

**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 .

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<sup>1</sup> . 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

---

<sup>1</sup> Salma Emara. "Climate change: Will Alexandria sink? [Arabic]" *BBC*, October 2, 2020: <https://bbc.in/3tKKf2t>

<sup>2</sup> "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](https://www.ipcc.ch/site/assets/uploads/2018/03/SRREN_FD_SPM_final-1.pdf)

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.

## 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<sup>3</sup>. 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<sup>4</sup>.



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<sup>5</sup>.

<sup>3</sup> Council of Ministers' decree number 1159 for the year 2014

<sup>4</sup> Council of Ministers' decree number 1884 for the year 2019

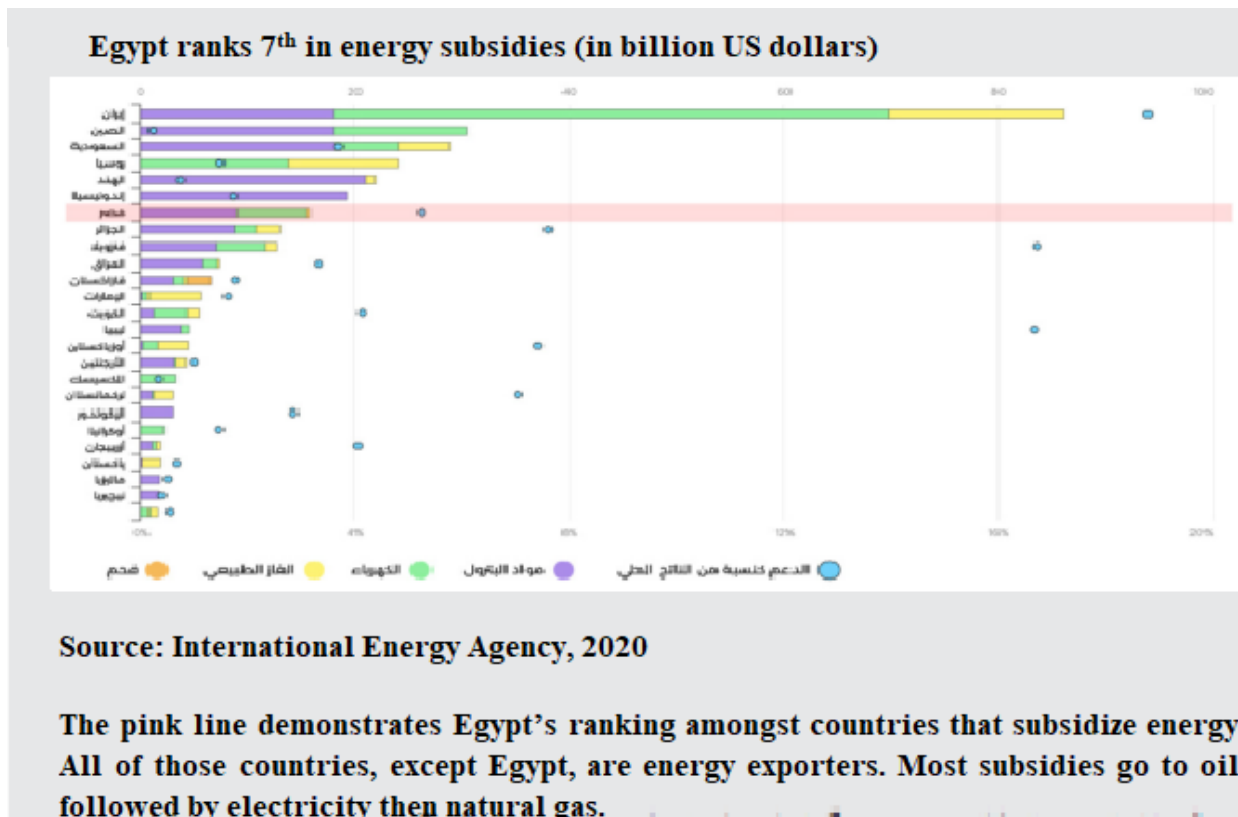
<sup>5</sup> The General Organization for Export and Import Control: <https://www.goeic.gov.eg/>



