underwood, E., 2018. "How fast is the Nile Delta sinking?" *Eos*, 99: https://doi.org/10.1029/2018EO097325
El Deberky, Y. 2011. "Coastal adaptation to sea level rise along the Nile delta, Egypt." *Coastal Processes*, Volume 149.
Hereher, M. 2010. "Vulnerability of the Nile Delta to sea level rise: An assessment using remote sensing." *Geomatics, Natural Hazards and Risk Natural Hazards and Risk* (4):315-321

increase of carbon emissions. Another concern is related to the energy required for the operation of those buildings in terms of air conditioning and heating as well as the effect of urban concentration on water resources.

Proposed architecture of New Alamein City

Economic cost:

The budget of New Alamein City was seven billion Egyptian pounds in 2019 then reached 31 billion in 2021 for the completion of 15 residential towers, up to 41 floors each. Construction costs are estimated at 12 billion while finishing work and glass facades are estimated at 18 billion[21] . The towers are expected to be home to upscale offices and residential units. The city is considered an extension of luxury resorts along the North Coast. This means that lower income segments will have no place in the city except for providing services.

New Alamein City is not the only case in Egypt, for similar projects are implemented in the New Capital in east Cairo, Central Park in Sheikh Zayed City in west Cairo, Maspero Triangle in downtown Cairo, and New Sphinx City in West Cairo, which means that the state is competing with itself. Also, there is no guarantee that all units in new cities will be occupied since it is not clear whether the number of investors in Egypt, whether Egyptian or foreign, requires the construction of all those towers and the same applies to buyers of residential units. This means that many of those units might end up vacant, hence creating surplus property.

[21] "Finishing work for coastal towers in New Alamein City reach 18 billion pounds [Arabic]." *Al Mal Newspaper*, July 27, 2020: https://bit.ly/2NgCnGl

Social cost:

New Alamein City and similar new cities are marketed as investment projects and a means to accumulate wealth and an entire city might be offered in the stock market. This means turning housing from a basic right into a commodity, hence changing the idea of the city, dividing urban communities based on socio-economic status, and making adequate housing a privilege of the rich. The construction of fancy towers in New Alamein City and similar project constitutes an encroachment upon low-income citizens, many of whom become impoverished because of deteriorating living standards and lack of adequate services as a result of the prioritization of spending on investment projects. In many cases, citizens are evacuated from their homes, which are replaced with luxury commercial and residential towers. New cities are created at the expense of old ones, and like this was the case with Cairo and the New Capital, it is also the case with Alexandria and New Alamein City where the discrepancy between the quality of projects implemented inside the old city and those in the new ones is striking. This demonstrates that the state prioritizes cities in which investment projects are implemented, hence is expected to house the rich, over older cities with a substantial percentage of lower income citizens. State resources are, therefore, mostly allocated to higher income citizens who have the ability to buy units in new cities.

Third: The impact of the cement sector on land and the population in Lebanon:

The construction sector is a main component of the Lebanese economy. This sector requires the extraction of a minimum of three million cubic meters of gravel and sand every year, which means transforming 50 hectares of land into quarries[22]. Such transformation is accompanied by serious damages for both the environment and local communities. This process has for a long time relied on policies and legislations that prioritize the interests of investors who control the sector and that secure highest profit margins in both local and international markets. This also comes at the expense of developing productive sectors.

[22] Dar Al Handasah- l'Institut d'aménagement et d'urbanisme de la région d'Île-de-France (IAURIF). "National Physical Master Plan for the Lebanese Territory" Council for Development and Reconstruction, 2005.

The status of cement companies:

In 1931, the Maronite Patriarchate partnered with a French company to create the first cement factory in Lebanon, then called Société des Ciments Libanais[23] and now known as Holcim Lebanon. The company is located in the coastal towns of Chekka and Heri. Two decades after the creation of the company, another cement factory was established on the coast of Chekka by influential families in the area and became affiliated to the Cimenterie Nationale. At the time, the Ministry of Planning did not exist neither did laws that regulate the use of land. The Société des Ciments Libanais was, in fact, created when Lebanon was under the French mandate, which means it was designed to serve the interests of Europeans and their local allies. The only legislations that existed at the time of establishing the two companies were only linked to quarries and crushers (1935) and the cement industry (1938)[24], but no laws regulated the establishment of industrial facilities and the use of land.

The expansion of cement factories was made possible through a number of practices that were permitted by the Lebanese government, such as licenses for transporting cement in violation of the 1938 law. The construction of factories on public property was also in violation of the 1952 law on the use of public space. Commercial harbors were created to allow exporting cement and water resources from both the Jaouz River and the Jaradi Spring were used by the factory, hence depriving locals of them[25] . Cement factories gradually started to attract farmers and fishermen who were promised a stable job and income. This led to the deterioration of farming and fishing in the area and to the emergence of a support base for the factories, especially as workers encouraged their families to follow in their footsteps and choose the factories over other traditional activities. In the early 1990s, several laws were issued to regulate the use of land along the Koura coast, where the factories are located, yet these were not enough to monitor the expansion of cement factories, especially that they were supported by state policies that contributed to this expansion in the first place.

Cement industry:

The Lebanese government adopted import and export policies that gave precedence to the cement sector over other production sectors such as agriculture. In 1993, the government banned the import of cement from abroad, which remarkably increased the price per ton. Cement factories also received constant political support, which was particularly demonstrated in the relationship the two factories have with the Maronite

[23] Boulos Sfeir. *A history of Bakirki (1703- 1990)* [Arabic]. Institute of History, Holy Spirit University of Kaslik, 1990.

[24] Public Works Studio. "Koura's land: From fertile resource to raw material for cement factories." Legal Agenda, January 19, 2019. English translation: https://www.jadaliyya.com/Details/38475

[25] Public Works Studio. "Beyond cement: Towards an alternative vision for Chekka and surrounding towns [Arabic]." https://publicworksstudio.com/sites/default/files/beyond_cement_0.pdf

Patriarchate and political powers in Zgharta[26]. Added to that is the relationship SIBLINE Cement has with other political powers such as Walid Jumblatt and Saad El Hariri.

Currently, three cement companies monopolize the cement industry in Lebanon: Cimenterie Nationale (3 million tons, 43% of the market), Holcim (2.2 million tons, 38% of the market), and SIBLINE (1.3 million tons, 19% of the market)[27]. The expansion of cement factories is closely linked to reconstruction and investment projects in Lebanon. With every crisis that obstructs the sale of cement production, new projects are created to save the cement sector. For example, local purchases of cement did not drop in 2018 after housing loans were suspended and foreign investment declined but were rather channeled in a different direction. Since 2015, the cement sector was quick to benefit from the garbage crisis, which led to the emergence of toxic landfills along the coat. The cement sector is also expected to benefit from the CEDRE (the international conference in support of Lebanon development and reforms projects) as well as other controversial infrastructure projects such as tunnels and dams [28].

National Physical Master Plan for the Lebanese Territory:

The National Physical Master Plan for the Lebanese Territory, endorsed by the Council of Minister in 2009, is a substantial document on planning and sustainable development in the country and aims at attracting major investments while maintaining balanced development and protecting resources. However, the authorities have been overlooking the plan till the present moment. In fact, since the plan was approved, 42 land-use plans were released and another 69 modified, and only five of them mentioned the plan[29]. Decrees linked to natural resources, strategic agricultural lands, and areas threatened by the contamination of underground water did not use it as a reference. It is noteorthy that the plan acknowledged the importance of the northern part of the Lebanese coast, where cement factories are located, and proposed strict measures to protect it.

[26] Information on the political context was obtained through interviews with Koura locals in 2018, especially with an engineer called fares Nassif. It is noteworthy that there is a conflict between the Marada Movement and the Kataeb Party over cement revenues according to Abdullah Al Haj Hassan's book *Lebanon's Resistance History: 1900-2000*, issued in Arabic in 2008 by Dar Al Walaa for Printing, Publishing, and Distribution.

[27] David wood, Jacob Boswall, Yasmine Minkara. "Unfair game: Lebanon's rigged markets are killing competition." *Triangle*, November 2020

[28] Public Works Studio. "Beyond cement: Towards an alternative vision for Chekka and surrounding towns [Arabic]." Op. Cit.

[29] Public works Studio. "Master-Planning in Lebanon: Manufacturing Landscapes of Inequality." *Legal Agenda*: https://english.legal-agenda.com/master-planning-in-lebanon-manufacturing-landscapes-of-inequality/

Controlling land and institutions:

Cement factories on the north coast of Lebanon purchased properties in the area to expand their facilities and build quarries as an initial step towards controlling the land and its resources. Both the government and political factions turn a blind eye to the fact that the construction of quarries in the area violates a number of laws, especially that no official permits are obtained. This led cement factories to consolidate their power in the region and use the land as they see fit even if illegally. In fact, the Cimenterie Nationale filed a lawsuit against the Lebanese state when the latter tried to regulate the former's activities in the town of Bedbahoun, which sustained major damages as a result of the construction of quarries, and the factory won[30] [31]

Urban planning in Lebanon has become a major target of political and sectarian factions as well as profit-seeking real estate developers. This means that planning only caters to the needs of the minority and in many cases lack of planning serves the interests of this minority. It is noteworthy that the use of 85% of Lebanese lands is still not regulated, which makes room for interest networks to use those lands as they please without any form of accountability.

Facing urban planning injustices:

Since the French mandate and up till now, urban planning in Lebanon has been substantially influenced by the French system. While France witnessed remarkable improvements in the field of urban planning, Lebanon still adopts traditional systems that are not as efficient as they were in the past. The current planning system in Lebanon relies on land-use plans that only focus on the classification of lands without taking into consideration social, economic, and environmental aspects. It is, therefore, a form a planning that is not accompanied by development. Land use plans are also designed in an ambiguous way, hence become open to the interpretation of political powers and the private sector and give more room for maneuvers. Those plans are also marketed as objective references whereas they need to be part of a social and political process in which all locals affected by a given change in their community should take part.

[30] For more info on the case of Bedbahoun see "Koura's land: From fertile resource to raw material for cement factories." Op. cit.

[31] In May 1997, the Council of Ministers issued an unprecedented decree allowing the use of land in the town of Bedbahoun for quarries for 10 years. At the time, Bedbahoun was an unplanned city and no maps to regulate the use of land in it had been released. The decree was renewed in 2007 for two more years. This drove the Higher Council for Urban Planning to issue a decree that regulates the use of land in Bedbahoun and neighboring towns such as Zakroun, Bargoun, and Qalhat for the first time in their history. The council released land-use plans in 2011 and declared Bedbahoun a protected area in an attempt to alleviate the damages caused by quarries. A few months later, the Cimenterie Nationale filed a complaint with the State Council against the Ministry of Transportation and Public Works and called for the annulment of the decree. The State Council annulled the decree in a flagrant example of the power wielded by cement factories in Lebanon.

Not only does the civil planning law in Lebanon not require the participation of civil society or affected parties, but also the Higher Council for Urban Planning does not allow involved factories to consult the people. Municipal councils are the only entities represented in the process of urban planning, yet they lack the necessary resources and the ability to represent the locals in their areas, especially ones that are not registered voters and do not own property. With the absence of segments of the population that are most affected by investment projects implemented in their hometowns, decision-makers gave themselves the right to use lands as befits their interests and those of investors allied with them.

Currently, service and rent sectors constitute 77% of the Lebanese economy[32]. This economy is mainly based in the capital and caters to its needs, hence marginalizing other sectors and areas. It is necessary to take the nature and specificity of each area into consideration to choose the economic activities that best suit them. However, the exact opposite happened. Many productive sectors such as agriculture, fishing, and domestic tourism were undermined while people's health and lives were endangered under the pretext of development and job opportunities offered by service and rent sectors. This led to the impoverishment and marginalization of areas that do not serve this goal. That is why it is not possible to achieve real economic development without securing people's right to a dignified life, adequate public services, a clean environment, and decent working conditions.

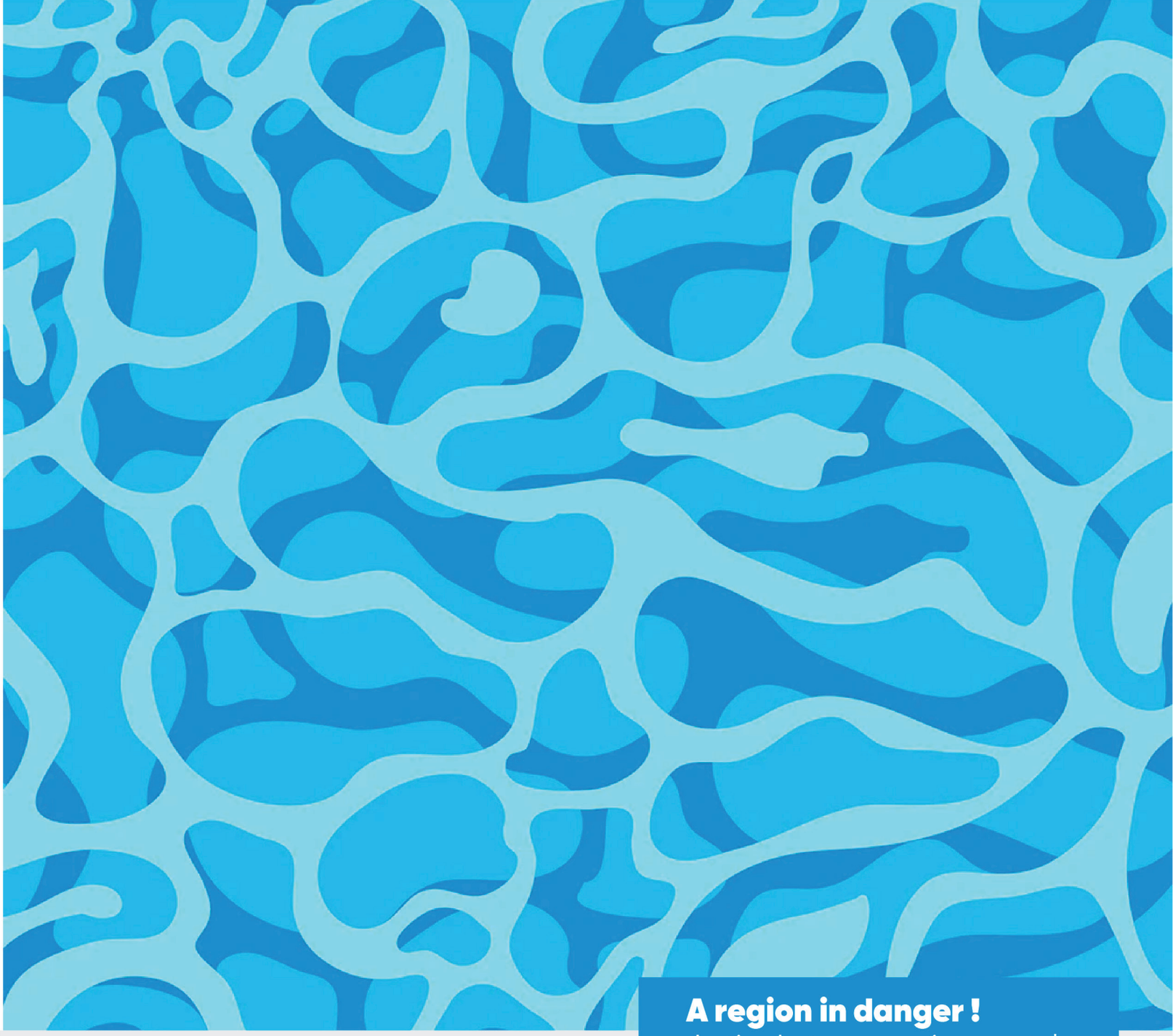
[32] Report by the Central Administration of Statistics, 2016.

Conclusion: What if urban planning for?

"Cities have the capability of providing something for everybody, only because, and only when, they are created by everybody." Jane Jacobs, 1993

With the growing threats of climate change, the importance of environmental justice has remarkably increased. Environmental justice mainly revolves around acknowledging everybody's right in equal and sufficient protection and makes sure that no segment of the population would bear the brunt of environmental threats more than another. Researchers and activists warn governments of continuing to adopt policies that give precedence to their version of development that relies on investment projects while not taking people into consideration. It is necessary to replace traditional concepts of urban planning with new ones that address the needs and cultural traits of local communities and that involves people in the decision-making process. Dealing with the city as a map does not make this possible since this strategy involves forcing different communities with different needs and cultures to become part of one unified model that is not sensitive to such differences.

Looking at the reality of cities and the countryside in the Arab region makes the question of what urban planning is for pressing. In other words, is it possible to call investment projects that focus on real estate development urban planning even though they damage people and the environment? Such projects commodified land and housing and made average citizens incapable of living in the environments that best suit their needs and lifestyles. While the three countries subject of this paper are not the same, they have one thing in common: the role of corruption, nepotism, and oppression in defeating the purpose of urban planning. In the three cases, urban planning becomes an investment project that prioritizes profit and that is supported by state policies, which also give precedence to profit over people's interests and rights. In the three countries, land is misused, and resources are depleted in order to serve the interests of the rich in the absence of laws that protect the people from the negative impact of investment projects. This proves that the current situation constitutes an extension of colonial policies that stripped people of their lands and resources. Post-independence states only modified such policies in a way that benefits them and their allies instead of attempting to right the wrongs of colonial powers. This led to the marginalization of more areas and the impoverishment of more people, hence making the achievement of a real development impossible.



A region in danger !
Justice between environmental and economic aspects

Water resources and social and environmental justice

Rabie Wahba- Egypt
Amani Al Baedi- rights researcher and political activist, founding member of The National Campaign to Protect the Bisri Valley, Lebanon

Ali Al Karkhi
The Tigris River Protectors Association, Iraq
Salman Khairallah- The Tigris River Protectors Association, Iraq

Introduction:

Issues related to water and its political, economic, and rights aspects have lately had a greater impact on different segments of populations across the world. This is particularly demonstrated in the Arab region, which is currently facing several problems related to water, including scarcity, conflicts over rivers and other sources of water, mismanagement of natural resources, lack of justice in distribution in favor of investment projects that disrupt the ecological system, drought s, and the construction of environmentally hazardous dams in addition to problems related to climate change and pollution. These problems define alliances and balances of power and are always linked to parts of the world in which human rights are not respected and where governments give precedence to investment and market demands imposed by multinational corporations.

This paper examines the general framework that governs the utilization of water resources and the policies and projects linked to it and which define the status of social and environmental justice. The case studies included in the paper tackle issues related to water resources on different levels including human rights, economic and regional factors, and social and environmental justice. This will be done through looking into projects that are mostly funded by international institutions and which constitute a burden to the budgets of countries involved and violate the right of marginalized groups to access production resources. This will be analyzed in light of the unfair distribution of the benefits of these projects and the negative effects they have on water and food security in favor of investors' interests. Several of these projects are linked to recreational activities such as golf courses in Egypt.

Problems related to water are not confined to the scarcity of water resources, but also extend to mismanagement, unfair distribution, and pollution in addition to the impact of water-related projects on locals, including displacement, growing poverty rates, and obstruction of sustainable development goals even though otherwise is claimed by governments and investors. An example is the drainage of the Mesopotamian Marshes in southern Iraq, which disrupted the ecological balance as manifested in rendering the area unsuitable for bird migration, the extinction of several fish species, and the destruction of vegetation. Locals were displaced and many of them worked in oil industries to make up for loss of agricultural land, which in turn increases pollution and dependence on rentier economies. In addition, traditional crafts disappeared and regions around the marshes were impoverished. Another example is the Bisri Dam in Lebanon, which threatens food security, biodiversity, and ecological balance, destroys vegetation, and undermines natural and human resources.

Multinational companies play a major role in promoting investment policies that aim at "developing" production systems to be in line with market policies that are supported

by information technologies on one hand and international financial institutions such as the World Bank and the International Monetary Fund and continental and regional investment banks on the other hand. Those policies involve contradictory aspects since they are committed to economic growth while overlooking its negative impacts especially on marginalized groups, which is demonstrated in the implementation of reform programs imposed by international financial institutions.

First: Golf courses and biased development in Egypt:

Issues related to water have gained more importance in the past two decades since it is one of the most vital production components and because of its link to large segments of the population such as farmers as well as the growing number of water-related projects that prioritize investment and serve global market policies. Added to that is the fact that in some cases the fate of entire populations depends on water resources, which is particularly highlighted in the case of Egypt, especially with the construction of the Renaissance Dam in Ethiopia.

The water problem in Egypt has in the past few decades attracted the attention of different parties[33], all noting that the problem is not only related to acute scarcity, but also to unfair distribution, mismanagement of resources, and inefficient irrigation techniques, all of which undermine water security in the country. Egypt has only 20 cubic meters/ person of internal renewable freshwater resources, which makes the Nile the main source of water in the country[34]. According to reports, Egypt falls below water poverty level based on the international classification that sets per capita water consumption at 1,000 cubic meters annually. In Egypt, this figure drops to 600 cubic meters, which forces the state to recycle the same water several times to respond to consumption needs, which amount to 114 billion cubic meters annually. The available amount of water in Egypt does not exceed 60 billion cubic meters, which come from the Nile, rain, and subterranean water.

[33] For the concept of the right to water and its economic and social aspects see Committee on Economic, Social and Cultural Rights, General Comment 15, The right to water: https://www.globalhealthrights.org/instrument/cescr-general-comment-no-15-the-right-to-water/ and the Special Rapporteur on the human rights to safe drinking water and sanitation: https://www.ohchr.org/en/Issues/WaterAndSanitation/SRWater/Pages/SRWaterIndex.aspx

[34] See Amr Dakkak, Egypt's Water Crisis- Recipe for Disaster, 11 August 2020, EcoMENA, at: https://www.ecomena.org/egypt-water/

The state adopts a contradictory approach where it imposes strict measures that aim at saving water while initiating throughout the past two decades projects that consume excess amounts of water such as golf courses, artificial lakes, and other recreational projects that do not take into consideration the acute shortage from which Egypt is currently suffering. Golf courses in Egypt are spread across the governorates of Cairo (Katameya Heights Golf and Tennis Resort, Katameya Dunes Golf, Mirage City Golf Club, Gezira Golf Course, Amarante Golf City) and Giza (Dreamland Golf Resort), coastal towns (Porto Marina Golf Resort, golf resorts at El Gouna, Stella Di Mare Golf and Country Club, Taba Heights Golf Resort, Madinat Makadi Golf Resort, Cascades Golf Resort, Jolie Ville Golf), and Upper Egypt (Royal Valley Golf Club Luxor)[35].

Each golf course is around 100 acres and costs around 150 million Egyptian pounds. Based on a study released by the World Wide Fund for Nature, a golf course that contains only 18 holes consumes around 700,000 cubic meters of water annually, an amount that can cover the needs of 15,000 people annually. Several media campaigns were launched to promote golf as a sport that is not restricted to the rich. The golf course built in the suburb of Madinaty in northeastern Cairo is cited as an example since it is presumably irrigated by a water treatment plant constructed inside the suburb[36]. Other campaigns aimed at responding to growing criticism of the environmental hazards of golf courses through marketing "environment-friendly" and "pesticide-free" golf courses that also rely on water treatment, yet this type of golf courses have not to date materialized. In fact, the attempt at irrigating golf courses with treated sewage water has so far proved a failure. This was demonstrated in the case of the coastal city of Hurghada, where golf courses smelled of sewage, leading investors to discard the idea altogether and resort to subterranean water, which is purer than Nile water[37]. In addition, golf courses are made with a special type of grass that requires extensive use of chemicals to be maintained[38].

Based on a UNESCO report, water used in one golf course reaches one million cubic meters annually, the same amount a town or a village of 12,000 people would consume[39]. According to the Global Anti-Golf Movement, golf courses and tourism are presumably part of a "development" package that includes infrastructure (multi-purpose dams, airports, harbors, roads, and bridges), luxurious residential compounds and entertainment complexes, export-oriented agriculture (exotic fruits and plants),

[35] From a report entitled "Golf courses devour the water of the poor [Arabic]: https://www.mobtada.com/details/687767. Also see "Escaping thirst is the dream of all Egyptians [Arabic]": https://www.albawabhnews.com/3106616

[36] Abdulrahman Al-Shuweikh. "Changing the Image of Golf to a Sport for Everyone." *Daily News*, January 4, 2021: https://dailynewsegypt.com/2021/01/04/changing-the-image-of-golf-to-a-sport-for-everyone/

[37] "Golf courses and the lakes of the rich swallow 600 million cubic meters [Arabic]." February 28, 2017: https://bit.ly/3biVkS4

[38] For details on the environmental and social hazards of investments in such projects in countries that suffer from water problems, see "Global and Local Forms of Resistance to Golf Course Development": https://www.manchesteropenhive.com/view/9781526107039/9781526107039.00018.xml

[39] Chris Grad. "Golf Tourism Negatively Affect the Environment, Tourism Review": https://bit.ly/2LuszXW .

and industrial zones[40]. The transformation of membership in golf courses to a saleable commodity led to increased speculation and the rise of shady activities. A comparison can be established between the green golf package and the Green Revolution package in agriculture since golf courses are, after all, a form of monoculture where exotic soil and grass, chemical fertilizers, and pesticides are imported, replacing the natural ecosystem. Attempting to create an artificial ecosystem is detrimental to the soil, which becomes more prone to pest attacks and disease, and has a negative impact on water supplies. Other environmental hazards include water depletion and the contamination of the soil, subterranean water, surface water, and the air, hence exposing local communities and downstream populations as well as golf players themselves to health hazards. Regarding local communities, the impact of the construction of golf resorts on the land leads to depriving them of water and other resources and in many cases to their displacement.

However, the Egyptian state still insists on the development of golf courses inside and outside Cairo as part of its recreational tourism plan[41]. At the same time, state support for small farmers is declining. After losing access to production tools, those farmers became a burden on the state. The situation gets worse with lack of awareness and access to education, which in turn leads to further population increase based on the assumption that having more children would improve the families' conditions through making them work in other economic activities deemed more profitable than agriculture.

Second: Climate justice in Iraq's Mesopotamian Marshes:

[40] The Global Anti-Golf Movement Manifesto: http://pesticidetruths.com/2010/07/06/the-global-anti-golf-movement-manifesto/

[41] See Ahmed El-Kholei "Does Urban Planning in Egypt Address Environmental Issues and Social Justice?" Alternative Policy Solution, AUC: https://bit.ly/3s13OmN

More than 5,000 years ago, the Mesopotamian Marshes in southern Iraq[42] were the reason for the start of early human colonies and enabled the development and growth of ancient civilizations. The marshes have, since then, been the nucleus of different communities that settled in the region. The Mesopotamian Marshes are a group of waterbodies that cover the flatland south of the alluvial plain at the lower part of the Euphrates and Tigris basin. The marshes spread over an area of 20,000 square kilometers, located in Iraq and Iran. They constitute the largest wetland ecosystem in the Middle East and West Asia. The marshes offer one of the most prominent examples of the impact of economic and environmental changes on climate justice.

