

HIMA Mesopotamia: Community Generated Conservation in the Tigris Euphrates Watershed

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Abstract

HIMA Mesopotamia means protection of the land between two rivers, referring to an ancient land stewardship system for common pool resources - in this case the Mesopotamian Marshes of Iraq. Water resources are the life blood of this arid landscape. The Mesopotamian Marshes, or *al Ahwar* in Arabic, are a culturalized landscape, consisting of a reciprocal relationship formed over thousands of years between Marsh Arab cultures and the marshes through traditional resource management. The biodiversity and cultural integrity of the Tigris- Euphrates River Basin is jeopardized by water scarcity, inequitable allocation of water rights, and high risk of desertification. Dams and upstream water diversions in Turkey, Syria, and Iran have reduced mean annual flows, resulting in water scarcity and impaired water quality throughout the watershed. Along with changes to water levels, there are changes in ecosystem-level metrics: salinity has increased and fish populations, reed availability, and grazing quality for water buffalo forage has declined. The Ma'dan are now becoming environmental refugees without land tenure, attempting to eke out an existence with their water buffalo, without clean water, adequate health care, or opportunities for education or earning a livelihood. One of the most challenging aspects for development of a community based conservation and sustainable development in this area will be ensuring the delicate balance between improving the standard of life locally, and respecting the traditional way of life of the inhabitants of the Marshlands. An international effort to develop a system of basin planning and equitable water rights allocation is urgently needed. Community based conservation and implementation of

local *al HIMA* land governance systems will be vital to helping Marsh Arab and local Iraqi people allocate increasingly limited water resources. Several innovative solutions are presented to promote the survival of the environmental integrity and biodiversity of the Mesopotamian Marshes for sustainable human well-being and socioeconomic stability.

Keywords: al HIMA, Traditional Resource Management, Mesopotamian Marshes, Eco-cultural restoration, Biodiversity

Introduction - HIMA Mesopotamia

HIMA Mesopotamia is an international nonprofit corporation whose name means protection of the land between two rivers; we hold the vision of restoring and managing the biodiversity and cultural heritage of the Mesopotamian marshes. We propose community generated conservation throughout the Tigris Euphrates watershed as a mechanism to provide social justice, biodiversity conservation, and equitable water allocation. Our commitment is to nurture the eco-cultural heritage of the Tigris Euphrates watershed through the following: outreach, coordination and capacity building; synthesis of scientific information, traditional and local knowledge systems; and to provide a forum for cultural and environmental information exchange. HIMA Mesopotamia aims to provide a forum for cultural and environmental information exchange by creating a network of individuals and organizations that are involved in social justice, ecological health, and equitable water rights in the Middle East. We are committed to listening deeply and restoring the ancient system of story, place and culture in the Mesopotamian Marshes. HIMA Mesopotamia actively promotes reaching across international borders to find solutions to the escalating ecological and humanitarian crisis occurring within the region.

This paper first describes the background of HIMA and Traditional Resource Management, using the wetlands of Lebanon as an analogue to the Mesopotamian Marshes. The body of the paper discusses the Mesopotamian Marshes, years of war and environmental degradation, and current challenges from attempts at eco-cultural restoration with the stressors of inadequate water supply and pollution of land, air and water. The conclusion and recommendations propose a new system of Community

Based Natural Management System that promotes sustainable livelihood, natural resources management, and biodiversity conservation (Saleh et al 2013). Human cultures are constantly changing over time; a new system of community based resource management will be based on reviving a regionally appropriate al HIMA system of local governance and resource management as a means for effective cultural and ecological restoration of degraded landscapes. Despite regional instability and uncertainty, *al HIMA* provides the possibility of revitalizing the human livelihoods, biodiversity and cultural heritage of the Mesopotamian Marshes. Some areas within the marshes are well suited to national park development as well as eco-tourism, similar to areas in Jordan and Lebanon. Nature Iraq has begun development of eco-tourism in the Central Marshes near Al-Chibayish.

Al HIMA and Traditional Resource Management

Al HIMA is a traditional system of resource tenure that pre-dates Islam, Christianity, and Judaism, and is an indigenous knowledge system that pre-dated the time of the Prophet Abraham. Al HIMA is the most widespread and longstanding indigenous / traditional conservation institution in the Middle East (Al-Jayyousi 2001; Bagader et al 2004; Bagader et al 1983; Faruqui et al 2001; IUCN 2007). The Arabic word “HIMA” literally means “a protected place” or “protected area.” Resources within the HIMA were collectively owned by the community, and access to outsiders was forbidden. Later its meaning evolved to signify managing a reserved pasture or other piece of land set aside seasonally to allow regeneration. In Lebanon and Jordan, modern al HIMA zones have been re-established around water bodies such as ponds, wetlands, wadis, rivers and coastal areas to allow ecological regeneration. Establishment of al HIMA zones prohibits human settlement in the protected areas, improving water quality, wildlife habitat and biodiversity in these zones.

