

# **The Iraq Marshlands: the Loss of the Garden of Eden and its People**

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Often called the “Garden of Eden,” the marshes of Southern Iraq were once home to a vibrant ecosystem. For over five thousand years, this ecosystem supported the Ma’dan, a unique civilization of Marsh Arabs, protected and isolated from outside powers by the thick and impenetrable vegetation of the marshland. However, this all ended in the latter part of the twentieth century when Iraq and its neighbors began a series of water projects along the Tigris and Euphrates Rivers for irrigation and hydroelectric power. The final blow to the marshes came when Saddam Hussein completed a series of aggressive water control projects in the marshes, following his defeat in the 1991 Persian Gulf War. These projects, meant to punish the Shi’ite marsh Arabs, drained this once fertile and abundant area of its life source-- water. The demise of the Iraqi Marshes has been compared to both the Aral Sea’s desiccation and the deforestation of the Amazon. It is widely considered by many to be an example of ecocide, or the murder of an environment. Our paper seeks to examine how the draining of southern Iraq by Saddam Hussein and the subsequent lack of cooperative rehabilitation by the international community has destroyed not only an ecosystem but also the entire culture of an area once acknowledged to be the cradle of human civilization.

### **Geological background on Tigris/ Euphrates water basin:**

The Tigris and the Euphrates rivers originate in the Taurus Mountain Range of Turkey. Fed by mountain snowmelt, the rivers flow into Iraq. Excess water from snowmelt was caught by the marshes that acted as flood retention basins. The marshes formed at the confluence of the two rivers, near the Persian Gulf. In addition to Iraq, the water basin that fed the marsh system expands into four other countries-- Turkey, Iran, Syria, and Saudi Arabia. Turkey controls between 80 percent and 95 percent of Euphrates’ flow. The arid lands of Syria and western Iraq, meanwhile, provide little in the way of additional water sources for the river. In contrast, the Tigris’ water flow is more balanced. Turkey controls only 32-50 percent of the river’s discharge and Iran controls many important tributaries to the Tigris that flow into Iraqi marshes. The Tigris, though it follows a significantly shorter route than the

Euphrates on the way to the Persian Gulf, has a higher annual discharge rate, - 49.2-52.6 Billion cubic meters (BCM) compared to the Euphrates's rate of 28.4-32.4 BCM per year (Partow, 4-5).

As mentioned above, the marshes were fed and sustained by the spring snowmelt. In the spring, the rivers would become engorged with excess water that rushed downstream, creating seasonal "flood waves" in the deltaic floodplain formed by the marshes of Southern Iraq. These marshes were known collectively as the al-Ahwar marshes. These flood waves were essential to maintaining an extensive network of shallow interconnected lakes and back swamps that formed these massive wetlands. The al-Ahwar was also heavily influenced by the Iranian deltas of the Karun and Karkheh Rivers. These two rivers "...contributed...to the formation of the marshes...at the combined deltas of the four rivers," particularly the Al- Hawizeh marsh into which the Karkheh river empties" (Partow, 6).

Competition for water increased in the latter half of the twentieth century due to a rise in upstream damming projects on the two rivers and the consequent decrease in the amount of water flowing downstream. As of 2001, there were 32 dams upstream with another 21 planned including one on the Karke River, a major tributary located in Iran.

### **Marshes prior to Saddam's Damming:**

John Wilson, the Senior Environmental officer at the United States Agency for International Development's (USAID) Bureau for Asia and the Near East, states, "The Mesopotamia marshlands once comprised more than 20,000 square kilometers of interconnected lakes, mudflats, and wetlands". These marshes made up a total area twice that of the Everglades, and many wildlife species also called the marshes home (United States Congress, 6). The marsh lands once served as home to millions of birds. "A 1979 survey found 81 species of waterfowl, including birds which were rare or endemic..." living in the marshes. The marshes were one of the most important wintering grounds in southwest Asia-- an annual flyway for birds between Siberia and Africa. The drainage of the marshes put as many as 69 bird species at risk of extinction (United States Congress, 6).

The Euphrates/Tigris Basin is plagued by a “dominate upstream/vulnerable downstream relationship.” The Iraqi government’s actions did not imperil the al-Ahwar first. Turkey initiated a series of dam- building projects in the 1950s to generate power and to store water for field irrigation. The first of these dams became operational in 1961. Not far behind, Iran finished its largest dam development in 1962 on the Karum River. Syria began the Tamaqua dam on the Euphrates in 1975 (Partow, 5). These activities combined, greatly reduced the flow of water into marshes downstream.

