

MCEC 2007

Making Peace with the Environment
(the one we're leaving our children!)

Energy – Climate – Conflict

Energy & Conflict

Great Britain, 1903:

"We regard the establishment of a naval base or of a fortified port in the Persian Gulf by any other power as a very grave menace to British interests, and we should certainly resist it with all the means at our disposal."

Energy & Conflict

Great Britain, 1914:

Archduke Ferdinand may have precipitated WW1, however where was the *first* British regiment of WW1 posted?

(and then joined by **fifty-one** armoured divisions)

Energy & Conflict

Great Britain, 1914:

Archduke Ferdinand may have precipitated WW1, however where was the *first* British regiment of WW1 posted?

(and then joined by **fifty-one** armoured divisions)

⇒ Iraq (Basra)

Energy & Conflict

Great Britain, 1914:

Archduke Ferdinand may have precipitated WW1, however where was the *first* British regiment of WW1 posted?

(and then joined by **fifty-one** armoured divisions)

⇒ Iraq (Basra)

Why? ... Europe's militaries had converted from coal to oil, and Germany was just in the process of completing the Berlin-to-Baghdad railway.

Energy & Conflict

Great Britain & United States, 1953:

Mossadegh is democratically elected in Iran, nationalizes Iranian Oil (from the Anglo-Iranian Oil Co., later B.P.)

The CIA stages a coup, Mossadegh is ousted.

Energy & Conflict

Carter Doctrine, United States, 1980:

"Let our position be absolutely clear: An attempt by any outside force to gain control of the Persian Gulf region will be regarded as an assault on the vital interests of the United States of America, and such an assault will be repelled by any means necessary, including military force."