Throughout different eras[43]inhabitants of the Mesopotamian Marshes relied on different activities and crafts that constituted the main sources of the region's economy. Breeding cattle is among the most important of those activities, which allowed the locals to excel in making dairy products. Fishing and bird hunting are also used for both food security and trade in local markets. Locals make use of sugarcane cultivated in the marshes to make bamboo products, and the abundance of water and wetlands in the era, especially through canals branching out of main rivers, made agriculture a major part of the economy in the region. The marshes offered an example of environment-friendly human activities in which the needs of locals did not disrupt the ecological balance.

The draining of the Mesopotamian marshes[44], which started in 1991 during the First Gulf War, deprived the region of many of its distinctive characteristics. Most of the wetlands dried out, which led to the displacement of tens of thousands. Between 1991 and 2003, the draining of the marshes led to the destruction of agricultural lands, the migration of thousands of animal and bird species, the deterioration of marine life, and the disappearance of vegetation, hence robbing the region of the sustainable environmental and economic balance it managed to maintain for millennia and eventually contributing to the current climate crisis.

Attempts at restoring the Mesopotamian Marshes after 2003 did not bear fruit[45] and despite being named a UNESCO world heritage site in 2016, the environmental, social, and economic conditions in the region remain unstable, which affected the ecological situation in southern Iraq in general. Restoration attempts are not working because upstream countries control the flow of water from main rivers and their tributaries to the marshes, which reduces the amount of water available for restoration. Added to that is the contamination of water by chemicals, sewage, and heavy water as well as relevant entities' inability to solve the problem. The potential for economic development was undermined by the deterioration of infrastructure and lack of adequate services, which

[42] "Iraq's Mesopotamian Marshes: Years of suffering due to salinity and drought [Arabic]: https://is.gd/D8rL8T
[43] "Mesopotamian Marshes, the real wealth in Iraq, and its role in economic prosperity [Arabic]": https://bit.ly/36Y5dBC
[44] "The Iraqi government's aggression against Marsh Arabs [Arabic]." Human Rights Watch: https://bit.ly/2ML1sJc
[45] "Mesopotamian Marches named a UNESCO World Heritage Site": https://is.gd/1ukjCF

made locals unable to resume their economic activities and to focus on securing basic needs[46]. Economic development also relies on education and healthcare, both having witnessed remarkable deterioration.

A considerable number of locals[47] migrated to cities and took different jobs. Some of them took military jobs, whether in the army or militias, hence becoming part of the war economy. Substantial numbers worked in oil industries after having to quit their traditional professions, hence leading to a remarkable deterioration in environment-friendly economic activities. In fact, investment in oil industries is one of the main causes of pollution in southern Iraq.

Restoring the ecological balance in the Mesopotamian Marshes is an extremely challenging process that requires adopting an alternative economic system that reduces environmental hazards in the region. In order to restore the traditional economic system that preceded the crisis, it is necessary to deal with the water problem to secure regular supplies that cover the needs of locals during different seasons of the year. It is important to use the status of the marshes as a UNESCO World Heritage Site during negotiations for restoring the environmental sustainability of the region. In addition, economic development will not be possible without investing in healthcare and education as a means of empowering local communities and encouraging its members to restore their traditional local activities. The restoration plan has to include putting an end to the pollution of natural resources, disconnecting sewage networks from rivers, and treating heavy water in addition to reclaiming lands with high salinity levels as a result of successive droughts. Restoring environmental balance is closely linked to stopping several activities that violate this balance such as cutting trees and illegal fishing that uses explosives, poison, or electricity. This requires the intervention of relevant entities such as municipalities and environmental institutions and putting laws that protect the environment into effect. It is only through those measures that the marshes can restore their ecological balance and that climate justice can be achieved in the region.

[46] Ahmed Mezher Abd. "The role of the tourism sector in economic growth: the case of Iraqi marshes [Arabic]": https://bit.ly/3q8KlPT

[47] "Water shortage and rising temperatures drive Marsh Arabs out of their towns [Arabic]": https://www.reuters.com/article/idARAL5N1VS3NO

Third: The Bisri Dam project in Lebanon:

The Bisri Dam project was met with indignation on the part of Lebanese activists and its cancellation was considered a national triumph, especially at a time when the third world war is expected to be over water[48] . The project was labelled a crime[49] against humanity, heritage, and the environment. A study conducted by the Beirut-based research organization The Legal Agenda summarized all the facts related to the project, especially the article written by seismologist Tony Nemer and which proved that the Bisri Valley is the least suitable spot for the construction of the dam[50]. Apart from the fact that the Bisri Valley has invaluable environmental, cultural, and agricultural significance , the construction of the dam is a violation of the law and safety standards since it will be located in an active earthquake zone. The dam will overlie an active seismic fault, which is expected to cause this fault to move, hence triggering a major earthquake[51]. In fact, the epicenter of the 1956 earthquake was the Bisri Valley, hence making the dam a time bomb. It is noteworthy that based on law number 444/2002 on environmental protection, it is not only citizens' right to protect to environment, but also their duty[52] based on Article 3, which states that "every citizen is to protect the environment and secure the needs of current generations without impacting the rights of future generations."

It is noteworthy that despite the debate about the Bisri Dam project and about dams in general, Lebanon's water policy, which goes back 70 years, is mainly based on the construction of dams[53], according to political economy expert Roland Riachi, who argued against the construction of Bisri Dam. This puts into question the feasibility of solutions adopted by the Lebanese state to solve the water crisis and the studies conducted before the construction of dams. In fact, several faulty dams have been constructed in Lebanon, which demonstrates inability to learn from past mistakes. In addition, dams that are promoted as saviors are only business deals from which only investors and the ruling elites benefit and through which public funds are squandered at the expense of the general good.

Claims made by the Ministry of Energy and Water in 2010 about Lebanon suffering from shortage of water was a misleading statement to make those business deals possible and to commodify water resources. Lebanon is, on the contrary, rich in renewable water

[48] "Pope: Humanity is heading towards a third world war over water [Arabic]." *Al Araby Al Jadeed*, February 25, 2017 and "The third world war will be over water [Arabic]." *Al Ittihad*, December 27, 2012.
[49] "Crime at the Bisri Valley [Arabic]." *Legal Agenda*, issue no. 62 (The Bisri Dam at the Heart of the Uprising), January 2020: https://is.gd/hTML6n
[50] Tony Nemer. "A summary of the study on the Bisri dam project [Arabic]." *Legal Agenda*, Op. Cit.: https://is.gd/GI10uU
[51] Tony Nemer. "The Bisri dam project: A dam on the seismogenic Roum fault, Lebanon." Engineering Geology (2019)
[52] Amani Al Baini. "The Bisri case between the magician's authority and the cry of righteousness [Arabic]." *Legal Agenda*, Op. Cit.: https://is.gd/0HnlE2
[53] Mark Ghazaleh. "A reading of the economic feasibility of the Bisri dam [Arabic]." *Legal Agenda*, Op. Cit.: https://is.gd/cDmeU3

resources, especially subterranean water, which is annually renewed by 53% of rainwater, according to a study on subterranean water conducted in 2015 by the United Nations Development Fund. The crisis is not caused by scarcity of water, but rather by mismanagement of water resources. That is why the Ministry of Energy and Water needs to look into the root of the crisis in order to find a solution. In all cases, it is not possible for a country that claims to suffer from acute water scarcity to destroy the remaining agricultural lands through the construction of dams without conducting proper studies instead of prioritizing the interests of the elite. In fact, no studies have been released about underground water and the amounts of water provided by rain and springs since last century. It is not possible to guarantee achieving water security for a people without a comprehensive and sustainable strategic plan to manage water resources, one that adopts environment-friendly alternatives.

Owing to the expected negative impact of the Bisri Dam, the Legal Agenda dedicated a special issue to the problem. One of the articles notes that the Bisri Dan is bound to destroy the climate and agriculture of 30 towns located in its vicinity[54]. Natural resources expert Myrna Haber argues that the state is depriving citizens of development opportunities and the right to health, food, and environmental security in order to provide particular areas with water, hence violating their basic rights and depriving them of their livelihood. She also argues that no compensation offered by the state could make up for expected damages. The cancellation of the Bisri Dam project demonstrates the role played by activism based on solid facts and scientific research

[54] "10 tons of humidity to spread in a closed basin [Arabic]." *Legal Agenda*, Op. Cit.: https://is.gd/au1BJK

and which culminated in the 2019 uprisings in which protestors declared the Bisri Valley one of the epicenters of their revolution.
The uprisings revealed how the government insisted on going ahead with the project even though it was expected to destroy six million square meters of agricultural land as well as the region's biodiversity[55] in addition to the impact on the valley as the second most important destination for migrant birds in the country. The dam also threatened around 70 historic landmarks[56], on top of which is the Roman temple, Mar Moussa Church, and Saint Sophia Monastery in addition to several bridges and monuments[57] that go back to the Byzantine and Roman eras[58]. False statements issued by the state drove experts and activists to use scientific facts and extensive research to underline its hazards and how unsuitable it is[59] for the karst soil in the region[60] in addition to its role in squandering public funds. Media outlets declared their solidarity with the cause, which was particularly demonstrated in the special issue of the Legal Agenda, to document the unavailability of required amounts of water and the carcinogenic nature of this water that cannot be treated, especially the 50 cubic meters that were to obtained from Lake Qaraoun and which passes through sewage water located in the drainage tunnel beneath the Naameh landfill[61].

Protests against the Bisri Dam project started in 2015 on social networking websites then turned in 2017 into a national campaign that aimed at preserving the Bisri Valley. For years, sit-ins were staged by the Bisri Bridge and representatives of the campaign sent documents about the hazards of the dam to the World Bank and met with several of its officials until finally the project was cancelled. As the campaign gained momentum, several political parties admitted to making a mistake by supporting the dam, which in turn affected local authorities affiliated to those parties. Ironically, the World Bank responded to people's demands and agreed to channel the loan towards the country's priorities and supporting the poor while the ruling elites insisted on going ahead with the project. Protestors were targeted, slandered, accused of treason, and at times violently suppressed.

Protests continued till April 4, 2020 when the World Bank agreed to stop funding the dam due to the performance of the government, which did not provide the required institutional and financial documents and did not finalize the Ecological Compensation Plan. This meant that all activities related to the dam were considered illegal.

[55] "National Physical Masterplan for the Lebanese Territory." Council for Development and Reconstruction, 2019.
[56] "About Bisri, a human community the goes back to Before Christ [Arabic]." *Legal Agenda*, Op. Cit.: https://is.gd/UA1YBo
[57] See "Statement of Concern on the Bisri Valley and Dam Project, Chouf/Jezzine" issued by The International Council on Monuments and Sites of Lebanon (ICOMOS-Lebanon), April 15, 2020.
[58] Environmental and Social Impact Assessment (ESIA), Council for Development and Reconstruction, 2014.
[59] "Calculation about the Bisri dam project [Arabic]. *Legal Agenda*, Op. Cit.: https://is.gd/sgiEKz
[60] According to Amir Hulail's article "Subterranean waters: Lebanon's liquid treasure [Arabic]", published in June 2013, "70% of Lebanon's rocks are karst, which means they are calcareous rocks with underground sinkholes. These rocks are extremely sensitive since any connection between surface and subterranean water through these rocks speeds up the transfer of pollutants to under the ground, hence constituting a hazard to subterranean water." *Army Magazine*, June 2013: https://is.gd/J43wOQ. The calcareous rocks, which are soluble, allow for the leakage of water under the ground.
[61] Saadi Elwa. "Ain ech Cheffe or carcinogenic water for Greater Beirut [Arabic]." *Legal Agenda*, Op. Cit.: https://is.gd/518yPl

Campaigners took advantage of the donor countries' lack of trust in the ruling elite in Lebanon to underline alternatives that guarantee the sustainability of investing in water and protecting water resources through ways that are safer and more economic than the construction of dams such as addressing the issue of wasting water and making use of water from springs, underground water and rain[62]. It is also important to start a participatory national dialogue that involves civil society and experts to look into the legal means of placing the Bisri Valley on the map of food security in order to protect its resources, achieve the goals of sustainable development, and reach social and climate justice. People who demand their rights are to unite with civil society and rights, environmental, and political organizations, investigative journalists, and the international community.

[62] Assessment of Groundwater Resources of Lebanon, United Nations Development Program (UNDP), 2014.

Conclusion:

Water resources are indispensable for human health and the environment. There is no doubt that population increase, environmental changes, and new land uses increased demand on water across the world, which in turn led to growing competition for water and unfair distribution of water resources. Floods and droughts also constitute a major threat to human life, the environment, and the economy. This paper demonstrated the relationship between social justice and the environment through cases in which the management of water has a negative impact on both local and regional levels and is indicative of adopted policies. These cases underline the importance of raising awareness about water as a basic right and initiating national dialogues in which citizens, civil society, and rights organizations are involved.

This, in turn, highlights the vital role of environmental justice that includes equal access to potable water, clean air, and sewage services and that enables citizens to resiliently face the impacts of climate change. However, access to such rights is linked to social and economic status as well as to the policy-making process that favors interest networks and the ruling elites. Environmental justice cannot be achieved in isolation from a number of other rights including education, healthcare, economic empowerment, and sustainable development.

In order to redress the damage sustained by water resources and the ecological system as a step towards achieving environmental justice, several measures need to be taken:

- Adopting policies that ensure catering to people's demands regardless of their race, religion, or color

- Putting on hold projects that threaten local communities whether through depriving them of water resources or displacing them

- Supporting small farmers in order to minimize the number of people who fall below the poverty line, hence making growth and sustainable development possible

- Supporting scientific research that look into the feasibility of proposed water-related projects in order to verify official demands about the role of such projects in achieving sustainable development and to identify projects that only aim at serving the interests of the elites

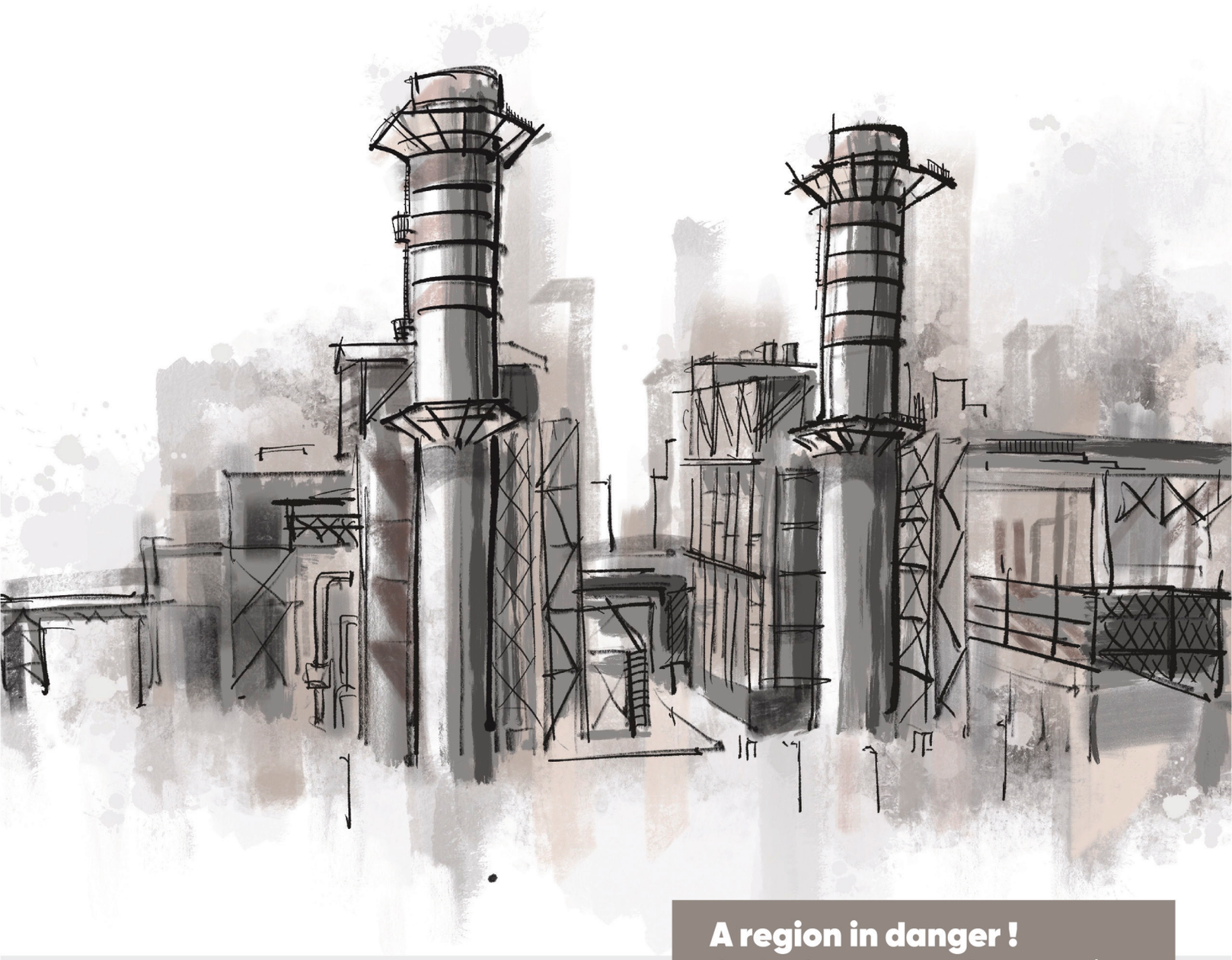
- Initiating a reform plan that guarantees putting an end to the contamination of natural resources, separating sewage networks from rivers, treating heavy water, and reclaiming more agricultural land

- Stopping all practices that destroy natural resources such as cutting trees and illegal fishing through local and national monitoring entities and through putting environment protection laws into effect

- Addressing water wasting, investing in renewable water resources, underground water, and rainwater

- Restoring the ecological balance in threatened areas and bringing back traditional economic activities to those areas

- Channeling funding by international financial institutions such as the World Bank and the International Monetary Fund from building dams to other projects that protect the environment while giving precedence to people's needs and providing them with fair and safe access to water resources.



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

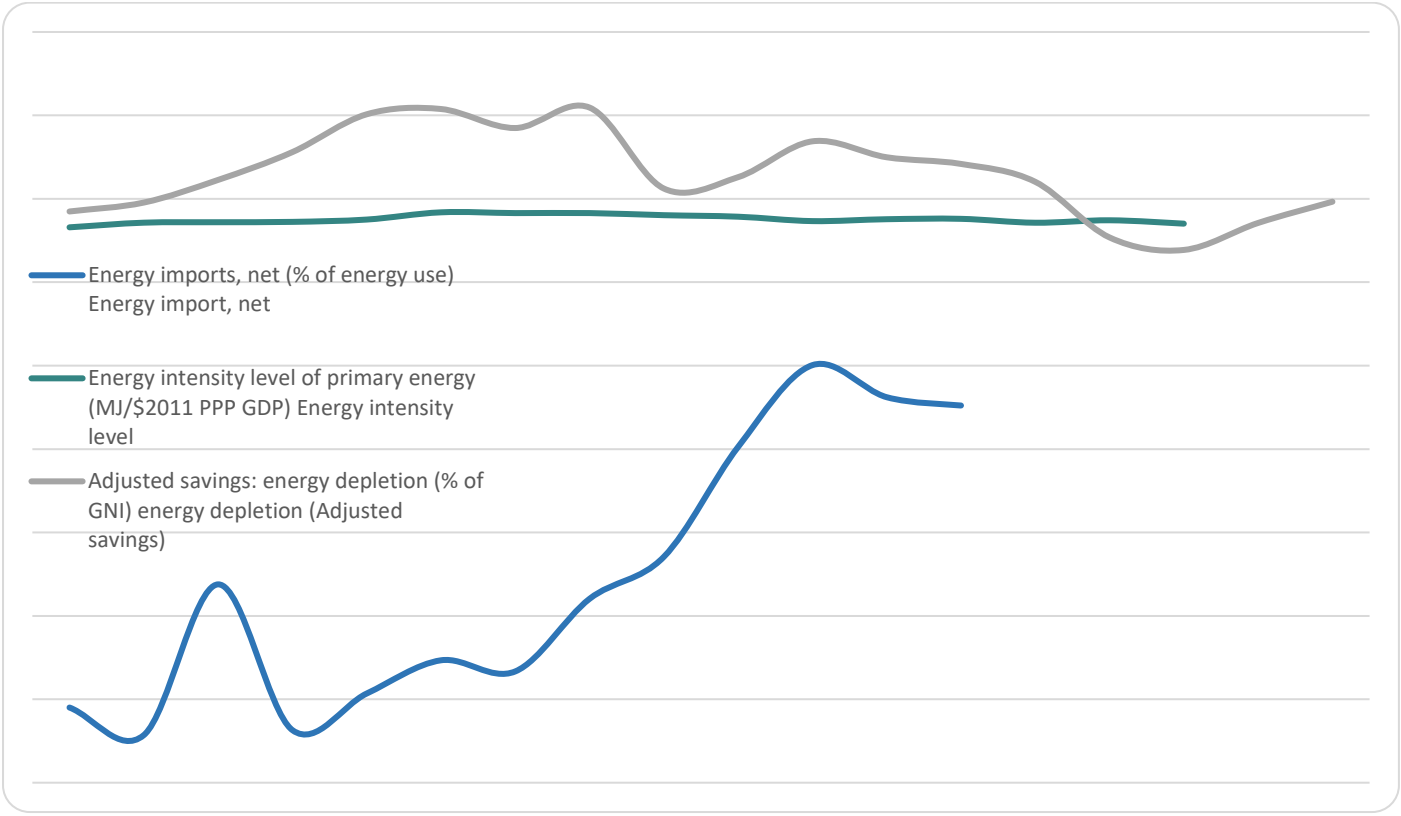
level, climate injustice is linked to unfair distribution of losses and gains. Environmental and health losses are always sustained by marginalized groups that already suffer from lack of resources and a deterioration of services. Meanwhile, gains go to owners of capital since energy-intensive industries 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 rates[63]. 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.

[63]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 liquified 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 2011 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 tons, a limited portion of which was exported[64]. It is noteworthy that cement is not an export commodity because of high transportation costs on one hand and the availability of

[64] "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 2018[65].

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 years[66]. 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 2016[67].

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

[65] 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
[66] 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
[67] 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 2017[68] while eight companies monopolized the production of nitrogen fertilizers in 2018[69]. 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 population[70].

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.

[68] "Key Figures & Facts of Cement Industry in Egypt." Op. cit.
[69] Abdel Halim Salem. Op. cit.
[70] 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 number[71]. Living standards in Kuwait are high and its GDP was estimated at 120 billion US dollars in 2017[72]. 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 emissions[73][74][75] .

[71] "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

[72] Kuwait GDP, GDP nominal (2017), World meter. https://www.worldometers.info/gdp/kuwait-gdp/

[73] Al-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.

[74] 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.

[75] 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)[76] 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 area[77]. 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 quinquelineatus/Lutjanidae[7879]. 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 interval[80]. 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

[76] 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.
[77] 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.
[78] 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.
[79] 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.
[80] 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 minerals[81] .

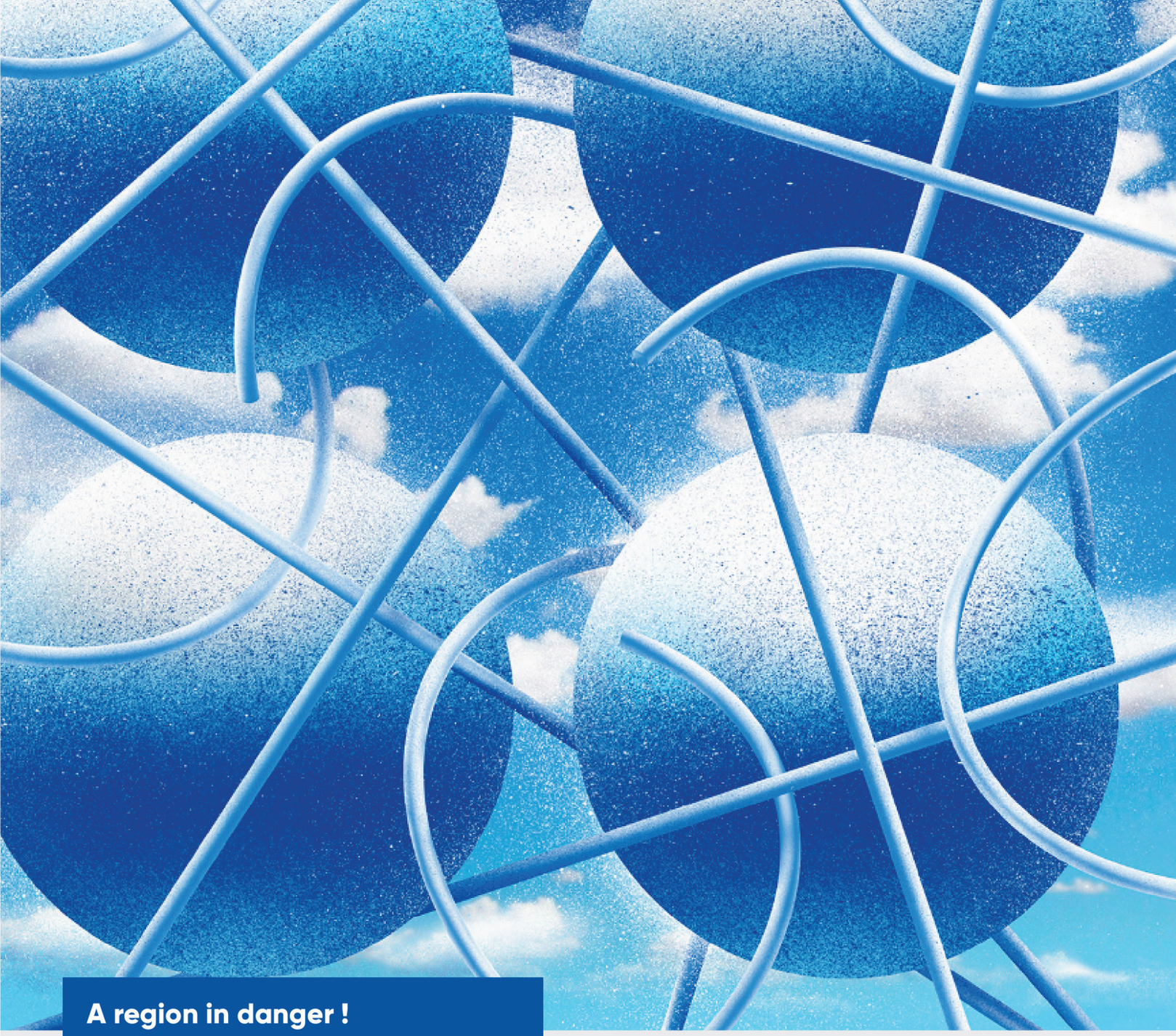
The main cause was identified to be streptococcus agalactiae bacteria that spread in enclosures and led to the contamination of fish feed[82]. This affected the market and led to the fluctuation of prices, hence making some groups incapable of consuming fish and consequently undermined social justice. This naturally had an impact on environmental and political justice[83]. 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.

