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Industrial Waste in Tunisia: Unveiling Environmental Crimes and Industrial Negligence

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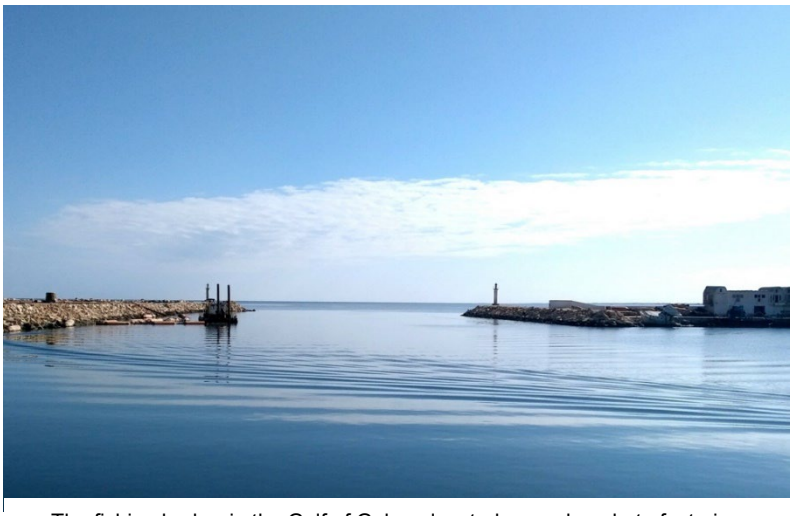
The mismanagement of industrial waste presents a huge global challenge with significant impacts on the environment and public health. In Tunisia, as in numerous other countries, certain industrial entities have played a significant role in amplifying this crisis through their collective negligence and, in some cases, deliberate misconduct, leading to a catastrophic environmental disaster.

To address industrial waste crimes and negligence in Tunisia, there is a need to increase awareness regarding the environmental issues caused by industrial actors in order to mobilize support and drive meaningful change.

Industrial waste encompasses a wide range of materials, such as chemicals, heavy metals, and other hazardous substances, resulting from industrial processes. The improper disposal and mismanagement of these materials pose significant threats to ecosystems, biodiversity, and human well-being. In Tunisia, a series of incidents including illegal dumping, harmful spills, and uncontrolled effluents, has emerged, highlighting and questioning the critical situation of the country's industrial waste management. Some of these incidents are considered environmental crimes that demand urgent attention to prevent further pollution and ensure a sustainable future for the communities and their environment.

Take the case of the illegal dumping of industrial waste in Tunisia's Gulf of Gabès, which was historically known for its high biodiversity and was a vital area for fishing and agriculture in the country until the emergence of the phosphate industry in the 1970s. Over the decades, the release of phosphate waste into the Gulf of Gabès by the Tunisian Chemicals Group (GCT) and other factories has caused extensive pollution and eutrophication in the marine environment. The environmental impact of industrial waste already raised concerns in the 1990s. Later on, several studies uncovered that the illegal dumping of industrial waste in unauthorized areas has led to far-reaching ecological and biological consequences (Rabaoui et al., 2013; El Zrelli et al., 2015; El Kateb et al., 2018). More recent investigations have unveiled further hazards, including contamination of seawaters (Drira et al., 2016; El Zrelli et al., 2018), loss of biodiversity such as Copepod assemblages (Drira et al., 2018), the decline of important marine plants like Posidonia