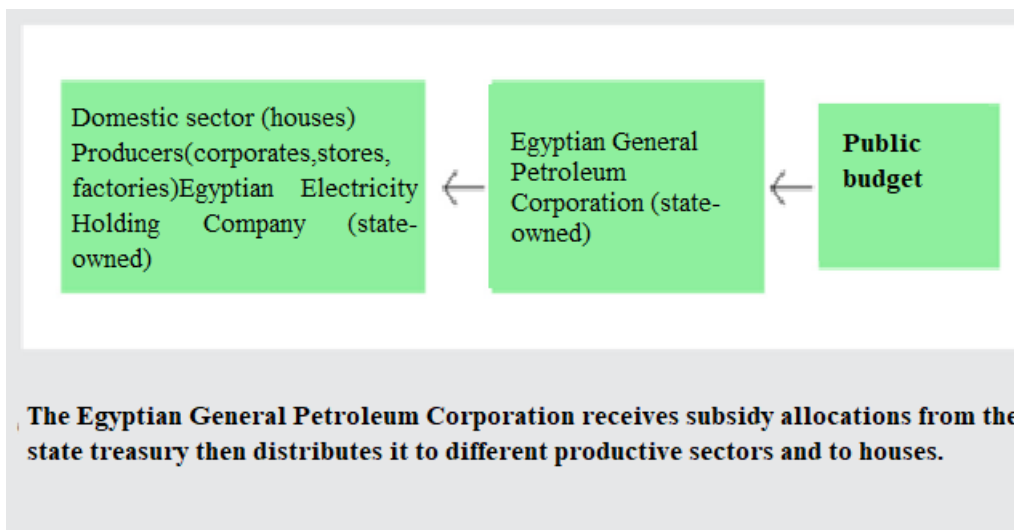
The use of natural resources is not just a technical issue based on decisions made by scientists, economists, or politicians since it cannot be detached from its environmental and human rights aspects. Those aspects have been overlooked in the management of natural resources in Egypt, especially oil 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.



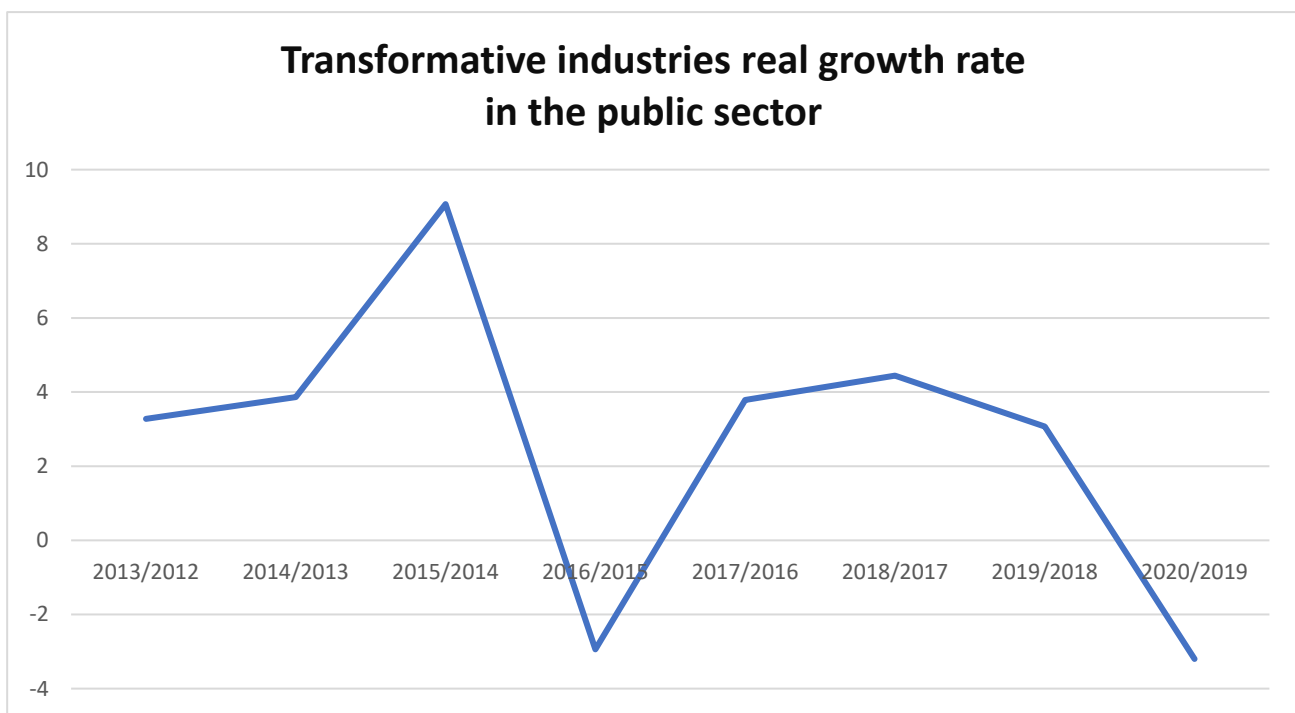
Subsidies are provided by the Egyptian General Petroleum Corporation and the Egyptian Electricity Holding Company to factories and consumers. It is noteworthy that corporate governance in both entities is weak.