[81] Moemen Bani Mustafa. "Environmental justice and its importance for the environment [Arabic]": https://bit.ly/30mgeZK
[82] 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
[83] "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.



A region in danger !
Justice between environmental and economic aspects

Energy sovereignty between environmental and social justice:
The cases of Egypt, Algeria, and Iraq

Reem Abdel Halim
Researcher in economics, economic policy, and development, received her Ph.D. degree from Cairo University

Nissaf Brahimi
Researcher at the Arab Forum for Alternatives, received her master's degree from the Faculty of Law and Political Science, University of Tunis El Manar

Ali Saheb
Researcher, member of the Info Center for Research and Development, Baghdad

Introduction:

In addition to being a global threat, climate change is one of the most pressing issues in the Arab region. Unprecedented drought waves hit several countries in the region such as Syria and Iraq, leading to a sharp decline in agricultural production and more reliance on imports, hence increasing the prices of food commodities. Other countries are suffering from desertification such as Tunisia and Morocco. Climate change also led to sea level rise, which constitutes a grave threat to agricultural land as well as to coastal cities such as Alexandria and Tripoli[84] .

Energy is one of the main issues that come to the forefront when addressing environmental problems resulting from climate change, especially that traditional energy, still widely used, contribute to the increase of greenhouse gas emissions, hence expediting climate change that now constitutes the most dangerous threat to the environment[85]. In addition to the threat to the environment, traditional energy sources are nonrenewable, which means that eventually they would not meet increasing demand that corresponds to population growth. The situation is also complicated by the decline in reserves as a result of price hikes and a drop in extraction operations.

It is not possible to address the issue of energy and climate change in isolation from the 2008 global financial crisis when governments opted for rescuing banks and institutions at the expense of the impoverished, who always bear the brunt of such crises. The repercussions of the crisis were also demonstrated in protest waves that erupted in several parts of the world, especially the Global South. Those repercussions are intensified by the fact that political elites and investors on the domestic level and multinationals on the international level control energy sources in the Arab region and are the ones that decide when and how to extract alternative energy sources such as shale gas or shale oil while not taking into consideration the impact of extraction operations on land, underground water, and small farmers. People in the Arab region are not involved in the decision-making process, hence are not in control of resources and are deprived of their right to a clean environment. Depletion of natural resources and subsequent environmental deterioration are mainly the result of a developmental model that is based on extractive industries (oil, gas, phosphate… etc.), and water-intensive agricultural activities that are usually linked to recreational tourism. It is also noticeable that most regions that contain natural resources are impoverished and marginalized.

In this context, the paper will examine energy issues in three Arab countries: Egypt, Algeria, and Iraq. The first part deals with the pricing of natural gas in Egypt while the second examines the extraction of shale gas in Algeria and the third discusses the energy situation in Iraq. In the three countries, environmental issues are intertwined with social and economic issues linked to pressing problems such as unemployment, corruption, and lack of transparency.

[84] Salma Emara. "Climate change: Will Alexandria sink? [Arabic]" *BBC*, October 2, 2020: https://bbc.in/3tKKf2t
[85] "Renewable Energy Sources and Climate Change Mitigation." Intergovernmental Panel on Climate Change: https://www.ipcc.ch/site/assets/uploads/2018/03/SRREN_FD_SPM_final-1.pdf

First: Natural gas pricing in Egypt:

In July 2014, the prices of natural gas were raised by 30-75% for cement, iron, and steel industries, as part of the government's plan to reform the subsidy system to which 20% of the budget was allocated. The price of natural gas increased to eight US dollars per one million thermal units for cement factories, seven US dollars for iron, steel, aluminum, copper, glass, and tile factories, five US dollars for food, pharmaceutical, and brick factories, 4.5 US dollars for fertilizers and petrochemicals, and three US dollars for power plants[86]. Ever since, factories have been lobbying for reducing gas prices and the International Monetary Fund admitted in a report released in 2017 to the difficulty of raising energy prices for factories in Egypt due to pressure exercised by both politicians and business owners. This was demonstrated in 2019 when the Council of Ministers issued a decree to revise gas prices for different industries. As a result, the price of natural gas dropped to six US dollars per one million thermal units for cement factories, 5.5 US dollars for iron, steel, aluminum, copper, tiles, and porcelain[87].

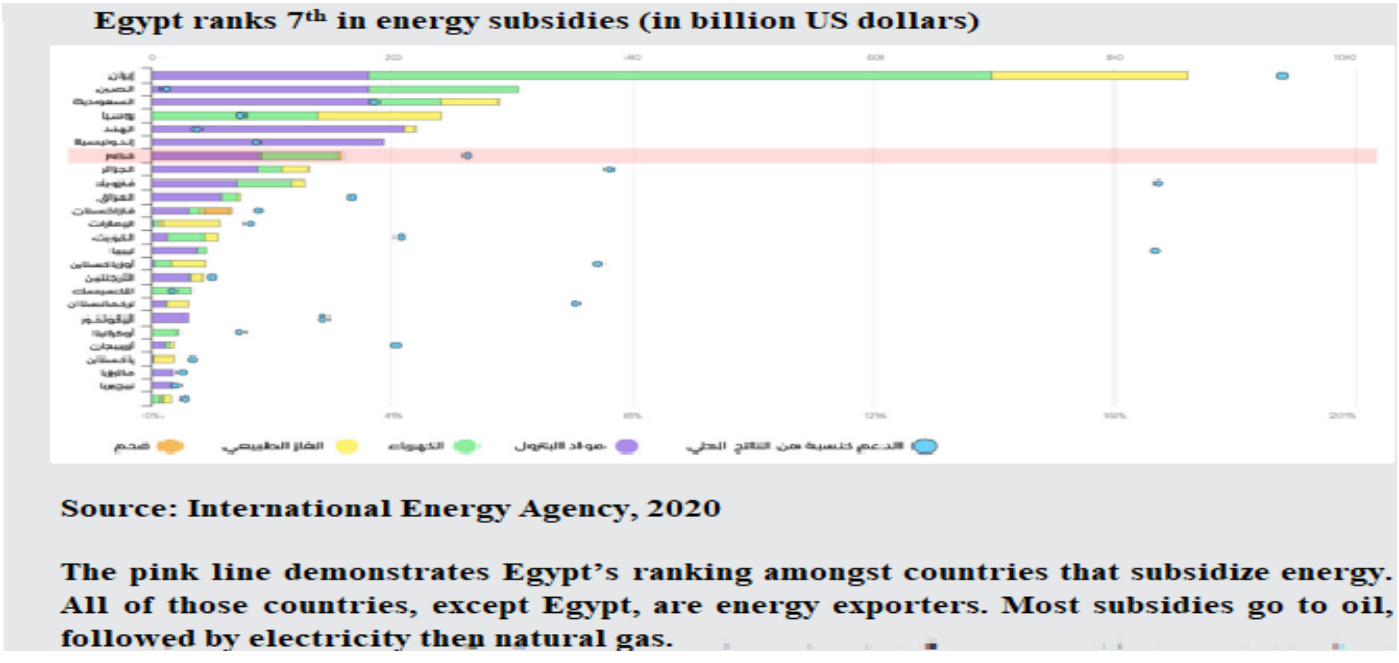
Other factories, including chemicals and construction material, submitted requests to reduce gas prices for energy-intensive industries and demanded that the Egyptian government follow global energy prices arguing that such a step would increase the competitive edge of Egyptian products in global markets. Owners of these factories stated that the fair price should be between 2.5 and 3.5 US dollars per one million thermal units and argued that current prices, besides making Egyptian products less competitive, make them lose a lot of money. They cited recent reports by the General Organization for Export and Import Control that revealed the decline of Egypt's exports of iron and steel by 37% to reach 252 million US dollars in the first half of 2020, compared to 402 million at the same of 2019.[88]

[86] Council of Ministers' decree number 1159 for the year 2014
[87] Council of Ministers' decree number 1884 for the year 2019
[88] The General Organization for Export and Import Control: https://www.goeic.gov.eg/

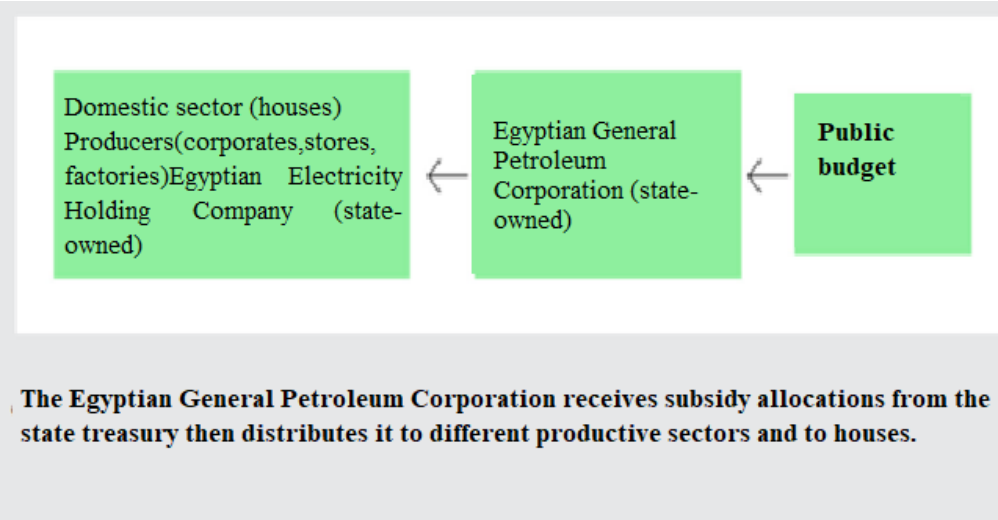
The use of natural resources is not just a technical issue based on decisions made by scientists, economists, or politicians since it cannot be detached from its environmental and human rights aspects. Those aspects have been overlooked in the management of natural resources in Egypt, especially oil and natural gas, as a result of several factors including corruption, lack of transparency, and the exclusion of citizens from the decision-making process as well as pricing policies that prioritized supporting industries at the expense of the environment and the people. This is demonstrated in support given to industries that are not labor-intensive and that harm the environment such as cement and fertilizers.

The impact of gas price hikes on industries:

Based on a study by Salma Hussein, energy subsidies in Egypt are among the highest in the world.



Subsidies are provided by the Egyptian General Petroleum Corporation and the Egyptian Electricity Holding Company to factories and consumers. It is noteworthy that corporate governance in both entities is weak.

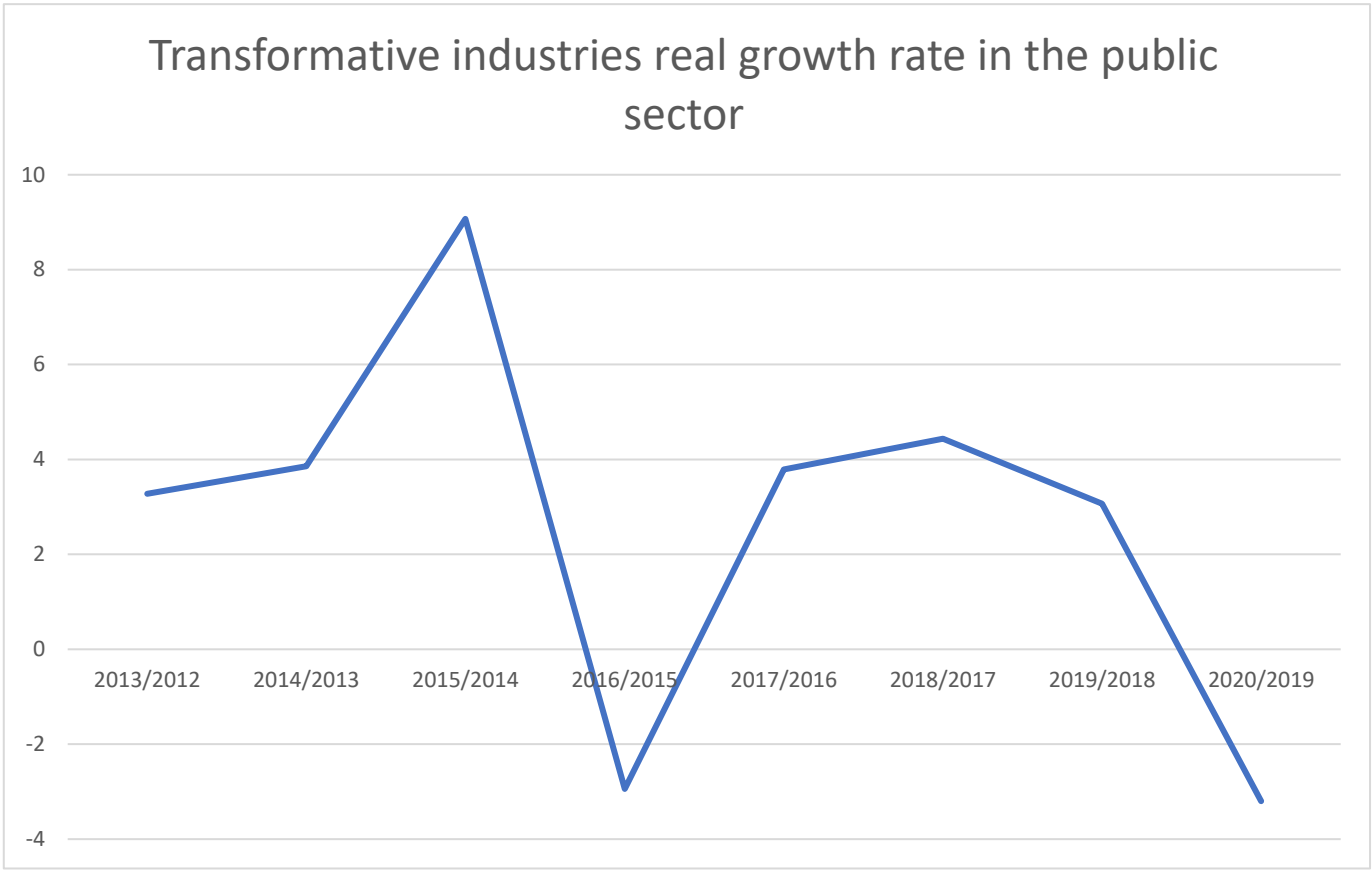


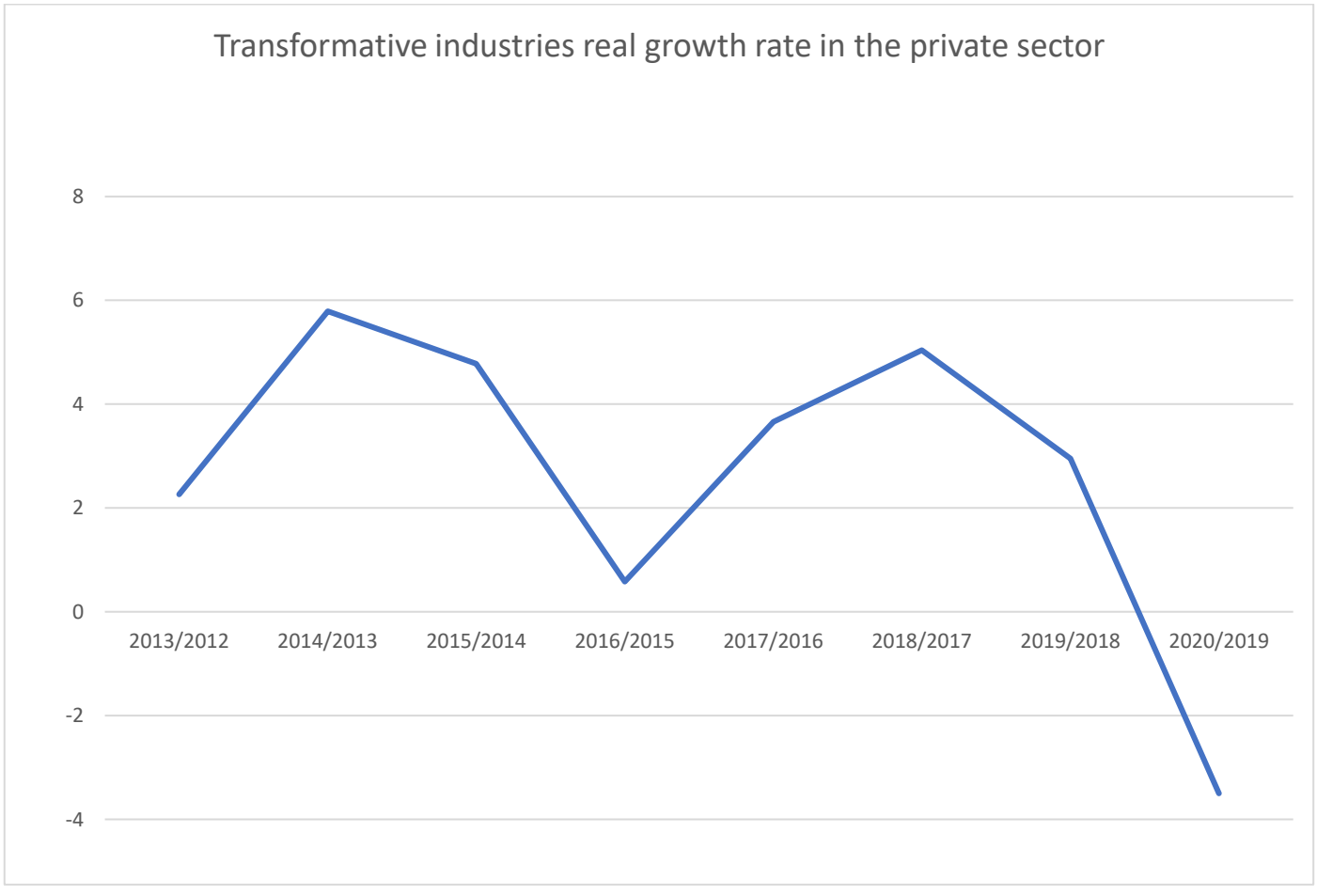
The Egyptian General Petroleum Corporation receives subsidy allocations from the state treasury then distributes it to different productive sectors and to houses.

Based on Salma Hussein's study, electricity companies get natural gas for three US dollars per one million thermal units, which covers the average production cost. It would seem that natural gas is not subsidized for power plants, yet the Egyptian Electricity Holding Company provides subsidized gas for those plants through measuring the difference between production cost and price. For example, a productive factory with medium energy consumption would need eight megawatts (8,000 kilowatts). If the price of gas provided for power plants is three US dollars, then the production of eight megawatts costs 24 US dollars and by adding 25 US dollars for transportation and distribution, the cost of each megawatt will amount to 49 US dollars. This means that the cost of one kilowatt is 0.049 dollars (0.88 Egyptian pounds) based on an exchange rate of 18 Egyptian pounds per US dollars (2018). Since the price factories pay for electricity ranges between 0.45 and 1.4 Egyptian pounds, any factory that buys electricity for less than 0.88 gets a subsidized price. This is means that several factories still get electricity at subsidized prices, especially when taking into consideration a forfeiture rate that reaches 14% in the production and distributions processes. The electricity sector gets the highest subsidies in Egypt since 74% of natural gas is used to produce electricity that is later sold to factories and houses[89].

Looking at the growth rates of the transformative industries reveals that lifting subsidies on natural gas did not lead to a drop in growth rates except in 2015/2016, that is immediately after the decree was issued. In addition, the decision to reduce natural gas prices for cement factories to six US dollars instead of eight did not improve the performance of those factories, especially that the campaign against unlicensed buildings and stopping construction work for six months affected cement sales in the first half of 2020[90] . The same applies to the fertilizer industry.

[89] Salma Hussein. "The four misconception of the Egyptian-IMF plan to raise energy prices [Arabic]." The Egyptian Initiative for Personal Rights, October 2020.
[90] "Real gross domestic product growth rates [Arabic]." Official website of the Ministry of Planning and Economic Development: www.mped.gov.eg

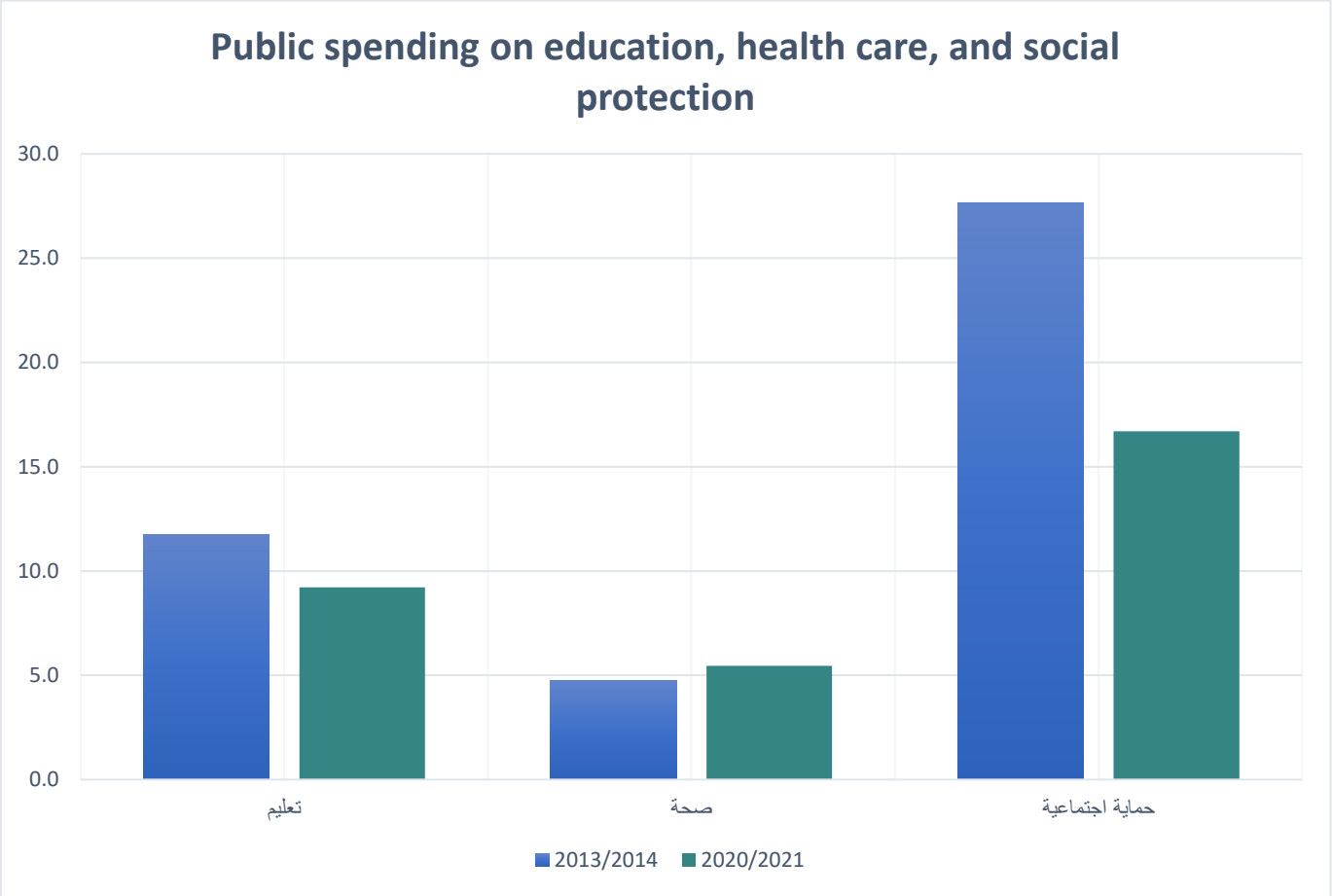




Source: Official website of the Ministry of Planning and Economic development

Distribution of surplus from lifted subsides:

Looking into public spending on education and healthcare in the 2013/2014, one year before lifting subsidies on combustibles, reveals that after reducing subsidies spending on education declined while spending on healthcare increased by only 1%. Spending on social protection also declined despite numerous initiatives to protect women's health and support informal labor. This means that the surplus resulting from lifting subsidies on combustibles was not channeled towards improving public services or creating a safety net[91] . The industry sector was also not impacted by lifting subsidies on natural gas as much as it was as a result of the pandemic in 2020.



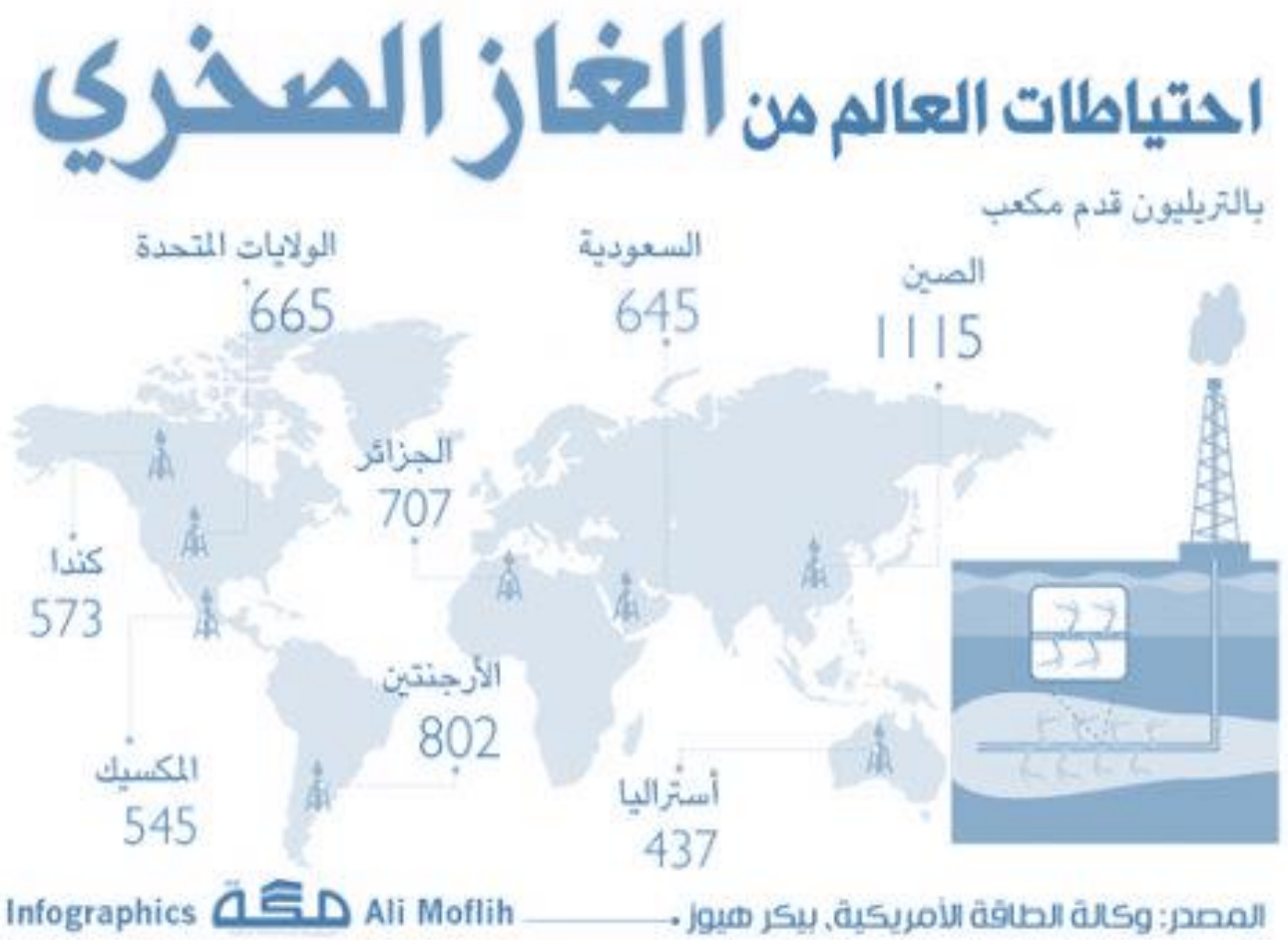
Source: Ministry of Finance

[91] Ministry of Finance. "Public budget analysis for different years [Arabic]."

