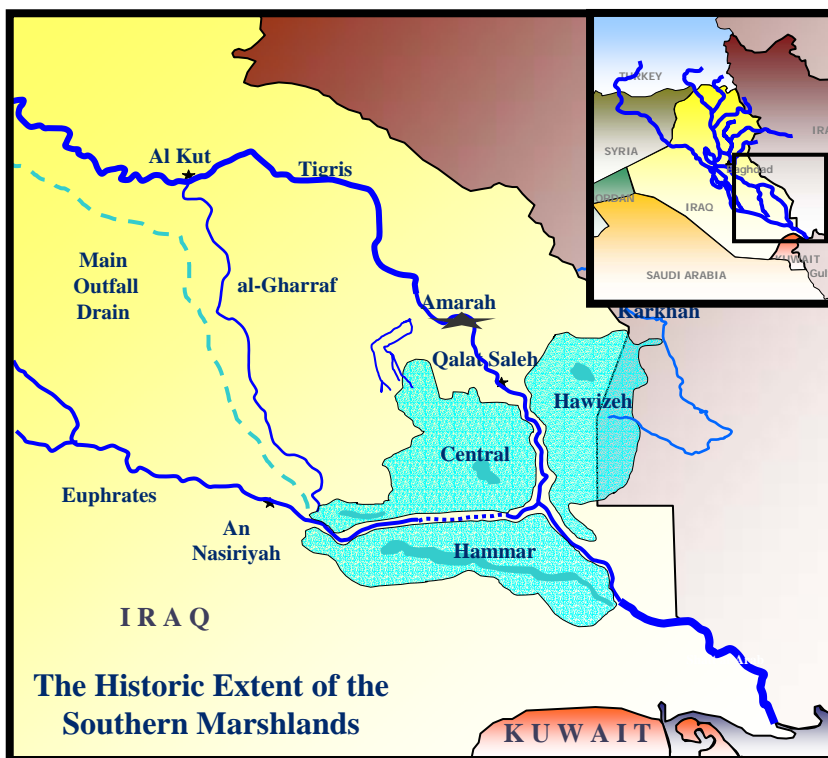


I. Overview

Restoration of the Mesopotamian Marshlands at the confluence of the Tigris and Euphrates carries political, cultural, and economic significance beyond the ecology of the wetland areas. Evidence of the atrocities committed by the old regime against the marsh dwellers is still apparent. As a consequence of the marsh drainage and destruction, the largely displaced and widely persecuted marsh dwellers still suffer from economic loss, inadequate nutritional intake, and absence of primary health care and acceptable drinking water.



II. History

From 1991 to 2003, the Ba'athist regime nearly destroyed the marshlands, one of the largest wetlands in the world. Massive drainage structures diverted water from 8,000 square miles of marshes, a premeditated environmental disaster comparable in scale to the Amazon deforestation or the drying of the Aral Sea.

The drainage targeted the unique, 5,000-year-old Marsh Arab society, seen as disloyal and unmanageable after the Shi'a insurrection of 1991. The Ba'athists raided settlements, killed tens of thousands, burned houses, and killed livestock. Historically the poorest people in Iraq, the Marsh Arabs were exiled or internally displaced. Many escaped to cities, but the fewer than 100,000 that remained were forced to relocate, some as many as 18 times.

III. Towards an Action Plan

In February 2004, an Iraqi and international team mobilized by USAID's prime contractor Development Alternatives, Inc. convened in Basra to design an action plan for the Marshlands Restoration Program. The program, led by the Ministry of Water Resources in cooperation with USAID and other donors, will restore the marshland ecosystem through improved management and strategic reflooding in addition to health, education and economic assistance to Marsh Arabs.

The team visited the Hawizeh, Hammar, Central and smaller marshes. They interviewed former marsh dwellers, who comprise most of the population. They met with tribal sheikhs, community leaders, farmers, fishermen, female herders, and merchants and operators in marsh settlements, in mudhifs (guest-house), in fields, on boats, in clinics, and in markets. They also met with local government institutions and NGOs.

In close cooperation with Iraqi nationals and the Coalition Provisional Authority, USAID is restoring critical infrastructure, improving healthcare and education services, expanding economic opportunities, and implementing democratic governance.

The Iraq Marshlands Restoration Program

Special Feature

The Integrated Marsh Management Approach

The intellectual framework for the integrated marsh management approach recognizes that people are at the heart of the ecosystem and that restoration is compatible with a wide range of economic activities contributing to human welfare and sustainable development. The approach also recognizes the limitations imposed by available water and the importance of achieving ecological, environmental and human equilibrium. Healthy restored marshland ecosystems support biodiversity, improve environmental quality, and generate goods and services, such as fisheries and grazing, providing benefits to local communities.