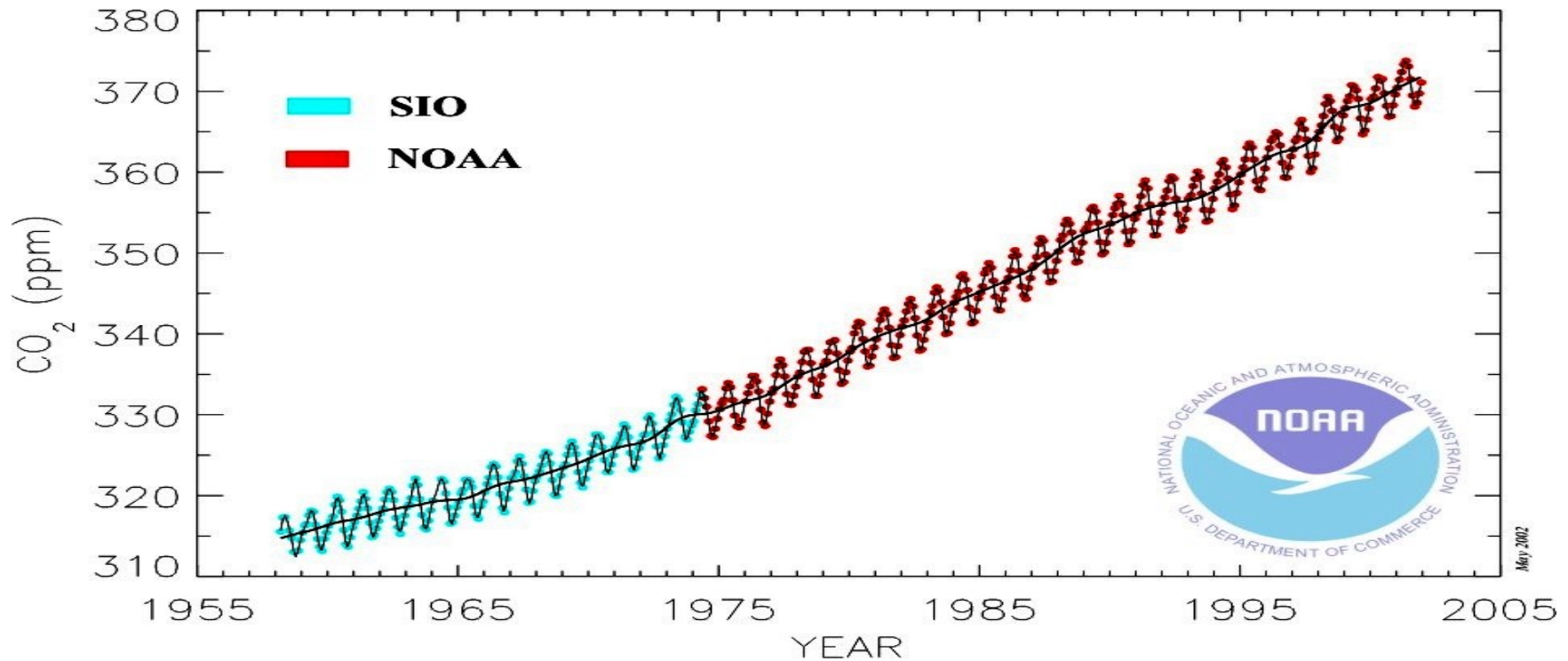
Energy & Conflict

Cheney “Doctrine”, United States, 2005:

“The American Way of Life is Not Negotiable.”