Ironically, during the 1980-1988 Iran/Iraq war the Ma’dan supported Saddam despite attempts during the war to evict the marsh residents. In 1984, as part of the war effort, the Iraqi government constructed a dyke along the Iranian border for gun emplacements and a large military fortress. This action displaced a large number of Hawizeh marsh dwellers and drained large parts of the al-Hawizeh Marsh in southeastern Iraq. The following year, the Iraqi government built levees and drained part of the marshes in order to develop the oilfield presumably, to help fuel and pay for the war. The war-induced displacement of the al-Hawizeh Marsh Arabs was the first in a series of forced moves over a fifteen year period.

### **Ecocide in Progress:**

Following the Persian Gulf War of 1990- 1991 “Saddam’s regime used every resource available to them” and built dams, dykes and canals to drain these ancient marshes to punish the marsh Arabs for their support of the Shiites who rebelled against his forces” (United States Congress, 2). The Iraqi government made no attempt to conceal the drainage project, most likely because the sheer size of the project was impossible to hide. Instead, they claimed that the massive engineering scheme was needed to facilitate the exploitation of untapped oil reserves and “to wash away the salt-encrusted millions of hectares of over-irrigated farmland to reclaim new land for much needed food production and to increase the amount of water available for irrigation” (North, 34 ). The latter is a plausible claim as “soil salination is historically ...Mesopotamia’s main agricultural problem” (Partow, 22). Unlike rainwater, river water contains salt. Irrigated fields often become waterlogged with salty water, which kills the

crops. In order to alleviate this problem, people build drainage systems to carry away the salt and excess water. In the 1950's, American and European engineers designed a drainage system to combat this problem for the newly-independent country of Iraq. The largest element of the engineering schemes is the "Third River," a canal from Baghdad to the Persian Gulf, built in stages from 1953 to 1992, designed to carry irrigation drainage water from smaller side-drains. The Third River, alternatively known as the Main Outflow Drain or the Saddam River, runs between the Tigris and the Euphrates, until it crosses under the Euphrates riverbed via three large pipes to take a more direct route south to the Gulf. The project also dammed the Euphrates upstream, diverting almost all of the river water into the Third River. Other projects include embankments stretching 70 kilometers, built along the Euphrates to separate the central and Al-Hammar marshes and a massive number of canals constructed to drain waters away from the marshes and directly into the Shatt al-Arab. Many of the numerous canals carried ostentatious names such as the "Mothers of Battles" River that diverts Euphrates water south of the al-Hammar marsh. The "Crown of Battles River," on the other hand, diverted the Tigris away from the Central and Al-Hawizeh Marshes. The "centerpiece" of Saddam Hussein's drainage project was the "Prosperity River." The flow of nearly 40 tributaries was captured in a 40 km long, 1-2 km wide west-east canal and then connected with the much wider north-south Prosperity River. The union of these two canals can be seen on satellite photographs. The smaller canal runs along the northern border of the Central marshes forming a crude number seven with the north-south Prosperity River. This formation essentially creates a massive moat that prevents any water from entering and replenishing the central marshes. The al-Hawizeh marsh seemed mostly unscathed in the early years of the drainage project. By 1994, however, two main Tigris tributaries had been channelized and diverted away from the marsh, and embankments were constructed around parts of the marsh to contain it. Compounding the desiccation, these projects coincided directly with the creation and inauguration of the massive Turkish Ataturk Dam, reducing the flow in the Euphrates to an all-time low (Partow, 24-27).

By 1999, the drainage of the marshes was mostly completed. From 1991-1997 these works of massive proportions put a strain on Iraq's already limited resources. The regime had created the massive

canals in order to divert water away from the marshes and irrigate unsustainable wheat fields. When not used to irrigate the wheat fields, the water was diverted into man-made depressions, ponds, or directly into the Shatt al-Arab. Saddam's engineers built a total of six new canals and embankments along a distance of 5000 km. These engineering feats focused on channeling water away from the al-Ahwar marshes, effectively killing them, and creating what UNEP calls the twentieth century's worst man-made environmental disaster (North, 34).