The Iraq Marshlands Restoration Program Development Team includes:

Iraq's Ministries of Water Resources, Agriculture, and Environment

Local officials from Maysan, Nasiriyah, and Basrah

University of Basrah College of Agriculture and Marine Science Center

Representatives of the Iraq Foundation and AMAR International Charitable Foundation

Other advisors from Iraq, U.S., U.K., Jordan, Australia, and Czech Republic.

IV. The Importance of the Mesopotamian Marshes

The Mesopotamian marshes are important for economic, social, and biodiversity values characterized by frequency of water flows, accumulation of nutrients and organic matter and the production of commercially important vegetation and fish.

Marshes are characterized with standing or flowing water where the soil is saturated part of the year. As a result, reeds and aquatic plants are especially adapted to flooded soils characterized by poor drainage and lack of oxygen. Historically, prior to dam construction, two features distinguished the hydrological regime of the Tigris-Euphrates river system: sudden and violent flooding due to snow melt and upstream precipitation and periodic highly irregular water flow.



The marshes are a cultural link to the antiquity of the Arab people. Their condition reflects the health of conditions upstream in both rivers – the type and amount of pollution, the amount of water flow, and the salinity of drainage water from irrigated lands. The marshes are also a powerful reflection of the stability and prosperity of the populations living in the upstream watersheds.



Marshes serve a variety of functions for human and other ecosystems including:

- Act as a natural sponge storing water during high river flow and releasing water during low flow.
- Nursery grounds for fish, aquatic birds and refuges for terrestrial animals.
- Natural filters that purify water, trap sediments and pollutants, and facilitate desalinization of salty water.
- Highly productive in vegetative cover (e.g. reeds) harvested commercially for building material, mats, and cattle forage.



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- V. The Iraq Marshlands Restoration Program will focus on six closely related activities:
- A. Agricultural Production and Agribusiness
 - B. Integrated Marsh Management
 - C. Constructed Wetlands
 - D. Livestock and Dairy Production
 - E. Primary Health Care
 - F. Capture Fishing and Fish Farming

A. Agricultural and Agribusiness Initiatives

As Iraq's agricultural sector grows, it will represent an important source of revenue for rural communities. Unfortunately, agriculture in the marshlands currently provides poor returns, preventing marsh dwellers from participating fully in the growing agricultural economy. Access to agricultural inputs, extension services and improved production techniques is limited and transportation presents a significant barrier to farmers.

Working with the Iraq Ministry of Agriculture, the Iraq Marshland Restoration Program will work to jumpstart agricultural production and business around the marshes and identify job opportunities for former marsh dwellers.

Two primary activities will further this goal:

- Two date palm nurseries in the marsh region will provide offshoots for replanting.
- Large-scale crop demonstrations in the drained areas for field crops and horticulture, combined with farmers field days will give hands-on experience with new techniques.



Date Palm Cultivation

Date palms have been cultivated for more than 5,000 years in Iraq. Iraq is one of the largest world producers and exporters of dates. After oil, dates are Iraq's largest export. Iraq once had the largest date orchards in the world but war and environmental degradation—including the intentional draining of the marshlands--depleted the number of trees from 30 million to 16 million. Iraq currently produces 629 varieties of dates. The Iraqi Bahri date is renowned for its exquisite taste, especially in the *rutab* (golden amber) phase—smooth and honey-flavored. The Iraq Ministry of Agriculture intends to rehabilitate the date palm industry to increase date yields. As an important source of rural jobs, the date industry will be part of Iraq's economic revival. Developing nurseries to grow date palms would increase Iraq's date production and allow agricultural specialists to increase yields of each variety.

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The Iraq Marshlands Restoration Program

Special Feature

B. Integrated Marsh Management

Marsh restoration must be part of an integrated, long-term strategic plan for marsh management which also takes into account other land-use sectors and economic activities. The integrated marshland management plan will achieve this objective.

Iraqis reflooded parts of the marshland immediately after the conflict; but the impact of the reflooding remains largely unknown. The Integrated Marsh Management activity will assess where the reflooding occurred, how that and continued flooding will shift over time, and what the impact will be on the water, soil, vegetation, wildlife, society, and local economy. The activity will provide criteria for future re-flooding; identify sites for monitoring ecosystem functions; determine the immediate and long-term affects on water, soil, and biotic resources; assess the impact of re-flooding on local populations; and provide data to develop an integrated marsh management plan.