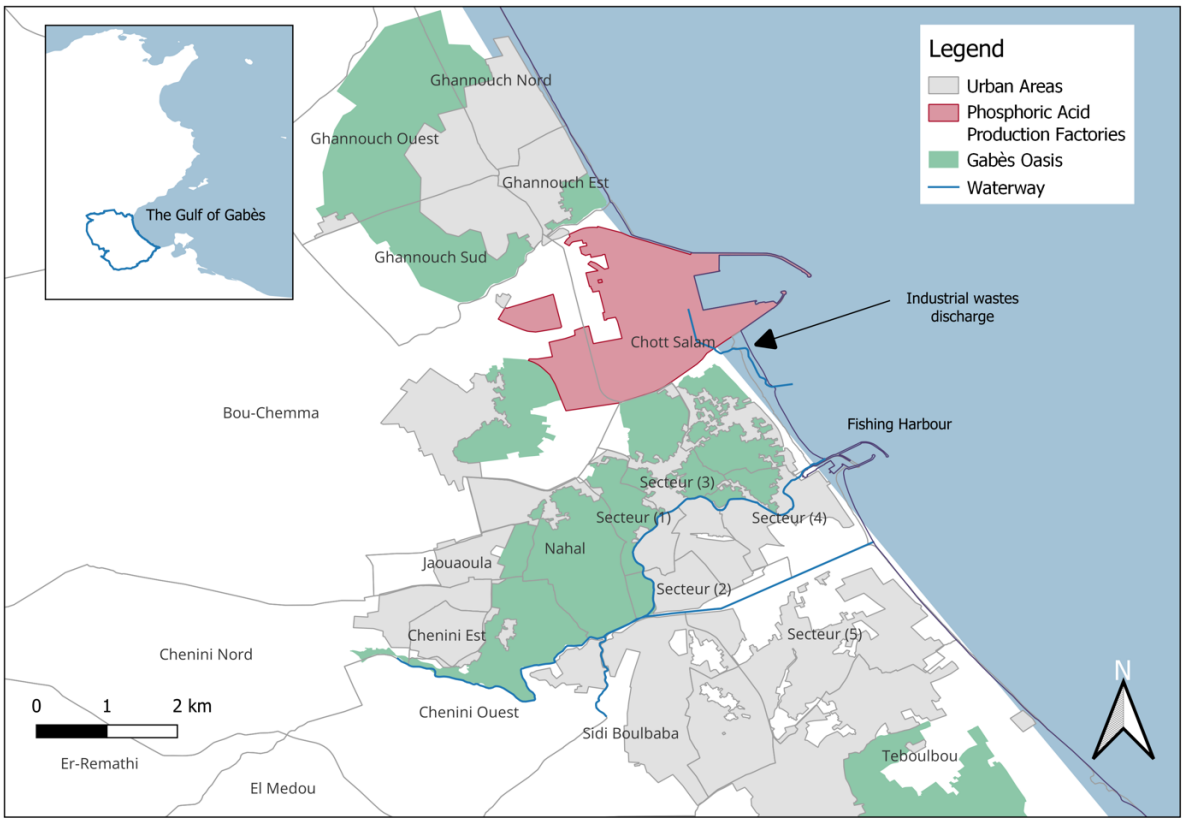
The fishing harbor in the Gulf of Gabes, located near phosphate factories. Image from Pixabay: https://pixabay.com/photos/port-gabes-tunisia-2381046/

oceanica meadows and caulerpas, and the complete disappearance of other types of benthic plants due to anthropogenic inputs (Ben Brahim et al., 2010; El Zrelli et al., 2017; El Zrelli et al., 2020).

However, continued scientific investigations concerning industrial waste pollution in Tunisia are imperative, with a specific focus on addressing the threat of leakage and its significant consequences on terrestrial and aquatic environments, as well as human health. These investigations are pivotal to assess the severity of the problem and to effectively mitigate further environmental degradation within our oceans, ensuring their long-term sustainability.

