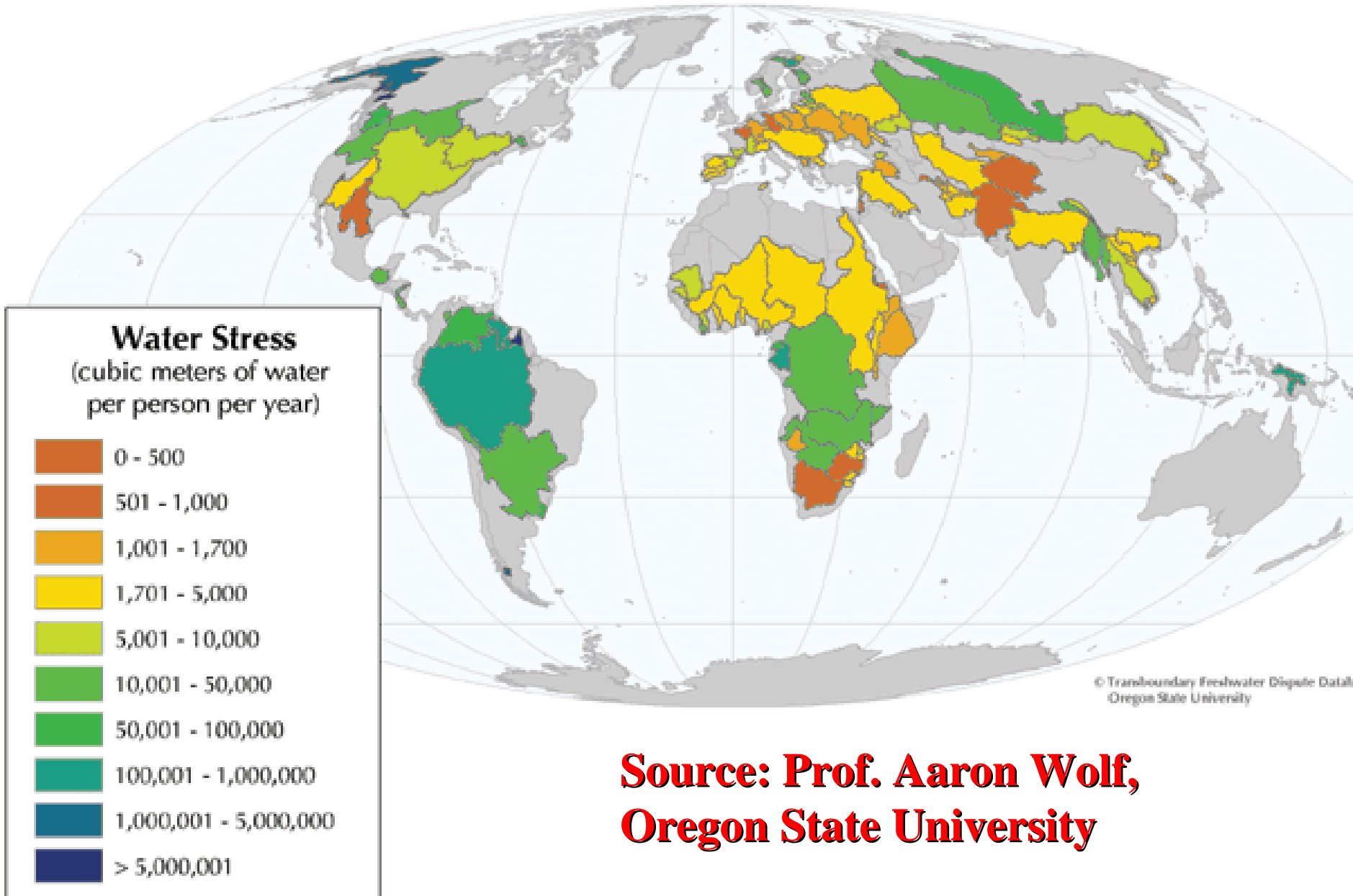




Strategic Water for Iraq
PROSPECTS FOR THE
THE TIGRIS-EUPHRATES BASIN

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Water Stress by International River Basin



**Source: Prof. Aaron Wolf,
Oregon State University**

The Problem

- ☞ World Economic Forum reports more than half the world's population (3.9 Billion) will live in “high water stress” by 2030
- ☞ More than 3 million deaths per year can be attributed to waterborne disease, and the scourge falls most heavily on poor women.
- ☞ This will soon become a matter of international security affecting everyone.