C. Constructed Wetlands Activities

Many villages in the marshlands have no public water supply and little wastewater treatment or disposal. Bath water is returned to the marsh and village houses lack toilets, resulting in sewage input into the wetlands. Constructing wetlands to serve as a natural sewage filter carries low costs for installation or maintenance and requires little ecosystem manipulation.



The objectives of this activity are to improve public health in the marshes through the use of low-cost constructed wetland technologies. Wetland ecosystems filter pollutants and improve water quality but since the marshes were drained, natural ecosystem services were ruined or altered.



Working closely with the Iraq Ministry of Public Works, local population sites will be selected in Al Chibayish, the largest town in the marshlands, for a demonstration site to serve all 5,000 residents. Additionally, Iraqi engineers will be trained in the design, operation, maintenance, sampling, and evaluation of constructed wetlands.

USAID hosted an inter-agency working group on April 15. For further information please contact USAID's Marshlands Restoration Program officer John Wilson, Senior Environmental Officer for the Asia and Near East Bureau (202-712-4633 or jwilson@usaid.gov)



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D. Livestock and Dairy Production

When the marshes were drained, traditional livestock production was disrupted and the emphasis shifted from water buffalo to sheep. Livestock herding is a critical endeavour in the marshes as a source of basic nutrition and income for families, but serious constraints exist. The Marshland Restoration Program will address these constraints by:

Extending Veterinary Services to Marsh Communities: Poor animal health is a serious constraint for local herders. This activity will bring together service providers and users under the Ministry of Agriculture and establish a small number of veterinary centers. Veterinary staff will make regular visits, and monitoring will determine if services boost production and income.



Introducing Forage Crops Cultivation: Throughout the marshes, animal herders uniformly identified inadequate food supply as the leading problem. To develop approaches to increase animal feed, this activity will explore the possibility of experimenting with alfalfa growing with the An Nasiriyah Agricultural Directorate.

Educational and Income-Generating Opportunities for Women: Women are the exclusive managers of livestock and the dairy processors and marketers. The regional educational system is barely operating and most women and girls are illiterate. This activity will provide women and girls with practical training in improved livestock production.



USAID's programs in Southern Iraq go beyond marshland restoration to other local needs. USAID and its partners have rehabilitated more than 424 schools and supplied more than 1.5 million textbooks to the region.

USAID's Local Governance Program supports Iraq governing bodies from the Governorate Council to the City and Neighborhood Level. USAID has facilitated the development of five subdistrict and two district councils in Basra, seven subdistrict councils in Dhi Qar, and seven subdistrict and four district councils in Maysan.

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The Iraq Marshlands Restoration Program

Special Feature

E. Primary Healthcare Activities

The marshlands have always been one of the most remote areas in Iraq, historically outside the reach of the government and with a record of the fewest services provided. In the '90s, medical services were virtually nonexistent in marshlands.

Although the major focus of the Marshland Restoration Program is ecosystem management and economic development, it also includes an activity specifically targeted at one of the greatest problems facing Marsh Arabs: nonexistent primary healthcare.

Objectives of the public health activity are to:

- Initiate a sustainable healthcare service in collaboration with the Iraq Ministry of Health, AMAR International Charitable Foundation, and marsh dwellers.
- Provide immediate curative and preventive care for the unserved or underserved.
- Initiate health education activities.
- Monitor the impact of marsh reflooding on the local population with respect to diseases like schistosomiasis.
- Support currently available healthcare services.

F. Fishing and Fish Farming

Before the marshes were drained, the marsh economy was based on agriculture, livestock, birding, mat-making, and fishing. Although fishing was a primary economic livelihood for only a few low-status tribes, subsistence fishing was practiced widely, and fish was a major food item. USAID's Marshlands program aims to rehabilitate fish stocks to allow these practices to resume.

Fish production increases will be achieved by reflooding the largest possible area and by keeping sluices open within flood control and agricultural constraints to maintain fish migration and spawning. Fishery diversity and productivity will take years to return, but there are encouraging signs that it can recover.



USAID's Community Action Program works with Iraqi Community Action Groups to identify and prioritize their needs and implement projects to address those needs. CAP projects include local infrastructure repairs, school rehabilitation and health clinic renovation. The CAP program partners, Mercy Corps and Save the Children, have 347 projects completed or in development in the Marshland governorates—Thi Qar, Basra and Maysan—totaling more than \$11 million.



The program focuses on increasing high value stocks by improving existing fishery facilities and restocking marshes. Staff will work with the Iraq Department of Fisheries and the local fishers and village chiefs to develop rules for management in 12 to 15 villages and a catch monitoring program will be established.

Document photos provided by Peter Reiss, Douglas Pool, Jonathan Greenham, Ali Farhan



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