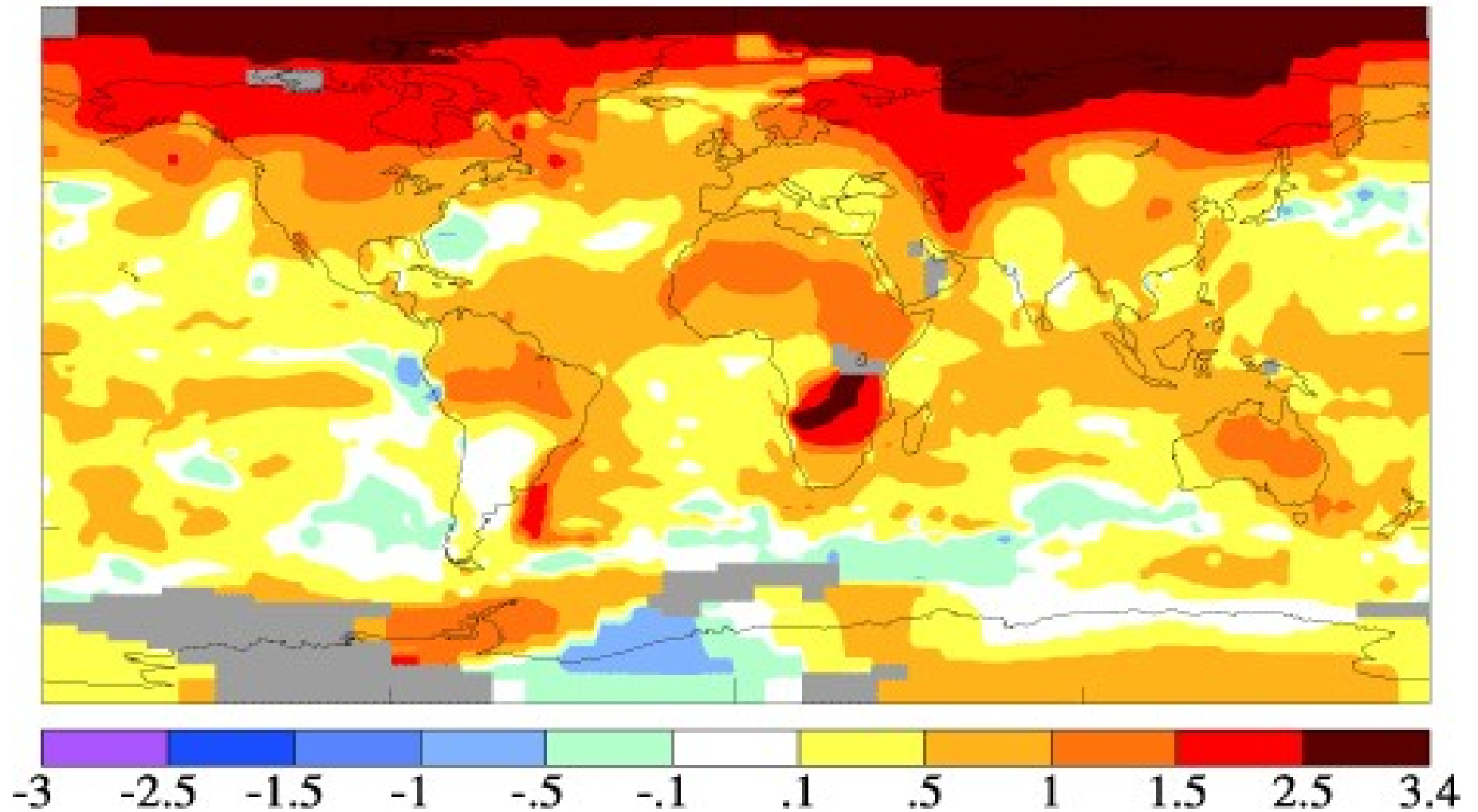
Energy & Climate

Mauna Loa Monthly Mean Carbon Dioxide

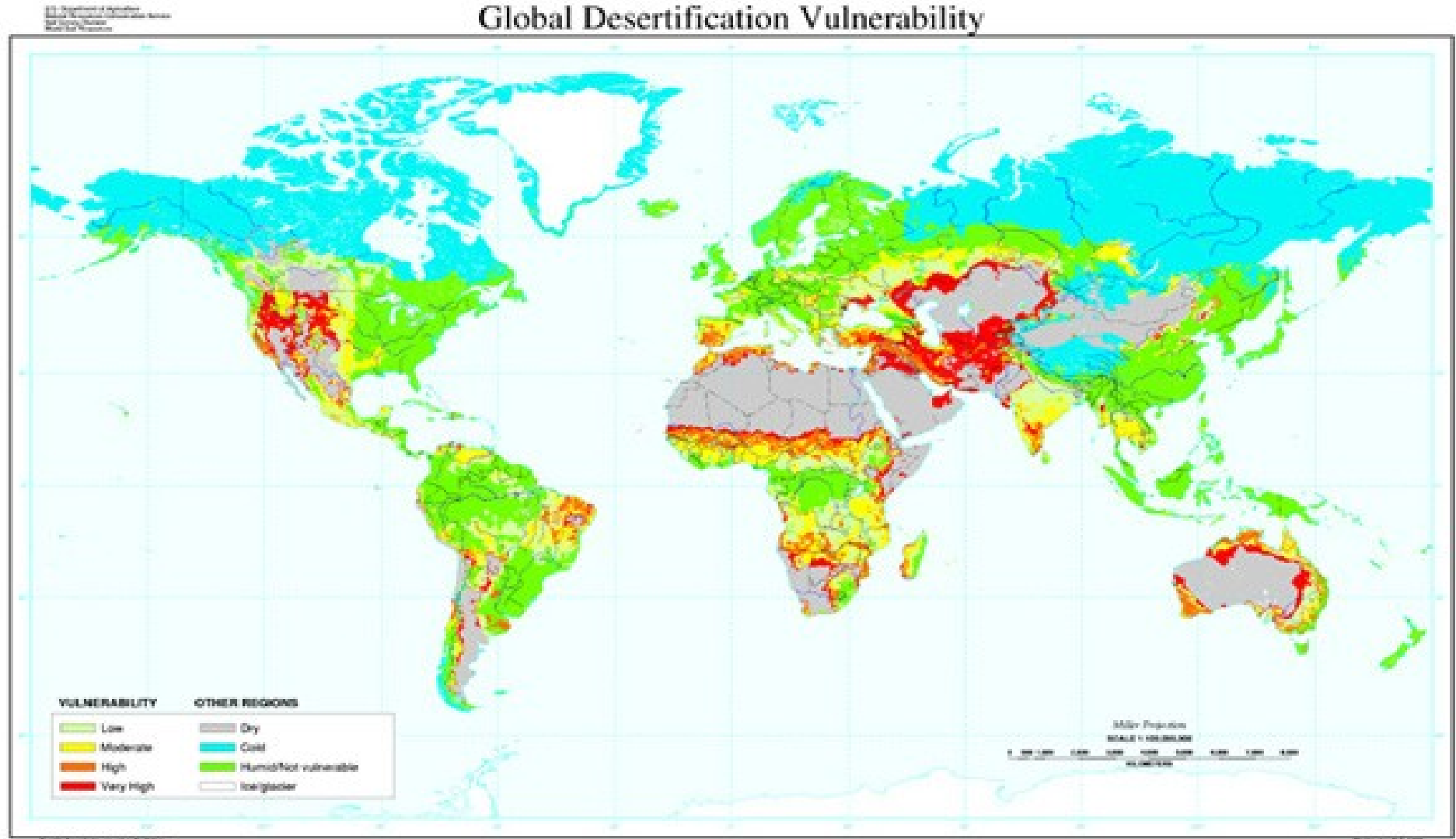


Atmospheric carbon dioxide monthly mean mixing ratios. Data prior to May 1974 are from the Scripps Institution of Oceanography (SIO, blue), data since May 1974 are from the National Oceanic and Atmospheric Administration (NOAA, red). A long-term trend curve is fitted to the monthly mean values. Principal investigators: Dr. Pieter Tans, NOAA CMDL Carbon Cycle Greenhouse Gases, Boulder, Colorado, (303) 497-6678, ptans@cmdl.noaa.gov, and Dr. Charles D. Keeling, SIO, La Jolla, California, (616) 534-6001, cdkeeling@ucsd.edu.