### **Environmental Effects:**

The green, lush fields of the Marsh lands turned into brown deserts because of the drainage project. In 2003, when the US invaded Iraq only 7 percent of the original marshland remained (United States Congress, 6). The engineers and the army did not wait for the marsh to die a natural death. They expedited the wetlands demise as soon as the water was cut off by putting fire to the region and flushed out dissidents who had sought shelter in the marshes at the end of the Persian Gulf War (North, 34). The vast triangle of marsh land destroyed what had been "largest wetland ecosystem in the Middle East." The central and al-Hammar marshes once covered more than 4000 km<sup>2</sup>. In 2000 only 98 km<sup>2</sup> of the Central Marshes remained, a mere 3 percent of the original marshes, while in the al-Hammar marsh, only 6 percent of original marsh land remained. Most of what could be called marshland, however, was concentrated along the canals-- the only water source. Al-Hawizeh remained the least-affected marsh in 2000 with only a third of its original marshland remaining. In all, the re-channelization of the Euphrates and Tigris river flow destroyed over 9000 km<sup>2</sup> of marshland and eliminated entire habitats. (Partow, 32)

Complicating this issue is the extensive damming of the Euphrates and Tigris upstream. The damming has created severe water shortages and water quality problems. As of 2003 it was clear that many of Iraq's neighbors were aware of its severe water shortage. John Wilson of USAID states in his report to Congress that Iraq and Turkey had begun to "discuss water issues." In the case of neighboring Iran, Wilson believed that the focus should be on small-scale intervention regarding similar water issues.

Due to the damming upstream, the yearly flood waves have been greatly reduced. Without constant inundation, the life of the Ma'dan is impossible. In the absence of water, the marshes dried up, leaving the reed beds and their residents vulnerable to the searing Iraqi summer heat that can reach up to 50° C (122°F) in July. The Ma'dan also face starvation because their main food sources, fish, rice and sugarcane have been destroyed, killed by the desert-like conditions (North, 34) .

“The Iraqis point to even other factors, such as increasing water use all along the rivers (and perhaps even more irrigation since Iraq has been under international sanctions), and alleged damming of streams by Iran. But the basic premise is that Tigris and Euphrates waters used to percolate through the marshes, but now they are piped through the marshes or diverted around them” (USGS). Also harming the marsh lands is that without the percolation of water from the two rivers, saltwater has entered parts of the waterways, adversely affecting the marshes’ fishing industry. As the ecological devastation continues scientists worry that the dried- out marshes will affect climate conditions; health effects are not fully known but there are concerns that they could mimic those found after the desiccation of the Aral Sea, which brought a rise in cancer, infant mortality, and respiratory illness among the population. The people of the marsh areas still suffer from an absence of primary health care. One of the main problems is contaminated drinking water. Industrial and agricultural chemicals and raw sewage from Baghdad are constantly being emptied into the two rivers. Some of the Ma'dan living on the outskirts of the marsh are able to purchase treated drinking water but those living in the marshes themselves have no access to clean and safe water. Mosquitoes are another hazard. Mosquitoes are thought to have proliferated in some areas of the reflooded marshes where there are no fish to eat their larva in the slow- flowing water.

The USAID report states that preliminary studies in 2003 found that good water quality and healthy, natural vegetation still existed in some areas of the Hawizeh marshes, along the Iran/Iraq Border and in the Hammar marshes in the southwest. The report was optimistic that plant and animal life from these areas could be used to restore reflooded areas to a semblance of their original state. Tragically however, this is one of the few causes for optimism. The center marshes have been decimated. That area suffered extensive drainage and now much of it lies barren-- a prime example of desertification in a once-

fertile region. In an area once covered by lush vegetation, desert plant species such as the tamarisk have taken over and dust storms, once almost unheard of in the area, are now a common occurrence (United States Congress, 10-11).

The changes in the river flow have had wider effects. Now due to the depletion of marshland, the quantity of fish caught by fisherman in the gulf has significantly decreased and the shoreline along the Kuwaiti coast has been significantly “degraded” (United States Congress, 9). The Shatt al-Arab’s coastal delta, no longer fed by the sediments of the al-Ahwar, has begun to retreat and there are fears that the entire geological structure of the Northeast Persian Gulf will be affected.

**Response:**

Since 2001, the United Nations characterized the destruction of the southern Iraqi marshes as one of the world's greatest environmental disasters. Many groups stepped forward after the US invasion to try to restore the marshes to a semblance of their original state. Goram West, deputy assistant administrator for USAID’s Asia bureau, stated in a 2003 address before a subcommittee hearing in Congress that several- billion- dollar investment in marshes is needed for drinking water, irrigation, and waste water treatment (United States Congress, 5). His department is working to resolve problems at the local level. West believed that only by establishing relationships with the people themselves can you understand what they have been through. Furthermore, a USAID scoping team was the first to conduct an on-the-ground study of the marshes’ conditions. “For the previous two decades remote sensing from space was the only form of reconnaissance available thanks to the area being inaccessible due to the various wars and sanctions of the period.” (United States Congress, 13).

