

Water and Environmental Crisis in Hur al-Azim (or Hoor al-azim) Wetland in Al-Ahwaz Region (officially known as Khuzestan)

Submission to UN Special Procedures



For the attention of:

Special Rapporteur on the situation of human rights in the Islamic Republic of Iran
Special Rapporteur on human rights and the environment
Special Rapporteur on toxics and human rights
Special Rapporteur on human rights to safe drinking water and sanitation
Special Rapporteur on minority issues

September 2024



Table of Content

| | |
|------------------------------------|-----------|
| Submitting Organizations | 3 |
| Executive Summary | 4 |
| I Introduction | 4 |
| II The Case of Hoor Al-Azim | 6 |
| 1. Drought | 8 |
| 2. Mulching | 8 |
| 3. Oil Drilling | 9 |
| 4. Environmental Implications | 10 |
| III Recommendations | 12 |
| IV Conclusion | 14 |

SUBMITTING ORGANIZATIONS

The Ahwaz Human Rights Organization (AHRO) is a non-religious, secular international human rights NGO registered in Belgium. AHRO is dedicated to advocating for the rights and well-being of over five million indigenous Ahwazi Arabs in the southwestern Iranian province of Khuzestan, also known as Arabistan. In addition to championing the Ahwazi Arab minority, AHRO monitors and reports human rights violations against other ethnic and religious minorities across Iran. The organization is committed to raising awareness on human rights violations while promoting sustainable development, and preserving the cultural heritage of minorities in Iran.

Website: <https://ahwazhumanrights.org/>

Contact: ahwazahro@gmail.com

The Unrepresented Nations and Peoples Organization (UNPO) is an international organization established to empower the voices of unrepresented and marginalized peoples worldwide and to protect their rights to self-determination. The peoples represented within the UNPO membership are all united by one shared condition: they are denied equal representation in the institutions of national or international governance. As a consequence, their opportunity to participate on the national or international stage is limited, and they struggle to fully realize their rights to civil and political participation and to control their economic, social and cultural development. In many cases, they are subject to the worst forms of violence and repression. The Ahwazi Arabs have been represented within the UNPO since 2005.

Website: <https://unpo.org/members/>

Contact: unpo@unpo.org; policy@unpo.org

Cover Photo: Erfan Semanfar

Executive Summary

The Hoor Al-Azim Wetland, also known as the Great Marsh, is a vital ecological, economic, and cultural region at the border between Iran and Iraq, in the Khuzestan province. It has been the home of indigenous Ahwazi Arabs for centuries, with a profound impact on their livelihood. Over the past decades, the Wetland has faced severe environmental degradation due to human intervention including the construction of the Karkheh Dam, extensive oil drilling, and harmful land-use practices such as petroleum-based mulching. The consequences are far-reaching, affecting biodiversity, public health, air quality, and the economic stability of local communities.

The Karkheh Dam has disrupted the main water inflow from the Karkheh River, causing widespread drought, increased salinity levels, and an overall shrinking of the Wetland area. Oil drilling has further polluted the local ecosystem, with heavy metals and toxic substances spilling over and contaminating the water and soil. These actions have not only disrupted the delicate ecological balance of the Wetland but have also had a profound socio-economic impact on the local Ahwazi Arab communities, who rely on the Wetland for their livelihoods in farming, fishing, and traditional crafts.

The reduction in wetland area has also made the region more vulnerable to climate change, particularly in the face of human-driven changes to how the land is used. Excessive oil extraction has increased the risk of wetland erosion. As a result, the Wetland has seen a rise in dust storms that degrade air quality across vast regions.

The environmental crisis in Hoor Al-Azim has led to severe health and economic threats for the local population that ultimately push these communities to displacement and loss of cultural identity as traditional practices tied to the Wetland become unsustainable. Immediate and coordinated efforts are needed to prevent further degradation, including the restoration of water flows, stricter regulation of industrial activities, and the protection of the Wetland's unique ecosystem and cultural significance.