Water Optimists and Pessimists

- ☞ **The optimists are right, but their optimism is dangerous.**
- ☞ **The pessimists are wrong, but their pessimism is valuable.**
- ☞ **Water “outsiders” may have limited influence in local decisions.**
- ☞ **Source: Dr. Tony Allan,
Kings College, London**





Euphrates - Tigris Basin

THE TIGRIS-EUPHRATES BASIN

- ANCIENT HISTORY
- THE IMPORTANCE OF WATER TO THE REGION
- THE GEOGRAPHIC DOMINANCE OF TURKEY
- THE INTERPLAY OF MILITARY, POLITICAL, ENVIRONMENTAL AND ECONOMIC FACTORS





Focus on Turkey: SOUTHEAST ANATOLIA PROJECT

☞ SOUTHEASTERN TURKEY

- ◆ 21 DAMS**
- ◆ 19 MAJOR HYDROPOWER PROJECTS**
- ◆ IRRIGATION OF 4 MILLION ACRES**

☞ IMPORTANT PART OF TURKISH POLICY IN THE REGION

☞ MAJOR IMPLICATIONS FOR ARAB NEIGHBORS TO THE SOUTH





SOUTHEAST ANATOLIA PROJECT

- ☞ VISION OF THE “GAP”**
- ☞ IMPORTANCE OF POWER GENERATION**
- ☞ THE KURDISH PEOPLE**
- ☞ IRRIGATION AND JOBS**
- ☞ CURRENT LEVEL OF IRRIGATION DEVELOPMENT ONLY 30%**



BATMAN DAM





GAP BÖLGE KALKINMA İDARESİ BAŞKANLIĞI
GAP REGIONAL DEVELOPMENT ADMINISTRATION
1/2.250.000



- National Border
- GAP Region Border
- Provincial Border
- Motorway Under Construction
- Projected Motorway
- State Highway
- Secondary Road
- Railway
- Projected Railway
- Province Centre
- District Centre
- Airport
- In Operation
- Under Construction
- In Planning and Final Plan Stage
- In Reconnaissance and Master Plan Stage
- Underground Water Irrigation
- Irrigation Canal
- Tunnel
- Pumping Station
- Diversion Dam
- Power Station

	ha (mrl)
CURRENT IRRIGATION	83016
Hacıhalıç Irrigation	2096
Silopi-Nerizli Irrigation	2740
Besni-Kelesan Irrigation	2400
Nusaybin Irrigation	7500
Ceyşanlı Irrigation	7500
Sivan Irrigation	5790
Ceylanpınar Irrigation (Ikarap)	27000
Akçakale Irrigation	15000
Sarıçay Irrigation	7000
IRRIGATION UNDER CONSTRUCTION	9142
Çınar Gökkuşu Irrigation	3582
Garzan-Kozluk Irrigation	3700
Dark-Dumlupınar Irrigation	1860

	ha (mrl)
THE LOWER EUFRATES PROJECT	701281
A. Ufa-Harran Irrigation	141835
B. Mardin-Ceylanpınar Gevity Irrigation	185639
C. Mardin-Ceylanpınar Pumped Irrigation	146090
D. Siverek-Hıran Pumped Irrigation	60105
E. Bozova Pumped Irrigation	68702
SURUÇ-BAZIKI PROJECT	146590
ADİYAMANKAHTA PROJECT	77824
A. Camgazi Irrigation	6536
B. Other Irrigation's	71288
ADİYAMAN-GÖKSU-ARABAN PROJECT	71598
GAZİANTEP PROJECT	89090
A. Harcağıç Irrigation	7330
B. Kayack Irrigation	13680
C. Kraliçe Irrigation	1969
D. Other Irrigation's	66021

	ha (mrl)
DİCLE-KRALIKIZ PROJECT	136080
BATMAN PROJECT	37744
GARZAN PROJECT	80000
ÇİZRE PROJECT	121000
A. Silopi Irrigation	32000
B. Nusaybin-Çizre-Ül Pumped Irrigation	89000

Source : General Command of Mapping 1/500.000 Scale Maps,
DSİ's Dated 1.7.1994 GAP Development Plan