In 2003 the US Army Corps of Engineers and the Iraqi Ministry of Water Resources (MoWR) , under the Coalition Provisional Authority (CPA), worked to develop hydrological models for the basin , because “serious planning must be grounded on an understanding of water availability within the basin...” (United States Congress, 7). However, following the removal of the CPA from Iraq, work on these models ceased and the documents vanished along the corrupt authority.



Other groups, such as Nature Iraq, which receives most of its funding from Italy's Environment Ministry, have also stepped forward. An Iraqi-American, Dr. Azzam Alwash, founded Nature Iraq to promote revitalization projects throughout the marshes to once again make them hospitable to life and to encourage the Ma'dan to return to "practice their traditional culture while enjoying access to modern education and health care" (Alwash, 1).

Though in recent years the marsh lands have rebounded-- by 30 percent in some areas-- Corey Flintoff of National Public Radio stated that the recent drought has all but reversed the limited progress made stating that, the "drought is killing the marshes almost as effectively as Saddam did." He further states in an email interview that the restoration of the marshes has become heavily politicized, with tensions building between those that want to remove the dykes and other barriers that Saddam constructed and those who have a vested interest in the irrigated farm land upstream, fed by the water contained by the dykes (Flintoff).

### **Cultural History:**

On the seventh of December in 1992, the Third River, the vast drainage canal that flows midway between the Tigris and the Euphrates was completed after 40 years of construction. Work on the river began in 1953 but only continued sporadically during the following decades. Revolutions, wars and sanctions caused the pauses in construction. The project, a brainchild of British engineers, sought ways of reclaiming western tracts of Iraq's agricultural land that have become barren through salination. Various methods had been applied, through leaching treatment or washing the earth with water, to flush out the salt. This process also produces saline water which the canals drained out. The construction of the canal involved Dutch, South Korean, Chinese, Soviet and East European contractors. The controversy over the canal did not surface until the 1990-1991 Gulf War ended, when it was alleged that the projects true purpose was to drain a large area of the southern marshes and destroy the way of life of marsh Arabs and to flush out the Shi'ite Muslim dissidents who had taken refuge there (*the Economist*). The Iraqis meanwhile refute this, claiming that they built a large dyke to protect the marshes from the salt water in

the canals. They suggested that the drop in the Marshes water level was the fault of the nations upstream. The Turkish and Syrian dams had reduced the flow of the Euphrates, while the Iranians had diverted local streams that fed the marshes. It is also important to note that Iran has a potential economic and political interest in drying out the marshes as there are large oil fields that lie under the marshes, possibly home to a third of the known oil reserves in Iraq.

The Ma'dan, whose culture and lifestyle had thrived for over 5,000 years, consists of a number of different Shi'a tribes, including the Bani Asad, Bani Tamim, Albu-Hassan, Albu-Muhammad, and Bani Lam. Although of different tribes, the Ma'dan share a common language, religion, and set of customs, and are identified as a distinct ethnic group. In the early 1980's, Saddam Hussein's regime launched devastating military attacks against the Shi'a Muslims of southern Iraq killing tens of thousands of civilians. After the uprisings of 1991, these assaults intensified and indiscriminate mass executions occurred, killing tens of thousands. The Marsh Arabs were targeted specifically. "All of their cities, towns, villages, farms and individuals dwellings were attacked by aircraft or artillery, and burned or demolished; weapons of mass destruction were also employed. The survivors were forcibly displaced at gunpoint" (Nicholson 11). The situation was severely exacerbated by a government-imposed economic blockade of the marshes, and the denial of even the most basic of medical care. From a population of over 400,000 before the Gulf War, less than half survived the onslaught inside the marshes. The estimate of the surviving population is tentative as there is a lack of government data and the area remains inaccessible. The best information available suggests that the rural population of the marshlands in 1993 was about 200,000. Today, there may be as few as 20,000 of the original inhabitants remaining with the rest internally displaced in Iraq (Reed, 22).

### **Reality of the Situation:**

In the six weeks after the draining, the marsh Arabs fled—over 20,000 towards Iran, 15,000 to Um al-Na'aj, a floating marsh area straddling the border, and more than 7,000 to Himmet, a city in Iran. In comparison, in the six previous months, fewer than 1,000 Ma'dan had sought refuge in Iran. Most of

these refugees came from the Amara marshes in the center of the wetlands. During the draining a diplomat who specialized in the marshes stated, “The Iraqis say there’s a little resettlement of the marsh Arabs... But scores of villages have been destroyed. Life has been destroyed. The Iraqis have told people to stay in their homes, and have patrols around killing and shooting those who don’t. It’s a manhunt in these marshes,” (Flint 22). Crossing the marshes safely was difficult. However not all that fled sought refuge in Iran because of differences in language and customs. Many attempted to reach Iraqi Shi’ite towns or cities outside the marshes. In the months after the draining, Iraq troops arrested thousands of marsh Arabs in these cities and sent them to al-Radwanieh prison camp south of Baghdad. One tribal leader, Abu Akeel Al-Saiadai, who spent four months in the prison camp, told a human rights activist that “if you pay 20,000 dinars (roughly equivalent to 1,500 UK pounds, (a fortune for the ordinary Iraqi) you can be released. Otherwise you are executed” (Flint, 22).

