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# Global warming in Iraq, is there a business solution?

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## Authors

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**Summary :** Global warming is a worldwide concern and also a national emergency for the fifth-most vulnerable country to climate breakdown, Iraq. Water shortage, among others, is a source of local and international migration affecting a precarious local balance. General causes of climate change, like natural resources' exploitation, are boosted by local factors including geopolitics and economics. To address this issue, the government, assisted by various international institutions, has an ambitious agenda whose impact is impeded by the same local or regional specificities. Other solutions, without a holistic approach, could rise from the national and international private sector, especially through the development of tailored-made renewable energies' projects. To be efficient, these actions could benefit from the coordination and assistance of the Iraqi institutions if only they can provide foreign companies, including Europeans, with a safe frame to develop.

The recent winter rains have provided a temporary, but much welcome, relief for the population of Iraq's marshes in Dhi Qar province. However, it will not be sufficient to bring back the 1.200 families that left the area in the last 6 months nor to resurrect the 2000 buffalos that died from the heat in the same period of time<sup>1</sup>. Global warming might be a concern for all countries but very few experiment the impact like Iraq, the fifth-most vulnerable country to climate breakdown<sup>2</sup>, does. Indeed, soaring temperatures along with intensified droughts, water scarcity and frequent sand or dust storms are feeding internal and external migration with 20.000 displaced due to water scarcity, in 10 out of 19 provinces, for 2021 only<sup>3</sup>. For the same year, 1 in 15 households had a family member forced to migrate in search of work<sup>4</sup>. Global warming in Iraq is really tangible.

The climate situation in Iraq differs from other affected countries due to the variety of causes that are intertwined and feed each other's. One could name natural and geographical elements, but they sometimes come from or are enhanced by regional political issues, especially for the water. Internal divisions and international policies slow down the application of a consistent climate public policy. In addition, the economic structure of the country based on oil and gas, is not helping. Any change faces the fear of social unrest preventing any legal or financial reforms, the latter being a prerequisite to develop, for instance, renewable energies. It turns out that preventing and mitigating the effects of global warming needs, at the same time, a global strategy, and a specific local approach. Meanwhile, the country has already plenty of plans of actions.

The list of national or international initiatives is long, from Iraq's National Adaptation Plan of 2020 to the future national 'Green Paper', the latter being still on draft since early 2022. However, despite the will of the soon-to-be 'Green Paper' to involve economic issues, the economic and financial dimensions of the matter are not seriously considered. Moreover, the private sector is almost excluded, mostly *de facto* due to the requirements of projects under the umbrella of international institution as well as a not always business-friendly legal frame. The economical dimension of climate change in Iraq, as a cause and as a consequence, can't be ignored anymore and the private sector could easily address some of the issues at stake where international private interests meet with local public needs. Renewable energy, among other topics, could be a solution to address global warming.

Understanding how this situation could happen requires understanding the specificities of the global warming threat in Iraq so that the international private companies could take the lead in a useful manner and timing.



The irrigation channel in the district of Dawwayeh is dry due to low water levels as a result of back to back drought and severe cuts by the Iraqi government. Farmers have complained of widespread crop failure and many have left their lands for the cities, in Dhi Qar province, Iraq, Sept. 3, 2022. (AP Photo/Anmar Khalil)

## Global warming in Iraq: General causes with local impact

Iraq is not the only country to face national disasters due to a global phenomenon, global warming. However, the specificities of Iraq boost several factors of climate change creating a situation where local and global causes are intertwined hence requiring tailor-made solutions at every level. Renewable energy will be a key card to play.

### *The Iraqi specificities: Global challenges but local boosters*

High temperatures and heatwaves are at the heart of Iraq's climate change issues. The average temperature could increase by 2 degrees in 2025 with more regular cases of extreme temperatures (over 50 degrees), especially in the south where such extremes occurrences could last up to 21 consecutive days by 2100. Persistent drought and water scarcity are direct consequences leading to sand and dust storms as well as flooding. Indeed, land degradation and reduced moisture of the soil trigger and amplify these situations. The impossibility to use water for proper irrigation and sewage will also create soil salinity and pollution, including from the production of oil and gas, hence high temperatures. Iraq is now in a vicious cycle of climate change.