GENERAL COMMAND OF MAPPING 1995

ENVIRONMENTAL FACTORS

- **LACK OF RELIABLE DATA**
- **INEFFECTIVE NATIONAL LAWS**
- **CHANGING WATER TABLES**
- **HIGH SALINITY LEVELS**
- **IMPACT ON AGRICULTURE**
- **IMPACT ON HUMAN HEALTH**
- **THE NEXT CHALLENGE: CLIMATE CHANGE**



لروح الامم محمد سعيد الخفاه
١٩٩٢













Iraq's dependency on The Euphrates-Tigris

- **About 60% of Iraq's water supply originates outside its borders.**
- **Annual average “natural flow” of the rivers into Iraq:**

Euphrates: 30 Billion Cubic Meters (BCM)

Tigris: 20 BCM

- **Turkish and Syrian dams have moderated seasonal fluctuations.**



Projected Depletion of the Euphrates

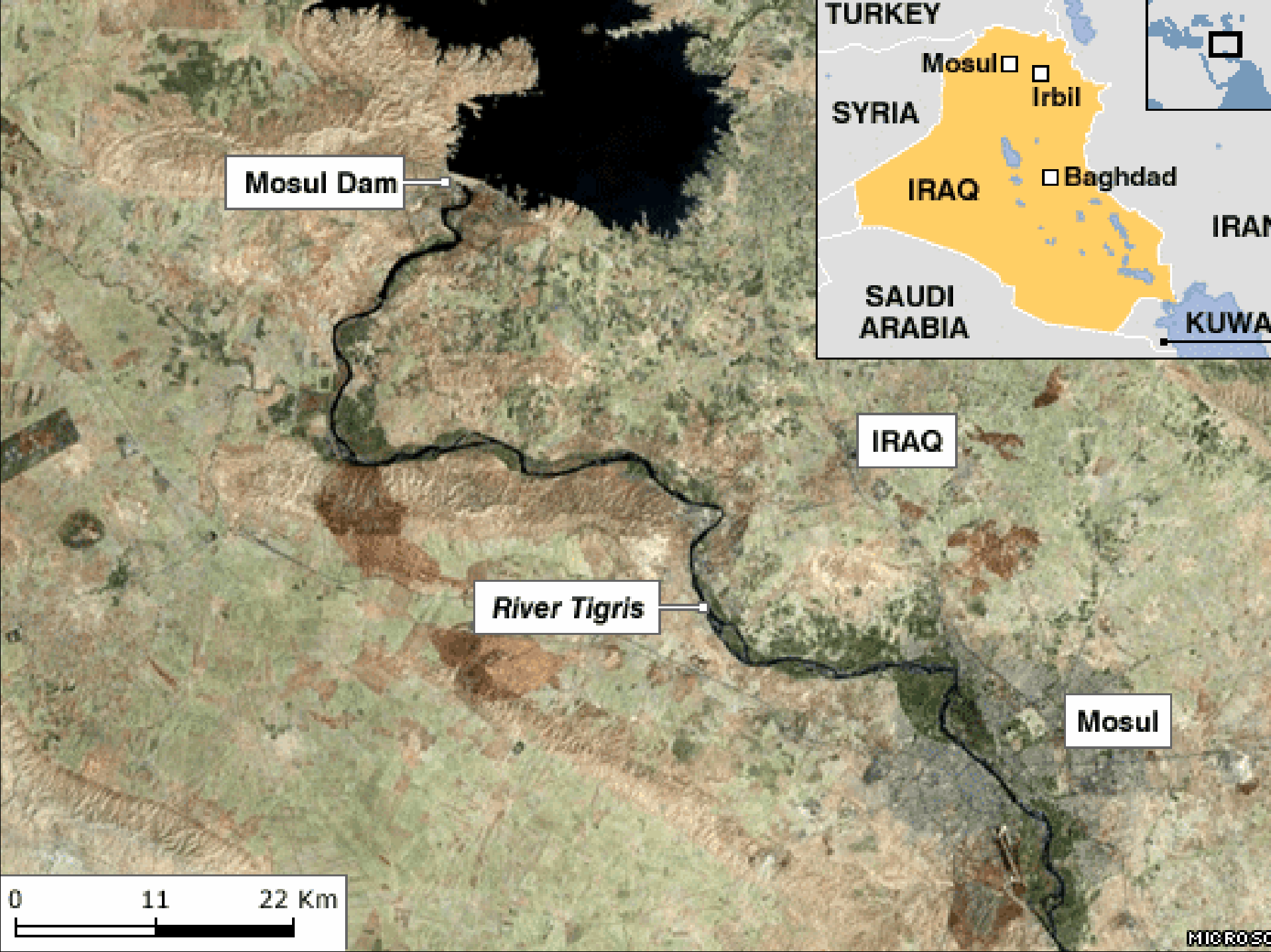
- **Average historic “natural flow” at Hit, Iraq:
800 Cubic Meters per second (CMS)**
- **2008 Estimate: 410 CMS**
- **2015 Projection: 340 CMS**
- **2025 Projection: 280 CMS**
- **2040 Projection: 190 CMS**
- **Water Quality will deteriorate as well.**
- **Source: Dr. John Kolars,
Michigan State University, 1995.**