Even during the 1992 no-fly zone imposed by the US, the devastation continued. It was believed that Shi’a Muslims who had staged a short-lived rebellion after the Gulf War continued to hide in the marshes. Iraqi troops therefore, attacked the local villagers whom they believed to be supporting the rebels. Saddam claimed the soldiers were there to “repel any attacks by Iranian saboteurs who float into Iraq through the marshland, and their small number of ‘criminal’ Iraqi followers,” (Kunstel, 1). The government warned that the no-fly zone would permit more intense infiltration as Iran tried to gain control over southern Iraq. Though, local people claimed that there was little trouble from infiltrators or anyone else in the marshlands, Saddam insisted that guns be sent south so local villagers could defend themselves from assaults. From the moment they began, it was very unclear how Western air patrols could help. Even a UN human-rights report on the situation in the south said post-rebellion assaults came from Iraqi ground forces, not aircraft. Thus, the imposed no-fly zone not only prevented the Marsh Arabs from receiving any potential humanitarian aid from international relief organizations, but provided cover for Saddam as he carried out his genocidal plans on the Marsh population.

Almost immediately following the 1991 Gulf War, refugees fleeing the marshes reported that residents were facing terrorist explosions, the burning of villages, the torturing of men, women and

children and the use of children as human shields. This was a part of the government's policy focused on capturing army deserters and potential suspects involved in the uprisings whom the government asserted were hiding in the marshes. Although they did not initially focus on destroying the local population, by late 1991 the military attacks on the marshes intensified, including the regular and persistent bombardment of areas designated for draining, meeting resistance with a shoot-to-kill policy and allegedly using napalm on villagers (Human Rights Watch). With their homes burning, the Ma'dan people were left with no choice but to flee to Iran and surrounding areas.

### **Initiatives:**

In the post-Gulf War period international spotlight focused on the slaughter of the Ma'dan people. During this time British citizens and Iraqi exiles began to visit Iranian refugee camps when the marsh people had found refuge. Amongst the visitors were Baroness Emma Nicholson and Peter Clark, creators of the humanitarian relief organization, Assisting Marsh Arabs and Refugees (AMAR), and the Al-Khoei Foundation, an international Islamic charitable organization located in London. This started a domino effect as observers, filmmakers and relief workers began to contribute stories about the repression in Southern Iraq and the destruction of the marshes. However it dropped off by the mid 1990s. When the United States and Britain entered Iraq in 2003 International Community expected that the coalition would help restore the marshes and support its people. USAID even pledged in early 2003 to "work with other partners to arrest further environmental degradation and begin the restoration of these globally important wetlands," (Kazmi 2004). A senior specialist from the United States Army Corps of Engineers, tasked with converting Iraq's old Ministry of Irrigation into a Ministry of Water Resources responsible for the fate of the marshes, compiled an informative website under the CPA with documents such as a "Brief Environmental Description of the Marshes," "Notes for Ecorestoration Projects," and a "One-Year Strategic Plan," which included a schedule for "six marsh restoration, scientific monitoring, and planning projects," (Kazmi 6. But without warning the documents disappeared and plans were abandoned.

In 2006, initiatives to save the remaining population and environment of the marshes were organized through an international conference headed by the AMAR Foundation's Shaykh Muhammad al-Khashati. Al-Khashati stated that the conference served as an opportunity for the tribal chiefs to talk amongst themselves, instead of depending only on the media. Much of the discussion involved criticizing the Iraq government for neglecting the suffering of the population of the marshes since the 20,000 refugees and displaced persons that have returned to the marshes have been deprived of the most basic services. Dr. Ali Nasir Muthanna, has boasted that his organization has established 10 health centers and more than 80 literacy classes to teach the estimated 80 percent of the population of the marshes who are illiterate (BBC Worldwide). Muthanna also claimed that the Finance Ministry earmarked 300 million dollars to rehabilitate the marshes but the inefficiency in the current political system of Iraq have prevented adequate dispersion of the money.