The impact is naturally migrations, internal and external, as well as health and food insecurities issues for the population hence social unrest and political or security troubles. Health issue could be direct, for instance due to heatwaves, or indirect because water treatment or hospitals are affected by the lack of electricity due to high demand and very weak supply. We have now reached the point where 1,77 million people are under threat of food insecurity<sup>7</sup> and this figure could keep rising. The Iraqi economy itself is at the same time causing climate change and being affected by it. The energy mix illustrates it with 1% from renewable energy hence a huge reliance on oil and gas, 92% of State income and 96% of export<sup>8</sup>, and polluting processes like gas flaring.

Of course, climate change concerns are not limited to Iraq but pertain to the whole MENA region to the point that the World Bank had to set up a specific MENA Climate Action Plan in 2016 to improve resilience to climate as well as investment in renewable energy. Indeed, part of the causes and solutions are rooted regionally. For instance, Iraq, Turkey, Kuwait, Syria, and Iran are all involved in management of the Tigris-Euphrates water system. This fragile balance of water flow is easily affected by upstream dams with downstream ecological impact. In the meantime, regional solutions also exist. For example, several Gulf countries have developed an important renewable energy production with a project of connexion to the Iraqi grid to reduce oil dependency<sup>9</sup>.

However, Iraq has several entangled specificities when it comes to addressing climate change. The regional division, and subsequent political divisions, as well as security issues and social unrest, have always been a drawback to swift and efficient reforms. This applies to climate change initiatives as well as any other public policy. The recent abduction of Jamil Al-Asadi, a prominent environmental activist, illustrates how security has an impact on facing climate change<sup>10</sup>. From a formal point of view, the KRG position is aligned with the central government when it comes to environmental issues. Indeed, the KRG was represented at the COP26<sup>11</sup>. However, it remains to be seen how a politically divided KRG will, in practice, coordinate with Baghdad.

The country is not short of climate initiatives, whether local, national, regional, or international. Iraq is working on a national 'Green Paper', since early 2022, in order to organise actions to mitigate the impact of climate change and fasten-up Iraq's energy transition. In 2020, Baghdad launched a National Adaptation Plan and established the Permanent National Committee on Climate Change and the National Climate Change Center. The UN, and other institutions, is part of the consultative process of the draft. Iraq is also part of the Paris agreement since 2021 and very active in local summit like the water conference held in Baghdad in March 2022. However, the impact seems to be limited, in particular because the financing is not going as fast as the signature.

### ***The mother of all solutions: Renewable energy initiatives***

The whole scope of renewable energy is possible in Iraq, from traditional hydropower to modern methanation. Solar energy is the most interesting field, especially in the west and in the south of the country, with up to 2500KWh/m<sup>2</sup> while windmills are also possible, including offshore<sup>12</sup>. It should be noted that the most interesting projects could take place in regions in need, for instance Al-Anbar<sup>13</sup>. It is now possible to have off-grid or smart-grid projects, autonomous and/or decentralized, not to be limited by the defective national electric grid<sup>14</sup>. Renewable energy projects are not opposed to oil and gas. It is possible to combine thermodynamic plants with classical ones, like in Morocco or Egypt. The investment cost, still important, is decreasing and the price of land is cheap<sup>15</sup>. Moreover, 500MV of solar energy is 6000 barrels of oil freed for exportation instead of polluting local consumption<sup>16</sup>. Hence major international companies, like Total, are investing in solar energy.

Among the possibilities of renewable energy, one should draw all the attention of the Iraqi authorities: Methanation at large and pyrolysis in particular. Methanation is a fermentation process where putrescible matter produces biogas. It applies to all naturally fermenting organic waste, from paper and cardboard to food waste and leftovers, agricultural waste, including from livestock, and sludge from wastewater treatment plants. More than 50% of non-recyclable waste in Erbil is organic<sup>17</sup> and 40% for Baghdad's daily 10.000 tons of waste<sup>18</sup>. The pyrolysis process is a complex way to deal with either organic waste or tires. Each plant produces its own electricity and can sell the surplus. It makes it possible to destroy wastes, especially the polluting tires, and produce two popular products: Biochar from organic waste and Black carbon from tires. The first one is a powerful fertilizer and the second a UV stabilizer, conductive and insulating agent for industrial use. This technology remains affordable, very profitable, and is not impacted by the defective national electricity grid.