Furthermore, *al HIMA* is an Arabic community based conservation practice of Traditional Environmental Knowledge (TEK) and Traditional Resource Management (TRM). TEK is an integral body of practical and spiritual knowledge that has evolved through the successful adaptation of an intelligent people to their particular ecosystem (Berkes 1999; Berkes et al 2000; Kimmerer 2011). The Mesopotamian Marshes provide a prototype of a culturalized landscape, sustainably managed for thousands of years (Stevens 2011). In order to support a sustainable harvest of their resources, the

Marsh Arabs actively managed the reeds (*Phragmites australis*), fish, water buffalo and other wildlife in the Mesopotamian Marshes (Stevens 2007). They employed various cultivation and harvesting techniques collectively called today Traditional Resource Management (TRM).

Traditional Resources Management practices include multiple species management; resource rotation; succession management; landscape patchiness management; and other ways of responding to and managing environmental uncertainty in order to optimize sustainable resource extraction (Berkes 1999; Berkes et al. 2000). TRM by Marsh Arabs included burning of senescent vegetation to stimulate new growth and create micro-habitats; multiple species management of plant resources of water buffalo fodder, waterfowl, fish, and macro-invertebrates; resource rotation; selective harvesting on a seasonal and phenological basis; spatial and temporal restriction of fish harvest during spawning; and landscape patchiness management (Stevens 2007). These traditional systems have similarities to adaptive management with its emphasis on feedback learning, and its treatment of uncertainty and unpredictability intrinsic to all ecosystems. Fire was the most important management tool for indigenous peoples around the world. Removing senescent vegetation through burning and tending also maintained a more open and park like physiognomy. Thus, the benefits from burning of senescent vegetation within this habitat would be three-fold. Burning maintained open water throughways for passage through the marshes, as well as providing habitat for fish and wildlife, water buffalo fodder, plant materials, and human habitation. Also, burning into organic soils created depressional micro-topography, creating prolonged ponding and extending aquatic habitat for longer durations during dry periods. The inundation period was also extended through reducing vegetation biomass, decreasing water loss through evapotranspiration.

Prayer, thanksgiving, and asking permission to harvest are intrinsic components of traditional resource management, although the specifics vary among individuals and local traditions. In the Mesopotamian Marshes, Marsh Arabs are predominantly Shi'a Muslim. "The significance of the environment in Islam is something created by God or Allah to not waste. Earth is considered to be the womb for all life, for from it all life forms gain nourishment. It is one womb that produces different types of offspring, different fruits and vegetables, resonating the power of its Maker" (M. Izzi Dien, 2000, page 12).

Nature and Culture in the Mesopotamian Marshes

The *al Ahwar*¹ marshes of southern Iraq and Iran encompass the largest wetland ecosystem in the

Middle East and western Eurasia, historically covering 5,790-7,770 square miles (15,000-20,000 km²) of interconnected lakes, mudflats, and wetlands within what is now Iraq and Iran. Often called the Mesopotamian Marshes, the area is considered by Muslims, Christians, and Jews as the site of the legendary Garden of Eden. The *al Ahwar* marshes, derived from Aramaic and means "whiteness" or "the illumination of sun on water", are the homeland of a distinct cultural group—the mostly Shi'ite Muslim Marsh Arabs. The Marsh Arabs are integral to the marsh ecosystem through their management of the ecosystem over thousands of years.

The pulses of floods from the mighty Euphrates and Tigris rivers bring essential nutrients and replenishing water to the freshwater and marine environment. The large alluvial marsh floodplain had the capacity to attenuate peak flood flows, and absorbed the deposition of sediment before it reached the Gulf. When healthy the marshes sequester carbon, ameliorate local climate, and prevent the dust storms that now impair air quality and exacerbate respiratory health problems. Wetlands act as regional kidneys, filtering and purifying water for drinking, preparation for prayer, bathing, irrigation, and livestock. Additionally, the marshes support the agricultural production of dates, millet, rice and wheat. A major refugia of regional and global biodiversity, the marshes provide habitat for a diverse community of fish and wildlife (Eden Again/ Iraq Foundation 2003). The marsh ecosystem also sustains an economically important local and regional fishery, providing spawning habitat for migratory fin fish and pinacid shrimp.