I. Introduction

The present report seeks to highlight the ongoing environmental crisis in the Al-Ahwaz region of Iran and its devastating impact on the local minoritised communities, particularly, the Ahwazi Arabs. They are one of the largest ethnic minority and indigenous groups in Iran, predominantly residing in Al-Ahwaz region, officially known as Khuzestan province, located in South-Western Iran. The province is strategically significant, as nearly 85% of Iran's oil production originates from this region due to its proximity to the Gulf and the Shat al-Arab waterway. Within Khuzestan lies the Hur al-Azim Wetland, also known as the Great Marsh, a crucial ecosystem that spans approximately 120,000 hectares² and marks the border between Iran and Iraq. The last remaining of the great Mesopotamian wetlands, it is one of the largest and most ecologically rich environments in the region.³ It serves as a safe haven for a diverse variety of plant and animal life.⁴ In addition to its environmental relevance, it provides a variety of services to human society

¹ Iran Open Data. *Khuzestan generates Significant Wealth for Iran but its People Suffer*. July 26, 2021.

² The Water Network. *Hur al-Azim Wetland*. 2021

³ Zalaki, Nasrin; Zohorian-Pordel, Manijeh; Bornaa, Reza; Neisi, Hasibeh; Eslaiman, Saeid; Ostad-Ali-Askari, Kaveh; Singh, Vijay P; Dalezios, Nicolas; Ghane, Mohsen; Matouq, Mohammed. *Assessment of Anthropogenic influences on the Micro-climate of Wetland Ecosystems: The case of Hoor-Alazim Wetland in Iran*. January 2017. ARC Journals

⁴ Dernal Omid Association. *Request to prevent oil mulching or stop it in the southwest*. Independent signature collection platform. Link to campaign: <https://www.karzar.net/97783>

that directly or indirectly affect the welfare of the communities living around it. Local residents around the Hur al-Azim Wetland rely heavily on its resources for their livelihoods. The Wetland is crucial for agriculture, horticulture, farming, and fishing, which are the primary occupations of the surrounding communities. The products from these activities are used both for personal consumption and market sales.

The Great Marsh, comprising of five reservoirs, has two-thirds of its area in Iraq, and one-third in Iran⁵. It is primarily fed by the Karkheh River, the third longest river in Iran, with almost 900 km².⁶ The Wetland is currently under severe threat from persistent droughts; arbitrary restrictions to water rights for the local communities; aggressive oil extraction; non-transparent infrastructure projects; and dam constructions by oil corporations. Namely, since the construction of the Karkheh Dam in 1998,⁷ the fresh water reservoir has significantly decreased, impacting both the environment and local communities.

The Westland's southern area has been especially affected since it is not only the furthest from the Karkheh River, but it also suffers from persistent agricultural runoff contamination. Despite Hur al-Azim Wetland's crucial role in maintaining regional ecological balance, little has been done to assess or mitigate the many sources contributing to its pollution and rapid degradation.

The Dam was originally designed to hold seven billion cubic meters of water, but according to some declarations by the Minister of Energy, Mr. Chitchyan,⁸ in 2015 it never reached that capacity. The government claims the Dam is being used to address water shortages in other parts of the region by diverting water to cities like Ahwaz, Abadan, and Khorramshahr. However, this has contributed to the rapid drying of the Wetland, raising questions about the effectiveness and actual implementation of these measures, as well as the transparency of the dam's use.

In addition to severe droughts, inappropriate use of the Dam has also caused flooding in the past. In 2016, the dam's gates were opened without any previous notice to the Ahwazi Arab communities living downstream, resulting in the flooding of 71 villages⁹ and the destruction of 51,000 hectares of farmland thus exacerbating issues of displacement and land loss for Ahwazi Arab farmers.¹⁰ No compensation was offered to the affected communities by the Government and there was no acknowledgement of state accountability towards them; in fact, protests about this matter were suppressed and activists and civil rights advocates calling for justice and compensation for the flood victims arrested.¹¹

Despite the region's immense wealth, the indigenous Ahwazi Arabs, receive only a small portion of the profits generated by shipping, oil-drilling, and other activities related to the exploitation of their land. As a result, Ahwazis experience severe poverty, under-development, and remain insufficiently protected against climate change-induced and other environmental disasters. Ahwazi Arabs also suffer constantly under widespread abuse and neglect by the Iranian government. In fact, many Ahwazi Arabs have been displaced due to the Iranian oil industry's expansion and other large state-funded development projects including dam constructions.

⁵ Department of the Environment, Khuzestan Province. February 2011.