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 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<sup>6</sup>.

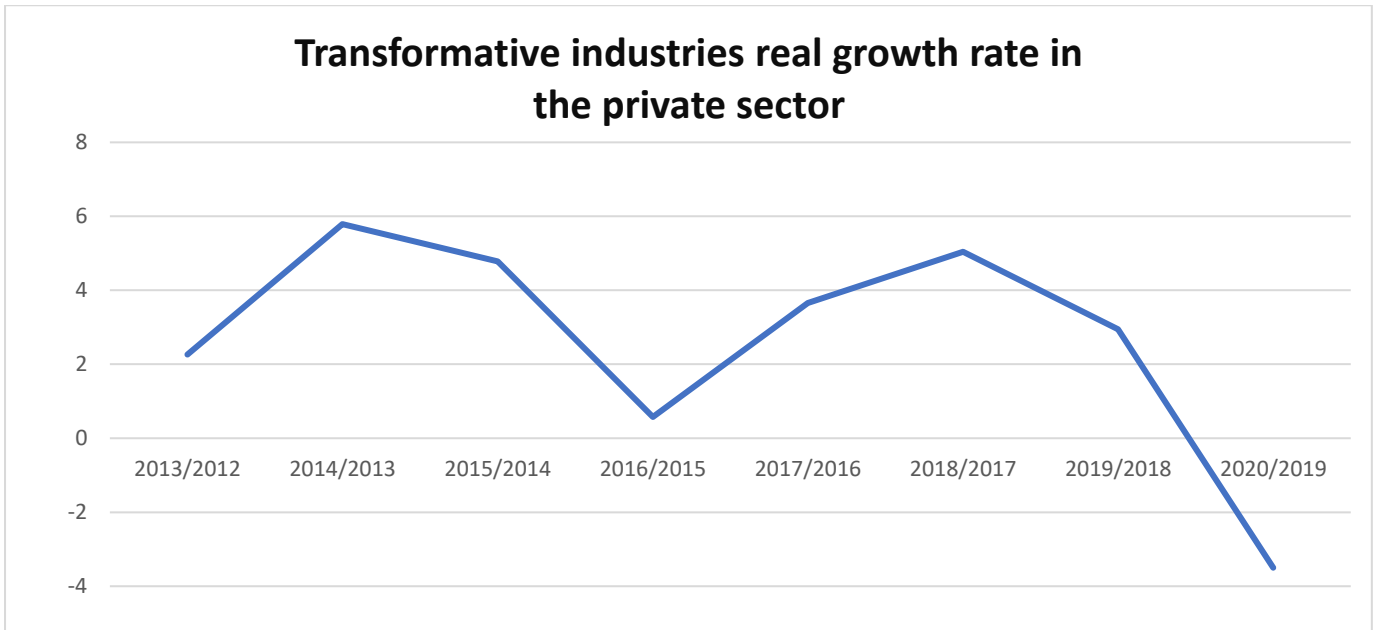
Looking at the growth rates of the transformative industries reveals that lifting subsidies on natural gas did not lead to a drop in growth rates except in 2015/2016, that is immediately after the decree was issued. In addition, the decision to reduce natural gas prices for cement factories to six US 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<sup>7</sup>. The same applies to the fertilizer industry.