Since Tunisia's Jasmine Revolution in 2011, local communities, particularly in Gabès and Kerkennah, have consistently protested against environmental challenges and what they perceive as terrestrial injustices associated with local industries (Robert 2021). For example, every June 5th, in celebration of the World Environment Day, protest movements in Gabès call out the phosphate mining industry as the cause of increased illness among residents. These protests brought to light issues that remained unspoken for 23 years under the authoritarian regime of Zine el-Abidine Ben Ali and have sparked the "(re)discovery of the marginalization and exclusion" experienced by various regions of the country (Hibou, 2015: 99). However, the Health Ministry claims no direct link between health conditions, such as cancer and asthma, and the pollution emitted by the chemical plant (AFP, 2017). Contrary to this official stance, the visible evidence of pollution is undeniable, and the damage to the Gulf of Gabès caused by the phosphogypsum discharge of approximately 12,000 tonnes per day has been addressed in several research analyses (Abdedaiem, 2009; Abdelhamid, 2018; Carpentier, 2018). An illustrative example is the Oasis of Chott Salam, situated in close proximity to the industrial zone. Once flourishing with birdlife and wildlife, it has now transformed into an industrial wasteland, rendering it unsuitable for both wildlife habitat and recreational activities (Hyatt, 2013). This environmental degradation could be considered a product of market forces and incentive structures that encourage irresponsible and illegal waste disposal practices.

In addition, a recent study revealed the discharge violations of the textile industry (Methneni et al., 2021), specifically the textile dyeing effluent (TDE) collected from a textile plant in Monastir, northeast of Tunisia, revealing the presence of triphenylmethane dye (Crystal violet) and disperse azo dye (Disperse yellow 3). The research also found notably elevated levels of metallic elements, including chromium, arsenic, and strontium, surpassing the wastewater emission limits specified by the World Health Organization (WHO) and Tunisian authorities for discharge into public sewers. Unfortunately, this pollution is not limited to this area, and there are likely similar environmental concerns in other regions as well. However, the lack of transparency regarding environmental data, particularly prior to the fall of the authoritarian regime in January 2011, makes scientific research for mitigation efforts significantly more challenging (Robert, 2021).



A map of the industrial land use by the phosphate chemical industry on the shores of the coastal oasis in Gabes. Image created by author.

On the other hand, a significant contributing factor to the mismanagement of Tunisia's industrial waste is industrial negligence. This includes inadequate regulatory frameworks with limited oversight, monitoring limitations, resource constraints, and a shortage of specialized knowledge, which have impeded the development of effective industrial waste management strategies. Consequently, these factors compound the issue providing industrial entities with latitude to evade accountability for their actions, further worsening environmental damage.

To address industrial waste crimes and negligence in Tunisia, there is a need to increase awareness regarding the environmental issues caused by industrial actors in order to mobilize support and drive meaningful change. More specifically, it is crucial to advocate for strict environmental regulations based on scientific assessments, such as level of pollution and the industry sector involved, to ensure comprehensive accountability (Vittoria, 2018). Providing technical expertise and allocating resources to facilitate the enhancement of industrial waste management practices is essential. Most importantly, encouraging industrial entities in Tunisia to adopt sustainable waste management practices and prioritize environmental stewardship would be a key step forward.

Industrial waste mismanagement in Tunisia presents severe environmental and public health issues. Illegal dumping for many years into the Gulf of Gabès exemplifies the problem, causing extensive pollution and biodiversity loss. Continued scientific investigations, particularly into industrial activities and its impact on terrestrial and aquatic environments and human health, are crucial. These efforts are vital for understanding the problem's severity and implementing effective mitigation measures for environmental sustainability and human well-being.

Keywords: industrial waste, environmental crimes, industrial negligence, Tunisia, the Mediterranean Sea

About the Author

Khouloud Jaffel, a recent graduate student from the Asian Institute of Technology (Thailand), completed the Master Program in Marine Plastic Abatement (MPA) with funding from the Government of Japan. Her research focus has been on investigating the sources and impacts of marine plastic debris in aquatic ecosystems. She is passionate about environmental sustainability and wants to pursue further research in this critical field. In 2022, Khouloud also participated in the Ocha Summer Program for Global Leaders in Tokyo, and her commitment to addressing environmental challenges and promoting a sustainable ocean remains steadfast. LinkedIn

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