⁶ Ramsar Convention on Wetlands of International Importance especially as Waterflow Habitat, 1971.

⁷ Sherratt, Andrew. *Environmental Change: The evolution of Mesopotamia*. February 2011.

⁸ Iranian Students "New Agency". *The Secretary of Energy's strong warning for the water crisis*. 15 August 2015.

⁹ Modern Discussion. *Preparing for fighting with USA*. 7 April 2006.

¹⁰ Karmi, Nasser. *Climatic analysis of the recent flood in Khuzestan*. 15 April 2016. BBC Iran Al

¹¹ Arabiya Net. *Iran arrests the activists who helped flood victims*. 27 May, 2016.

II. The Case of Hoor Al-Zim



The Hoor Al-Azim Wetland is also home to the Ma'dan, a population of marshland-indigenous Arabs, with about half a million (500,000) residing in Iraq and approximately twelve thousand (12,000) in Iran.¹² The Hoor Al-Azim Wetland's ecological significance is well recognized in Iran, where wetlands are valued for their contributions to the environment, including climate regulation, wildlife habitats, and the livelihoods of local communities through activities like hunting, fishing, and mat weaving.¹³ However, over the past three decades, more than 60 engineering projects, including dam construction and the diversion of seasonal floods, have been developed in the region. These projects have severely reduced the water input into the Wetland basin, causing significant environmental degradation.¹⁴

During the Iran-Iraq war, the Wetland was fragmented into four sections to construct military roads. The area's degradation was further exacerbated after the discovery of oil in Hoor Al-Azim. The Iranian National Oil Company obtained a 30-year license to extract oil from the Wetland, with regulations stipulating that for every new discovery of an oil well in Hoor Al Azim, at least 250 new square meters would be allocated to the national oil company for another 30 years.¹⁵ This practice directly contradicts Article 16 of Iran's environmental law, which prohibits the allocation of wetlands to oil companies.¹⁶ Despite existing regulations prohibiting industrial activities within 1,500 meters of any wetland, oil field operations have been permitted to encroach on 7,500 hectares of Hoor Al-Azim, exacerbating the threat to its survival.¹⁷ Since 2000, exploration for

¹² Ramsar Convention on Wetlands of International Importance especially as Waterflow Habitat, 1971.

¹³ Panahi, Davood Moshir; Destouni, Georgia; Kalantari, Zahra; Zahabiyou, Bagher. *Distinction of driver contributions to wetland decline and their associated basin hydrology around Iran*. August 2022. *Journal of Hydrology: Regional Studies*. <https://doi.org/10.1016/j.ejrh.2022.101126>.

¹⁴ Nasrin, Zalaki et al. (2017) n1.

¹⁵ Iran newspaper. *Risks of drying the wetland for extracting oil*. 8 September 2016.

¹⁶ Iran Environment and Wildfire Watch. *The law of conservation and protection of the environment*. 8 March 2014.

and drilling of oil wells have been among the most damaging activities to the Wetland. Once rich in biodiversity and important for its ecological functions—such as organic substance accumulation, water filtration, groundwater recharge, and erosion control— the Wetland has seen a drastic decline in recent years.¹⁸

Studies have shown that the primary cause of the Wetland's shrinking area is the significant reduction in water inflow, largely due to the construction of the Karkheh dam. Despite stable rainfall levels in recent years, the amount of water entering the Wetland has drastically declined.¹⁹ The Mesopotamian marshlands, which spanned over 8,000 square kilometers in 1966, had diminished to approximately 750 square kilometers by 2002.²⁰ Similarly, remote sensing data reveals that the Hoor Al-Azim ponds, which covered 900 square kilometers in 1991, had contracted to just 400 square kilometers by 2002.²¹

According to AHRO, the following Government agencies are responsible and should be held accountable for the depletion of the oil and water resources of the southern Khuzestan region:

- Ministry of Energy;
- Department of Environment (DOE);
- Islamic Revolutionary Guards Corp (IRGC);
- National Iranian Oil Company (NIOC)

These institutions have authorized the transfer of water to the central Iranian plateau for industrial purposes. They are also responsible for extracting oil through the drying of the Hoor Al-Azim marshland, as well as for the excessive construction of dams in the region.²²