The marshes play a role in an intercontinental flyway of migratory birds, support globally endangered species, and sustain the productivity of the Gulf fishery. The ecoregion is a "river of grass", with reed dominated marshes, swamps, shallow freshwater lake and seasonally inundated plains between the Tigris and Euphrates Rivers. An entire flyway of 1 to 10 million migratory waterfowl and shorebirds made their way from Siberian nesting grounds to the Mesopotamian marshes and northern Africa in the winter (Porter & Aspinall 2010; Salim, Porter & Rubec 2009; Scott 1995; Shattersfield et al 1998). Nature Iraq surveys 2005–2010 discovered or confirmed 190 breeding bird species for Iraq (Ararat, Fadhil and Salim 2012). Gavin Young (1977)

wrote eloquently “The birds are the Marshes’ crowning beauty. From November to early spring, the lagoons and reed-beds are flecked with the flashing colours of halcyon kingfishers and the gaudy purple gallinule. And the sky is dotted with floating eagles or mottled with whirling concourses of geese from Siberia and wild duck of many kinds”. Marsh biodiversity includes 28 species that are deemed to be of Conservation Concern, six species of which are Globally Threatened. Five of these species of Conservation Concern are “endemic species” found only in the Mesopotamian Marshes in Iraq. 22 species of globally endangered species and 66 at-risk avian species reside in the marshes (Birdlife International 2005; Ararat, Fadhil and Salim 2012).

In the Marsh Arab culture, nature and culture are inextricably intertwined. The Iraqi poet, Dr. Rasheed Bander al-Khayoun spoke of the potency of this relationship:

The people of al Ahwar need water in the marshes ... Their spiritual need surpasses the material need, since draining the marshes means putting the boats out of service and an end to regional poetry specific to al-Ahwar, and to singing, which can only be performed in that theatre of water and reeds and rushes.

The well-being of indigenous Ma'dan people is closely related to their water buffalo; the buffalo represent both a cultural keystone species and an umbrella species for biodiversity conservation in the marshes. Historically, the homes of Marsh Arabs floated on carefully crafted islands made of reeds; the structure and craftsmanship of the homes and mudhifs (guest house) date back to the time of the Sumerians. Each year the family added new layers of reeds and mud, with structures atop the islands constructed from arched bundles of reeds. “The family inhabited one side while livestock enjoyed the other (typically more spacious) end (Alwash, 2013). One cannot discuss the Ma'dan without talking about their use of water buffalo. "There are no houses in the marshes without a water buffalo. They are the main source of livelihood of people in the marshes. In fact, water buffalo are considered indicators of the quality of marsh life and restoration of the Iraqi marshes. The Ma'dan depend on their herds of water buffalo; they are valued for their dairy products, and are part of the family. I expect that the absence of water buffaloes will lead to the disappearance of people in the marshes." (UNEP 2001)

Unfortunately recent history has not been kind to the marshes or the people that inhabit them, as the area has been the scene of three military conflicts -the Iran-Iraq War (1980-1988), the Gulf War (1990-1991), and the 2003 invasion of Iraq led by the United States and Great Britain. For thirty-five years the Iraqi people and marshes have been in the middle of a war zone. As Hassan Partow reported to the United Nations concerning the fate of the Marsh Arabs: "With the outbreak of the Iran-Iraq war in 1980, their homeland was transformed into a frontline combat zone" (UNEP 2004; UNEP 2001). After the Gulf War ended in 1991, more than 90 percent of the marshes were drained, meaning the demise of a way of life that people had practiced for tens of centuries. The Marsh Arabs became environmental refugees, displaced from their ancestral homeland, with many taking refuge in Iran and supported by Baroness Emma Nicholson and the Amar Appeal.

In 2003, the Ma'dan began returning home with their water buffalo as locals began reflooding the marshes, fiercely breaking down the dikes and dams that destroyed their way of life. With good water years from 2003 to 2005, water returned to about 60 percent of the former marshland area (Richardson et al. 2005). Some areas rejuvenated beautifully, with lush growth of reeds and rebounding fish populations. The Ma'dan people who lived as environmental refugees throughout the 1990's were returning to the marshes with their water buffalo. However, despite the rehydration of such a large area of the marshes, much of the marsh ecosystem is in poor condition. According to a paper in *Science* (Richardson et al. 2005), less than 10 percent of the original marshes in Iraq remain fully functioning wetlands (Stevens 2007).