Second: Shale gas in Algeria:

The extraction of shale gas has been the subject of heated debated in the Maghreb since 2012. The governments of Tunisia, Algeria, and Morocco are determined to go ahead with their plans to extract shale gas amid environmental, economic, and social concerns. This section focuses on the case of Algeria.

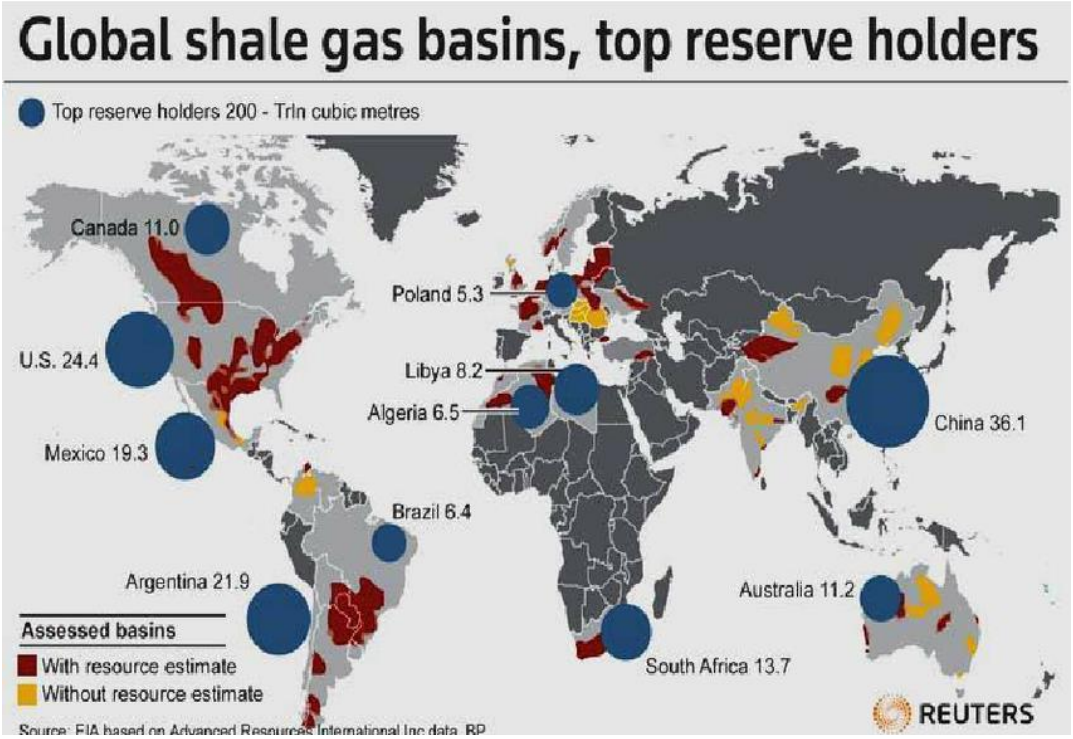
Based on a study conducted by the US Energy Information Administration in 2011, Algeria possesses around 707 trillion cubic meters of shale gas resources[92]. In fact, Algeria ranks third in shale gas reserves after China and Argentina.



93

The graph shows the World shale gas reserves.
Source: US Energy Information Administration

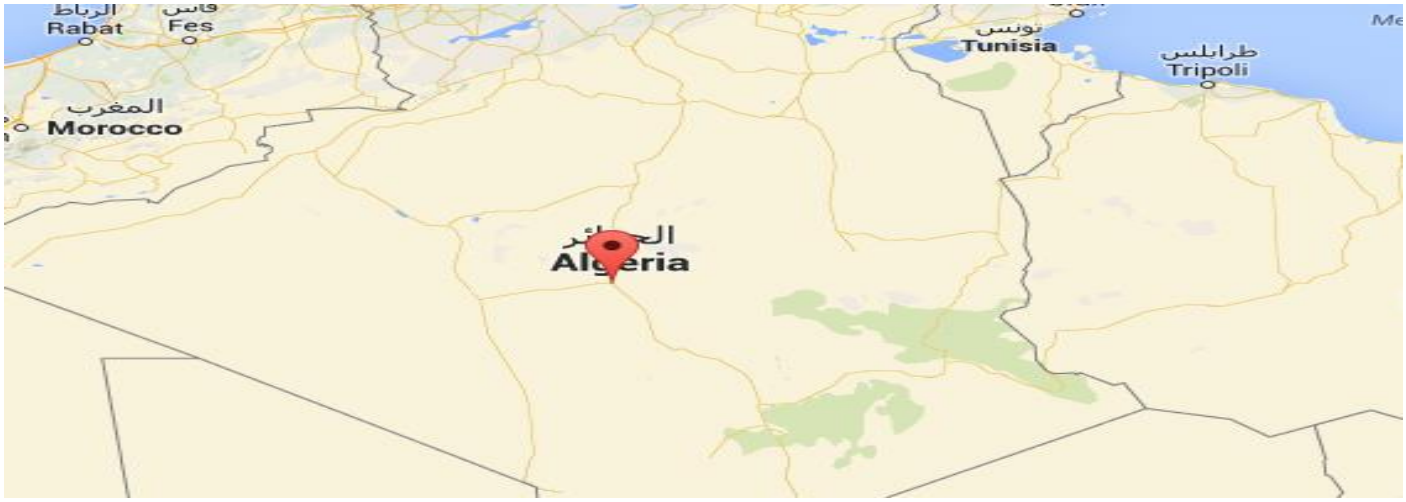
[92] Hamza Hamouchene. "Struggle for energy democracy in the Maghreb [Arabic]": https://bit.ly/3tr6o5J
[93] Khaled ben Al Sharif. "Will Algeria choose shale gas or the environment? [Arabic]": https://www.sasapost.com/do-you-choose-algeria-shale-gas-or-the-environment/



The Algerian national oil company (Société Nationale pour la Recherche, la Production, le Transport, la Transformation, et la Commercialisation des Hydrocarbures- Sonatrach) revealed in 2014 that Algerian shale gas reserves are four times its natural gas reserves[94]. The company also announced starting extraction operations the following year despite concerns.

Objections to shale gas extraction:

On December 27, 2014, the Algerian Ministry of Energy announced drilling the first exploration well in Ahnet Basin near the town of Ain Salah in the south. The process was implemented by both Sonatrach and the French company Total Energies[95].



96

[94] Mohamed Samih Al Baji. "Shale gas in the Maghreb: Between government intransigence and civil society objections [Arabic]." *Nawaat*: https://bit.ly/3tdxUDA
[95] Kahled ben Al Sharif. Op. Cit.
[96] Ahmed Fayek Dalloul. "Will Ain Salah ignite nation-wide protests in Algeria? [Arabic]" *Al Bayan:* https://www.albayan.co.uk/Article2.aspx?id=4217

This announcement was followed by massive protests in Ain Salah. Protestors, whose number was estimated at 5,000, occupied the main square in the city and blocked roads. Environmental activists from the town took part in the protests[97]. Environmental organizations and civil society activists across Algeria demanded holding a referendum on the extraction of shale gas owing to its serious effects on the environment and the people. The extraction of shale gas is done through a technique called hydraulic fracturing, which consumes huge amounts of water, hence threatening groundwater reserves. The process also requires pumping toxic chemical substances into the soil, which puts an end to farming activities and exposes locals to the risk of cancer. The protests, which were violently suppressed by security forces, reached the capital as concerns grew over the possibility of carrying out extraction operations in other towns in the south as well as in the capital.

Activists formed the Committee of 22 that became the representative of protestors and used social networking websites to mobilize the people and organize rallies[98]. Protests reached the central parts of the country and roads between cities were blocked by protestors. While the extraction of shale gas was the main issue, protestors from several states that are rich in natural resources yet suffer from marginalization and impoverishment, such as Illizi, Ouargla, Tamanrasset, and Adrar, also joined[99].

Protests continued for two months and the government sent a delegation to negotiate with the Committee of 22 in Ain Salah. However, activists insisted that extraction operations stop before they start negotiating. After that, protests started taking a violent turn when protestors tried to block the road to the second exploration well and clashes erupted between them and security forces. Tear gas and live ammunition were used, and three protestors sustained serious injuries. Security forces also burnt all tents erected by protestors in public squares where they staged sit-ins [100]. The government also managed to curry favor with many of the Committee of 22 members through giving them jobs at Neftal, a company affiliated to Sonatrach. The committee was, therefore disbanded.

Environmental hazards and social justice:

During the protests, activists expressed their concerns over the impact of excavation operations on water resources and the environment since techniques used in the excavation, such as hydraulic fracturing, require immense amounts of water. It is noteworthy that water is a rare resource in the south of Algeria[101]. Protests also focused on people's access to natural resources. In a protest staged in Ouargla in March 2013, protestors called for giving priority to the employment of southerners in oil and gas industries, especially that youths in this area suffer from marginalization and impoverishment. Those protests, therefore, represented the struggle of Algerians against stripping them of their resources[102] especially in the south. In fact, the widening

[97] "Algeria's south: Trouble's bellwether." *International Crisis Group*, 2016: https://www.crisisgroup.org/middle-east-north-africa/north-africa/algeria/algeria-s-south-trouble-s-bellwether
[98] Ibid.
[99] Ahmed Fayek Dalloul. Op. Cit.
[100] "Algeria's south: Trouble's bellwether." Op. Cit.
[101] Carole Nakhle. "Algeria shale gas experience." Carnegie Middle East Center, April 2015: https://carnegie-mec.org/2015/04/23/algeria-s-shale-gas-experiment-pub-59851
[102] Hamza Hamouchene. OP. Cit.

gap between the northern and southern parts of the country on both social and economic levels constituted a major reason for the eruption of protests.

103

Growing unemployment rates in the south drove the National Committee for Defending the Rights of the Unemployed (Le Comité national pour la défense des droits des chômeurs -CNDDC) to mobilize tens of thousands of Algerians to protest economic exclusion and social injustice and demand decent jobs and equal access to resources[104].

Algeria is home to abundant natural resources, but the question is whether they belong to the people or to corrupt political elites and their allies in multinational corporations. EU energy policies focus on maintaining control on fossil fuel and renewable energy reserves even if this requires repressing citizens and destroying the environment, the two of which are closely linked. That is why most protests put forward environmental demands that could not be detached from social and economic ones. Environmental justice cannot be seen in isolation from serious issues such as drought and pollution caused by extractive industries and the monopolization of natural resources by the minority. That is why demands for equality, social justice, fair distribution of wealth, and the participation of the people in the decision-making process have always been linked to environmental issues in Algeria.

[103] Yassine Temlali. "South Algeria: No to shale gas [Arabic]." *Assafir Al Arabi*, January 2015: https://bit.ly/38An1no
[104] Hamza Hamouchene. Op. Cit.

The decline of oil and gas reserves in Algeria and growing local demand for energy as well as global tendencies to do away with traditional energy sources are all factors that put pressure on Algerian decision-makers who found in shale gas the way out despite its environmental hazards. That is why, after stopping excavation operations in 2015 in response to popular protests, the Algerian government announced in 2017 the revival of the shale gas project. In October 2018, Sonatrach signed the first contract with British Petroleum and Equinor, a Norwegian company, to extract shale gas and oil in the southwestern desert[105]. However, environmental issues kept featuring prominently in protests that erupted later in Algeria.

[105]Hatem Ghandir. "Energy shifts in Algeria: Between shale gas and renewable energy [Arabic]." *Al Jazeera Centre for Studies*, May 2020: https://studies.aljazeera.net/en/node/4683

Third: Energy crisis in Iraq:

Iraqis have for decades been suffering from an acute shortage in electrical energy supply while demand kept increasing, especially in light of a population growth estimated at 2.58%[106]. As a result of several factors, including mismanagement, corruption, and armed conflicts, only 54% of the Iraqi population [107] get their energy needs. In 2020, energy consumption dropped by 40% to reach 17,271 megawatts[108] for many reasons, including the impact of Covid-19 on Iraq's rentier economy that relies on its fossil fuel reserves[109], which in itself becomes an obstacle in the way of linking social justice to environmental justice.

Energy shortage and popular satisfaction:

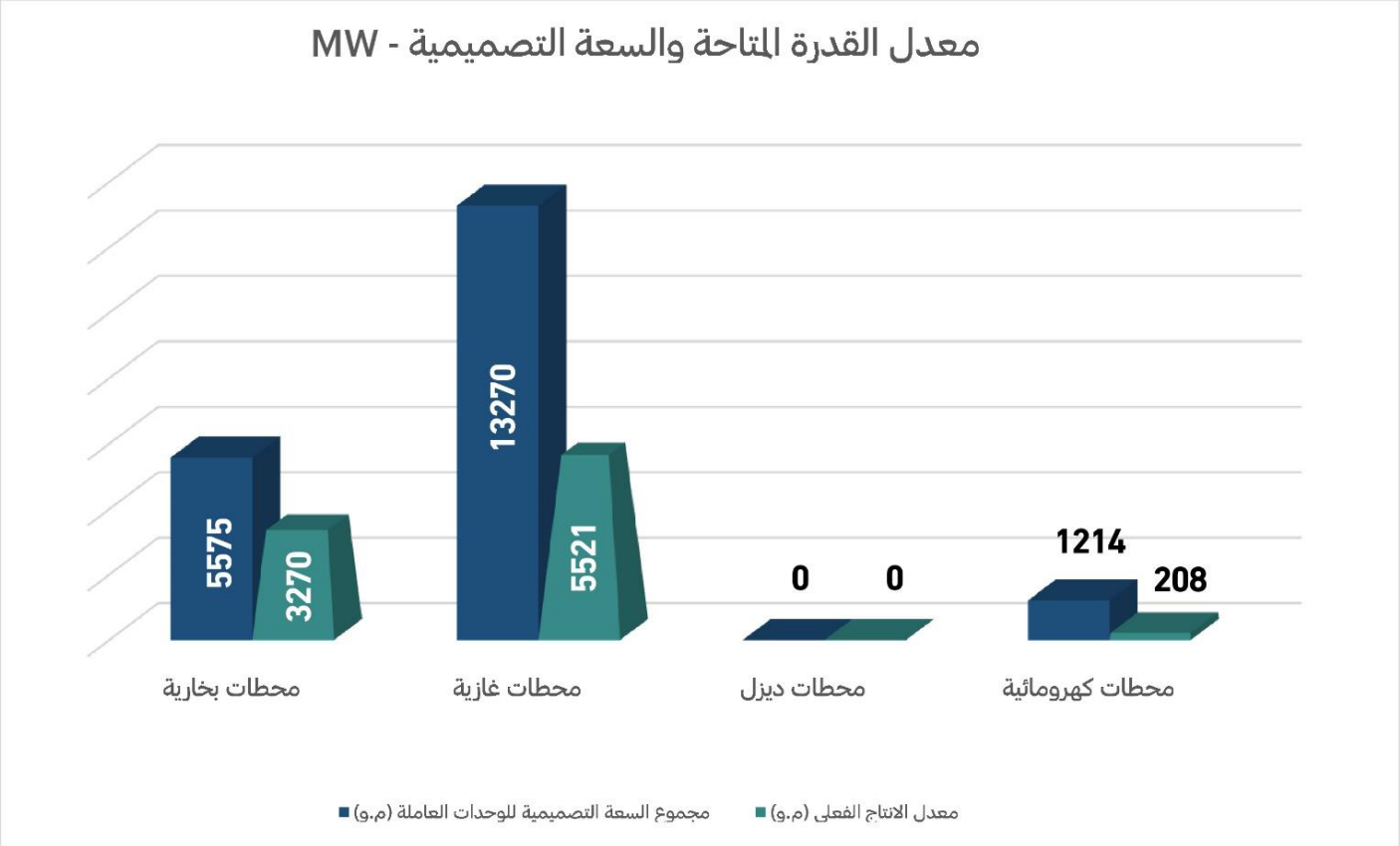
Electricity supply constituted a major challenge for consecutive Iraqi governments that came to power since the US invasion in 2003. Despite allocating more than 62 billion US dollars to the energy sector[110], there was no noticeable improvement as far as access to energy is concerned. This drove Iraqis to take to the streets every summer in the past 15 years, especially with unprecedented heat waves hitting southern cities[111]. The situation is complicated by climate changes that led to rainfall decline and increased salinity. Constant power cuts drove Iraqis from the city of Basra, where most of Iraq's oil exports come, to stage protests that took a violent turn as protestors clashed with security forces and several deaths were reported. The protests of the summer of 2015 are among the most memorable. Thousands took to the streets in central and southern cities after a protestor was killed in Basra[112]. Energy supply a common factor in all those protests, which continued in the following years as the government failed to address the problem.

Iraq produces 4.6 million oil barrels daily in normal circumstances and now this number dropped to 1.6 million as part of an agreement with OPEC member states in May 2020. Revenues are estimated at 70-85 billion US dollars annually, which is equivalent to 85-90% of total annual revenues. Half of this revenue goes to the salaries and pensions of civil servants, estimated at 6.5 million. This means lack of resources for investment and comprehensive development[113]. This also makes it difficult to diversify sources of budget funding through investing in productive sectors such as agriculture and industry that can offer job opportunities for the unemployed (13.8% for 15+ citizens)[114]. Constant power cuts played a major role in stopping several agricultural and industrial projects, which led to laying off hundreds of workers in addition to those who lost their jobs during the pandemic, increasing unemployment rates to 31.7% in 2020[115].

---

[106] Statistical abstract, Central Statistical Organization, 2018: http://bit.ly/2PFzj7l
[107] Annual statistical report, Ministry of Electricity, 2018: https://bit.ly/3b5AK7h
[108] Load factor report, Ministry of Electricity, 2020: https://bit.ly/30fTkmX
[109] Iraqi oil reserves are estimated at 145 billion barrels, which constitutes 12.2% of the reserves of OPEC member states and is the world's fourth, "OPEC share of world crude oil reserves, 2018": https://www.opec.org/opec_web/en/data_graphs/330.htm
[110] Report submitted by the auditing committee formed by the Iraqi parliament in 2020 to look into electricity contracts.
[111] In July 2020, the temperature in the city of Basra in southern Iraq reached 52 degrees, breaking all-time record: http://bit.ly/2PuGpve
[112] "Protests against deterioration of services in Iraq expand [Arabic]." *Al Jazeera*, 2015: http://bit.ly/2O5WcjR
[113] Annual statistical abstract (2018-2019), Ministry of Planning and the Central Statistical Organization, Baghdad, 2019.
[114] Poverty rates in Iraq, 2018, the Central Statistical Organization.
[115] Report by *The Independent Arabic*: http://bit.ly/3sQVFBa

The first question that comes to mind when addressing the energy crisis in Iraq is whether new power plants are constructed to face population growth and urban expansion. In fact, Iraq now has 67 power plants (natural gas, steam, diesel, hydroelectric, and mobile)[116]. The national energy network gets around 79% of its supplies from local production while the remaining 21% is imported. Some of these power plants were built after 2003 while old ones damaged during the Second Gulf war in 1991, the economic blockade, or the unrest that accompanied the fall of Saddam Hussein's regime in 2003, were refurbished.



The graph shows Power plants in Iraq: Capacity and generation

The above figure shows the discrepancy between the capacity of each power plant and the actual generated energy. This is the result of several factors:

1- Opting for power plants whose fuel is not available in sufficient quantities: This is the case with 33 plants operated by natural gas, which supply 46% of energy needs. Those plants depend on two sources of fuel: the first is Iraqi natural gas (7.2 billion cubic meters produced annually by Basra Gas Company) and the second is natural gas imported from Iran since 2017 (4-5 billion cubic meters annually)[117]. These amounts are extremely meagre compared to the needs of the Iraqi people. Difficulties facing natural gas projects in Iraq and the increase of Iranian gas prices make it harder to provide the fuel for those plants.

[116] Annual statistical report, Ministry of Electricity. Op. Cit.
[117] Robin Mills and Maryam Salman. "Powering Iraq: Challenges facing the electricity sector in Iraq." Al Bayan Center for Planning and Studies and Friedrich Ebert Stiftung, January 2020: https://www.bayancenter.org/en/2020/11/2144/

2- Maintenance: Many of the power plants can be damaged as a result of lack of maintenance and regular checks. Lack of monitoring also allows for misuse and the use of poor-quality fuel.

The second question is whether generating sufficient amounts of energy would improve the situation even with persistent lack of adequate production lines and absence of solid management and distribution strategies. The energy crisis is one the facets of the political crisis Iraq has been suffering from for years since lack of stability and security makes providing services for citizens much harder. In addition, the mechanisms that are currently used to supply energy are problematic in several ways:

1- Using long, single-phase lines, whose protection require extensive security that is not available in Iraq[118]
2- Uneven loads since some areas have higher energy demands than others, which constitutes a burden on many transforming lines
3- Many transformers are too old.
4- The security situation and the occupation by ISIS of five governorates, which led to the destruction of many lines and their separation from the national network

Based on statistics released by the Ministry of Electricity in 2018, 58% of produced energy goes to waste, which reflects the magnitude of the crisis. On another hand, looking at the distribution of energy in Iraq revealed that 59% of production goes to domestic consumption while 15% go to state institutions, 12% to industry, 6% to commercial facilities, 1% for agriculture, and 7% is consumed illegally by informal housing units. This shows the striking imbalance in the distribution of energy, especially when comparing the share of houses and state institutions with that of agriculture, industry, and businesses. The percentage of domestic consumption is not realistic since mismanagement of the urban planning sector led to the presence of dozens of industrial and commercial facilities in residential areas and their consumption is much higher than that of residential units. Bill paying is also another problem. Unpaid electricity bills have reached 4.9 billion Iraqi dinars since only 50% of consumers of electricity[119], with the exception of Iraqi Kurdistan, actually pay their bills. This reveals the inefficiency of the collection system, which the government tried to reform through privatization and the use of electronic meters, yet one of those attempts bore fruit[120].

Iraq has for the past four decades suffered from serious environmental problems, many of which are linked to climate change[121]which affected most Iraqi cities. In addition, air pollution increased remarkably because of fossil fuel, power generators, and car exhaust emissions. Water is also polluted because power plants dispose of their waste in rivers or canals. According to reports by the ministries of health and environment, eight power plants disposed of their wastes in rivers without treatment in 2016[122] and the number increased to 11 in the following year as more plants were constructed next to rivers without taking environmental effects into consideration[123] . Al Hartha and Al

[118] Ibid.
[119]Annual statistical report, Ministry of Electricity. Op. Cit.
[120] Harry Istepanian. "Towards sustainable energy efficiency in Iraq." Al Bayan Center for Planning and Studies and Friedrich Ebert Stiftung, August 2020: https://www.bayancenter.org/en/2020/08/2110/
[121] Manaf Al Saadi. "Pollution killing Iraqis slowly [Arabic]." *Deutsche Welle*, 2011: http://bit.ly/3qlhjG7
[122] Iraq environment report (2016), Ministry of Health and Environment, 2017
[123] Iraq environment report (2017) Ministry of Health and Environment, 2017

Najibiya_steam power plants in Basra contribute to polluting Shatt Al Arab River as they pump between 12,800 and 80,000 liters/hour of wastewater into it. Water used in cooling the turbines at the plant is also a concern since this water comes out hot, hence causing thermal pollution as it changes the temperature of the river. Hot water pumped into the river ranges between 34 and 16 million liters/hour[124]. The losses of Iraq as a result of environmental deterioration was estimated in 2008 at more than eight billion US dollars, that is 7% of domestic product. Half of this amount is the result of water pollution based on a report released by the Ministry of Environment in 2014[125].

On the other hand, power plants rely on fossil fuel, hence contributing to the increase of greenhouse gas emissions. In 1997, power plants were responsible for 75% of emissions[126]. Gas and steam plants in Basra emit large quantities of carbon monoxide, carbon dioxide, sulfur dioxide, and nitrogen oxides. There are no accurate statistics owing to lack of resources at the ministries of health, environment, and electricity. Small generators, which are in almost all neighborhoods, are another source of gas emissions as well as noise pollution. The number of generators in residential areas in Baghdad is estimated at 13,000. The government owns 2,400 of those generators, which provide free of charge or subsidized energy to locals and are used during power cuts[127].

Renewable energy potential in Iraq:

Renewable energy does not exceed 2% of total energy production in Iraq and is produced by eight hydroelectric plants located in major dams such as Mosul, Haditha, Dukan, and Darbandikhan. Despite the multiple sources of renewable energy in Iraq, attempts to put them into effective use have so far failed. In 2016, the Ministry of Electricity announced on its official website the first renewable energy tender in seven locations for the aim of providing the national network with 2,000 megawatts by 2022[128]. However, it is not clear whether the project had already started and which entities applied[129]. On the other hand, natural gas is considered the least polluting source of energy, but Iraq has only been able to invest in 50% of its natural gas fields[130].

[124] Shukri Al Hassan. *Environmental pollution in Basra* City, *Southern Iraq* [Arabic]. Noor Publishing, 2017
[125] Abdel Motteleb Mohamed Abdel Reda. "The most prominent environmental challenges in Iraq [Arabic]." *Annabaa Information Network*, October 2018: https://bit.ly/3tisXcn
[126] Iraq environment report (2017). Op. Cit.
[127] Statement by Baghdad governor Mohamed Jaber Al Atta on July 16, 2020: http://bit.ly/2PY9PlQ
[128] Ministry of Electricity, department of Renewable Energy: https://bit.ly/2PxlZlf
[129] Ministry of Electricity, department of Renewable Energy: https://bit.ly/3u2XlD6
[130] Ibid.