### **Saddam's Reasons:**

In order to understand how the Ma'dan people reached the dire situation they are in today, the reasons why they were targeted must not be overlooked. The plan to remove these people from their homeland can be traced back to the 1970s when Saddam was Vice President of Iraq. The attempts of this regime to drain the marshes had various motives. Since the area is entirely Shi'a, despite his proclamation to be pan-Arab and pan-Islamic, drying up the marshes would help Saddam remove an indigenous culture and religious heritage so greatly in conflict with his own. The economic motives consisted of developing the area for agriculture and exploiting the wealth of oil that lies beneath the water and reeds. It is estimated that the region contains almost 40 billion barrels of petroleum, a third of the known reserves in the area (Human Rights Watch).

Though, Saddam said he was trying to increase the amount of dry land available for farming. But in reality, genocide was his main goal. "Saddam Hussein defined the people of the marshlands as lower than animals...as the scum of the earth," stated Lady Emma Nicholson, the Executive Chairman of the AMAR Foundation, it was "a very deliberate attempt to wipe out the indigenous population," (Reed 25).

### **International Law Violations:**

The assault on the marshlands was a clear violation of many international laws and conventions ranging from the Universal Declaration of Human Rights, the Law of the Sea Convention, the Biodiversity Convention on the Environment and Development, to the Hague Convention for Protection of Cultural Property. Additional treaty violations include the International Covenant on Civil and Political Rights (1966), which requires that people be given a voice in decisions affecting their lives. It is clear that the Ma'dan were not given a voice. The International Covenant on Social, Cultural, and Economic Rights (1966), which the United Nations Human Rights Committee interprets as a human right to water, also was clearly violated by the Iraq government. The Espoo Convention on Environmental Impact Assessment in a Transboundary Context (1991) requires that “before undertaking any activity that would significantly impact the environment there must be an impact assessment to raise and consider the effect on the environmental of the activity” as well as public participation by persons “likely to be affected by the activity” (Al-Khayoun 5)

.Iraq did not complete either requirement before destroying the marshes. The Convention on Biological Diversity (1992) requires that States not undertake activities that will significantly decrease regional or global biological diversity. To the extent that the destruction of the marshes might have driven some endemic species to extinction, there clearly was a violation of this treaty. The 1994 “Draft Declaration of Principles on Human Rights and the Environment” states, “indigenous peoples have the right to protection against any action or course of conduct that may result in the destruction or degradation of their territories.” It is hoped that this will play a part in requiring the international community to enact reforms in order to protect an indigenous people that have endured over five millennia (Kazmi, 1).

Emerging as a crime in the International Court is ecocide, which could readily be applied to the Iraqi Marshes. Although not widely accepted, the UN defines ecocide as the murder of the environment, the heedless or deliberate depletion or overconsumption of resources and destruction of the natural

environment. In the case of the marshes, Saddam used ecocide to promote genocide. His use of “ecocide with genocidal intent to drain the marshlands of southeastern Iraq in the 1990’s to punish 500,000 marshland Arabs for rebelling against his rule is a well-known example of ecocide clearly associated with genocidal intent,” (Richter 2).

However these violations remain somewhat disputed in the international community due to the unclear implication regarding who exactly would be held responsible for the crimes. One crime remains indisputable though. Genocide emerged as a war crime in the wake of World War II and the Holocaust. Ratified by almost every country in the world including Iraq, The UN treats the 1949 Genocide Convention as customary international law. Therefore, the Genocide Convention is binding on every nation, those who have ratified the treaty and those who have not. Defined as "the killing of members of the group; causing serious bodily or mental harm to members of the group; deliberately inflicting conditions of life calculated to bring about the physical destruction of the group; preventing births within the group; forcibly transferring children from the group; with the intent to destroy, in whole or in part, a national, ethnic, racial, or religious group," the evidence of genocide in the case of the marsh Arabs includes the forcible removal of the people and the subsequent neglect of their land (Al-Khayoun, 10). Although a tiny portion was developed for agriculture, the majority of the marshes were turned into desert and left barren. Most of the dams and drainage canals built held no apparent agricultural or developmental purpose. As such, it is no defense to say, "We didn't really mean to destroy the marsh Arabs; we simply wanted to develop this waste land," (Al-Khayoun 10). The draining of the marshes and the drying of the land destroyed a way of life and forced the migration of a people. The marshes were destroyed in order to destroy the marsh Arabs.