The situation in the Hoor Al-Azim marshland is critical, as environmental agencies and the local department of natural resources have not effectively responded to the damage caused by the oil companies operating there and are no environmental impact studies or other transparent oversight mechanisms in place to safeguard the region against exploitation. Companies including North Oil, PEDEX (linked to Supreme Leader Khamenei), Melli Haffari, and Tadbir Energy, are making huge profits while causing significant environmental pollution without repercussions.²³ Indicatively, the region hosts that Azadegan oil rig, one of the biggest ones in the world with a capacity of 33 billion barrels, significantly contributing to the Wetland's environmental decline.²⁴ The Iranian Revolutionary Guards oversee such projects lending their support to the oil companies operating across the marshland. The lack of effective accountability and substantive environmental protections has led to severe pollution and environmental disasters that endanger the local communities.

¹⁷ Narsin, Zalaki et al. (2017) n1.

¹⁸ Zalaki, Nasrin; Zohorian-Pordel, Manijeh; Bornaa, Reza; Neisi, Hasibeh; Eslaiman, Saeid; Ostad-Ali-Askari, Kaveh; Singh, Vijay P; Dalezios, Nicolas; Ghane, Mohsen; Matouq, Mohammed. *Assessment of Anthropogenic influences on the Micro-climate of Wetland Ecosystems: The case of Hoor-Alazim Wetland in Iran*. January 2017. ARC Journals

¹⁹ Sayyad, Abbas. *The Impact of Karkheh Dam Construction on Reducing the Extent of Wetlands of Hoor-Alazim*. 2015, Journal of Water Resources and Ocean Science.

²⁰ *Comprobar*

²¹ Muthuwatta, L.P.; Mobin-ud-Din, Ahmad; Bos, M.G; Rientjes, T.H.M. *Assessment of Water Availability and Consumption in the Karkheh River Basin, Iran- Using Remote Sensing and Geo-statistics*. 21 May 2009. Springer Science+Business Media.

²² Rahyab News. *The water has been diverted in four time more than what is legal*. 4 Nov, 2016

²³ Iran Oil Gas. *Iran's Local Petrochemical Companies*. 2022

²⁴ Nasrin, Zalaki et al. (2017) n1.

1. Drought

Inappropriate “water management” practices have led to frequent droughts across Southwest Iran. The construction of the Karkheh Dam in 1999 drastically reduced the river's flow, with the average annual discharge dropping from 120 m³/s (1955-1998) to just 50 m³/s (1999-2014). This reduction shrank the floodplain by over 90% and significantly altered the river's geomorphology, increasing sediment erosion.²⁵ These sediments, which are crucial for aquatic habitats, have accumulated in the Hoor-Al Azim Wetland and downstream areas. Sediments support food webs and biochemical cycles, but they also act as reservoirs for potentially toxic elements (PTEs).²⁶ PTEs which are non-biodegradable and often toxic. Most PTEs settle in sediments, though a small, highly bioavailable fraction remains in the water, posing a risk to aquatic life. Aquatic organisms, particularly fish, tend to accumulate higher concentrations of potentially toxic elements (PTEs) than their surrounding environment, making them key indicators of pollution.²⁷ Since fish are a significant part of the human diet, the accumulation of these toxic elements poses direct health risks to people who consume them. Monitoring PTE levels in edible fish is crucial to understanding and mitigating these health threats. Similarly, the diversion of 2,800 billion m³ of water from Khuzestan has had severe consequences for the environment and the local population's health, leading to increasing water and soil salinity levels.²⁸ As a result, a substantial area of farmland has become unusable, severely reducing both the quality and quantity of drinking water and food production. This situation has led to significant health risks for the local population, who now have to contend with contamination in both their water supply and food sources.