Conclusion:

The right to natural resources cannot be seen in isolation from political, social, and economic developments. In fact, many societies were able to witness political, social, and economic transformations through demanding their right to natural resources. The link between environmental and social justice was demonstrated in the three cases discussed in this paper. In the case of Egypt, the state gives precedence to investors and business owners, which is exemplified by revising the prices of natural gas for factories. While subsidies are still partially lifted, industries that are the most harmful to the environment and the least labor-intensive such as cement and fertilizers are still considered subsidized, at least through electricity subsidies. The surplus created by reducing subsidies was not also used in public spending on services such as education and healthcare. In Algeria, excavation for shale gas triggered massive protests not only in the south where the project was to be implemented, but also all over the country. Protestors linked between overlooking the grave impacts of excavating shale gas on the health of locals and on water resources to the marginalization of areas that are rich in natural resources and the exclusion of their inhabitants from the wealth such resources bring. In Iraq, the energy crisis is the product of a combination of supply shortages and the harmful impact of traditional energy sources on the environment. Iraq has not managed to start using renewable energy and is still incapable of making full use of its natural gas reserves.

The three cases demonstrated the link between social and environmental justice and the challenges of achieving either in the Arab region. This is mainly because countries in the region mostly rely on fossil fuel, which constitutes a grave threat to the environment. Even in cases where there are attempts to find alternative sources of energy, they are still harmful for the environment, which is the case with shale gas. That is why it is important to gradually start replacing current energy resources with renewable ones that takes into consideration the safety of both people and the environment. This should be accompanied by doing away with industrial and agricultural activities that destroy the environment and do not contribute to achieving real development. Last but not least, people need to have equal access to natural resources, which of course requires transparency and would not be possible without accountability, transparency, and the elimination of corruption.

A region in danger !
Justice between environmental and economic aspects

Biodiversity from a climate **and social justice perspective**

Ziad Khaled
Lebanese lawyer and rights activist, Beirut Center for Development and Human Rights

Rajaa Kassab
Moroccan MP, activist, and researcher

Magda Bou Dagher-Kharrat
Professor, School of Science, St. Joseph University, Beirut

Introduction:

Biodiversity is defined as "the variety of life on Earth, including plants, animals and micro-organisms, as well as the ecosystems of which they are part. Biodiversity includes genetic differences within species, the diversity of species and the variety of ecosystems. It is the result of the interaction of species, including humans, with one another and with the air, water and soil around them. This combination of life forms—ecosystems, species and genetic varieties—has made Earth a uniquely habitable place and provides the goods and services that sustain our lives, such as clean air and water, food and medicine, fuel, fiber, and material for construction. Our cultures are founded upon the different environments in which they have developed."[131].

The Mediterranean basin is one of the 36 biodiversity hotspots across the globe, covering an area of more than two million kms that extends from Portugal in the West to Jordan in the east and from Italy in the north to the Cape Verde Peninsula in the south. It is classified as the world's third plant biodiversity hotspot as it is home to more the 25,000 plant species. This level of biodiversity is coupled with a cultural, linguistic, social, and economic diversity, which increases the importance of this region[132].

The Eastern Mediterranean is a major center of geological and climate changes, which led to creating remarkably different environmental factors that naturally impacted the development of plant biodiversity in the region. This region is the most suitable for field research since it was subject to thousands of years of environmental and human interactions[133].

Almost 12,000 years ago, climate and environmental conditions in the area known as "the fertile crescent," located in present day Iraq, Syria, and Lebanon, were stable. Inhabitants of the region started domesticating plants and animals instead of fully relying on game as a source of food. They also experimented with genetic modification to get products that best suited their needs, which increased the level of biodiversity in the region and provided the inhabitants with the resources that allowed them to settle in the entire region.

With the development of human communities and population growth, human relations with nature started deteriorating. Agricultural activities and cattle breeding led to the emergence of new practices that disrupted the ecological system through depleting natural resources and adopting production modes that exceeded their capacity. The Millennium Ecosystem Assessment, a study in which more than 1,300 scientists who worked in 95 different countries participated, revealed the role of ecosystems in improving quality of life and allowing communities to prosper. Concerns over the decline of biodiversity led to the signing in 1992 of the Convention on Biological Diversity, a legally binding agreement comprised of three equally significant goals: the conservation

---

[131] Secretariat of the Convention on Biological Diversity (2005). Handbook of the Convention on Biological Diversity Including its Cartagena Protocol on Biosafety, 3rd edition, (Montreal, Canada).

[132] Medail, Frederic, and Pierre Quezel. "Hot-Spots Analysis for Conservation of Plant Biodiversity in the Mediterranean Basin." Annals of the Missouri Botanical Garden 84, no. 1 (1997) : 112-27.
Mittermeier, Russell & Turner, Will & Larsen, Frank & Brooks, Thomas & Gascon, Claude. (2011). Global Biodiversity Conservation: The Critical Role of Hotspots. 10.1007/978-3-642-20992-5_1.

[133] Thirgood, 1981, Pons and Quézel, 1985, Biodiversity and conservation of forest species in the Mediterranean basin, http://www.fao.org/3/x1880e/x1880e05.htm

of biological diversity, the sustainable use of its components, and the fair distribution of the benefits of genetic resources. The convention reflected the need to stop taking biodiversity for granted and come up with the means that guarantee the continuation of life on earth.

Civilizations largely depend in their continuity and prosperity on the availability of natural resources, which in turn depend on environmental conditions. When human beings overwork those resources, they gradually decline and conflicts are more likely to erupt, hence leading to the downfall of civilizations. Also, when natural resources, like fertile lands, become scarce, because of population growth and unequal access to land, the impoverished settle in environmentally sensitive areas such as mountain feet, forests, and areas threatened with desertification. Population density in these areas, added to unsustainable use of land, leads to environmental decline and eventual scarcity of resources, hence causing the phenomenon known as "environmental marginalization"[134]. Civilizations have, in fact, taken turns in protecting and harming the environment.

Population growth and rising consumption levels not only led to the deterioration of environmental resources, but also rendered resources available to each individual unequal, hence triggering conflicts that are naturally detrimental to all civilizations. The disruption of the harmony between human beings and the environment led to migrations from the countryside to the city in search for better living conditions. As a result, cities became the centers of economic activities while the countryside started suffering from a shortage in manpower and former farmers turned from producers into consumers. This shift from rural to urban space is arguably the major turning point in the relationship between human beings and their environment.

Population growth led to a rise in demand and natural resources were drained to meet this demand, hence causing problems pertaining to water, soil, forests, and the ecological balance. Based on the evaluation of 24 ecosystem services provided by biodiversity as part of the Millennium Ecosystem Assessment, it was revealed that 15 of those services are degraded. These include fresh water, marine life, air quality maintenance, disease regulation, and nonmaterial services such as spiritual and religious practices. The deterioration of biodiversity obstructs ecosystem services and makes them more vulnerable and less able to fight natural disasters. For example, disasters that hit coastal communities such as floods and hurricanes intensify the deterioration of damp habitats.

Accelerated climate change throughout the past decades, which resulted from overworking the land, pollution, and the decline of biodiversity, intensified environmental problems in the Mediterranean basin. Those developments, coupled with speculations about future climate changes, foresee grave threats to vital ecosystems such as water and food in the coming decades. While it is necessary for Mediterranean countries to adopt sustainable development policies that alleviate the impact of these changes, they still do not have the information required for doing so. This particularly applies to the Southern Mediterranean, which is more affected by climate change and which lack influence strategies and a methodical monitoring process.

[134] Homer-Dixon, Thomas F. *Environment, Scarcity, and Violence*. Princeton, New Jersey: Princeton University Press, 1999.

This paper examines three case studies that represent problems pertaining to biodiversity in the Arab region. The first case is about the depletion of marine life in the Western Mediterranean and the threat it poses to biodiversity with special focus on the impact of trade agreements between countries north and south of the basin on draining the resources of the latter and undermining its food security The second is about threats to biodiversity and ecosystems in Lebanon. The third case examines the issue of the Bisri Dam project in Lebanon and the role of civil society in raising awareness about its environmental impact and the importance of biodiversity in general. The paper ends with findings related to the threat to biodiversity in the region and its environmental, economic, and developmental dimensions.

First: The impact of fishing practices on biodiversity in Morocco:

Morocco spans from the Mediterranean Sea to the Atlantic Ocean with a coastline that extends for 3,500 kilometers and a marine economic zone that reaches 1.12 million square kilometers. It is also considered one of the world's richest areas in terms of marine life and is home to 300 commercially important fish species[135] . However, the deterioration of seas and oceans, resulting from the concentration of almost all economic activities in coastal areas, the depletion of marine life, and climate changes, led to the decline of biodiversity and threatens the extinction of several species such as monk seals, northern bald ibis, red coral, and yellow belly grouper[136]. This section examines the problematics of fishing in Morocco, especially in terms of the depletion of marine resources and overfishing and their impact on social and economic conditions through examining the Hirak Rif Movement. It will also explore the role of fishing agreements with different European and Asian countries in the decline of biodiversity in Morocco.

Depletion of marine resources:

Fishing is one of the vital sectors upon which Moroccan economy depends. In 2019, the gross domestic product of this sector reached 17.3 billion dirhams and marine exports reached 22 billion dirhams (36% of food and agricultural exports and 8% of total Moroccan exports)[137] . The fishing sector in Morocco also plays a major role in creating job opportunities with a workforce of more than 120,000 distributed among 457 offshore boats, 2,524 inshore boats, 17,338 traditional fishing boats[138] in addition to more than 100,000 fishing-related land jobs. Marine products in Morocco vary between pelagic

[135] The Moroccan Court of Accounts, 2018. "The HALIEUTIS Plan (2009-2016)": https://www.anda.gov.ma/en/halieutis-strategy
[136] Economic, Social and Environmental Council. "Blue Economy: The foundation of a new developmental patters in Morocco [Arabic]." 2018: http://www.cese.ma/media/2020/11/Rapport-AS38-VA-1.pdf
[137] Rapport d'activité 2019. Royaume du Maroc, Ministère de l'agriculture, de la pêche maritime, du développement rural et des eaux et forêts, département de la pêche maritime.
[138] La mer en chiffres. Royaume du Maroc, Ministère de l'agriculture, de la pêche maritime, du développement rural et des eaux et forêts, département de la pêche maritime. 2019

fish, whitefish, mollusks, and crustaceans, most of which are exported. Until the 1980s, fishing in Morocco relied on the inshore fishing fleet and different fish species were abundant. However, many species started declining especially with the emergence of foreign offshore fishing fleets.

Government policies, that included giving offshore and inshore fishing licenses to a privileged few, led to several problems. These include the depletion of many species such octopus, swordfish, meagre, and porgy and the displacement of others such as sardines from north to south. These problems are mainly attributed to the presence of private foreign offshore fishing vessels that engage in overfishing, do not respect territorial waters, and do not abide by the share allotted to them by relevant authorities in Morocco. Those ships also use nets that are internationally prohibited because they destroy coral reefs that provide habitat for large numbers of marine creatures and do not respect the biological rest periods of several species such as octopus and cuttlefish. In addition, the ships contribute to degrading marine life because of throwing away unwanted fish back in the sea. In fact, these ships fish for expensive species such as large cuttlefish then throws the rest back, which negatively affects biodiversity and the sustainability of different species in addition to the depletion of particular species such as octopus and bluefish in dozens of Moroccan ports[139] .

Some of those foreign vessels contain small labs for manufacturing fish meal in the absence of any form of monitoring since Morocco does not have the technology required to trace violations by oversees vessels. The monitoring process is only done through the Royal Moroccan Navy and the Royal Moroccan Gendarmerie in addition to one Moroccan observer on each of ship to make sure they observe the articles of fishing agreements signed with Morocco[140] . In addition to overfishing, other factors contribute to the deterioration of marine resources such as using explosives, fishing in shallow water by local fishing boats, pollution, catching immature fish, underwater fishing, and violating laws that govern marine protected areas[141].

According to the Moroccan Court of Accounts (La Cour des comptes), floating drift nets are still used in the Mediterranean despite being banned in 2010. In its report to evaluate the HALIEUTIS Plan, ratified by the government in 2009, several boats kept using those nets despite the threat they pose to marine biodiversity, especially in the cities of Al Hoceima and Mediek[142]. According to many experts and observes, the HALIEUTIS Plan, which aims at developing the fishing sector, intensified the crisis since it contributed to concentrating marine resources in the hands of both local and foreign capitalists who own advanced fishing vessels, which leads to the marginalization of traditional and inshore fishing. Moroccans do not also benefit from their marine resources since most products are exported and those sold in Moroccan markets are too expensive for average citizens. Consequently, consumption of fish in Morocco does not exceed 13.6 kilograms per person annually, compared to the global average consumption (20 kilograms) and the consumption of some neighboring countries such as Portugal (56

[139] Mohamed Ahdad. "How marine resources in Morocco are threatened with extinction [Arabic]." Albaia Maroc,2014 : https://www.facebook.com/Albaiaa/posts/563642527075659/
[140] Ibid.
[141] "Endangered fish sold at Hociema port [Arabic]." *Dalil El Rif*, 2019: https://dalil-rif.com/permalink/21612.html
[142] "The HALIEUTIS Plan (2009-2016)" Op. cit.

kilograms), Spain (45 kilograms), and France (35 kilograms). On the other hand, the decline of marine resources in Morocco is directly linked to climate changes resulting from rising sea surface temperatures[143], rising sea levels, and increased salinity and acidification of seas and oceans[144] .

Fishing agreements:

Moroccan coasts have been coveted by several European countries since the 15th century, particularly Spain and Portugal. Several historians argue that marine resources were among the reasons the two countries invaded Morocco and occupied coastal towns including Ceuta and Melilla, which are still under occupation and are considered two of the world's oldest colonies. Following a series of defeats, the Portuguese lost all their colonies on the Moroccan coast, which consolidated Spain's position. Spain signed several agreements that gave it the right to fish in Moroccan waters and put a lot of pressure on Morocco to agree to sign them.

Since its independence, Morocco signed several agreements that allowed foreign, especially European, countries to fish in Moroccan territorial waters in return for money. The first of fishing agreements between Morocco and the EU was signed in 1988 and the last was put into effect on July 18, 2019. The latter allows 128 European vessels, 73% of which are traditional, to fish in Moroccan waters for a period of four years. Morocco also signed similar agreements with other countries outside the EU such as Japan and Russia[145] . Morocco is always pressurized by countries with which it signed those agreements. This pressure amounted to the destruction of Moroccan goods passing through Spanish territories in addition to pressure related to the dispute over the Southern Provinces and human rights.

The Hirak Rif Movement:

[143] Fiston NININAHAZWE, Imane SEBARI, 2020. Utilisation des Systèmes d'Informations Géographiques pour l'analyse spatio-temporelle des effets des changements climatiques sur la disponibilité des ressources halieutiques au Maroc. VOL. 8 NO 2 (2020)
[144] "Blue Economy: The foundation of a new developmental patters in Morocco [Arabic]." Op. cit.
[145] Rapport d'activité 2019. Royaume du Maroc, Ministère de l'agriculture, de la pêche maritime, du développement rural et des eaux et forêts, département de la pêche maritime.

The marginalization of the Rif region, located in northern Morocco, for several political and historical reasons led the locals to migrate outside the region, engage in one-way smuggling, or cultivate Indian cannabis. Despite the profitability of cannabis and remittances sent by locals living abroad, the region is still suffering from underdevelopment and the exploitation of small farmers by the cannabis mafia[146] .

The fishing sector in the Rif employs around 7,000, 3,200 of whom are fishermen (1,900 in coastal fishing and 1,300 in traditional fishing boats). Like in the rest of Morocco, the fishing sector in the Rif is controlled by lobbies that deplete marine resources in collaboration with corrupt administrative officials. The tragic death of fish vendor Mouhcine Fikri in 2016 following the confiscation of his swordfish merchandise gave rise to a popular movement that lasted for several months and put forward a set of economic, social, and environmental demands pertaining to the fishing sector. The movement called for reforming the fishing sector, protecting marine resources, penalizing lobbies involved in violations, and empowering small fishermen and other workers in the sector whether on board fishing vessels or at harbors[147].

The Hirak Rif Movement saw the participation of large numbers of Moroccans across the country and several national and international right movements and trade unions declared their solidarity with protestors. However, the movement was met with violent repression on the part of the authorities and many of the protestors received jail sentences that amounted to 20 years for some of them. Some of the protestors were released following a royal pardon or after doing their time while others remain in jail till the present moment.

Second: Biodiversity in Lebanon:

Despite being a small country with an area of 10,452 square kilometers, Lebanon is known for its plant biodiversity[148] and its strategic location at the intersection of the old

[146] *Hirak Rif Movement: A popular struggle for freedom and social justice* [Arabic]. ATTAC Maroc, February 2018.
[147] Ibid.
[148] Zohary, D. and Hopf, M. (1993) Domestication of Plants in the Old World. Clarendon Press, Oxford.

world's three continents makes it a biodiversity hotspot in the region. Topographic and landscape diversity led to the emergence of around 22 climate zones and different types of habitats[149] and allows several species of animals and plants to grow there. Lebanon is home to several semi-natural habitats that adapted to human activities and is where domestication started 10,000 years ago[150]. According to biodiversity studies, Lebanon is home to more than 2,612 species[151]. Current estimates note the existence of around 400 native plants in Lebanon, Syria, and Palestine, 92 of which are in Lebanon. The percentage of native plants in Lebanon (21%) is high compared to other Mediterranean countries. Lebanon, like other Fertile Crescent countries, is known for its agricultural biodiversity[152] for it is rich in crop wild relatives (CWR) and local species and also produces different types of crops that provide a wealth of genetic resources which can be utilized both in the present and the future. These plants/ crops are used in agriculture for food and/or fodder. In addition to ornamental, medical, and wild plants, more than 80 types of food products are cultivated in Lebanon, including wheat, barely, lentils, onions, garlic, and several fruit trees such as almond, pear, peach, and pistachio. In addition, several wild plants are used for food such as leafy greens.

Lebanon is also home to a wide variety of animal species that reveal the influence of the genetic groups from the three continents in addition to a number of unique native species[153]. Several species that existed during the Roman era are extinct such as tigers, deer, wild goats, and cattle that still exist in neighboring countries in addition to other species that recently went extinct such as the Syrian brown bear. The East Mediterranean is home to several native species of bats, birds, and butterflies and was where the domestication of animals started in the ninth millennium BC. Cattle, for example, played a major role in social development and constituted a basic component of different forms of human activities[154] .

This wealth of genetic resources allowed the creation of successive civilizations in the region. For example, Phoenicians exchanged raw materials and manufactured goods with neighboring regions on the old world, which in turn contributed to their ability to utilize their resources and build a strong economy. They exported wood, wine, honey, olive oil, spices, grains, fruits, and herbs, among others. They could have also played a role in spreading several animal species such as chicken, donkeys, cats, and rabbits or the cultivation of several plants across the Mediterranean basin such as citrus fruits, pomegranates, sugar cane, flax, and others. It is through this area that biodiversity extended to the rest of the Mediterranean and that is why protecting natural resources is not only important for the region, but for the entire world as a whole.

Due to population growth and climate changes, the protection of biodiversity and ecosystems became indispensable to achieving food security and alleviating the damages caused by natural disasters, diseases, and climate changes. However, the

[149] Bernadette Abi Saleh and Samir M. Safi. "Carte de la Végétation du Liban." *Ecologia Mediterranea*, XIV (1/2):123-142, January 1988.
[150] Harlan, J.R. (1992) Crops and Man. American Society of Agronomy and Crop Science Society of America, Madison.
[151] Tohmé, G. and Tohmé, H. 2014. Nouvelle liste des espèces de fourmis du Liban (Hymenoptera, Formicoidea). Lebanese Science Journal 15 (1): 133-141
[152] Vavilov1926 ؛Zhukovsky1950 ؛Harlan1951 ؛Harlan and Zohary1966 ؛Zohary1969
[153] Des Canis et notre reference de reference library.
[154] Vigne et al.2005 ،2017

main component of biodiversity, that is genetic resources, is remarkably deteriorating. Biodiversity in Lebanon is witnessing a rapid decline in biodiversity owing to several human factors that include lack of awareness, soil degradation, and overgrazing[155]. Because of their importance for agriculture and agroforestry, genetic resources are essential for protecting the economy and adapting to climate changes in different ecosystems. It is noteworthy that 60% of the world's ecosystems are declining or used in an unsustainable manner. According to the Food and Agriculture Organization (FAO), the world has lost 75% of the genetic diversity of agricultural crops since 1990 and that is why the sustainable utilization of genetic resources becomes an urgent requirement for the achievement of food security, which is considered one of the major challenges the world is currently facing[156]. According to estimates of world population, revised in 2017, the current population of the world is 7.6 billion and is expected to reach 8.6 billion in 2030, 9.8 billion in 2050, and 11.2 billion in 2100[157]. This means growing pressure on food production systems[158]. The growing need to handle the deterioration of food security and alleviating the damaging effects of climate change led users of plant genetic resources to look into new qualities that would make the utilization of these resources sustainable[159]. This led to the discovery of the biggest range of adaptive qualities in crop wild relatives (CWR) because they have not gone through the domestication process[160] .

Conservation and sustainable management are essential for maintaining biodiversity that would meet future needs in agriculture, agroforestry, and consumption, and climate change makes this need more urgent. Facing those challenges requires using different methods that rely on recent developments in molecular genetic characterization of animal and plant genetic resources and dynamic interactions between genes and the environment. Despite those developments, genetic decline continues to erode comprehensive genetic resources and genetic diversity of crops and animals. It is noteworthy that the potential of genetic resources is still not fully utilized.

Third: Activism in the Bisri Valley:

The Bisri Valley is one of the few biodiverse areas remaining in Lebanon. It is an important transit for birds migrating to Africa, Europe, and Asia and is home to long-lived trees, rare species of native plants and wild animals, and historic landmarks from different eras. It is also the biggest fertile plain in Mount Lebanon. The Bisri Valley is, therefore, a vital place on the environmental, cultural, and economic levels. It is a protected site based on a decree by the Ministry of Environment and which covers the Awali River starting from the Barouk Mountain through its tributaries in the Bisri Valley and until its drainage basin[161]. On October 10, 2012, the Lebanese government ratified the Water Supply Augmentation project based on a plan submitted by the Ministry of Energy. The project

[155] MoA / UNEP / GEF، 1996 ؛ Walter and Gillett، 1997 ؛ IUCN، 2011
[156] Food and Agriculture Organization (FAO), International Fund for Agricultural Development, and World Food Program, 2015.
[157] United Nations, Department of Economic and Social Affairs. World Population Prospects: The 2017 Revision.
[158] FAO, 2015.
[159] Maxted, Nigel & Kell, Shelagh & Toledo, Álvaro & Dulloo, Mohammad & Heywood, Vernon & Hodgkin, Toby & Hunter, Danny & Guarino, Luigi & Jarvis, Andy & Ford-Lloyd, Brian. (2010). A global approach to crop wild relative conservation: Securing the gene pool for food and agriculture. Kew Bulletin. 65. 561-576. 10.1007/s12225-011-9253-4, FAO 2015
[160] Tanksley, Steven & Mccouch, Susan. (1997). Seed Banks and Molecular Maps: Unlocking Genetic Potential from the Wild. Science (New York, N.Y.). 277. 1063-6. 10.1126/science.277.5329.1063.
[161] Ministry of Environment, decree number 1/133 issued on September 1, 1998.

included the construction of several dams without conducting the required scientific and legal research. In addition to the Bisri dam, the project included dams in Brissa, Balaa, and Bakaata in addition to the Jannah Dam on Nahr Ibrahim River.

When work on the project started, the damaging impact of construction on biodiversity in Lebanon was extremely shocking for environmental organizations in the country. Those organizations initiated several campaigns against the project, some of which succeeded while others failed. Failure is mainly attributed to lack of awareness among the people about the vital role biodiversity plays in their lives on one hand and political corruption and the sectarian system on another hand.

When it was time to start working on the Bisri dam and the Lebanese government approved a loan from the World Bank for that purpose, environmental organizations started changing their strategies while building on their previous campaigns that managed to attract people's attention to the hazards of building dams. New strategies included using art and songs[162] that highlight the importance of protecting the environment and biodiversity. Protests against the dam started when the mayor of Al Midan village sent a statement to the Council for Development and Reconstruction. Objections were also submitted to the State Council. Environmental organizations and a group of activists from the region started making trips to the Bisri Valley to collect data as well as raise awareness among locals. This was followed by the creation of the National Campaign to Protect the Bisri Valley.

Social networking websites played a major role in underlying the threats the dam poses to biodiversity. Photos of rare species of animals and plants were posted on social media as well as photos of animals that will be endangered after building the dam[163] such as otters in the Awali River, honey badgers which are among the most distinguished species in the valley, and rock hyraxs which contribute to the conservation of the ecosystem through their role in forest regeneration and which are currently an endangered species as a result of urban encroachment and the construction of dams. The campaign also shed light on the importance of the Bisri Valley as a transit for migrant birds, such as storks, hence underlining the magnitude of the damages sustained by the ecosystem if the dam is constructed. Several activists in the campaign marched in shrouds to protest the cutting of long-lived trees[164] and posted photos of the actual cutting on social media and different media outlets. The campaign organized a number of talks that raised awareness among locals on the importance of biodiversity as well as their right to protest against projects that have a negative impact on their environment and the existence of laws that make protecting the environment their duty[165]. T.E.R.R.E Liban, one of the NGOs that led the campaign, made a short film about the possible alternatives to the Bisri Dam and posted it on social media. All those activities received extensive media coverage and the struggle for the Bisri Valley gained momentum across the country.

The National Campaign to Protect the Bisri Valley also underlined the dangers of evaporation to be caused by the dam on the pine forest in neighboring Bkassine, the

[162] Paul Abi Rashed's song "We need nature [Arabic]." T.E.R.R.E Liban.
[163] "Save the Bisri Valley" Facebook page.
[34] Saadi Elwa, *The Legal Agenda*, September 16, 2019: https://bit.ly/2QuihJO
[165] Environmental Impact Assessment Decree No. 8633/2012

biggest pine woodland in the Middle East. This led to an increase in the number of supporters of the campaign. Several experts volunteered to offer legal and scientific evidence of the impact of the project as well as highlight the government's inability to finalize the Ecological Compensation Plan[166]. Experts also highlighted the fact that the dam will be constructed in an earthquake zone, hence threatening the valley and all surrounding villages in addition to the way the dam violates sustainable development goals, especially goals number 6, 14, and 15, and several international agreements. Several lawyers volunteered to defend activists who were targeted by the authorities and took legal measures to stop the cutting of trees[167].