I interviewed some of the Ma'dan that fled Iraq to San Diego, California, and recorded their thoughts on the relationship with the marshes: "We grow like a bird in the marsh. Everything is in front of us. We canoe inside the marshes for reeds, for the animals and for fish...the marshes are like our body, our blood. You cannot miss one part. It all should stay as marsh." (Stevens 2007).

Through extensive interviews, I discovered that the Iraqis who lived in the marshes had a great wealth of biological knowledge about culturally significant resources, such as reeds, water buffalo, and fish (Stevens 2007). This traditional ecological knowledge is an important source of information for emerging models of ecological restoration and ecosystem management of the marshes. Because the marsh

ecosystem is adapted to human management, any effort to restore the ecosystem must also be an effort to reestablish Marsh Arab culture and make use of their traditional management practices. Thus maintaining the integrity, identity, and culture of the Marsh Arab society must be preeminent in restoration planning, and this must include encouraging the sustainable livelihoods of Marsh Arabs who have returned to the area. "The future of the 5,000-year-old Marsh Arab culture and the economic stability of a large portion of southern Iraq are dependent on the success of this restoration effort" (Richardson et al. 2005). However, the converse is equally true, the success of the restoration effort depends on the actions of the Marsh Arab culture and the economic stability of a large portion of southern Iraq.

"But as man can be broken but never defeated, nature can revive and marshes could be resurrected to embrace her lovers once again, as is happening on some areas of the Mesopotamian Marshlands." Jassim al Asadi, Nature Iraq.

Despite hope beating in the hearts of the Iraqi people, continued water diversions and dam construction upriver of the marshes have resulted in continuous desiccation of the marshes, and once again less than 20% of the marshes remain. The Tigris and Euphrates Rivers gain their water supply from snowmelt in the montane headwaters in Turkey, Syria and Iran. The proliferation of dams and irrigation schemes have disrupted natural flows and choked off much of the water supply. While Iraq has water-sharing agreements with Syria, Turkey and Iran, they are not effective in equitable water allocation to downstream water users, and there is a continuous loss of water quality, water supply, ecosystem functions and human ecosystem services such as water supply and air quality.

In October 2008, the Hawr al Hawizeh (a transboundary marsh straddling the border of Iran and Iraq and proposed as a Peace Park) was designated a Ramsar Wetland of International Importance (Nature Iraq et al 2008). Simultaneously in 2008, Iran dammed the Karkheh River and constructed a barricade along the Iran-Iraq border, cutting off the water source which feeds directly into the Hawr al Hawizeh marshes. This resulted in the desiccation and destruction of Iraq's most pristine remaining marsh. Reduced discharge and changes in water quality and river flow patterns have had a

significant negative impact on both the Hawizeh marshes and the downstream marine environment in the north western Persian Gulf (UN Integrated Water Task Force 2011).

Water, air, and land pollution is still extremely severe in many parts of Iraq, including the Mesopotamian marshes (Center for Strategic and International Studies 2004; Nature Iraq 2008). Iraq's environmental problems include (1) water resource pollution (including groundwater); (2) ecosystem and biodiversity degradation; (3) waste and sanitation disposal; (4) oil and other cement, fertilizer, and pesticide industry pollutants; and (5) the direct impacts of military conflicts (Bowman 2005). Reduced flows have exacerbated water quality problems and salt water intrusion. With low flows, salinity in the Shat al Arab River (the river formed by the confluence of the Tigris and Euphrates Rivers) has increased from one part per thousand to four to five parts per thousand (Marine Science Center, Basra University, unpublished data, 2009). People suffer from health problems from salty and polluted water; there is an inadequate water supply to support quality of daily life. Shad (*Alose hilisa*), symptomatic of an important local fishery, have declined 75 percent. Increased salinity, decreased dissolved oxygen, and increased turbidity are adversely affecting fish production and biodiversity throughout the Shat al Arab and the Persian Gulf (Sheppard et al. 2010).