2. Mulching

The construction of the Karkheh Dam has significantly contributed to the increase of dust storms in the Khuzestan Province. By reducing the Karkheh River's annual mean flow discharge from 120 to 50 m³/s, the Dam has caused extensive drying of land around the river, with 90.17 km² of land drying out along the riverbanks and 333.45 km² within the Hoor-Al Azim Wetland.²⁹ This drying has led to extreme erosion, further exacerbated by oil exploitation in the Wetland, which has intensified sand and dust movement in the area. The rise in haze and dust storms, which can travel thousands of kilometers, can severely degrade air quality, with hazes being a significant threat to health and quality of life for people regularly exposed to them. To address the environmental degradation in the Hoor-al Azim Wetland, it is crucial for the Iranian Ministry of Energy to release water from the Karkheh Dam to rehydrate the affected lands. Additionally, reinforcing the riverbanks with appropriate structures is vital to reducing erosion and preventing further damage. A solution that has been proposed was the use of petroleum-based mulch, including in sand dune areas under the pretext of combating dust and quicksand.³⁰ Mulching is a process typically used to prevent soil erosion, where a layer of material - such as organic

²⁵ Arash, Adib. *Effects of the Karkheh Dam construction on Haze generation due to geomorphological changes (in the Khuzestan Province, Southwest of Iran)*. October 2021. Water Science and Technology Water Supply. DOI:10.2166/ws.2021.376

²⁶ Sheikh Fakhradini, Sara; Moore, Faid; Keshavarzi, Behnam; Naidu, Ravi; Wijayawardena, Ayanka; Soltani, NAghmeh; Rostami, Soqra. *Spatial distribution, partitioning, ecological risk and source apportionment of potential toxic elements in water and sediments of the Hoor Al-Azim wetland and their bioaccumulation in selected commercial fish species*. November 2021. Marine Pollution Bulletin. <https://doi.org/10.1016/j.marpolbul.2021.112875>

²⁷ Ibid. 26.

²⁸ Nasrin, Zalaki et al. (2017) n1.

²⁹ Arash, Adib (2021) n25.

³⁰ Dernai Omid Association. n2

substances like wood chips and straw, or petroleum-based products- is spread over the soil.³¹ However, this is an inappropriate solution that can have adverse effects on the areas it aims to protect. While petroleum mulch can be effective in preventing soil erosion, experts argue that its environmental costs are too high, and it should be considered only as a last resort.

Sand dunes, recognized globally as valuable ecosystems and usually protected by environmental laws; the use of mulch -especially when petroleum-based- can solidify sand, insulate water bodies, and lead to severe harm to sand dunes and other vulnerable ecosystems.³² Moreover, oil spills from this type of mulching have a great impact on ecosystems, with microorganisms, insects, reptiles, and medium-sized mammals being the first to suffer.³³ The petroleum mulch forms an impermeable barrier that prevents rainfall from seeping into the ground, which disrupts the natural replenishment of water sources while increasing the risk of flooding.³⁴ As a result, the mulch also causes temperature rises in the areas it is applied, making them less habitable for both wildlife and human residence.

3. Oil Drilling

Oil companies operating in the Hoor Al-Azim Wetland, many of which are affiliated with the Islamic Revolutionary Guards Corps (IRGC), have significantly harmed the ecosystem. Field reports from environmental activists indicate that the oil company Ofogh has been irresponsibly dumping oil waste into pools built on farmlands, disregarding the impact on local communities and wildlife.³⁵ As a result, the Wetland area has shrunk dramatically from 750,000 hectares in 1991 to just 100,000 hectares by 2013.³⁶ Additionally, drilling operations at the Hoffel-Sousangerd and Nissan-Sousangerd³⁷ Hydrometric stations have degraded water quality, likely due to changes in the hydraulic gradient and decrease in the level of river water, which led to an increase of the density of soluble salts and the salinity of water, thus, decreasing overall water quality at the Wetland.

These activities have also led to road construction through the Wetland for transportation and easy accessibility to the oil installations.³⁸ Drilling activities have deposited large amounts of waste, including heavy metals and hazardous organic compounds, into the waterways and soil of the area.³⁹ These pollutants disrupt the ecosystem, harm wetland organisms, and contribute to groundwater depletion and environmental imbalance.

In addition, the increased industrial activity in the region has resulted in acid rain, further polluting water sources and endangering fish populations. Since drilling operations have began the environmental conditions of the region have steeply worsened, with higher temperatures, less precipitation, and reduced humidity, leading to even drier conditions in the Wetland.⁴⁰

³¹ Daadkast petition. Stop Oil Mulching in Khasraj and Karkheh, Avhaz. April 2024. Islamic Republic News

³² Agency. *Oil mulch is not a solution to control dust in Khuzestan*. April 12, 2019.

³³ Ibid 31.

³⁴ Ibid 31.