On March 4, 2019, several activists staged a protest in front of World Bank offices in Beirut to highlight the threat the project poses to biodiversity in Lebanon. The movement against the dam also declined the Ministry of Energy's invitation for a meeting on June 2, 2020 and described it as a sheer formality[168]. As a result of campaigns launched in defense of the Bisri Valley, the issue of the dam featured prominently in the October 17 revolution. The protests, together with the campaign, played a major role in the World Bank's decision to cancel its funding for the Bisri dam project[169]. This led several political parties that initially supported the project to retract and submit a draft law to the Lebanese parliament to turn the valley into a protected area. Municipalities of villages surrounding the valley also decided to reject the project even though some of them had approved it earlier. After the World Bank withdrew from the project, several suspicious fires started in the valley and volunteers from the region took part in putting them out.

Despite obstacles, activism against the dam managed to save the Bisri Valley and conserve the fertility of the plain, especially at a time when Lebanon is already suffering from an economic crisis and when any damages to the valley would have posed a grave threat to the country's food security. In fact, campaigns launched to stop the construction of the dam constituted a precedent in the history of activism and civil society in Lebanon, especially as far as the role played by environmental organizations is concerned. However, a few setbacks were identified including the organizations' inability to document all the activities in which they engaged to stop the project, an experience which can provide guidelines for future activism in Lebanon and which can be utilized in other struggles. Added to that is the fact that several of those organizations competed among themselves and at times did not coordinate with each other. Full coordination would have resulted in a faster response to developments and a higher level of efficiency.

[166] Head of the Lebanon Eco Movement Paul Abi Rashed, El Nashra, April 4, 2019.
[167] Court ruling, September 19, 2019.
[168] *Nida Al Watan* newspaper, July 1, 2019.
[169] "The Bisri Valley at heart of the revolution [Arabic]." *The Legal Agenda*, 2020: https://bit.ly/3sbEWZp

Conclusion:

Biodiversity plays a major role in conserving life on earth since it maintains ecological balance and offers protection from natural disasters and diseases as well as being a major component of economies and the foundation of human culture and civilization[170]. Biodiversity is, however, facing many threats that result from violating environmental criteria that should be observed on domestic, regional, and international levels. These criteria are included in the United Nations Convention on Biological Diversity, the United Nations Framework Convention on Climate Change, and the United Nations Convention to Combat Desertification, which all emerged from the 1992 Rio Earth Summit. However, world economic powers such as the United States, the European Union, and China put a lot of pressure on countries in the Global South and impose on them bilateral agreements that indirectly violate those criteria and allow the former to exploit the natural resources of the latter. This is the case of the fishing agreements in Morocco and other partnership agreements between European countries and the Southern Mediterranean[171]. These agreements also violate the Cartagena Protocol on Biosafety, a supplement to the Convention on Biological Diversity[172] that stresses the necessity of observing biosafety standards upon transporting or importing any living organisms, whether animals or plants, and providing full information about their use in the destination country/countries.

In the same vein, the European Union pressurized the Southern Mediterranean into joining The International Union for the Protection of New Varieties of Plants (UPOV)[173], which is based on the liberalization and commodification of genetic resources in the

[170] Secretariat of the Convention on Biological Diversity (2005). Handbook of the Convention on Biological Diversity Including its Cartagena Protocol on Biosafety, 3rd edition, (Montreal, Canada).
[171] The convention on Biological diversity. www.cbd.int/convention
[172] The Cartagena Protocol on Biosafety· www.cbd.int/protocol
[173] Union internationale pour la protection des obtentions végétales (UPOV). www.upov.int

south as a requirement for gaining access into European markets and entering into partnerships with European countries. This makes complete transparency regarding negotiations about deep comprehensive free trade agreements urgent and lack of it constitutes a threat to the fate of the entire population of the region. It is also important to conduct studies that evaluate the impact of those agreements on development goals and social, economic, political, and cultural rights of citizens before starting negotiations.

In the same vein, it is important to subject all parties to such agreements to regular monitoring to make sure that their laws and legislations are in line with international biodiversity agreements. It is also important to include environmental assessment policies in the constitutions of Southern Mediterranean countries to allow setting a clear legal and constitutional framework through which disputes between involved parties can be resolved to guarantee the achievement of environmental justice and through which agreements can be evaluated. This will allow parties impacted by agreements to file complaints in which they highlight how those agreements violate the rights of individuals and communities. This will also play a major role in stopping funding organizations from manipulating environmental agreements under the pretext that they are international entities that are not subject to local jurisdiction in countries in which they fund projects.

In fact, projects funded by financial institutions, such as the World Bank, the European Bank for Reconstruction and Development, the European Investment Bank, and the African Development Bank, are among the most detrimental factors to biodiversity. Policies related to the conservation of biodiversity differ from one institution to another and societal participation, whether before or after starting a given project, is not prioritized. The Bisri dam offers an example of how financial institutions, the World Bank in this case, do not abide by biodiversity agreements and do not give precedence to environmental assessments.

On the other hand, countries need to abide by the Ramsar Convention on Wetlands of International Importance[174] through stopping all forms of encroachment on wetlands including the construction of touristic resorts or drainage for urban expansion. Wetlands should also be included in domestic legislation to guarantee protecting them from any projects that do not put biodiversity into consideration. Policies that overlook biodiversity need to be revised not only in terms of their environmental impact, but also their role in obstructing the achievement of relevant 2030 sustainable development goals[175].

In light of growing threats to biodiversity, it is necessary to create an activist front that is strong enough to put pressure on both governments and international institutions to stop projects that are seen to harm the environment. The first step is raising awareness on the importance of biodiversity and conducting thorough studies on environmental resources in each country to be followed by policies and strategies that guarantee protecting them on the long run. This should be accompanied by campaigns to obliterate environmental illiteracy so that citizens can know the vital role biodiversity

[174] The convention on wetlands. www.ramsar.org
[175] United Nations 17 Sustainable Development Goals, 2015

plays in their lives and how violating it is bound to have a negative impact on their social, economic, cultural, and environmental rights. This could be done through organizing workshops and orientation sessions about biodiversity as well as including biodiversity in school curricula and religious sermons.

It is noteworthy that knowledge and awareness are not enough to make activism effective since they need to be coupled with active engagement on the ground and cooperation between individuals, relevant institutions, and non-governmental organizations on domestic, regional, and international levels. This could be done through forging alliances and launching joint campaigns that can constitute a lobbying bloc, which can resist all policies and practices that harm the ecological system. Scientific research is also indispensable to give environmental movement the required leverage. Such leverage will not be possible without groups of lawyers that can handle all lawsuits and legal issues related to projects that affect biodiversity.

The media can play a major role in raising awareness about the importance of biodiversity. The same can be done through social networking websites, which are currently more widespread than traditional media outlets. It is also important to look into previous local and international experiences on biosafety[176] and share them with citizens who can learn from them and apply them to their contexts. All the above needs to be complemented with comprehensive strategies applied by all relevant sectors in each country to guarantee the conservation of biodiversity and including it in the 2030 plan for sustainable development goals. Environmental movements and activists are to monitor the performance of the government to make sure those strategies are efficiently implemented and to underline any possible deviation from the common goal of providing human beings with environmental resources that are both safe and sustainable.

[176] Biosecurity 2025 plan.

A region in danger !
Justice between environmental and economic aspects

Food sovereignty **and environmental violations:**

Ali Aznac
member of ATTAC Maroc (Association pour la Taxation des Transactions financières et pour l'Action Citoyenne) and coordinator of the North African Food Sovereignty Network

Leila Riahi
Professor at the National School of Architecture and Urbanism, Tunisia

Rabei Wahba
Egyptian writer, translator, and researcher in political economy and the environment

Introduction:

Several developmental models have been applied in the Arab region since independence, all of which mainly relied on the exploitation of local natural and human resources to fund investments in sectors that constitute a major component of the global economy such as services, tourism, and extraction. These models, which follow the law of comparative advantage, marginalized rural areas in favor of developing coastal cities and reduced wages to deal with unemployment and consolidate state institutions while creating a subsidy system for basic foodstuffs to make up for low incomes. This policy led to the decline of subsistence farming as well as substantial demographic changes that resulted from the migration of farmers to the cities to join the informal workforce.

The 1970s and 1980s witnessed the initiation of structural reform programs that followed the debt crisis in the Global South. These programs involved imposing strict neoliberal policies that included lifting subsidies on several foodstuffs such as bread, butter, and sugar while keeping low wages, which led to a remarkable deterioration in the living standards of millions of families.

Egypt, Tunisia, and Morocco were among the countries whose food sovereignty was affected by reform programs[177]. The new policies impacted several food-related sectors, which was demonstrated in encouraging extractive and export agriculture to bring in foreign currency. They also affected small farmers who lost their lands and were displaced from the countryside to cities[178]. Meanwhile, investors in the agriculture sector were given several privileges including direct funds and/or lands for cheap prices. The impact of the new policies was also reflected in the environment with the misappropriation of natural resources, the depletion of underground water[179], excessive use of chemicals, disrupting the natural balance of the soil through monoculture, and doing away with heirloom seeds[180], all foreboding an acute environmental crisis in the future. These policies are still applied in the three countries subject of this paper and were particularly intensified in Tunisia and Morocco where big investors are given precedence, hence jeopardizing food sovereignty and exposing the population to global fluctuations in food prices as was the case in 2007/2008. Groups that are most affected by neoliberal policies, including small farmers and agricultural workers, initiated social movements that rejected exploitation within capitalist estates where they are treated like serfs, the depletion of natural resources, and the confiscation of land in favor of investment projects. Those movements revolved around the necessity of achieving food sovereignty and contested the concept of food security adopted by the three countries.

[177] Gilbert Achcar. "On the 'Arab Inequality Puzzle': The Case of Egypt." *Development and Change*, Volume 51, Issue 3, May 2020: https://onlinelibrary.wiley.com/doi/full/10.1111/dech.12585

[178] Said Oulfakir. "Morocco: Big farmers get fertile land and small farmers get nothing [Arabic]." *As-Safir Al-Arabi*, April 2019: https://bit.ly/3vQ5wt5

[179] "Water resources: Depriving small farmers in favor of capitalist export agriculture [Arabic]." *Siyada*, October 2020: https://bit.ly/2PcDxTR

[180] Ayman Ameed. "Local seeds: A history of plundering [Arabic]." *Siyada*, March 2021: https://bit.ly/38ZkDqf

Food sovereignty and food security:

Food sovereignty and food security are in many cases used interchangeably, with the latter being more common in the discourses of governments, agricultural institutions, and international financial institutions such as the World Bank and the International Monetary Fund among others. The concept of food security emerged in the 1960s and is, according to the Food and Agriculture Organization, achieved "when all people, at all times, have physical and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life"[181]. The concept developed over time and became attached to a number of conditions including that "food should not be used as an instrument for political and economic pressure"[182]. For international institutions, the concept of food security replaced that of "self-sufficiency," which emerged in the 1950s and was then linked to independence movements that prioritized a country's ability to locally meet food consumption needs, hence not having to resort to importing foodstuffs[183].

However, the concept of food security as adopted by international institutions acquired a cross-border meaning as it shifted to meeting the consumption needs of a given country without prioritizing local self-sufficiency, hence encouraging the replacement of several local products with imported ones. This, in turn, marginalized local farmers and absolved governments from their responsibility to boost local production[184].

Relying on imports in achieving food security has had several negative effects on the countries that went through this experience. These include the following:

- Undermining local subsistence farming, hence impoverishing small and medium farmers
- Monopolizing natural resources such as land, water, and seeds and using them for commercial agriculture
- Replacing the local self-sufficient agricultural model, which protects natural resources and maintains diversity, with a commercial model that prioritizes profit through the cultivation of export crops
- Small farmers' inability to compete in the market owing to lack of state support, which leads thousands of them to go bankrupt and either leave the agriculture sector altogether or cope with market rules
- Impacting the local stock of seeds in favor of imported and genetically modified ones
- Harming the soil and ecological systems, hence increasing their vulnerability in the context of climate change
- Consolidating economic subordination, particularly in terms of food[185].

[181] Trade Reforms and Food Security: Conceptualizing the Linkages. FAO, UN. 2003.
[182] Food and Agriculture Organization (November 1996). "Rome Declaration on Food Security and World Food Summit Plan of Action". Retrieved 26 October 2013
[183] North African Network for Food Sovereignty. "Between food security and food sovereignty: Where do people stand? [Arabic]" July 19, 2019: https://bit.ly/3kvVbgM
[184] Ibid.
[185] "Water resources: Depriving small farmers in favor of capitalist export agriculture [Arabic]." Op. cit.

The concept of food sovereignty was coined in 1996 by the Via Campesina movement in the World Food Summit organized by the FAO. It is defined as ""the right of peoples to healthy and culturally appropriate food produced through sustainable methods and their right to define their own food and agriculture systems"[186]. Food sovereignty gives precedence to the producers, distributors, and consumers of food over the mechanisms of the free market and multinational corporations. Food sovereignty also includes defending the interests of future generations through resisting current food policies and deconstructing commercial food systems. In addition, it directs local producers towards taking the lead in food trade, agricultural policies, fishing, and breeding[187]. The concept of food sovereignty was expanded in 2007 in the World Forum for Food Sovereignty in Nyéléni, Mali[188].

First: Food sovereignty and unjust economic growth in Egypt:

As part of its plan to achieve food sovereignty, the Egyptian government worked on integrating the agriculture sector into global trade through encouraging the cultivation of capital-intensive export crops. The implementation of reform programs in Egypt led to the deterioration of agricultural activities in old lands in the Nile Delta and the marginalization of farmers who cultivate less than five feddans. Landowners and investors were given privileges that made small farmers unable to access lands, resources, and agricultural inputs and made rural markets incapable of competing in the market. This led to the deterioration of the living standards of famers, who had no other source of income, as well as a decline in growth and productivity in rural areas, hence affecting Egypt's food security[189].

The 2030 plan and food sovereignty challenges:

International institutions worked on integrating Sustainable Development Goals into national development plans, which was particularly demonstrated in the case of United Nations Economic and Social Commission for Western Asia (ESCWA) and its role in planning the administration of natural resources in the Arab region. This plan included supporting and developing institutional mechanisms that focus on food, water, and energy security and enhance levels of coordination between sectors as well as ensure the consistency of policies[190]. In this context, the Egyptian government admits that food security, nutrition, and sustainable agricultural developments are substantial components of the 2030 plan. This plan included increasing reliance on the local production of major food commodities, developing sustainable consumption patterns that increase intake of food with high nutritional value and increase each citizen's share of it, limiting food waste, linking farmers to the market, implementing the electronic bread subsidy system, creating an independent entity for food safety, and developing social security networks[191].

---

[186] International Institute of Social Studies, Food Sovereignty: A critical Dialogue: https://www.iss.nl/en/research/research-networks/initiatives-critical-agrarian-studies/food-sovereignty-critical-dialogue-20132014-conference-papers-series

[187] Esther Vivas "Viva Campesina: The farmers' path [Arabic]." March 7, 2017: https://bit.ly/3bQcEN5

[188] Declaration of Nyéléni: https://nyeleni.org/spip.php?article290

[189] Center for International and Regional Studies "Food security and food sovereignty in the Middle East [Arabic]."https://repository.library.georgetown.edu/bitstream/handle/10822/558545/CIRSArabicSummaryReport6FoodSecurity2013.pdf?sequence=5

[190] United Nations Economic and Social Commission for Western Asia. "Integrating Sustainable Development Goals into national development plans [Arabic]." June 2019: https://www.unescwa.org/sites/www.unescwa.org/files/events/files/dmj_hdf_ltnmy_lmstdm_fy_khtt_ltnmy_lwtny_1.pdf

[191] The Committee on World Food Security (CFS). "Implementation of the 2030 plan [Arabic]." October 2016: http://www.fao.org/3/mr327a/mr327a.pdf

On the other hand, article 79 of the Egyptian constitution states that "each citizen has the right to healthy, sufficient amounts of food and clean water. The state shall provide food resources to all citizens. It also ensures food sovereignty in a sustainable manner and guarantees the protection of agricultural biological diversity and types of local plants to preserve the rights of generations"[192]. The phrasing of this article makes it more progressive than its counterparts in previous constitutions and which did not focus on sustainability and the nutritional value of food. In line with the Strategic Plan (2018-2023), which includes supporting food security, developing rural communities and small farmers, the Egyptian government initiated with the World Food Program the agricultural and rural development project. Through this project, the government focuses on the compatibility projects funded by international institutions with Sustainable Development Goals, including the second goal, "Zero hunger." This was done through different initiatives such as the Decent Life Initiative that targets the neediest villages and aims at investing in human resources in rural communities through diversifying sources of income, sustainable use of water resources, supporting farmers in coping with climate changes, empowering women and girls, and encouraging creativity and innovation through knowledge sharing platforms across the south[193].

While it is still possible for the Egyptian government to cooperate with funding institutions in plans that take sustainable development goals into consideration, several challenges still exist. These include gaps in information and methodologies required to accurately measure levels of food security and nutrition. This is particularly applicable to goal number two, "Zero hunger," and all goals associated with it, which include addressing issues like hunger, malnutrition, small farmers' incomes and productivity, the sustainability of agricultural practices, and the protection of crops and genetic resources. These issues cover most of the components of food security: availability, accessibility, and utilization/adequacy. That is why the 2030 plan should take into consideration that achieving several of the sustainable development goals relies on eliminating food insecurity and malnutrition and that any progress in the hunger goal is closely linked to achieving other sustainable development goals. This means that policies related to this goal need to be revised in order to link different goals[194] and identify points of weakness that obstruct implementation.

Despite the fact that the 2030 vision includes ambitious goals such as eliminating anemia for children less than five years old, it does not specify the strategies to be utilized in achieving this goal[195]. The main focus of the food plan is the fortification of flour, yet this does not address the root causes of anemia such as poverty and inability to access nutritious food[196]. In order to face this problem, the government must offer nutritious food at affordable prices. The list of subsidized goods should be extended to include vegetables, fruits, and legumes, which are rich in micronutrients such as vitamins and minerals, instead of only focusing on high-carb goods such as rice, flour, and sugar[197]. Egypt's Sustainable Development Strategy should include a food security plan in which all investment institutions are to contribute through making the necessary resources available. In addition, this plan should include strategies to address

[192] Modified constitution of Egypt, 2019: https://manshurat.org/node/14675

[193] "Four ministers discuss the agricultural development plan [Arabic]." *Al Bawaba*, February 23, 2021: https://www.albawabhnews.com/4275743 .

[194] See Food and Agriculture Organization, International Fund for Agricultural Development, and the World Food Program. "Food security and nutrition in light of the 2030 sustainable development plan [Arabic]," 2016: http://www.fao.org/3/i6188a/i6188a.pdf

[195] Egypt's 2030 vision: http://www.crci.sci.eg/wp-content/uploads/2015/06/Egypt_2030.pdf

[196] World Health Organization, Regional Office for the Eastern Mediterranean. "Nutrition in Egypt," 2020: http://www.emro.who.int/egy/programmes/nutrition-and-food-safety.html

[197] "Prices of 16 subsidized commodities in March [Arabic]." *Akher Al Anbaa*, March 1, 2019: https://bit.ly/3v5buG8

inequality based on health conditions and discrimination in access to food based on geographical location[198].

It is also necessary to study the environmental impacts of projects to be implemented under the 2030 plan. These include power generation projects that might increase pollution and intensify the repercussions of climate change. This also applies to urban expansion projects that the Egyptian government promotes as indispensable for development while not taking into consideration possible damages to biological and ecological balance as well as infringing on people's right to public space as demonstrated in the case of privatized beaches. Ecological balance can be preserved through supporting small farmers, protecting the land, and empowering producers of food and will at the same time achieve food sovereignty. It is noteworthy that urban development projects encroach on agricultural land, hence affecting food production and undermining food security as well as increasing dependence on imported food for high prices that average citizens are unable to afford.

Second: The relationship between social and environmental justice in Tunisia:

Agricultural policies in Tunisia: A general framework:

Access to land is one of the main components of food sovereignty, for agricultural land is not just a space for cultivation and production but also part of farmers' identity, the main source of income for rural communities, and an integral part of the environment. The value of agricultural land is, therefore, cultural, social, and political. Like most countries in the South, agricultural policies in Tunisia support export-oriented production and trade in comparative advantage goods while marginalizing subsistence farming and replacing it with imports. This approach goes back to colonial policies that introduced modern production models, which were later applied in the entire agriculture sector and were supported by the state through funds and privileges. These policies played a major role in the appropriation of land from small farmers, undermining subsistence farming, and giving precedence to export agriculture. This section examines the state of agricultural land in Tunisia with special emphasis on environmental conditions, farmers' access to land, production models that deplete the soil, and pressure by other economic sectors in an attempt to identify the main features of land exploitation and its relation to food sovereignty and social and environmental justice.

Land between environmental conditions and agricultural policies:

Agricultural land comprises two thirds of Tunisia and is estimated at 10 million hectars, including 1.6 million hectars of forestland in the north, 4.8 million hectars of grassland in the center and the south, and 5.2 million hectars of cropland[199]. The climate is generally dry with rain ranging from 600 mm/year in the north and 100mm/year in the south. This led farmers to come up with different rainfed and semi-rainfed agriculture techniques, now used in 71% of agricultural land.

The traditional agricultural system in Tunisia managed to cope with environmental conditions and to preserve biodiversity. It also led to the creation of different communities across the countryside such as mountain villages in the north and northeast, Bedouin and semi-Bedouin tribes in the center and the south, and fishing villages in coastal areas. Seasonal grazing

[198] See Committee on Economic, Social and Cultural Rights, General Comment no. 12: The right to adequate food: https://www.refworld.org/docid/4538838c11.html. See also Egypt Social Progress Indicators: Food, Water, and Agricultural land: https://www.progressegypt.org/en/topic.html#land

[199] Profil de Pays – Tunisie, FAO, 2015, http://www.fao.org/3/ca0212fr/CA0212FR.pdf

movements, which involved both human beings and livestock, played a major role in maintaining the natural balance of ecological systems. Traditional agricultural systems were based on a comprehensive view of surrounding climate conditions and on shared access to land especially in dry areas. This remained the case until the French occupation got hold of all resources, took urban communities apart, and changed property laws to make land acquisition easier. After independence, the Tunisian state did not stop such practices but, in fact, consolidated them through appropriation, privatization, and clientelism.

Failure in achieving agricultural productivity:

The last statistics of agricultural outputs in Tunisia were issued in 2005, when crop production reached 516,000 tons for 5.3 million hectars. It is noteworthy that 54% of this output is produced by 11% of the total land area and that 3% of landowners are in control of more than one third of the total land area. This underlines the problem of fragmented land ownership and the gap between small and big farmers.

There are three types of agricultural land tenure in Tunisia:

- Private lands: these are estimated at 6 million hectars, including 1.5 million hectars of collective lands that were assigned to individuals since the time of French occupation till the present moment. Private lands are at the core of the fragmentation of land ownership since the average area of an agricultural land dropped from 16 hectars in the 1960s to 6 hectares in 2015, hence increasing cultivation cost and reducing productivity rates. This is especially the case since a large percentage of land users are reluctant to organize through cooperatives.

- Collective lands: these belong communally to tribal groups and cover 1.5 million hectars. Most collective lands are neglected or overused grasslands permeated by strategic sites that contain oil, natural gas, or phosphate among others. These lands are basically located in the south and center of the country and are mostly frozen assets, which places them outside the official production cycles. Collective lands are always at the core of conflicts whether between tribes, between locals and investors, or between locals and the state.

- State-owned lands: In order to presumably achieve agricultural independence, the state bought the land the French were using during occupation and listed them as state-owned endowments instead of returning them to their original owners. In 1964, total state-owned lands reached 828,000 hectars[200], only 493,000 of which are left after many of the lands were given to regime loyalists and investors in the agricultural sector. These lands are among the most fertile in the country and are developed in terms of infrastructure. They, however, suffer from serious mismanagement problems including corruption, negligence, debts... etc., which undermines their productivity level. That is why these lands are always home to social movements that call for returning land to farmers.

[200] "How to restructure state-owned land in the Tunisian countryside in favor of farmers [Arabic]." *Al Hiwar Al Motamaden*, November 2, 2015.

Structural inequality in land use:

Women constitute 80% of labor force in the agriculture sector[201], but they only get 4% of agricultural outputs (around 33,000 out of 516,000[202]). These numbers underline the inequality from which female farmers suffer and which are to a great extent is attributed to inheritance laws and customs. On one hand, men get double women's inheritance based on Islamic law and on the other hand, the land goes to the nearest male relatives according to local customs. This means that female farmers are always in a subordinate position and are always involved in a feudalist relationship whether with male members of their families for whom they work in the land without pay or with landowners for whom they work for minimum pay that ranges from 3 to 4 US dollars per day. Women who do not work in their families' land are usually exploited on seasonal basis in harsh working conditions and without any forms of social protection. It is noteworthy that most state-owned lands are assigned to males, whether directly or through companies that lease the land. Remaining lands are managed by the Department of State-owned Lands (Office des Terres Domaniales).

Irrigated parameters between scarcity and commercial agriculture:

The percentage of irrigable land does not exceed 9.2% of total plowable land, that is around 450,000 hectars, yet they constitute 35% of national agricultural and secures 20-40% of food exports. The scarcity of irrigable land is linked to the scarcity of water resources. Private investors take advantage of the situation to get hold of these lands with state support. Irrigable lands are dominated by monoculture modes of production where one crop is cultivated for export and where hybrid seeds and chemical fertilizers are used. This means that those lands adopt extremely regressive modes of production since they rely on exporting agricultural outputs, monopoly, nepotism, and cheap labor in addition to absolute subordination to global markets. These modes of production also deplete water resources, contaminate the soil, and produce unhealthy food.

The use of irrigation water sheds light on state policies as far as irrigable lands are concerned. The state dedicates approximately 100,000 hectares to cultivating vegetables, one quarter of which is dedicated for tomatoes. Around 150,00 hectars are dedicated to planting trees (64,000 for olive trees, 32,000 for palm trees, 25,000 for citrus trees). Only 35% of irrigable land is used for major crops with a remarkable decline in grains in favor of fodder. This shift is attributed to the state's focus on dairy industries, which are dominated by influential businessmen and banks. Despite the large area occupied by olive forests, around 1.6 million hectares, olive trees keep encroaching upon irrigable lands and now occupy 14% of them. This is because the state encourages the entry of European species that rely on surface irrigation into the country.

Environmental impacts and climate change:

Agricultural lands are exposed to constant pressure by other economic sectors such as housing, tourism, services, and extractive industries. One of the main reasons of the decline in agricultural assets is urban encroachment on agricultural lands, pasturelands, and forest as well as a remarkable rise in informal housing. Polluting industries also had a negative effect on agricultural activities, which is especially the case in Gafsa, Gabes, Tataouine, and Douz. This is the result of supporting lucrative rentier sectors at the expense of subsistence farming.