MOSUL DAM





Mosul Dam

River Tigris

IRAQ

Mosul

TURKEY

SYRIA

Mosul

Irbil

IRAQ

Baghdad

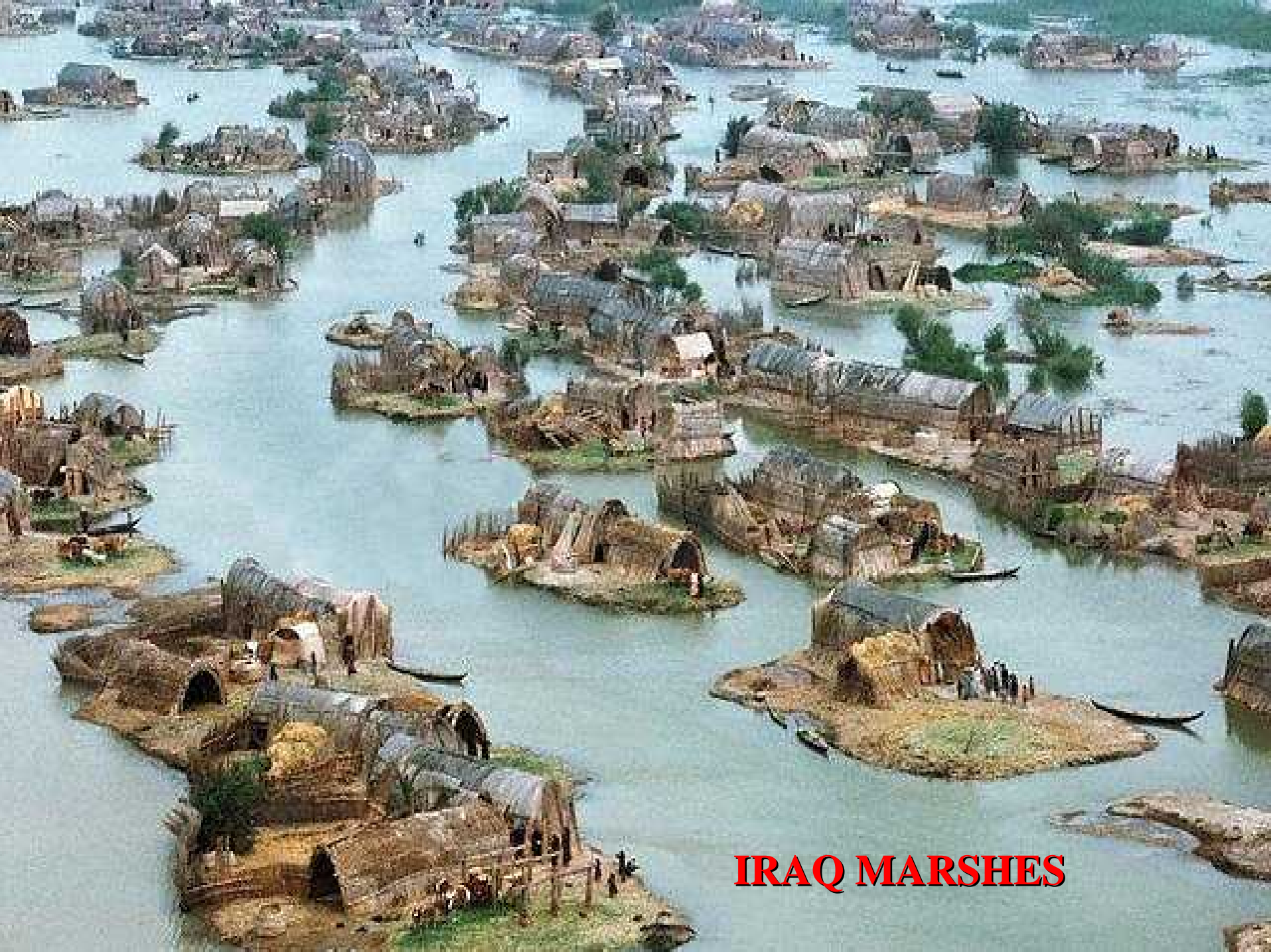
IRAN

SAUDI ARABIA

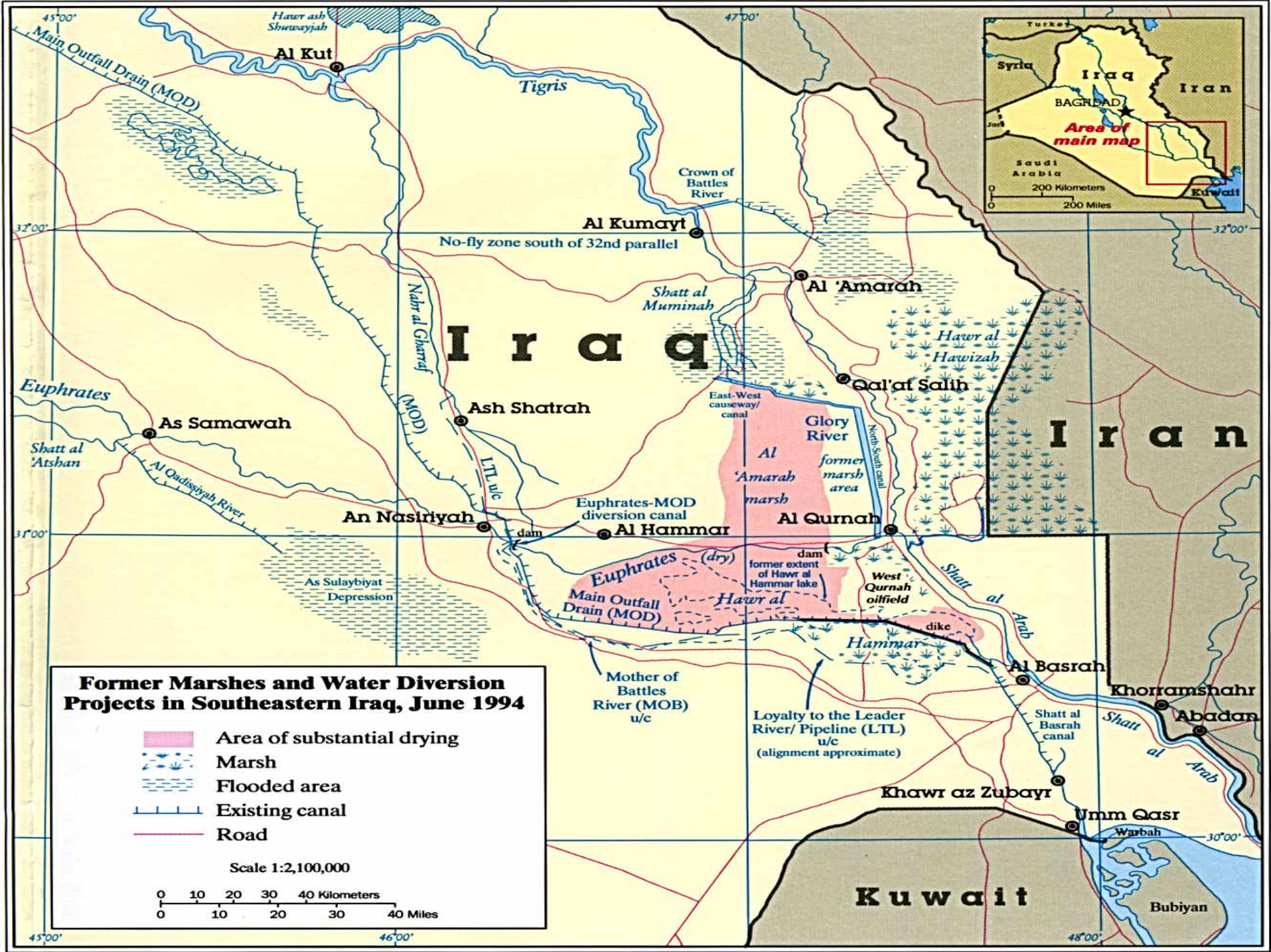
KUWA

0 11 22 Km

MICROSOFT



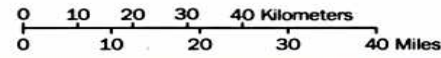
IRAQ MARSHES



Former Marshes and Water Diversion Projects in Southeastern Iraq, June 1994

- Area of substantial drying
- Marsh
- Flooded area
- Existing canal
- Road

Scale 1:2,100,000



45°00' 46°00' 47°00' 48°00' 32°00' 31°00' 30°00' 45°00'

COOPERATION OR CONFLICT?

- **HISTORICAL ANIMOSITIES**
- **LACK OF REGIONAL INSTITUTIONS**
- **POLITICAL BARRIERS**
- **CULTURAL BARRIERS**
- **ENVIRONMENTAL FACTORS
ALONE WILL NOT CAUSE
REGIONAL CONFLICT**



INTERNATIONAL LAW

- ☞ **INTERNATIONAL WATER LAW**
- ☞ **INTERNATIONAL LAW
COMMISSION**
- ☞ **FRAMEWORK CONVENTION 1997**