³⁵ Ahwaz Human Rights Organization. *Environmental disaster by discharging barrels of oil into agricultural land in the Hoor*. 2 Nov 2016.

³⁶ IRNA. *Last breath of Hoor Al Azim*. 23 July 2013.

³⁷ Nadri, Mohammad; Bina, Mahmoud; Kamanbedast, A. *The Study of Water Banned at Downstream of Karkheh River at Boundary of Hour-Ol-Azim Wetland with Using HEC-RAS Model*. 2012. Science and Research Branch, Khuzestan, Islamic Azad University. Middle-East Journal of Scientific Research. DOI: 10.5829/idosi.mejsr.2012.12.9.361

³⁸ Nasrin, Zalaki et al. (2017) n1.

³⁹ Ibid 39.

⁴⁰ Muthuwatta, L.P et al. (2009). n19.

4. Environmental Implications

The degradation of the Hur al-Azim Wetland has resulted in significant ecological, environmental, economic, social, and cultural challenges:

1. Ecological Impact: The Hoor-al Azim Wetland, once a thriving ecosystem, has experienced severe ecological degradation due to a combination of human activities and climate change such as the construction of the Karkheh Dam. The gradual drying up of the Wetland has led to the loss of diverse species and unique vegetation that once lived in this rich habitat, and making it significantly more challenging for the local indigenous communities to survive in the area. Moreover, the reduced water flow and the subsequent increase of salinity in the water of the Wetland and the river basin, make the Great Marsh' biosphere increasingly vulnerable to future effects of climate change. As the climate becomes drier, particularly in arid regions like Khuzestan, the lack of water exacerbates the Wetland's degradation, further diminishing its capacity to sustain life.

2. Environmental Consequences: Intensive oil extraction activities in the Hoor-al Azim Wetland have significantly worsened its environmental condition. State-backed oil companies have been drilling in the Wetland, disrupting the quantity and quality of drinkable water in the region. The reduction in wetland area and water quality, combined with the ecological disruption caused by oil drilling, is likely to trigger more frequent and severe dust storms. These storms can spread fine dust over long distances, affecting regions as far as Fars and Isfahan. The resulting deterioration of air quality poses serious health risks, aggravating respiratory conditions and other health issues in the population.

3. Economic Repercussions: The decline of the Hoor-al Azim Wetland is not just an environmental crisis but also an economic one. The Wetland supports a range of livelihoods, including farming, fishing, and hunting, which are crucial for the local Ahwazi Arab population. However, these traditional occupations are being threatened. Over 260 hectares of farmland have already become unusable due to increased soil salinity, leading to reduced agricultural productivity. This loss of livelihood is likely to result in economic and environmentally-induced displacement. Such migration could lead to overcrowded cities, strain on infrastructure, and increased social tensions. The economic ripple effects of the Wetland's decline could be profound, destabilizing the region and creating a host of new challenges.

4. Threat to Biodiversity: Pollution from industrial and agricultural activities, particularly the dumping of oil waste by companies like Ofogh, has caused a catastrophic decline in aquatic life within the Hoor-al Azim Wetland due to the accumulation of heavy metals, toxic organic compounds, and petroleum hydrocarbons in the water. Furthermore, the controversial practice of mulching, using petroleum-based products, exacerbates these issues by raising the temperature in the area, turning it increasingly inhabitable for humans and wildlife alike. It also creates an impermeable barrier that prevents rainfall from refilling the Wetland. This intensifies the degradation of the ecosystem and as the Wetland's capacity to support life diminishes, the entire ecosystem is at risk of collapse, with devastating consequences for the environment and communities that rely on it.

5. Fire Concerns: The degradation of the Hoor-al Azim Wetland significantly heightens the risk of large-scale fires, which pose a serious threat to both the environment and human health. As the Wetland dries out, the vegetation becomes more susceptible to ignition. Moreover, fires in the Wetland have broader environmental and public health implications. The smoke and particulates from such fires can spread over large areas, leading to a significant decline in air quality. This, in turn, exacerbates respiratory issues and other health problems in urban populations, adding to the already existent environmental and public health crisis.

6. Flooding Risks: The degradation of the Hoor-al Azim Wetland, caused by drilling and inappropriate mulching practices, has increased the risk of flooding. The disruption of natural water flow due to reduced wetland capacity and the creation of impermeable surfaces from mulching practices contribute to altered hydrological patterns. This not only aggravates flood risks but also leads to greater environmental instability and damage to the surrounding areas.