---

[201] Hamza Marzouk, Tunisie – travail agricole : La main-d'œuvre féminine reste dominante, L\'économiste Maghrébin: https://bit.ly/3sX0d9k

[202] Enquête sur les Structures des Exploitations Agricoles 2004-2005: http://www.onagri.nat.tn/uploads/divers/enquetes-structures/index.htm

In addition, agricultural lands are affected by an increase in domestic waste which is disposed of at informal landfills in the outskirts of cities such as Tunis, Sousse, and Sfax. Added to this is the weak sewerage which leads to disposing of contaminated water in valleys or the sea without treating it and the excessive use of chemicals in farming, industry, and cleaning. All these practices are detrimental to the environment and agriculture and violate the rights of both farmers and consumers.

On the other hand, agricultural lands are affected by climate change, which led to increasing the salinity of the soil and of artesian water, sea level rise, erosion, desertification, and other phenomena linked to rainfall decline and rising temperatures. Despite the gravity of such developments, the state does not take them seriously and its efforts at dealing with climate change are confined to attempts at reducing greenhouse gas emissions on the local level instead of devising strategies to cope with new climate developments.

While the conditions of agricultural lands in Tunisia have a negative impact on different farming sectors and on the majority of farmers, they constitute an opportunity for investors who only focus on the accumulation of wealth. These investors take advantage of the vulnerability of small producers, the legal stalemate on collective lands, lack of monitoring measures for the use of natural resources, and their relationship with state institutions to get hold of the best agricultural lands that they use for commercial projects. Subsistence farming, practiced by small and medium farmers, is facing several structural challenges. Since Tunisia got its independence, the state kept wages very low while not controlling the prices of raw materials, which increased production costs. This led to the impoverishment of farmers and to the creation of speculation and corrupt lobbying networks that monopolized the use of land, resources, agricultural outputs, and the distribution and supply of basic foods such as grains, dairy products, and meat. Nepotism also controls the distribution of other products such as vegetables and feed. All those factors render farmers the most vulnerable in the agriculture sector. The director of the Tunisian Union for Farming and Fishing stated that 12,000 farmers gave up farming in 2018 and either left their lands uncultivated or offered them for sale.

Several protest movements in Tunisia called for a comprehensive agricultural reform and a new farming plan that takes into consideration both farmers and the environment. The demands of these movements included assigning land to food producers, putting an end to exploitation by investors, monitoring the use of environmental resources, and supporting production modes that can be adapted to climate changes. However, the balance of power is still not in favor of such movements since international financial institutions and local corporations that cooperate with them are still in control and still overlook the difference between food security and food sovereignty.

Third: The Chtouka Ait Baha labor movement in Morocco:

Morocco is the North African country with the highest investment in the agriculture sector. Moroccan and foreign investors profited from agricultural lands in the country at the expense of environmental resources and farmers' rights.

Loss of food sovereignty:

After gaining its independence in 1956, the ownership of lands held by French occupiers, which were seized from small farmers, was transferred to rich property owners. As a result, those property owners, labelled the "neo-colonizers," got hold of 747,000 hectars out of a total of one

million and 20,000 hectars controlled by the French occupation[203] . A small portion of the lands were assigned to the public sector and are managed by Société de Developpement Agricole (SODEA) and Société de Gestion des Terres Agricoles (SOGETA), whose privatization started in the late 1990s.

The structural reform program implemented by Morocco in 1983, based on instructions by international financial institutions, contributed to the rise of neoliberalism in the country. The national economy was restructured to cope with global market demands and the agriculture sector was the most affected. This was done through encouraging export farming and granting investors substantial tax exemptions, hence achieving the core goals of the Green Morocco Plan (Plan Maroc Vert)[204].

The agriculture sector in Morocco attracted huge investments, which enabled agricultural companies to merge into major corporate groups that control the sector. In fact, only seven groups control 95% of fruit and vegetable exports[205]. This led to the emergence of large agricultural estates in which a substantial labor force worked.

Farm laborers in Chtouka Ait Baha and the struggle for food sovereignty:

The Chtouka Ait Baha province is home to more than 70,000 farm laborers, male and female, who come from different parts in Morocco. They live in villages next to where they work, where they are crammed in small spaces with no adequate infrastructure, no nurseries for children of workers, and no means of entertainment. Poverty and the absence of dignified living standards provide a fertile soil for crime and prostitution. This province secures around 70% of the national production of fruits and vegetables[206].

The living conditions in Chtouka Ait Baha offer an example of the type of "development" supported by the state through creating a suitable environment for multi-nationals and adapting labor, investment, and tax legislations to market demands. The adoption of such legislation created a wide gap between agricultural and industrial workers. That is why one of the major demands put forward by agricultural unions is raising the wages of farm laborers to be equivalent to those of their counterparts in the industrial sector.

Since 2004, large numbers of men and women who work in farm labor joined unions and engaged in social movements that protested the exploitation to which they are subjected in agricultural estates. This exploitation is not only demonstrated in low wages but also long working hours, an unsafe working environment especially with the unmonitored use of pesticides, and the emergence of brokering companies, all typical aspects of commercial, export-oriented farms[207]. Unionized social movements mainly came in the form of protests in which thousands of workers, men and women, took part. Those movements were faced by numerous challenges that included the expulsion and imprisonment of a number of protestors, yet they started gradually to gain momentum and farmers were able to have some of their demands met. Protest movements in the Chtouka Ait Baha province did not achieve many of their goals since corporations started expelling workers or delaying their wages, filed lawsuits against unionists, and raided union offices.

---

[203] Hamza. "Who controls Morocco's fruit and vegetable exports? [Arabic]" *Akhbarona*, December 22, 2011: https://www.akhbarona.com/economy/12550.html

[204] Najib Akesbi. "Free trade agreements are colonial agreements against the people [Arabic]." ATTAC Maroc and Rosa Luxemburg Foundation, 2015.

[205] Hamza. Op. cit.

[206] "Pesticides are detrimental to the environment and human health [Arabic]." *Lakome.com*, July 26, 2017.

[207] Omar Aziki. *In defense of food sovereignty in Morocco: A field study of agricultural policies and the depletion of resources* [Arabic], July 2019.

The case of Chtouka Ait Baha provides an example of the development model that prioritizes profit at the expense of laborers as agriculture is turned into a commercial project whose main aim is exporting to global markets. This is done without taking into consideration the safety of farm laborers, which is mainly demonstrated in the excessive use of pesticides especially inside plastic greenhouses in which temperature and humidity are remarkably high. Activism in Chtouka Ait Baha coincided with other movements across Morocco that resisted the capitalist model that has become a major component of the agriculture sector in the country.

Impacts on the environment:

Extractive agricultural corporations control thousands of hectares in the Sous plain at the Chtouka Ait Baha province south of Agadir. Most of these lands focus on export crops including ones that are new to the region and that use huge amounts of underground water in addition to excessively relying on chemicals that harm farmers and consumers alike[208]. This information was confirmed by a report published on Lakome.com and which stated that all Moroccans are threatened by those toxins[209]. Through using up millions of cubic meters of water, those crops lead to a catastrophic decline in underground water in Chtouka Ait Baha and neighboring areas. ATTAC Maroc sounded the alarm bells through confirming that "potable water allocated for human, industrial, and touristic use does not exceed 7% of the total amount of water used in Souss-Massa and even this percentage is threatened by the excessive use of water for commercial agriculture, which devours more than 93% of total water resources"[210]. Agricultural corporations also produce tons of waste that include drip irrigation pipes and plastic bags among others. This constitutes a grave threat to neighboring lands owned by small farmers. In addition, the accumulation of plastic waste near residential areas threatens the health of humans and livestock alike.

The way to sovereignty on food and resources:

The demands of farm workers are part and parcel of the Via Campesina Movement[211] and the North African Food Sovereignty Network. These demands revolve around focusing on local and sustainable farming that respects the environment and preserves the traditions of the people of a given region. Coordination between the agricultural and industrial sectors is necessary in order to guarantee the production of healthy and nutritious food. This kind of transformation is not possible without responding to the demands of movements at Chtouka Ait Baha and their counterparts that work on finding alternative solutions across the country.

Conclusion:

The Covid-19 pandemic revealed the vital role of small producers[212], who have been the main suppliers of food and basic commodities since the crisis started while global supply lines managed by multi-nationals did not manage to do that job[213]. This leads to the necessity of looking for comprehensive economic alternatives that can replace the current capitalist model, which witnesses constant fluctuations whose cost is mainly paid by vulnerable groups. One of the main components of that alternative model is food sovereignty, whose features were identified by the Via Campesina movement and gained momentum among millions of small

[208] Ibid.
[209] "Pesticides are detrimental to the environment and human health [Arabic]." Op. cit.
[210] "Water crisis in Sous continues, water treatment plant in Chtouka not a solution [Arabic]." *ATTAC Maroc*, February 23, 2021.
[211] Declaration of the World Forum for Food Sovereignty in Nyéléni, Mali. North African Network for Food Sovereignty.
[212] "Farmers: The epitome of struggle in the face of Covid-19 [Arabic]": https://bit.ly/3ucAN8a
[213] Walden Bello. "Is COVID an opportunity for Food Sovereignty?" September 2, 2020: https://www.kzoo.edu/praxis/walden-bello/

farmers, fishermen, shepherds, and farm laborers across the world. Based on those features, food sovereignty is a comprehensive project on the social, economic, and cultural levels and is also one that prioritizes the protection of the environment.

In order to make this possible, several recommendations are to be presented to governments, international organizations, and movements that call for food sovereignty. These include the following:

- The necessity of changing the laws related to small farmers, fishermen, and shepherds in order to guarantee providing a safe working environment

- Focusing on current and future development plans on production, harvesting, and distribution plans that protect the environment and adapting local food system to climate changes while avoiding imported inputs and chemicals

- Supporting local farmers, especially small farmers, through securing their right to access production tools such as lands, forests, water, and funding while putting an end to favoring corporations that focus on export crops which harm the environment and farmers' rights, hence obstructing the achievement of food sovereignty

- Stopping the cultivation of crops that use large amounts of water, energy, and pesticides and supporting environmental-friendly farming that achieves food sovereignty on one hand and adapts to climate change on the other hand

- The participation of civil society organizations in the 2021 Food Systems Summit to present the arguments against injustices practiced by big corporations and negatively impacting food sovereignty

- Supporting protest movements by farm laborers in countries where commercial agriculture prevails and supporting their rights such as access to land and resources and organization in unions

- Reviving subsistence farming as a means of protecting the environment and preserving local cultures

- A bottom-top agricultural reform that supports the rights of small farmers, including access to land and water, and returns lands confiscated by the state and multi-nationals

- Respecting the United Nations Declaration on the Rights of Peasants and Other People Working in Rural Areas

- Including the Glasgow Agreement: Climate People's Commitment[214] in agricultural policies and putting into force strategies to cope with climate change in the Arab region

- Revising the farming map in the region and adopting approaches that focus on diversity, integration, adapting to climate chance, and farming for local consumption

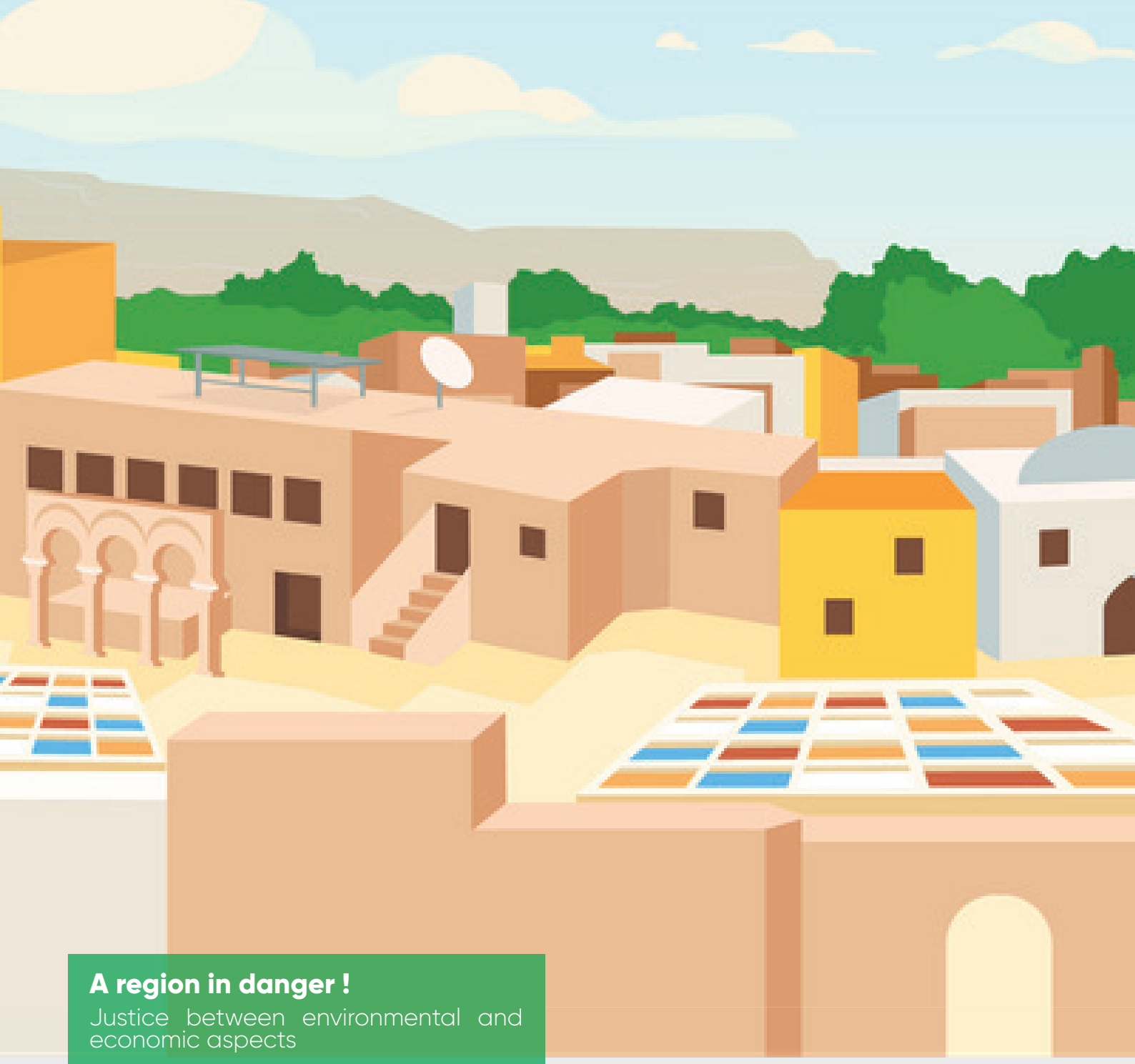
[214] Glasgow Agreement: Climate People's Commitment: https://caneurope.org/achievements/glasgow-agreement-climate-peoples-committment/

- Going back to using original seeds and local animal species

- Encouraging small farmers, fishermen, and shepherds to organize in unions that defend their economic, social, and environmental rights

- The participation of food producers in the pricing of food commodities to protect their incomes and diminish the role of brokers

- Establishing local, cooperative networks that link the cycle of production, manufacturing, and local consumption and that work independently from state institutions



A region in danger !
Justice between environmental and economic aspects

Social and climate justice between the economic and the political:

Mohamed El Agati
Zeinab Sorour

This is an analytical conclusion that relied mainly on paper included in this book.

"Crimes against people, crimes against nature: the impunity enjoyed by the masters of war is shared by their twins, the voracious masters of industry, who eat nature and, in the heavens, swallow the ozone layer."

Eduardo Galeano

While human activities have always been closely linked to environmental systems, environmental issues acquired more significance in the 21st century owing to its link to the current neoliberal system. More than half a century after the end of World War Two, humanity is facing serious economic and social problems that were summed up by American sociologist and politician Susan George as the "triumph of neo-liberalism"[215]. Population growth and increasing consumption levels encouraged by this economic model led to the scarcity of natural resources available for individual citizens as well as to a remarkable deterioration in the environment. This, in turn, accentuated social inequality[216] and disrupted the relationship between people and their environment.

Environmental justice is a comprehensive concept that is no longer confined to the protection of forests, rivers, and animals, for it also encompasses the protection of human life on all levels. This means that environmental justice involves the relationship between people and their surroundings and its role in creating a balanced life based on equality and fair distribution of resources. This angle is linked to recent debates about an economy that is based on public good and that takes into consideration environmental sustainability and addresses environmental problems resulting from the current economic system. The concept of environmental justice cannot be separated from a broader concept: climate justice. Looking at environmental justice from a climate perspective "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"[217]. That is why environmental justice has recently become "a major movement and organizing discourse in the environmental politics arena, and both the movement and the idea have had a large influence on the way that climate justice has been conceptualized"[218]. This also explains why "environmental justice frame has also been expanding topically and geographically over the years"[219]. The expansion of the concept of environmental justice is demonstrated is the way activism started to address environmental problems in different parts of the world such as climate change in South Africa, cold mining in Bulgaria, China's oil operations, and funding environmental NGOs in Ecuador[220] [221]. The concept of environmental justice did not only grow vertically to include those new issues and countries, but also expanded horizontally to encompass worldwide issues such as trading in

[215] Susan George. "A Short History of Neoliberalism": https://www.tni.org/en/article/short-history-neoliberalism
[216] Rajaa Kassab, Magda Bou Dagher-Kharrat, and Ziad Khaled. "Biodiversity from a climate and social justice perspective." Included in this book.
[217] Sultan Al Salem and Amr Adli. "Industrial development from a social and environmental justice perspective." Included in this book.
[218] David Schlosberg and Lisette Collins. " From Environmental to climate justice: climate change and the discourse of environmental justice", 2014: http://www.ssents.uvsq.fr/IMG/pdf/schosbergcollins_from_ej_to_cj_wire_cc_2014.pdf
[219] Ibid.
[220] JoAnn Carmin and Julian Agyeman, eds. *Environmental Inequalities Beyond Borders: Local Perspectives on Global Injustices*. Cambridge, MA: Mit Press; 2011.
[221] Anguelovski I, Roberts D. "Spatial justice, and climate change: multi-scale impacts and local development in Durban, South Africa." JoAnn Carmin and Julian Agyeman. Op. Cit.

toxic substances[222] , food sovereignty and climate justice[223]. The link between environmental and climate justice was underlined when after Hurricane Katrina in the United States: "Katrina helped to expand the consideration of the climate-changing environment in the environmental justice movement. Environmental justice scholars and advocates began to see climate change as another environmental condition that demonstrates the broader social injustice of poor and minority communities"[224] . To put it in more general terms, it can be said that "the movement idea of climate justice originated with a focus on removing the causes of climate change, as well as addressing the inequitable impacts of the oil industry at all stages"[225] .

As the concept expanded, more issues were discovered to be closely linked to it. For example, researchers at CorpWatch, an American association that exposes environmental violations committed by multinational corporations[226], noted that climate change "may well be the largest environmental justice issue of all time"[227] . Therefore, climate justice can be said to revolve around the idea that climate change is not only a natural phenomenon that can be addressed scientifically, but rather a broader concept deeply rooted into the history of economic systems that only prosper through the exploitation of natural resources, the expropriation of land, and the disruption of ecological systems[228]. While facts about the current economic system and its role in destroying the environment are obvious, resisting this system is far from easy. This is, to a great extent, because corporates involved in such actions and their corrupt political allies promote an environment-conscious discourse and take part in voicing their concerns about environmental violations. These corporates, as Eduardo Galeano puts it, "shed crocodile tears for the suffering of nature"[229] .

[222] Pellow DN. *Resisting Global Toxics: Transnational Movements for Environmental Justice*. Cambridge, MA: Mit Press; 2007.
[223] Mohai P, Pellow D, Roberts JT. Environmental justice. Annu Rev Environ Resour 2009, 34 :405–430
[224] David Schlosberg and Lisette Collins. . Op. Cit.
[225] Ibid.
[226] CorpWatch helped organize the first known Climate Justice Summit in The Hague
[227] David Schlosberg and Lisette Collins. Op. Cit.
[228] "Seeking Climate Justice in International Agreements. Part I: Short reflections on Egypt's Intended Nationally Determined Contribution (INDC)." Social Justice Platform: https://sjplatform.org/seeking-climate-justice-in-international-agreements/?lang=en
[229] Eduardo Galeano. *Upside Down: A Primer for the Looking-Glass World*. Picador, 2001

First: The core and aspects of the problematics of social justice:

Studying climate justice requires looking into the social structures of a given country or region. This is because social justice is at the core of climate justice and it is not possible to understand the latter in isolation from the former especially in the Arab region where "gaps in health outcomes, unequal access to economic opportunities and environmental goods, widening disparities in income, wealth and education and the absence of meaningful venues to voice grievances remain"[230]. In 10 countries in the region, "116.1 million (40.6%) belong to poor households, of which 38.2 million (13.4%) live in acute poverty"[231]. In the past 10 years, civil conflicts and subsequent deterioration in public services had a negative impact on social justice, which led to the loss of gains acquired in the past decades[232].

Social disparities and lack of justice are demonstrated in many ways across the region. For example, service and rent sectors constitute 77% of the Lebanese economy, which is mainly based in the capital and caters to its needs, hence marginalizing other sectors and areas. Many productive sectors such as agriculture, fishing, and domestic tourism were undermined while people's health and lives were endangered under the pretext of development and job opportunities offered by service and rent sectors. This led to the impoverishment and marginalization of areas that do not serve this goal[233] . In Egypt, several new cities are built, but they only target high-income citizens, which are a minority. Therefore, it is not the type of housing that contributes to development. On the contrary, such projects widen the gap between different segments of society and cater to the needs of the rich at the expense of

[230] Social Justice Matters, A View from the Economic and Social Commission for Western Asia, United Nations, 2018, Beirut, https://www.unescwa.org/sites/www.unescwa.org/files/publications/files/social-justice-matters-arab-region-english.pdf
[231] ESCWA and others, Arab Multidimensional Poverty Report (E/ESCWA/EDID/2017/2), p. 6.
[232] Ibid.
[233] Layla Riahi, Ahmed Zaazaa, Nadine Bekdache. "Social and climate justice in the context of urban planning in the Arab region." Included in this book.

low-income citizens[234]. Injustice, however, does not exist in a vacuum and is closely linked to other issues such as security, development, and democracy[235] . That is why it is necessary to examine the status of social justice in the Arab region in the light of social, economic, and political development[236]. Development is, in fact, a multifaceted process that involves substantial changes in social structures, popular tendencies, state institutions, and economic growth in addition to the elimination of poverty and inequality[237]. Meanwhile, post-independence development patterns in the Arab region since independence have mainly relied on the exploitation of human and natural resources to fund investment in sectors that are integrated into the global economy. Governments also reduced wages to deal with unemployment and consolidate state institutions while creating a subsidy system for basic foodstuffs to make up for low incomes. This policy led to the decline of subsistence farming as well as substantial demographic changes that resulted from the migration of farmers to the cities to join the informal workforce[238]. Problems related to development patterns can be seen in Tunisia. Since Tunisia got its independence, the state kept wages very low while not controlling the prices of raw materials, which increased production costs. This led to the impoverishment of farmers and to the creation of speculation and corrupt lobbying networks that monopolized the use of land, resources, agricultural outputs, and the distribution and supply of basic foods such as grains, dairy products, and meat. Nepotism also controls the distribution of other products such as vegetables and feed. All those factors render farmers the most vulnerable in the agriculture sector[239]. In addition, existing development potentials were crushed in countries that witnessed political unrest, which turned into civil conflict[240] . These examples underline the structural imbalance resulting from the neoliberal pattern, which is the harshest face of capitalism. The Arab region was put under a lot of pressure by international financial institutions to start adopting neoliberal policies[241] . On the domestic level, there were certain networks whose interests neoliberalism served, hence aided in making the shift possible[242]. Despite growing demands for equality and social justice, which were most poignantly voiced in the 2011 Arab uprising, governments in the region implemented superficial reforms that did not abandon the core policies of neoliberalism. When the revolutionary wave started receding, neoliberal policies came back with full force even after many of the same governments admitted they were the main reason for the uprisings[243].

Because the economic system serves intricate capitalist and political networks, resisting it is far from easy, especially that alliances on which this system is based are characterized by extreme rigidity[244] . This system does not also take into consideration the rights of the majority,

---

[234] Zeinab Sorour. "Urban planning between environment and economy [Arabic]." Green Peace Middle East: http://socialjusticeportal.afalebanon.org/publication/ /4409

[235] Abdel Ghafar Shokr. "Social justice in the Arab world in light of developmental, democratic, and security failures [Arabic]." The Center for Arab Unity Studies: https://bit.ly/3auoigy

[236] Ibid.

[237] Ibid.

[238] Rabei Wahba, Layla Riahi, Ali Aznac. "Food sovereignty and environmental violations: The case of Egypt, Tunisia, and Morocco." Included in this book.

[239] Ibid.

[240] Abdel Ghaffar Shokr. Op. Cit.

[241] Wael Gamal. "Why is the neo-liberal project continuing in the Arab region?" *Social Justice in the Arab Region between Street Politics and Political Paths.* Arab Forum for Alternatives and Rosa Luxemburg Foundation (North Africa Office): http://www.afalebanon.org/en/publication/4823/social-justice-in-the-arab-region-between-street-politics-and-political-paths/

[242] Ibid.

[243] Ibid.

[244] Ibid.

hence is always linked to economic, social, environmental, and health disasters. For example, in Kuwait a major part of the marine industry, especially fishing, is controlled by state-sponsored capitalist networks, which directly affected the local economy and the gross domestic product. In the absence of laws that protect affected segments of the population, inequality was accentuated[245]. In addition, neoliberalism makes room for multinational companies to promote investment policies that aim at "developing" production systems to be in line with market policies that are supported by information technologies on one hand and international financial institutions such as the World Bank and the International Monetary Fund and continental and regional investment banks on the other hand. Those policies involve contradictory aspects since they are committed to economic growth while overlooking its negative impacts especially on marginalized groups, which is demonstrated in the implementation of reform programs imposed by international financial institutions[246].