- ☞ **Art 5 “EQUITABLE UTILIZATION”**
- ☞ **Art 7 “NO SIGNIFICANT HARM”**
- ☞ **LAW AND POLITICS**
- ☞ **WILL THE LAW CONTRIBUTE
TO COOPERATION?**



CONCLUSIONS

- ➔ **TURKEY WILL CONTINUE TO DEVELOP THE GAP PROJECT**
- ➔ **STABILITY IN IRAQ IS CRITICAL**
- ➔ **CONDITIONS WILL WORSEN IN 10 TO 15 YEARS**
- ➔ **IRAQ AND SYRIA WILL SUFFER**
- ➔ **THERE WILL BE A “CRISIS”**
- ➔ **INSTABILITY WILL FEED EXTREMISM**
- ➔ **DIPLOMATIC INITIATIVES CAN HAVE AN IMPACT**









بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ
كُنَّا عَلَى الْأَرْضِ
فَلَا تَهْمَلُوا قُرْآنَهُ
وَلَا تَصَدَّقُوا كَلِمَةً
مَّا تَقْرَأُونَ

الرئيس القائد صلاح حسين

أَرْكَبُكُمْ فَاجْعَلُوا
بِالْعَالِ وَالْأَرْضِ
الْمَعْرُوفِ يَنْفَعُ
حِكْمًا أَوْ يَنْفَعُ مَالًا
رِجَالًا أَوْ يَنْفَعُ عَمَلًا
الرئيس القائد صلاح حسين

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RECOMMENDATIONS

- **RELIABLE DATA IS ESSENTIAL**
- **TECHNICAL ASSISTANCE NEEDED**
- **DEVELOP WARNING INDICATORS**
- **A NEW REGIONAL INITIATIVE?**
- **CONFIDENCE BUILDING MEASURES**
- **ROLE OF AUTONOMOUS KURDISTAN SHOULD BE CONSIDERED**
- **UNIQUE DIPLOMATIC OPPORTUNITY?**



MODELS FOR COOPERATION?

➤ **Nile Basin Initiative**

<http://www.nilebasin.org>

➤ **Mekong River Commission**

<http://www.mrcmekong.org>

➤ **Danube River protection <http://www.icpdr.org>**

➤ **International Joint Commission between the
US and Canada: <http://www.ijc.org>**

➤ **My e-mail: lorenz@u.washington.edu**



Questions?

- ☞ E-mail: Lorenz @ u.washington.edu
- ☞ Course in fall 2009
- ☞ Water and Security in the Middle East
- ☞ JSIS 490/590 Special topics
- ☞ Five credit writing course meets M and W at 1:30 in Thomson Hall.