### **Conclusion**

The destruction of the marshlands environmentally and the elimination of the Ma’dan people’s culture remains a humanitarian issue of global importance. Those responsible for rebuilding Iraq in the present should recognize and redress the injustices even though that will not be an easy task, “‘you have seen the marshes in their glory. But you also saw some of the poorest people in the world,’ said Edwin

Theriot, referring to a display of photographs by Nik Wheeler of the marshes in the 1970s. ‘We want to recreate that glorious marsh, to reconstruct that ecosystem, but we need to reconstruct the culture in a way that provides the people the basic resources they need.’” It is a tremendously complex problem we’re asking a fledgling, interim government to wrestle with, he said” (Reed, 23). The preservation of the Ma’dan people’s culture should not be abandoned in favor of developing agriculture or drilling for oil. The international community, despite its history of overlooking the marsh people, should be called upon to restore the homeland of the Ma’dan and the historical heritage site that exists in this region. Not to do so would be to prolong the human and environmental injustice Saddam Hussein’s regime inflicted on an innocent people.

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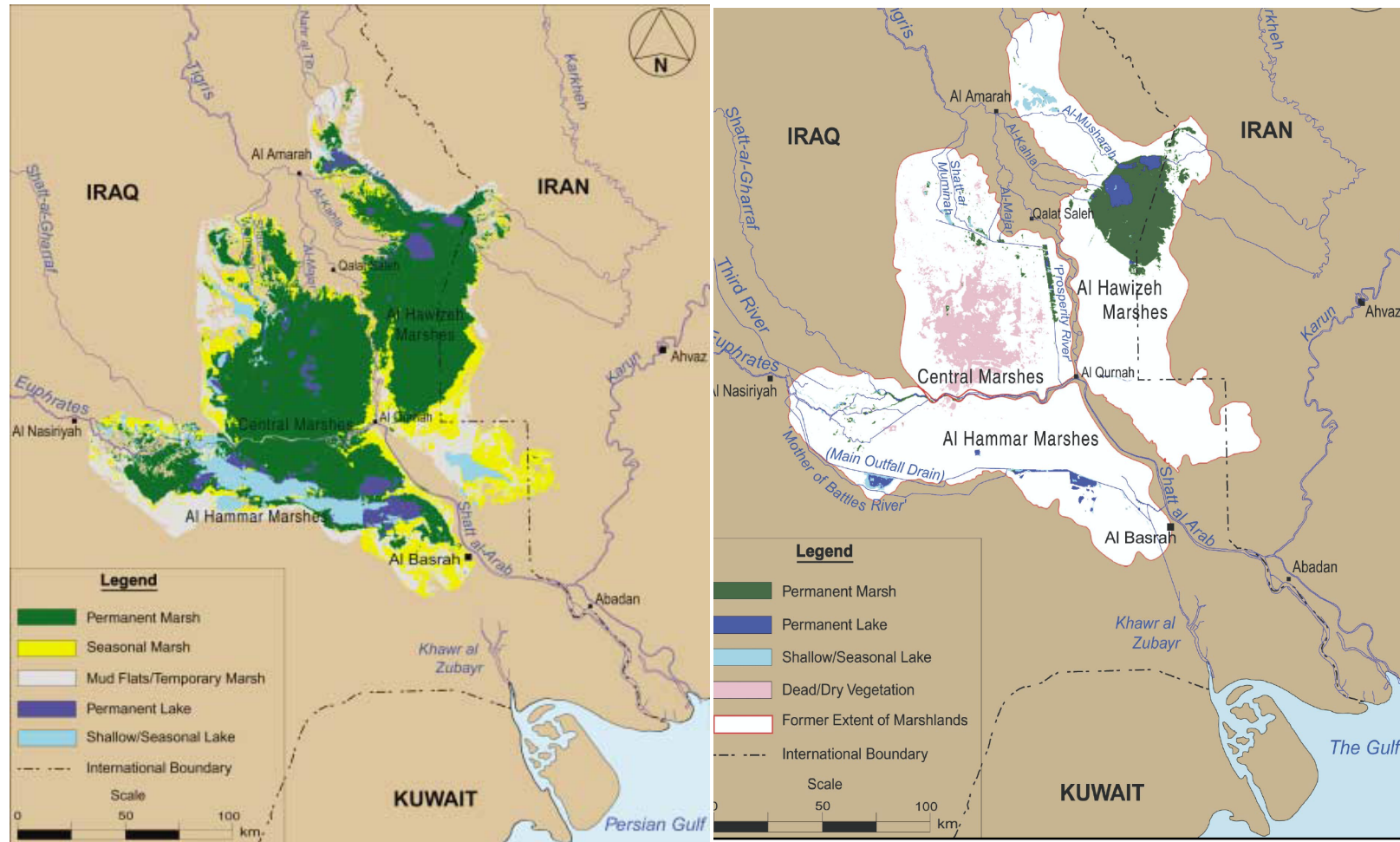
## Appendices