Energy & Climate



Climate & Conflict



Energy, Climate & Conflict

It can no longer be possible to limit the examination of our lifestyle to the local environment.

To discuss or contemplate peace-making, in the absence of taking a very hard look at our energy use and lifestyle, is either naive or hypocritical.

(creation video)

Energy

What are the key energy problems?

Flat / declining oil production worldwide (peak oil)

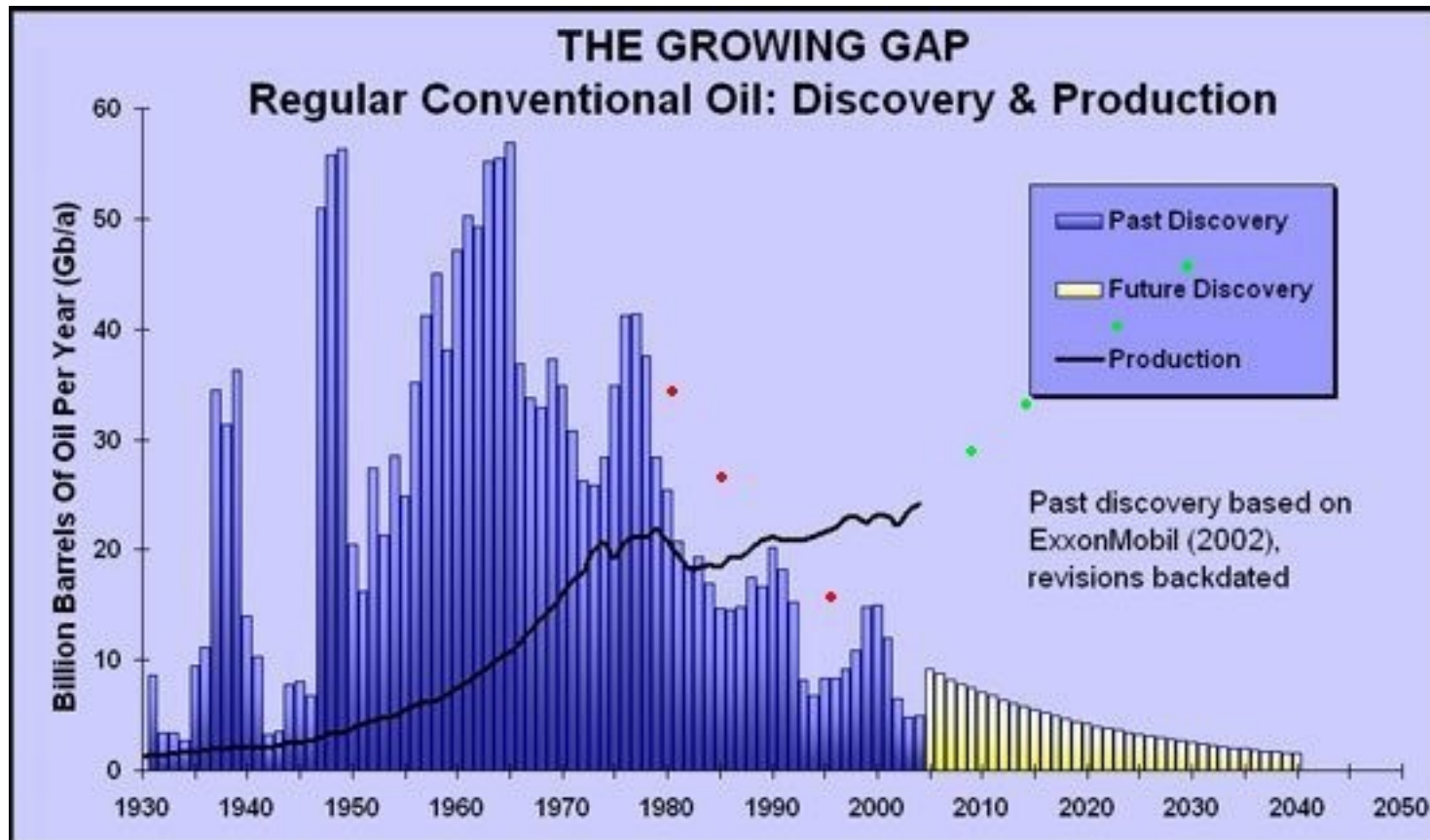
Flat / declining natural gas production

Increasing oil consumption

Poor countries are the first to be priced out of oil use
(demand destruction).