<sup>6</sup> Salma Hussein. "The four misconception of the Egyptian-IMF plan to raise energy prices [Arabic]." The Egyptian Initiative for Personal Rights, October 2020.

<sup>7</sup> "Real gross domestic product growth rates [Arabic]." Official website of the Ministry of Planning and Economic Development: [www.mped.gov.eg](http://www.mped.gov.eg)

## Transformative industries real growth rate in the private sector

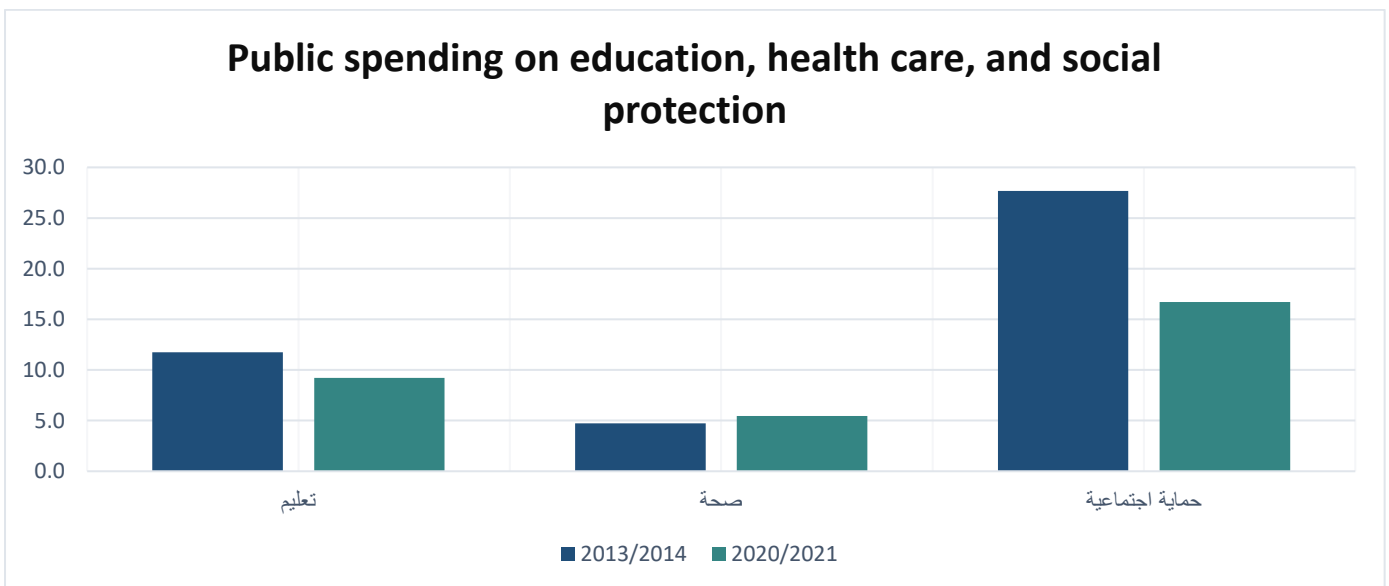


Source: Official website of the Ministry of Planning and Economic development

### Distribution of surplus from lifted subsidies:

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. 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.