## Facing the climatic challenge: Leads from the private sector

Despite an important national and international institutions' involvement in the Iraqi climate crisis, very little is done yet, mainly due to long administrative processes. The private sector, in Iraq or from other countries, also has assets to tackle the global warming challenge, should it be supported and in position to act efficiently.

### ***Getting out of the public frame to bring flexibility and reactivity***

Public institutions, starting by the International Finance Corporation (World Bank group), are involved in preventing and mitigating climate change through strategic investments. However, the projects are mostly dedicated to oil and gas, which means important investment, like the recent reduce gas flaring project with a 360 million USD loan from the IFC<sup>19</sup>. SMEs with smaller innovative projects are *de facto* excluded by the long calendar, the heavy documentation requests, the necessity to hire experts and lawyers, and the meticulous follow-up of the use of the funds. This is how smaller companies have to go without the public institution umbrella. The latter remains essential, until a pro-business evolution of the law, to protect the foreign companies' assets and investors. Hence flexibility is gained at the expense of predictability.

### ***Even more efficient, private initiatives need a public trigger and coordination***

Foreign innovative SMEs, especially European ones, could be on the frontline to prevent climate change. For instance, Azelio, a Swedish company, has developed a battery storage solution that could stop power outage for important activities like water sewage, limiting unforeseen pollution. What does a renewable energy project need to succeed? A technical dimension (engineering and legal) and a politico-economic one (including finance and (geo)politics). The main issues, but no deal-breakers, are on the legal and political sides.

The last *Doing Business Report* of the World Bank shows progress but also a lot of remaining limitations when it comes to enforcing contracts or to protecting minority investors<sup>20</sup>. Furthermore, the legal frame for electricity production, especially renewable energy, is incomplete<sup>21</sup>. Foreign companies, especially innovative SMEs, need to be able to rely on their embassies and governments to (i) encourage the Iraqi government to start pro-business reforms and (ii) be able to push for specific local projects. Doing business in Iraq, like everywhere in the Middle East, is eased by the mix of the flexibility of private initiatives and the support of public institutions.

European SMEs could efficiently assist Iraq in its climatic struggle, should they benefit from basic pro-business reforms and a political will, international and national, to help them. A special focus should be done on the European Union and other European bilateral initiatives. As long as their policy limits itself to preventing climatic risk or mitigating its consequences, the impact will remain symbolic. The EU strategy for Iraq, adapted on the 22<sup>nd</sup> of January 2018, mentions migration and political stability but not climate change yet closely linked to these notions.<sup>22</sup> Environment is mentioned only at article 93 of the Partnership Cooperation Agreement of 2012 but is limited to broad declarations of intent<sup>23</sup>. Bilateral cooperation with European countries is mostly of the same kind, migration and humanitarian aid being priorities. EU companies can't expect too much from it.

However, this position could slowly evolve. It is worth noting that a think tank like the European Council on Foreign Relations promotes economic reforms, with a focus on green energy, as an important leverage against the sources and consequences of climate change in Iraq<sup>24</sup>. The ECFR notices that several European countries have a specific useful expertise, for instance Sweden in water management and The Netherlands in agrotechnologie. This knowledge could be usefully developed through the existing bilateral frames or through the Partnership Cooperation Agreement that covers technical exchanges of technologies and knowledge. Once again, without important pro-business efforts from Iraq, very

few European companies will follow this move.

European companies should look globally at the efforts of reforms that Bagdad started, for instance the private-public partnerships regulation, the evolution of the legal protection of foreign investors etc. More specific to the renewable energy projects, we are still waiting for the regulation following the regulation pertaining to the 2017 electricity law to specify conditions of buying electricity produced by a private actor ... Most foreign project can't start in these conditions. The main test of Iraq's will to attract European companies might be the future waste-to-energy law<sup>25</sup>. It could be a unique opportunity to gather international institution in charge of important renewable energy projects like IFC, European countries with expert companies, like France or Sweden, and the said companies, to influence the shape and the calendar of the decisive regulation to come.

The last meeting of the Delegation or the European Parliament for relations with Iraq took place on January 12, 2023, and, unfortunately, was limited to the political situation. This platform of exchange could turn into a hub for all actors involved in renewable energy in Iraq with, why not, a new inter-parliamentary meeting.