Unfortunately, the future does not bode well. Unless urgent remedial action is taken, desiccation of the Mesopotamian marshlands is likely to continue unabated. In 1990, the GAP project in Turkey went online, and for a while the Euphrates River actually ran dry through the area of the marshlands (UN Committee on Economic, Social and Cultural Rights 2011). The post-1990 flow through the Euphrates is approximately half of what had been, while in the Tigris flows have decreased to almost a third of their pre-1990 discharge (UN Integrated Task Force 2011). Dams have reduced not only the overall water supply, but also its seasonality and the suspended sediment brought with the river water. Future proposed dams in the watershed are projected to deplete 138% of the mean annual flow of the Euphrates and 78% of the Tigris.

Recommendations/ Conclusion

The deep reciprocal relationship between people and the marshes they love is a sacred bond. As the palm trees, rice fields, water buffalo, and myriad winged birds are

displaced by salt encrusted wastelands, children begging for mercy instead of sitting in classrooms, as goes the water (See Figure 1). Water is the life blood of this virid oasis in the midst of desert sands and time; for life to endure, the stories and songs of the marshes must continue, the memories heal, and water be restored.

International efforts to develop equitable water allocation must be in place to avoid a global wasteland and unmitigated suffering throughout the watershed (UN Integrated Task Force 2011; Caponera 1992; Caponera 1973). Efforts should be intensified with Iran, Turkey and Syria, to release enough water to sustain life throughout the Tigris Euphrates watershed. There needs to be basin wide environmental and social impact assessments conducted, and alternatives flows and water allocation proposed to minimize adverse impacts. The international approach provides a top down approach to water management, and community based conservation efforts provide a local approach to equitable governance.

HIMA Mesopotamia promotes an exchange of information and scientific data among riparian users, government agencies, projects, and neighboring countries. And we want to capture and share the stories of the people who are being harmed by upstream water diversions and oil operations in the marshes, to protect the rights of people. Water is the life blood of the landscape surrounding the Mesopotamian Marshes of the Tigris Euphrates basin. The value of water in Islam is epitomized in the Quran. "Dry land, which is revived when rain is poured down upon it by God, is similar way to a person dying of thirst but saved by timely intervention (M. Izzi Dien, 2000, page 30). The holy Quran gives water a central role in the creation of life. Apart from water preservation, Islamic law provides an environmental system which includes protecting water from misuse and pollution. The main objective of the protection is to protect these public areas from misuse by people, pollution and congestion" (M. Izzi Dien, 2000, page 36).

The ancient system of traditional ecological knowledge, resource management and local governance utilized by the Marsh Arabs has not been termed *al HIMA* to my knowledge. However, the traditional system of community based conservation of the Marsh Arabs is culturally relevant; more research needs to be done to authenticate its relevance as a broad community based land management concept, as well as to determine the specific knowledge and concerns of the specific cultural groups within

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the marsh landscapes. Also, traditional knowledge and priorities of men and women is quite different, and efforts to interview both men and women are essential to implementation of a fair and just system of local governance and community based conservation. For example, in my interviews with Iraqi communities, men universally wanted to return to their lives in the marshes to fish, hunt, care for the water buffalo, and live a life of freedom (Stevens 2007). Women were concerned about health care, access to diapers, education for their children, and availability to have transportation, roads and modern amenities for their communities. Access to cell phones, computers, television, and modern conveniences is pretty much universally desired by at least the younger members of society.

Contemporary concepts of environmental protection, eco-cultural restoration, and sustainable development enhance and embellish traditional systems of land management and local governance. Community Based Natural Resources Management System that promotes sustainable livelihood, resources conservation, and environmental protection is justified in the *al ahwar* provided the following conditions are met: 1) it should be created in response to local public need; 2) it must be established for purposed pertaining to the public welfare; 3) it must avoid causing undue hardship to the local people by, for example, depriving them of indispensable resources; and 4) the purpose of the HIMA site is to protect public interest, human health, and revitalization of ecosystem services such as clean water and air (Saleh, Hashemi and Hawamdeh 2013; Kilani, Serhal & Llewelyn 2007).

“Reviving local knowledge and wisdom through HIMA system inspired from Arabic culture as a means for effective community-based resource management can inform new models for adaptive and responsive management. IUCN is keen to operationalize the HIMA concept in West Asia through working with members,” said Dr. Odeh Al-Jayyousi, IUCN West Asia Regional Director.

Reviving the HIMA system in Iraq requires a commitment to the principles of social justice, human rights and ecological sustainability along with adaptive management and community-based Traditional Resource Management. I recommend that in order to achieve just and equitable sustainable development, the concept of

reverential development be utilized. The germinative kernel of development is not just biological life, but life with meaning, dignity and fulfillment.