7. Human Health Issues: Pollution in the Hoor-al Azim Wetland has significant health implications for local communities. Contamination of water sources with heavy metals, toxic organic compounds, and petroleum hydrocarbons compromises drinking supplies and agricultural produce, increasing the risk of diseases related to the quality and quantity of drinkable water and exposure to harmful substances. Elevated salinity levels affect water and soil quality, and render hectares of fertile land unsuitable for cultivation.

8. Cultural Heritage at Risk: The Wetland is integral to the cultural identity of the local Arab population. Its potential drought risks erasing centuries-old traditions, tales, and crafts. The Hoor Al-Azim Wetland is not only an ecological treasure but also a backbone of the cultural identity of the indigenous Ahwazi Arab population in Khuzestan. The Wetland has supported a unique way of life for centuries, with the local communities depending on its resources for their livelihoods and cultural practices. For instance, the reduction in water levels has directly impacted mat weaving, a craft that relies on the abundant reeds from the Wetland. With over 60% of the country's mat weavers residing in this region,⁴¹ the decline of this craft would represent a significant cultural loss.⁴² Traditional activities such as mat weaving (buriabafi), buffalo herding, fishing, and the crafting of boats have been integral to the social and economic fabric of the region. These activities are not merely economic pursuits but are deeply intertwined with the cultural and spiritual life of the people.

As the Wetland continues to degrade, these traditional practices are increasingly at risk of disappearing. The drying of the Wetland has already forced many families to abandon their ancestral homes and migrate to urban areas in search of alternative livelihoods, leading to a loss of cultural continuity.

⁴¹ BBC Iran. *Oil activities turn the Hur al-Azim lagoon into a marsh*. 23 Sept 2012 (original: فعالیتهای نفتی، تالاب هورالعظیم را به مرداب (تبدیل می‌کند)).

⁴² Voa News. *Sacrifice the environment for oil: The danger of destroying Hur al-Azim under the pretext of developing oil fields*. Jan 2014 (Original: محیط زیست فدای نفت؛ خطر نابودی هورالعظیم محیط زیست فدای نفت؛ خطر نابودی هورالعظیم).

III. Recommendations

Given the aforementioned critical challenges endangering the Hoor-al Azim Wetland, immediate action is required. The UNPO, jointly with AHRO, would like to recommend the following measures:

1. UNESCO World Heritage Registration:

Unlike the Iraqi side of the Hoor Al-Azim Wetland, which has been recognized and protected as a UNESCO World Heritage Site, the Iranian portion remains vulnerable to continued degradation. Therefore, securing UNESCO World Heritage status for the Iranian side of the Hoor Al-Azim Wetland should be a priority. This designation would provide the necessary international recognition, legal protection, and resources to safeguard the Wetland's unique ecological and cultural attributes. Achieving UNESCO status would not only highlight the global importance of the Wetland but also strengthen the legal framework for its protection, making it more difficult for destructive activities like unregulated oil extraction and dam construction to proceed unchecked.

UNESCO recognition would also facilitate greater collaboration between Iran and Iraq, promoting joint efforts to protect the entire Hoor Al-Azim/Hawizeh Marshes complex as a unified ecosystem. This collaboration would be crucial for coordinated water management, pollution control, and habitat restoration, ensuring the Wetland's long-term survival.

Recognizing the Hoor Al-Azim Wetland's cultural importance to the Ahwazi Arab community through UNESCO status would help protect their traditions and way of life for future generations. Additionally, the potential for eco-tourism associated with UNESCO designation presents a sustainable economic opportunity for local communities, providing new jobs while promoting environmental preservation.

To achieve UNESCO registration, the Iranian government must formally commit to the nomination process, conducting a comprehensive assessment of the Wetland's current condition and its ecological and cultural significance. A detailed nomination dossier should be prepared, supported by scientific studies, environmental impact assessments, and testimonials from local communities. Engaging stakeholders, including local communities, environmental NGOs, cultural historians, and international experts, is crucial to ensure that the nomination reflects the Wetland's true significance. Public awareness and advocacy campaigns should be launched to build broad-based support for the UNESCO nomination process.