### Public spending on education, health care, and social protection



Source: Ministry of Finance

<sup>8</sup> 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 debate 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<sup>9</sup>. In fact, Algeria ranks third in shale gas reserves after China and Argentina.



10

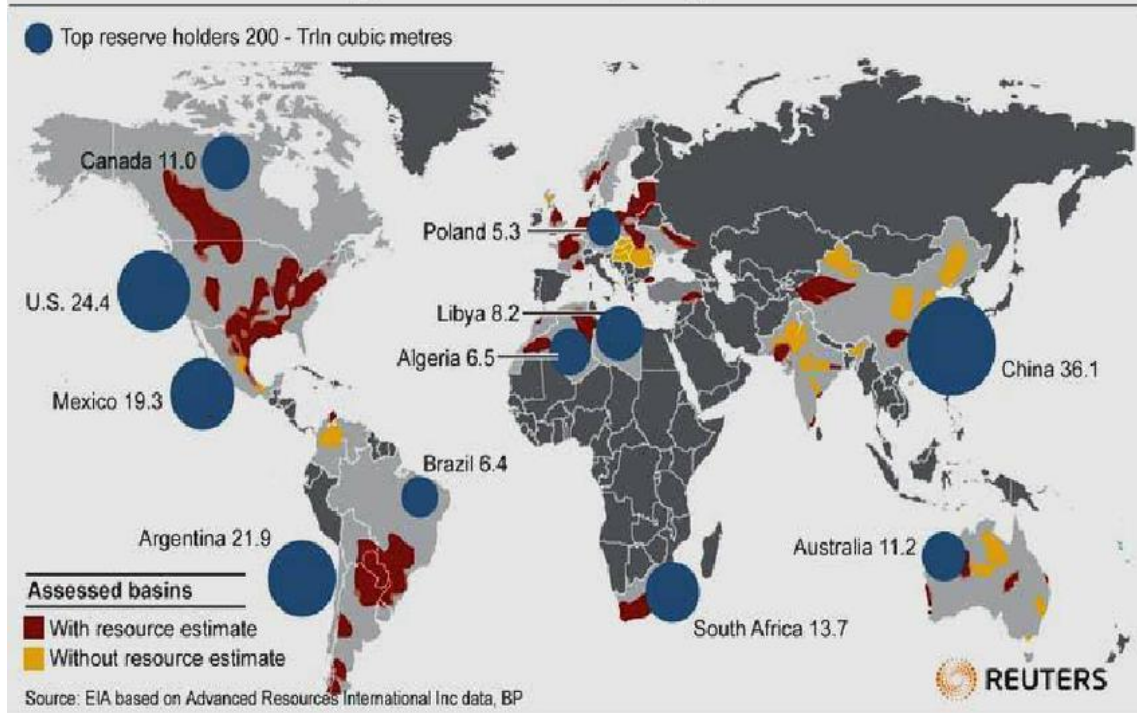
The graph shows the World shale gas reserves

Source: US Energy Information Administration

<sup>9</sup> Hamza Hamouchene. "Struggle for energy democracy in the Maghreb [Arabic]": <https://bit.ly/3tr6o5J>

<sup>10</sup> 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/>

# Global shale gas basins, top reserve holders



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<sup>11</sup>. 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<sup>12, 13</sup>



<sup>11</sup> Mohamed Samih Al Baji. "Shale gas in the Maghreb: Between government intransigence and civil society objections [Arabic]." *Nawaat*: <https://bit.ly/3tdxUDA>

<sup>12</sup> Kahled ben Al Sharif. Op. Cit.

<sup>13</sup> 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<sup>14</sup>. 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<sup>15</sup>. 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<sup>16</sup>.

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<sup>17</sup>. 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<sup>18</sup>. 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

---

<sup>14</sup> "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>

<sup>15</sup> Ibid.

<sup>16</sup> Ahmed Fayek Dalloul. Op. Cit.

<sup>17</sup> "Algeria's south: Trouble's bellwether." Op. Cit.