The impact of neoliberal policies is demonstrated on several levels in the Arab region and is particularly manifested through vulnerable groups. For example, with the remarkable rise in the number of refugees, it becomes obvious that race plays a major role in marginalizing particular communities. The same applies to women who, in many parts of the region, are still not considered major participants in the economy and most of them still work in the informal sector or in domestic unpaid labor[247]. The distribution of gross domestic product in the Arab region demonstrates that women are paid less wages and that their participation in the formal economy is minimal[248] . Geographical location is another factor since neoliberal policies are always accompanied by intensive investment in some regions and the marginalization of others. For example, there is a wide gap between northern and southern Algeria even though most natural resources are located in the latter. Locals in the south do not benefit from these resources whether through employment or development[249] . Workers are among the most affected groups, which is demonstrated in the case of the town of Chtouka Ait Baha in Morocco, which is home to more than 70,000 farm laborers, both male and female. The living conditions in Chtouka Ait Baha offer an example of the type of "development" supported by the state through creating a suitable environment for multi-nationals and adapting labor, investment, and tax legislations to market demands. The adoption of such legislation created a wide gap between agricultural and industrial workers. That is why one of the major demands put forward by agricultural unions is raising the wages of farm laborers to be equivalent to those of their counterparts in the industrial sector[250]. Neoliberal policies do not only affect current inhabitants but also extend to future generations. This is because resources that are used up to increase profits and accumulate wealth cannot be reproduced and because capitalist practices are always accompanied by violent measures such as evacuating locals

[245] "Industrial development between economy and the environment [Arabic]" Arab Forum for Alternatives and Green Peace Middle East": http://socialjusticeportal.afalebanon.org/publication/ /4478

[246] Rabie Wahba, Amani Al Baedi, Ali Al Karkhi, and Salman Khairallah. "Water resources and social and environmental justice." Included in this book.

[247] ILO, World Social Protection Report, 2017-19: Universal Social Protection to Achieve the Sustainable Development Goals (Geneva, 2017), p. xxxiii: https://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/---publ/documents/publication/wcms_604882.pdf

[248] ESCWA's calculation based on Human Development Report 2016, table 4: Gender Development Index (GDI): http://hdr.undp.org/en/composite/GDI.

[249] Reem Abdel Halim, Nissaf Brahimi, and Ali Saheb. "Energy sovereignty between environmental and social justice: The cases of Egypt, Algeria, and Iraq." Included in this book.

[250] Rabei Wahba, Layla Riahi, Ali Aznac. Op. Cit.

from lands and houses, encroaching upon forests, and dredging coastlines under the pretext of development and economic growth[251] .

Second: Climate justice gaps in the Arab region:

Projects that do not take environmental aspects into consideration are bound to deplete natural resources, hence undermine any chances of development and climate justice, especially in light of the absence of good governance[252]. Studies in this book examine factors that hinder the achievement of climate justice. One of the most important problems is climate change, which at times leads to water shortage, hence desertification and drought, and at others causes floods[253]. Drought forces farmers to leave their lands while floods, which result from rising sea levels, are expected to destroy fertile lands. Water shortage threatens several cities in the Arab region such as Cairo, Casablanca, and Algiers while overuse of water will eventually lead to the depletion of underground water, hence placing most countries in the region below water poverty line[254]. In addition, the region has already been witnessing political tension over water[255]. The sea is also becoming more acidic, which kills coral reefs, hence undermining biodiversity in the Red Sea and affecting thousands who work in fishing and tourism[256]. Rising temperatures as a result of climate change could kill thousands, especially farm laborers[257]. Lack of accountability in environment-related issues makes the situation worse as well as lack of evaluation methods (strategic and cumulative) and proper product life-cycle management[258].

Northern countries exploit natural resources in the Arab region through international financial institutions such as the World Bank, the International Monetary Fund, and EU organizations. While those organizations call for taking major steps towards the protecting environment, ones that seem radical compared to actions taken by local governments, and while they examine the impact of environmental violations on the poor, they eventually side with capitalists and political elites. That is why their analyses of climate change do not include issues pertaining to class, social justice, and colonial history[259]. Absence of democracy makes it easier for autocratic governments to ally with international institutions and multinational corporations against both the environment and the people[260].

Studies included in this book offer several examples. There is special focus on water resources that are either depleted, contaminated, or mismanaged, which not only affected the environment but also people living in regions in which those resources are located. In Iraq, draining the Mesopotamian Marshes not only affects climate balance and justice, but also leads to the displacement of locals and the disappearance of traditional economic activities[261]. In Egypt, the problem of water is not confined to shortage, but also extends to

[251] Layla Riahi, Ahmed Zaazaa, Nadine Bekdache. Op. Cit.
[252] Rabie Wahba, Amani Al Baedi, Ali Al Karkhi, and Salman Khairallah. Op. Cit.
[253] Hamza Hamouchene and Mika Minio-Paluello. *The Coming Revolution in North Africa: The Struggle for Climate Justice*. Arts Activism Education Research, April 28, 2015.
[254] Ibid.
[255] The Arab Human Development Report 2009: Challenges to Human Security in the Arab Countries: http://hdr.undp.org/en/content/challenges-human-security-arab-countries
[256] Hamza Hamouchene and Mika Minio-Paluello. Op. Cit.
[257] Ibid.
[258] The Arab Human Development Report 2009. Op. Cit.
[259] Hamza Hamouchene and Mika Minio-Paluello. Op. Cit.
[260] Ibid.
[261] Rabie Wahba, Amani Al Baedi, Ali Al Karkhi, and Salman Khairallah. Op. Cit.

unfair distribution and inefficient irrigation techniques, both affecting agricultural products and threatening the country's water security[262]. Energy is another example. Focusing on energy-intensive industries in Egypt contributes to climate injustice[263] and is also related to the position of the region within the global division of labor as a peripheral economy[264]. Population growth and demographic changes also accentuate already existing environmental problems such as climate change, desertification, and pollution[265]. That is why studies included in this book stress the idea that the use of natural resources is an environmental and rights issue in the first place[266].

Third: Problematics of the relationship between social and climate justice:

After undermining national liberation movements that played a major role in the post-independence development process that worked on achieving social justice, the economy was redefined based on market standards, hence creating a new model. The characteristics of this model have a direct and indirect impact on the environment[267]. Climate change is also linked to wealth and income disparities in the region[268]. In fact, most economic plans in the region lead to the accumulation of wealth in the hands of a few capitalists while further marginalizing vulnerable groups and undermining traditional economic activities[269]. In addition to the depletion of natural resources, the current economic system promotes privatization and globalization, hence accentuating inequality and concentrating wealth and power in the hands of the few[270]. While economic projects are implemented under the banner of growth and development, they prioritize profit, hence obstructing sustainable development[271]. The 2008 food crisis that caused famine and ignited protest waves across the Global South demonstrated the fragility the food system. This is because food production is monopolized by corporates that prioritize monoculture and export-oriented agriculture[272]. Added to that is the fact that 80% of the world's hungry live in regions that suffer from environmental deterioration and are subject to natural disasters, hence stressing the link between climate change on one hand and hunger and poverty on the other hand[273].

Fair distribution features prominently in the relationship between natural resources and poverty. This is demonstrated in the case of natural gas pricing in Egypt. Factories lobby for buying natural gas at subsidized prices while subsidies are lifted for impoverished groups[274]. Energy-intensive factories are problematic not only because they consume a lot of energy at lower prices, which affects the distribution of resources, but also because they are not labor

---

[262] Ibid.
[263] Sultan Al Salem and Amr Adli. Op. Cit.
[264] Ibid.
[265] The Arab Human Development Report 2009. Op. Cit.
[266] Ibid.
[267] "Different paths to Justice: The case of economy and the environment." Arab Forum for Alternatives and Green Peace Middle East: http://www.afalebanon.org/en/publication/8561/different-paths-to-justice-the-case-of-economy-and-the-environment/
[268] Ibid.
[269] Rajaa Kassab, Magda Bou Dagher-Kharrat, and Ziad Khaled. Op. Cit.
[270] "Different paths to Justice: The case of economy and the environment [Arabic]." Op. Cit.
[271] Rabie Wahba, Amani Al Baedi, Ali Al Karkhi, and Salman Khairallah.
[272] Hamza Hamouchene and Mika Minio-Paluello. Op. Cit.
[273] George Karzam. "Climate justice only possible with resistance to monopolies and capitalist-oriented governments [Arabic]." https://bit.ly/3uC6eIX
[274] Reem Abdel Halim, Nissaf Brahimi, and Ali Saheb. Op. Cit.

intensive and require a lot of capital[275] . State support for those factories deprive marginalized groups of their fair share of energy and those same groups are also the ones who are most affected by the environmental damages caused by these factories. They are also less capable of defending their rights[276]. It is noteworthy that environmental justice cannot be achieved unless people enjoy equal rights. That is why in a context were there are social and economic disparities and where the decision-making process is monopolized by political elites, environmental justice is not easy to achieve[277].

Fossil fuel is one of the main causes of climate change since Western governments and corporates, together with their political allies in each country, use fossil fuel despite its environmental hazards. Fossil fuel is, in fact, one of the direct manifestations of a century of imperialism and capitalism[278]. Despite growing campaigns for shifting to green energy resources, fossil fuel still secures more than 85% of total energy demand across the world, compared to 10% from renewable energy (7% from hydroelectric energy, the oldest form of renewable energy)[279] . Fossil fuel is a main source of development funding in several countries in the Arab region such as Iraq, Libya, and Algeria and almost the only source in the Gulf region.

All the above demonstrates that the relationship between social and climate justice, or in broader terms between economy and the environment, is not direct in the sense that one factor affects the other. It is rather a relationship that can best be described as circular since any deterioration in the environment is accompanied by deterioration in the economy and vice versa, but it is not possible to determine which happened first. That is why addressing such a problem requires breaking the vicious circle in which both the economy and the environment keep deteriorating in a way that threatens people's lives and living conditions. That is why environmental issues are always included, even if not directly, in protests that are driven by social and economic grievances[280].

Fourth: Common factors in the Arab region:

While studies included in this book dealt with particular countries and focused on the specificity of each context, common factors can be detected between different cases, hence between countries in the Arab region. For example, policies pertaining to climate in the Arab region are controlled by political and capitalist powers and environmental issues are always addressed by international institutions[281]. Even though the structure of agricultural economy differs from one country to another, neoliberal policies, facilities offered to investors including access to land, and adopting policies that rely on food security are common among Arab

[275] Sultan Al Salem and Amr Adli. Op. Cit.
[276] "Industrial development between economy and the environment [Arabic]." Op. Cit.
[277] Rabie Wahba, Amani Al Baedi, Ali Al Karkhi, and Salman Khairallah. Op. Cit.
[278] Hamza Hamouchene and Mika Minio-Paluello. Op. Cit.
[279] Carole Nakhle. "Moving towards renewable energy: Changing the economy comes first [Arabic]." *Al Akhbar*, September 24, 2018: https://al-akhbar.com/Capital/ 258431
[280] Abdel Halim, Nissaf Brahimi, and Ali Saheb. Op. Cit.
[281] Hamza Hamouchene and Mika Minio-Paluello. Op. Cit.

countries[282]. Allowing investors to get hold of land constitutes a grave social and environmental, and possibly security, threat[283].

The Arab region is almost entirely dominated at the moment by global capitalism that played a major role in climate change and the depletion of natural resources[284]. The negative impact of adopting neoliberal policies and liberalizing the economy is now seen in the agriculture sector and food sovereignty of Arab countries[285]. Trade agreements between northern and southern countries contribute to the depletion of resources in the former. In fact, northern countries and financial institutions put pressure on Arab countries to accept bilateral trade agreements that, in many, cases violate international treaties in order to control their resources[286]. Egypt, Tunisia, and Morocco offer a clear example of the impact of neoliberal policies, especially as far as food is concerned[287]. Although agriculture in the three countries was also severely affected[288], those policies are still implemented and reached their peak in Morocco and Tunisia, where agricultural investors became in full control in a way that undermines the food sovereignty of the two countries[289] .

The global capitalist system imposes on countries that depend on extractive industries debts whose payment requires maintaining this type of industries. That is why environmental measures taken by most foreign investors and corporates that implement projects in Arab countries are much laxer that those implemented in the countries they come from[290]. Contradictions inherent in the Arab region play a role in complicating the issue since it is not possible to compare a country like Sweden to Egypt, which still has a long way to go in terms of industrial development and income rates, when it comes to discussing economic growth[291].

Achieving sustainable development in the Arab world is not possible without mitigating environmental risks and looking into alternatives to adapt to climate change. However, Arab countries still do not have the information required for doing so, especially with the lack of influence strategies and a methodical monitoring process[292]. The version of development adopted in the Arab region does not prioritize the interests of the majority, which is demonstrated in the case of urban planning. Despite the dominance of official discourses that promise prosperity and improvement of living standards, locals come to see the stark contrast between those promises and reality on the ground and realize that promoted development models are far from sustainable[293].

---

[282] Hanna Batatu (1984) *The Egyptian, Syrian, and Iraqi revolutions: Some observations on their underlying causes and social character*. Center for Contemporary Arab, 1984.
[283] Zeinab Sorour. "Food sovereignty between climate and social justice [Egypt]." Arab Forum for Alternatives and Green Peace Middle East: http://socialjusticeportal.afalebanon.org/publication/4512/
[284] North African Network for Food Sovereignty: https://www.siyada.org/ar/
[285] Zeinab Sorour. "Food sovereignty between climate and social justice [Egypt]." Op. Cit.
[286] Rajaa Kassab, Magda Bou Dagher-Kharrat, and Ziad Khaled. Op. Cit.
[287] Gilbert Achcar. "On the Arab Inequality Puzzle': The Case of Egypt." Wiley Online Library: https://onlinelibrary.wiley.com/doi/full/10.1111/dech.12585
[288] "Water resources: Depriving farmers of water to serve capitalist export agriculture [Arabic]": https://bit.ly/2PcDxTR
[289] Rabei Wahba, Layla Riahi, Ali Aznac. Op. Cit.
[290] "Industrial development between economy and the environment [Arabic]." Op. Cit.
[291] "Different paths to Justice: The case of economy and the environment [Arabic]." Op. Cit.
[292] Rajaa Kassab, Magda Bou Dagher-Kharrat, and Ziad Khaled. Op. Cit.
[293] Layla Riahi, Ahmed Zaazaa, Nadine Bekdache. Op. Cit

The impact of environmental deterioration on the economy and social justice is illustrated in the water crisis. Water and all political, economic, and rights issues related to it are becoming increasingly important for the entire world, and this is particularly applied to the Arab region[294]. The region suffers from water poverty and is incapable of coping with population growth[295]. The scarcity of water is directly related to climate change and subsequent pollution and deterioration of biodiversity in the region[296]. The impact of climate change in the Arab region is more severe than in other parts of the world[297]. This is partly because of demographic change and lack of environmental precautions in the industry sector in addition to the absence of environmental justice[298] . The effect of environmental deterioration on the economy is demonstrated in the increase of food imports as a result of unprecedented drought waves countries like Algeria and Syria suffered from. This, in turn, is reflected on the price of food commodities[299].

The major challenge faced by environmental organizations in the Arab world is raising awareness about the impact of climate change and neoliberal policies on the environment and addressing environmental problems in areas inhabited by impoverished groups[300]. This requires looking into the injustice inherent in the energy pricing system in countries like Egypt, Algeria, and Iraq and the impact of this system on marginalized groups[301]. It is also important to start replacing fossil fuel with environment-friendly sources of energy, looking into ways of coping with climate change, finding new sources of water, restructuring the agriculture sector, installing salinity barriers, and revising the planning of cities. The problem, however, is that the same entities that contributed to climate change are the ones that now promote mitigating its effects and protecting the environment in order to make more profit. Several reports issued in Arabic warn of the impact of climate change, yet neoliberal institutions such as the World Bank, the German Corporation for International Cooperation (GIZ), and EU organizations monopolize knowledge in this field, hence their research is based on what best serves their interests. That is why they do not address the impact of climate change on particular classes or issues like social justice, oppression, and imperial history. The analyses these entities offer do not hold Western countries and corporations accountable for climate change. Most literature on climate change in the Middle East and North Africa does not mention discrimination or resistance[302] .

[294] Rabie Wahba, Amani Al Baedi, Ali Al Karkhi, and Salman Khairallah. Op. Cit.
[295] Zeinab Sorour. "Urban planning between environment and economy [Arabic]." Op. Cit,
[296] Rajaa Kassab, Magda Bou Dagher-Kharrat, and Ziad Khaled. Op. Cit.
[297] [297] "Different paths to Justice: The case of economy and the environment [Arabic]." Op. Cit.
[298] Sultan Al Salem and Amr Adli. Op. Cit.
[299] Reem Abdel Halim, Nissaf Brahimi, and Ali Saheb. Op. Cit.
[300] Mishkat Al Mumin. "Environmental justice to achieve Arab progress [Arabic]." Arab Forum for Environment and Development. January 2007: http://www.afedmag.com/web/ala3dadAlSabiaSections-details.aspx?id=795&issue=&type=3&cat=
[301] Reem Abdel Halim, Nissaf Brahimi, and Ali Saheb. Op. Cit.
[302] Hamza Hamouchene and Mika Minio-Paluello. Op. Cit.

Conclusion: Breaking the vicious cycle:

As demonstrated in the studies included in this book, it is not possible to deal with issues pertaining to social and climate justice separately. All issues need to be addressed in parallel on three levels: local, regional, and international. On the local level, policy reforms should be accompanied by raising awareness on social justice and climate change. On the regional level, Arab countries need to forge alliances through which they can deal with common problems. On the international level, steps have to be taken towards putting an end to the exploitation of resources in the south by Western powers.

On the local level, policies need to include environmental justice and adopt alternatives to the current production system while looking into the status of traditional economic activities that were destroyed by current policies[303] . Governments need to set comprehensive strategies that include all sectors in order to work towards protecting the environment and biodiversity. Social movements and civil society should monitor the implementation of those strategies and shadow reports evaluating the process need to be taken into consideration[304]. Issues pertaining to the protection of the environment need to be included in constitutions as well as regulating laws that determine the legal steps to be taken in any dispute related to the impact of investment projects, whether domestic or international, on local communities[305]. Environmental activism will play a major role in lobbying for policy reform and raising awareness on topics such as biodiversity[306]. The fair distribution of natural resources should also be included as well as supporting small farmers, conducting research on the viability of projects that might deplete resources, putting an end to the contamination of natural resources, and taking sustainable development goals into consideration while setting resource management plans[307].

Addressing challenges related to water scarcity require merging between immediate response to people's needs and adopting a long-term approach that aims at coming up with contingency plans in the face of crises. This will not be possible without adequate management of water use and making sure it is fairly distributed among citizens. Investing in technology transfer is pertinent in this case since it will help in improving the efficiency of water resources and the quality of agricultural products as well as ensure the optimal use of agricultural land[308]. Arab governments need to reconsider agricultural policies through adopting technologies that improve production, creating job opportunities in rural areas, and

303 303 "Different paths to Justice: The case of economy and the environment." Op. Cit.
304 Rajaa Kassab, Magda Bou Dagher-Kharrat, and Ziad Khaled. Op. Cit.
305 Ibid.
306 Ibid.
307 Rabie Wahba, Amani Al Baedi, Ali Al Karkhi, and Salman Khairallah. Op. Cit.
308 "Solutions to water challenges in the Middle East and North Africa region: Q&A with Pasquale Steduto this World Water Week." Food and Agriculture Organization, August, 30, 2018: http://www.fao.org/fao-stories/article/en/c/1150870/

expanding social security nets[309]. State institutions that work in environmental affairs need to adopt the concept of environmental justice and support communities that were affected by environmental violations[310].

Regarding food sovereignty, it is important to modify laws related to small farmers, fishermen, and shepherds to ensure that they get their rights while expanding social insurance and healthcare networks. Agricultural activities such as production, harvesting, and distribution should be designed in a way that achieves food sovereignty while not giving in to pressure by corporations that focus on export agriculture, which not only undermines food sovereignty but also harms the environment[311]. It is also important to support social movements by small farmers in countries where capitalist agricultural estates are located and implement agricultural reform from the bottom up so that the rights of farmers are preserved and their access to resources is guaranteed. Improving farmers' conditions is linked to getting back land that is expropriated by the state and multinational corporation and respecting the United Nations Declaration on the Rights of Peasants and Other People Working in Rural Areas[312]. Food producers should take part in setting food prices so that they can make enough profit and do away with brokers[313]. In urban planning, it is necessary to discard conventional conceptions of the city as a unified entity in which all inhabitants are expected to have the same lifestyle. Urban planning needs to be sensitive to the cultural and economic specificities of different communities[314]. In general, governments and policy makers should acknowledge that restoring environmental balance is not possible without addressing the drawbacks of the dominant economic system neither can it be done without the political will to implement reforms[315]. The close link between social justice and environmental justice necessitates that decision-makers, activists, experts, and academics all work together to come up with measures that need to be taken in order to achieve both in parallel[316].

Civil society plays an important role in raising awareness about the relationship between social and environmental justice for both citizens and officials. Special emphasis should be placed on resisting all projects that threaten the environment and widen the gap between segments of the population[317]. The role of civil society is not confined to domestic affairs for it extends across the Global South[318], where people need to demand their rights whether through protests, strikes, mobilizing public opinion, or communicating with relevant entities[319]. Raising awareness about the environment should be done through organizing sessions on environmental justice and biodiversity[320]. The question that comes to the forefront is whether the accumulation of minor achievements can achieve environmental justice, or no reform is possible without drastic change. Several scholars argue that drastic measures might be necessary to effect a real change in, for example, the issue of biodiversity and related

[309] Ibrahim Saif. "The Food Price Crisis in the Arab Countries: Short Term Responses to a Lasting Challenge." Carnegie Endowment for International Peace: https://carnegieendowment.org/files/saif_food_prices_final.pdf
[310] Mishkat Al Mumin. Op. Cit.
[311] Rabei Wahba, Layla Riahi, Ali Aznac. Op. Cit.
[312] Ibid.
[313] Ibid.
[314] Layla Riahi, Ahmed Zaazaa, Nadine Bekdache. Op. Cit.
[315] Rabie Wahba, Amani Al Baedi, Ali Al Karkhi, and Salman Khairallah. Op. Cit.
[316] Reem Abdel Halim, Nissaf Brahimi, and Ali Saheb. Op. Cit.
[317] Rabei Wahba, Layla Riahi, Ali Aznac. Op. Cit.
[318] "Why biodiversity matters": https://news.asu.edu/20190506-global-engagement-why-biodiversity-matters
[319] "Industrial development between economy and the environment [Arabic]." Op. Cit.
[320] Rajaa Kassab, Magda Bou Dagher-Kharrat, and Ziad Khaled. Op. Cit.

issues[321]. The role of media outlets cannot be overlooked since it is through them that the importance of biodiversity and environmental justice can be promoted. The same applies to social networking websites[322]. These efforts are expected to lead to a substantial change in people's behavior towards the environment and this will only happen when they receive the knowledge of which they have always been deprived[323]. It is noteworthy that culture does not only change through awareness campaigns, for awareness materializes through practice, and both need to be done in parallel[324].

On the regional level, the political discourse across the Arab world needs to change in order to set the principles of a new economy that is based on transparency, justice, and democracy. This can be done through people's participation in the decision-making process, new laws and legislations that criminalize environmental violations, a tax system that does not offer exemptions to practices that harm the environment, and the restructuring of relevant institutions[325]. The region needs a major shift in dealing with economic and environmental models, adopting the green recovery plan, understanding environmental sustainability, and resisting current consumption models[326]. Regarding food sovereignty, it is important to revise the current agricultural plan in the region and adopt alternative approaches that are based on diversity, coping with climate change, and channeling agricultural production towards local consumption[327] . One of the challenges is the relationship between environmental issues and the Arabic language. This is because exporting terminology from other parts of the worlds is not enough if relevant terms do not become part of our reality[328].

Forging regional alliances would help improve conditions on the domestic level as well as create leverage for the region internationally. Through these alliances, the Arab region can develop a discourse, which would become part of the Global South discourse, about the relationship between climate change and the environment on one hand and the economy on the other hand. Such a discourse will only be possible through establishing domestic bases that champion the cause in each country[329]. Climate change is a crisis that requires immediate intervention, and this can be done through examining the approaches adopted by several environmental movements around the world as well as some politicians and parties[330]. One of the successful experiences that aim at resisting the hegemony of global capitalism is the North African Network for Food Sovereignty, which includes organizations, unions, and social movements that oppose capitalism and all practices that destroy the environment. The network works on establishing ties with entities that struggle for food sovereignty on the regional, continental, and international levels[331].

On the international level, the Arab region needs to resist the exploitation of Western countries. When discussing the shift to green energy, it is important to look for an alternative to capitalism. Developing resistance on the international level requires examining the

[321] "Why biodiversity matters." Op. Cit.
[322] Rajaa Kassab, Magda Bou Dagher-Kharrat, and Ziad Khaled. Op. Cit.
[323] "Why biodiversity matters." Op. Cit.
[324] Ibid.
[325] "Different paths to Justice: The case of economy and the environment [Arabic]." Op. Cit.
[326] Ibid.
[327] Rabei Wahba, Layla Riahi, Ali Aznac. Op. Cit.
[328] Hamza Hamouchene and Mika Minio-Paluello. Op. Cit.
[329] "Different paths to Justice: The case of economy and the environment." Op. Cit.
[330] Ibid.
[331] North African Network for Food Sovereignty. Op. Cit.

relationship between the North and the South, that is imperialist relations based in the exploitation of natural resources, and creating a discourse that takes into consideration the local specificity of Arab countries[332] . It is important in this context to resist the exploitation, monopoly, and environmental abuse that resulted from imperialist policies over several decades[333]. It is also important in this regard to revise agreements Western countries impose on the South and their effect on development and the social, economic, cultural, political, and environmental rights of citizens. This needs to be done before starting negotiations on any new bilateral agreements[334]. Activists and researchers in the South need to seize every possible opportunity to highlight violations committed against the environment in the Arab region[335]. In addition to direct confrontation and different modes of resistance, alliances and joint work are also important since the whole world is suffering from the repercussions of climate change not only the South, which is shown in the case of natural disasters. That is why cooperation between the North and the South is also necessary to work together on facing environmental crises[336]. An example of such cooperation is the signing in 1992 of the Convention on Biological Diversity, a legally binding agreement comprised of three equally significant goals: the conservation of biological diversity, the sustainable use of its components, and the fair distribution of the benefits of genetic resources. The convention reflected the need to stop taking biodiversity for granted and come up with the means that guarantee the continuation of life on earth[337]. While raising awareness and spreading knowledge about climate justice are important, they are not enough to effect a real change. This is because cooperation between individuals, NGOs, and relevant entities, whether national, regional, or international, and organizing joint campaigns are indispensable steps towards achieving climate justice[338]. All international entities have to be subjected to regular monitoring in order to measure how far their laws and regulations abide by international agreements on climate justice[339].

[332] [332] "Different paths to Justice: The case of economy and the environment [Arabic]." Op. Cit.
[333] "Why biodiversity matters." Op. Cit.
[334] Rajaa Kassab, Magda Bou Dagher-Kharrat, and Ziad Khaled. Op. Cit.
[335] "Why biodiversity matters." Op. Cit.
[336] Ibid.
[337] Rajaa Kassab, Magda Bou Dagher-Kharrat, and Ziad Khaled. Op. Cit.
[338] Ibid.
[339] Ibid.