### Appendix I



The area outlined in dark blue represents the water basin of the Euphrates and Tigris Rivers. All tributaries contained within the blue area flow into the Tigris or Euphrates and then into the Persian Gulf. As demarcated on the map, the water basin covers area in four other nations besides Iraq: Turkey, Syria, Iran and Saudi Arabia. The extensive damming of the two rivers that has taken place or is scheduled to take place is also shown on this map. (Stern, 2002)

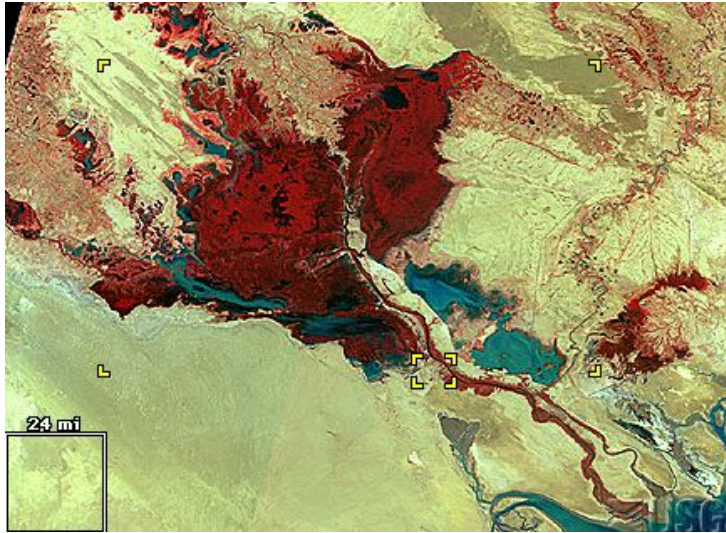
## Appendix II



Above is a side-by-side comparison of the al-Ahwar marshes about 25 years apart. The map on the left shows the healthy marshes in the years 1973-1976. The map on the right shows the drastically reduced marshes in 2000. The Third River/Main outfall Drain, the “number seven” created by the east-west canal and the Prosperity River are clearly shown in the center of the 2000 map. Also significant to know is the near complete drainage of the marshes lakes, particularly the al-Hammar lake.

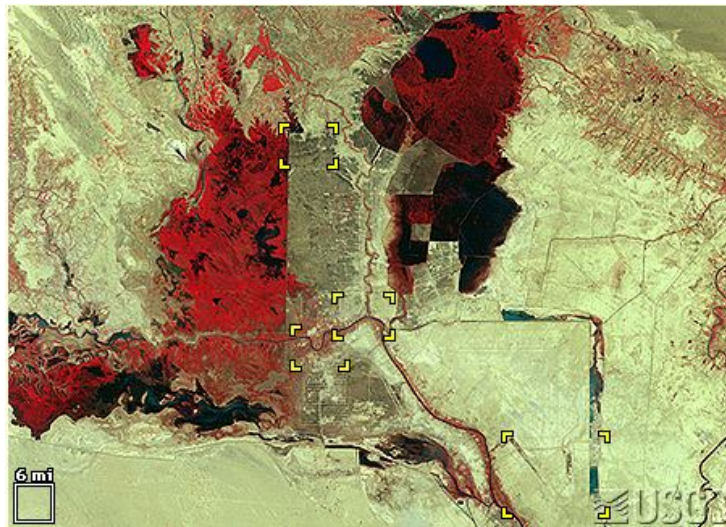


### Appendix III



1972. Healthy vegetation is shown in red while tan colors represent desert. The al-Hammar river to the southwest is shown in its original state. Light blue colors represent shallow, sediment rich waters and dark blue, deep water.

(USGS, 2007)



1991. Effects of dykes and embankments can be seen. Dead or dying vegetation is shown in gray. In the lower right hand corner lies the embankment that Saddam built in 1985 during the Iran/Iraq war. Note the embankments surrounding the al-Hawizeh marsh to the northeast. In this map it is important to note the absence of shallow water. This is significant because it shows the start of the water channelization.

(USGS,2007)



1997. The absence of healthy vegetation is clear. The pale orange shown on the map represents irrigated fields. Note also how the vegetation inside the contained al-Hawizeh marsh is now a gray-red color representing unhealthy and dying vegetation. The Central and al-Hammar marshes are now completely gone. Saddam's drainage works are clearly shown in this map. The east-west canal and Prosperity River are seen in the center, forming a crude number seven. The Main Outfall Drain is seen to the south of what were once the al-Hammar marshes. The al-Hammar lake has completely dried up

(USGS, 2007)