<sup>18</sup> 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>



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<sup>19</sup> especially in the south. In fact, the widening 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.



20

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<sup>21</sup>.

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.

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

<sup>19</sup> Hamza Hamouchene. OP. Cit.

<sup>20</sup> Yassine Tamlali. "South Algeria: No to shale gas [Arabic]." *Assafir Al Arabi*, January 2015: <https://bit.ly/38An1no>

<sup>21</sup> Hamza Hamouchene. Op. Cit.

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<sup>22</sup>. However, environmental issues kept featuring prominently in protests that erupted later in Algeria.

### 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%<sup>23</sup>. As a result of several factors, including mismanagement, corruption, and armed conflicts, only 54% of the Iraqi population<sup>24</sup> get their energy needs. In 2020, energy consumption dropped by 40% to reach 17,271 megawatts<sup>25</sup> for many reasons, including the impact of Covid-19 on Iraq's rentier economy that relies on its fossil fuel reserves<sup>26</sup>, 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<sup>27</sup>, 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<sup>28</sup>. 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<sup>29</sup>. Energy supply a common factor in all those protests, which continued in the following years as the government failed to address the problem.

---

<sup>22</sup>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>

<sup>23</sup> Statistical abstract, Central Statistical Organization, 2018: <http://bit.ly/2PFzj7l>

<sup>24</sup> Annual statistical report, Ministry of Electricity, 2018: <https://bit.ly/3b5AK7h>

<sup>25</sup> Load factor report, Ministry of Electricity, 2020: <https://bit.ly/30fTkmX>

<sup>26</sup> 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](https://www.opec.org/opec_web/en/data_graphs/330.htm)

<sup>27</sup> Report submitted by the auditing committee formed by the Iraqi parliament in 2020 to look into electricity contracts.

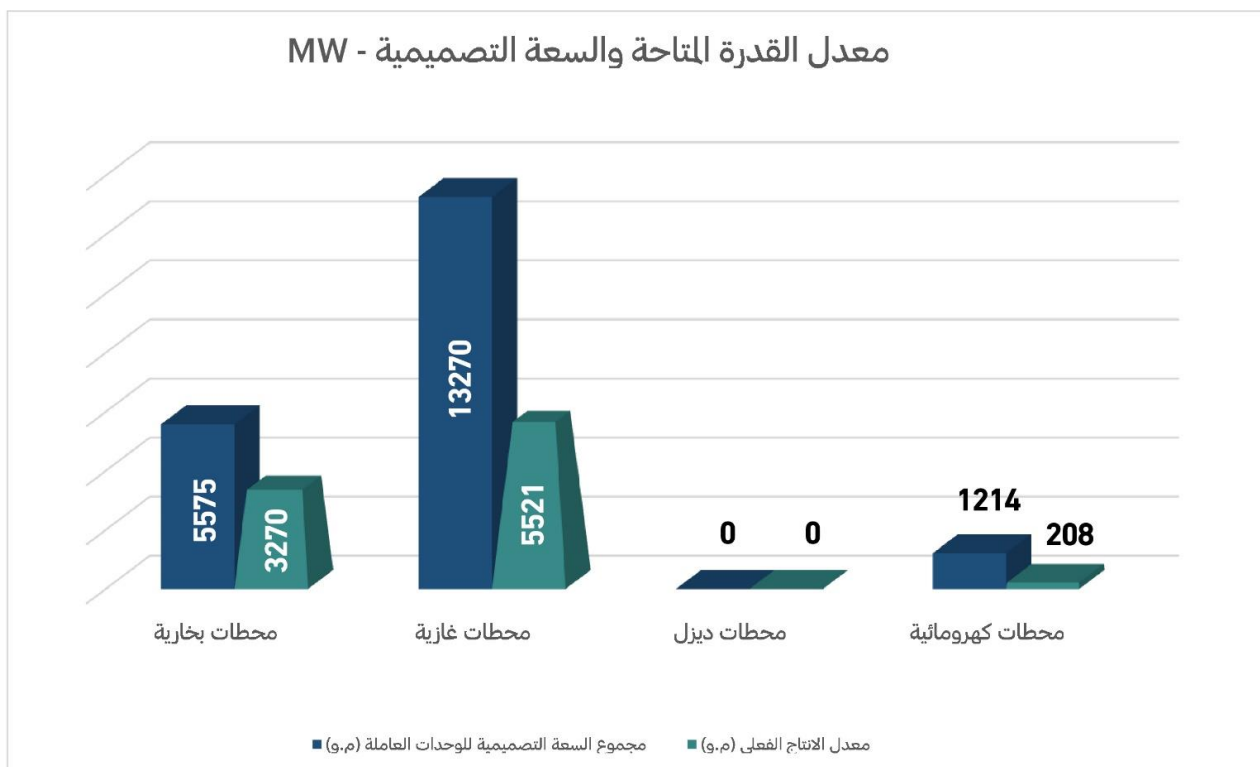
<sup>28</sup> In July 2020, the temperature in the city of Basra in southern Iraq reached 52 degrees, breaking all-time record:

<http://bit.ly/2PuGpve>

<sup>29</sup> "Protests against deterioration of services in Iraq expand [Arabic]." *Al Jazeera*, 2015: <http://bit.ly/2O5WcjR>

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<sup>30</sup>. 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)<sup>31</sup>. 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<sup>32</sup>.

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)<sup>33</sup>. 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

<sup>30</sup> Annual statistical abstract (2018-2019), Ministry of Planning and the Central Statistical Organization, Baghdad, 2019.

<sup>31</sup> Poverty rates in Iraq, 2018, the Central Statistical Organization.

<sup>32</sup> Report by *The Independent Arabic*: <http://bit.ly/3sQVFBa>

<sup>33</sup> Annual statistical report, Ministry of Electricity. Op. Cit.



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)<sup>34</sup>. 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.
- 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<sup>35</sup>
- 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

---

<sup>34</sup> 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/>

<sup>35</sup> Ibid.

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<sup>36</sup>, 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<sup>37</sup>.

Iraq has for the past four decades suffered from serious environmental problems, many of which are linked to climate change<sup>38</sup> 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<sup>39</sup> and the number increased to 11 in the following year as more plants were constructed next to rivers without taking environmental effects into consideration<sup>40</sup>. Al Hartha and Al 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<sup>41</sup>. 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<sup>42</sup>.

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<sup>43</sup>. 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<sup>44</sup>.

---

<sup>36</sup>Annual statistical report, Ministry of Electricity. Op. Cit.

<sup>37</sup> 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/>

<sup>38</sup> Manaf Al Saadi. "Pollution killing Iraqis slowly [Arabic]." *Deutsche Welle*, 2011: <http://bit.ly/3qIhjG7>

<sup>39</sup> Iraq environment report (2016), Ministry of Health and Environment, 2017

<sup>40</sup> Iraq environment report (2017) Ministry of Health and Environment, 2017

<sup>41</sup> Shukri Al Hassan. *Environmental pollution in Basra City, Southern Iraq* [Arabic]. Noor Publishing, 2017

<sup>42</sup> Abdel Motteleb Mohamed Abdel Reda. "The most prominent environmental challenges in Iraq [Arabic]." *Annabaa Information Network*, October 2018: <https://bit.ly/3tisXcn>

<sup>43</sup> Iraq environment report (2017). Op. Cit.

<sup>44</sup> Statement by Baghdad governor Mohamed Jaber Al Atta on July 16, 2020: <http://bit.ly/2PY9PIQ>

## 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<sup>45</sup>. However, it is not clear whether the project had already started and which entities applied<sup>46</sup>. 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<sup>47</sup>.

---

<sup>45</sup> Ministry of Electricity, department of Renewable Energy: <https://bit.ly/2PxIZlf>

<sup>46</sup> Ministry of Electricity, department of Renewable Energy: <https://bit.ly/3u2XID6>

<sup>47</sup> 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.