2. Restoration and Sustainable Water Management:

Immediate action is needed to secure the Wetland's water supply, particularly from its biggest contributor, the Karkheh River. Water releases from dams should be prioritized, with at least 1.6 to 1.9 billion cubic meters of water allocated annually over four months to start restoring the Wetland's ecological balance. Sustainable agriculture practices must be implemented and enforced, particularly in regulating water-intensive crops like rice, to prevent further draining of the region's water resources.⁴³

⁴³ National authority of the Convention on Biological Diversity. *Releasing Haqaba is the only way to save Horul Azum wetland.* 14/04/2014 News code: 146244.

3. Environmental Protection and Sustainable Practices:

A ban on further oil exploration and drilling within the Wetland is essential, particularly in sensitive areas critical for water flow and biodiversity. Existing operations must be strictly regulated to minimize environmental impact. The adoption of eco-friendly mulching practices is also key, replacing petroleum-based methods with organic alternatives that do not harm the Wetland's flora and fauna.

4. Cultural and Economic Revitalization:

Investment and provision of financial and technical support to revive and sustain traditional economic activities such as mat weaving, buffalo herding, and fishing is really important. These activities should be integrated into broader conservation strategies to preserve the cultural heritage of the Ahwazi Arabs. Developing ecotourism as a sustainable economic alternative can also provide new opportunities for local communities, while also promoting the Wetland's conservation.

5. Public Health and Safety:

Health monitoring programs should be established to track the environmental impact on local communities and provide necessary public health interventions. Addressing the rise in respiratory and waterborne diseases linked to pollution and dust and haze storms is critical. Furthermore, emergency response plans must be developed to protect vulnerable populations during dust storms, including public awareness campaigns and the distribution of protective gear.

6. Community Engagement and Governance:

A specialized committee should be formed, comprising environmental experts, local community representatives, and international organizations, to oversee the Wetland's restoration and protection. This committee must have the authority to enforce environmental regulations and ensure that the Wetland's needs are prioritized. Inclusive decision-making processes involving local communities are essential for the success of conservation efforts and the preservation of cultural heritage. In conclusion, the Ahwaz Human Rights Organization remains committed to advocating for the rights of the Ahwazi Arab minority and preserving the natural and cultural heritage of the Ahwaz region. Immediate intervention and a coordinated approach involving local, national, and international stakeholders are essential to safeguard the Hoor Al-Azim Wetland for present and future generations. The Wetland's irreplaceable value, both ecologically and culturally, must be recognized and preserved.

IV. Conclusions

The case of Hoor-Al-Azim Wetland is an example of the dangerous consequences unchecked industrial activities and environmental neglect and exploitation can have in ecologically sensitive areas. The degradation of this once-thriving wetland has had far reaching impacts on both the environment and the indigenous communities that have depended on it for centuries.

The construction of the Karkheh Dam and the expansion of oil drilling operations have drastically reduced the water flow into the Wetland, leading to widespread ecological damage. High rates of water and sand pollution coming from the petrochemical industry and the mulching practices, also contributed to the loss of biodiversity, increased soil salinity, and the ultimate collapse of Ahwazi Arab communities traditionally settled on the Wetland.

The situation in Hoor Al-Azim is not merely an environmental disaster but a profound socioeconomic and cultural crisis. The indigenous Ahwazi Arabs, who have inhabited the Wetland for generations, now face displacement, loss of cultural identity, displacement, and severe health risks. The drying of the Wetland has devastated traditional economic activities such as fishing, buffalo herding, and mat weaving, all of which are deeply intertwined with the Ahwazi Arabs' cultural identity. As these practices become increasingly unsustainable, poverty rates, and the erosion of cultural heritage are becoming inevitable. The pollution caused by oil drilling and poor water management has further exacerbated the region's public health crisis, with contaminated water and food supplies while deteriorating air quality leading to a rise in respiratory diseases and other serious health issues.

To prevent further degradation and restore the Wetland's ecological balance, urgent measures are required. These include enforcing environmental regulations on industrial activities, and supporting the local communities in adapting to the changing environment. Without support from the international community securing international recognition and protection for the region, the Wetland remains vulnerable to ongoing environmental and economic exploitation, jeopardizing its long-term survival and the cultural continuity of the Ahwazi Arab people.