“A reverence for life and development are intricately connected in the framework of thinking and action in which the meaning of human life prevails, and in which respect for nature is part of our conscious and compassionate interaction with all there is. Reverential development is unitary in the broadest and deepest sense: it combines the economic with the ethical and reverential; it combines contemporary ethical imperatives with traditional ethical codes; it attempts to serve all the people of all cultures; and it promises to bring about a peace between humankind and nature” (Henryk Skolimowski (1990) p 103).

Implementing *al* HIMA in the marshes, prioritizing water allocation for flourishing marsh sites, and generating international water allocation agreements are the path to a sustainable future. Developing a contemporary *Al* HIMA system in the Mesopotamian marshes, based on community based conservation, will help to build a more reverentially sustainable marshland in Iraq. The ancient cultures and biodiversity of the marshes are a treasure at a world heritage scale. The Mesopotamian Marshes are a highly degraded and desertified landscape. Judicious and equitable allocation of water resources to sustain local human communities and environmental protection is critical to the sustainable future of the marshes.

The *al* HIMA system in Jordan and Lebanon provide an ancient and indelible trail for the Iraqis to follow. Despite regional instability and uncertainty, *al* HIMA provides the possibility of revitalizing the biodiversity and cultural heritage of the Mesopotamian Marshes, which are also well suited to eco-tourism. Nature Iraq has begun restoration efforts and development of eco-tourism in the central marshes near Al-Chibayish, similar to the eco-tourism developed in the Kfar Zabad wetlands in Lebanon (see Figure 2). In writing about the Kfar Zabad wetlands of Lebanon during a time of violence and duress, Gary Nathan (2008) writes “environmental injustice hurts individuals, disrupts their communities, and in a tragic way impairs their capacity to care adequately for one another and for the very land and waters than sustain them” (page 129).” Listen more deeply to the voices most often ignored in this world, much of what I hear is the keening of displaced peoples who feel they have been dismissed and

rendered refugees unworthy of access to the lands they most deeply love. They struggle to regain their dignity, which they pray will come through reconnecting with their ancestral lands one day.”

There is no doubt that the Iraqi people desperately want their environment and their lives to return to a natural and healthy state.

“All the people dream of is the marshes full with fishes, birds, cows, and buffalos with modernized passageways and islands, because it is this vision that is in harmony with their spiritual heritages as found in their songs, poems, and tales” (Rasheed Bander al Khayoun, pers comm., 2008).

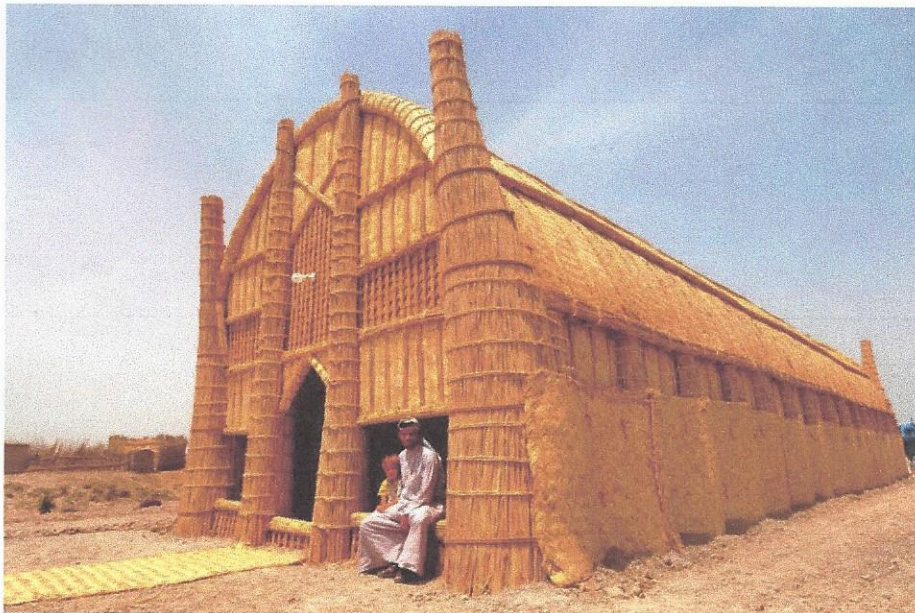


Fig. 1. Restoration of traditional mudhif in contemporary Marsh Arab village site. Photo by Jassim al Asadi, Nature Iraq.



Fig. 2: Photo of drying Mesopotamian Marshes. Photo by Jassim al Asadi, Nature Iraq.

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