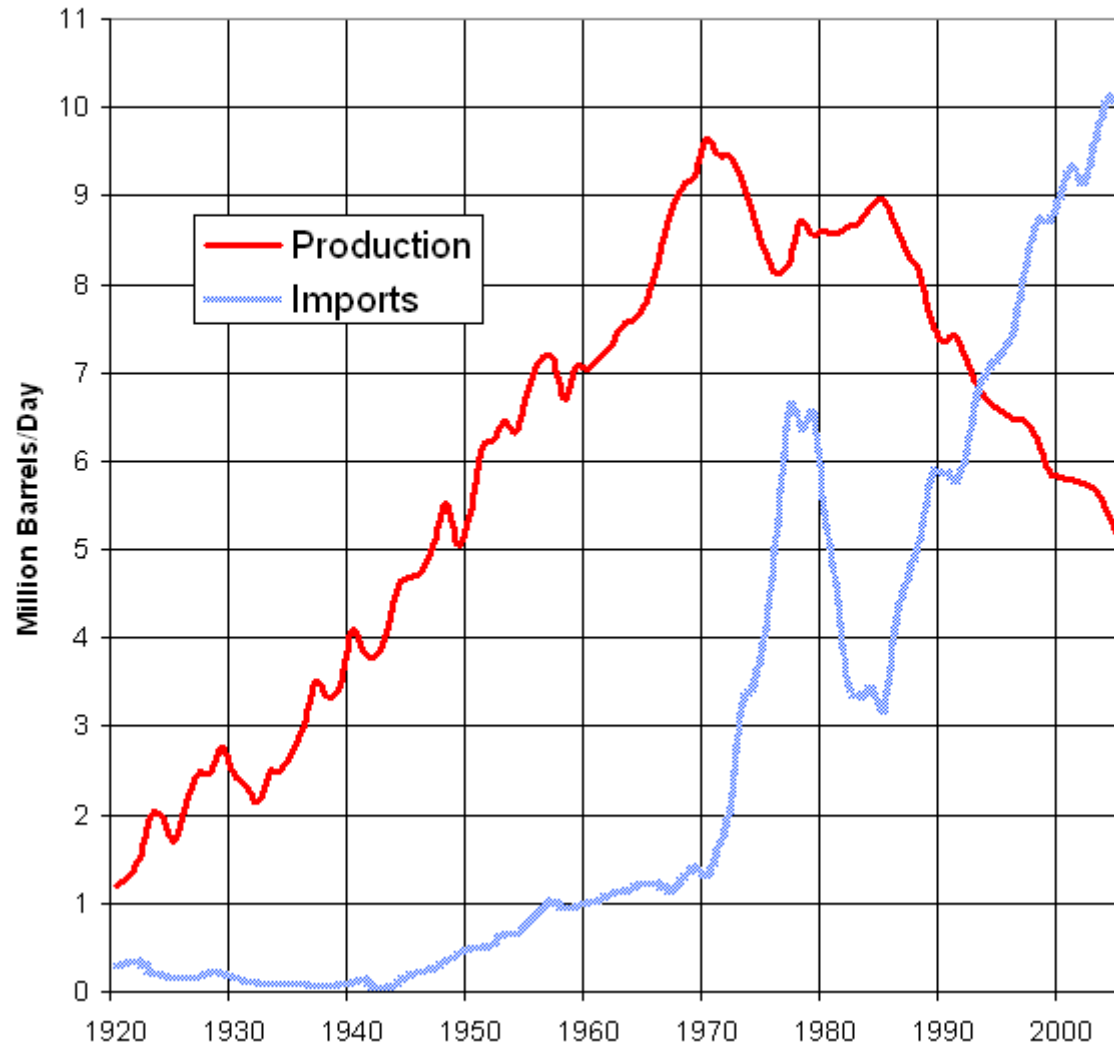
The cheapest energy is gone ...

Energy & Peak Oil



Energy & Peak Oil

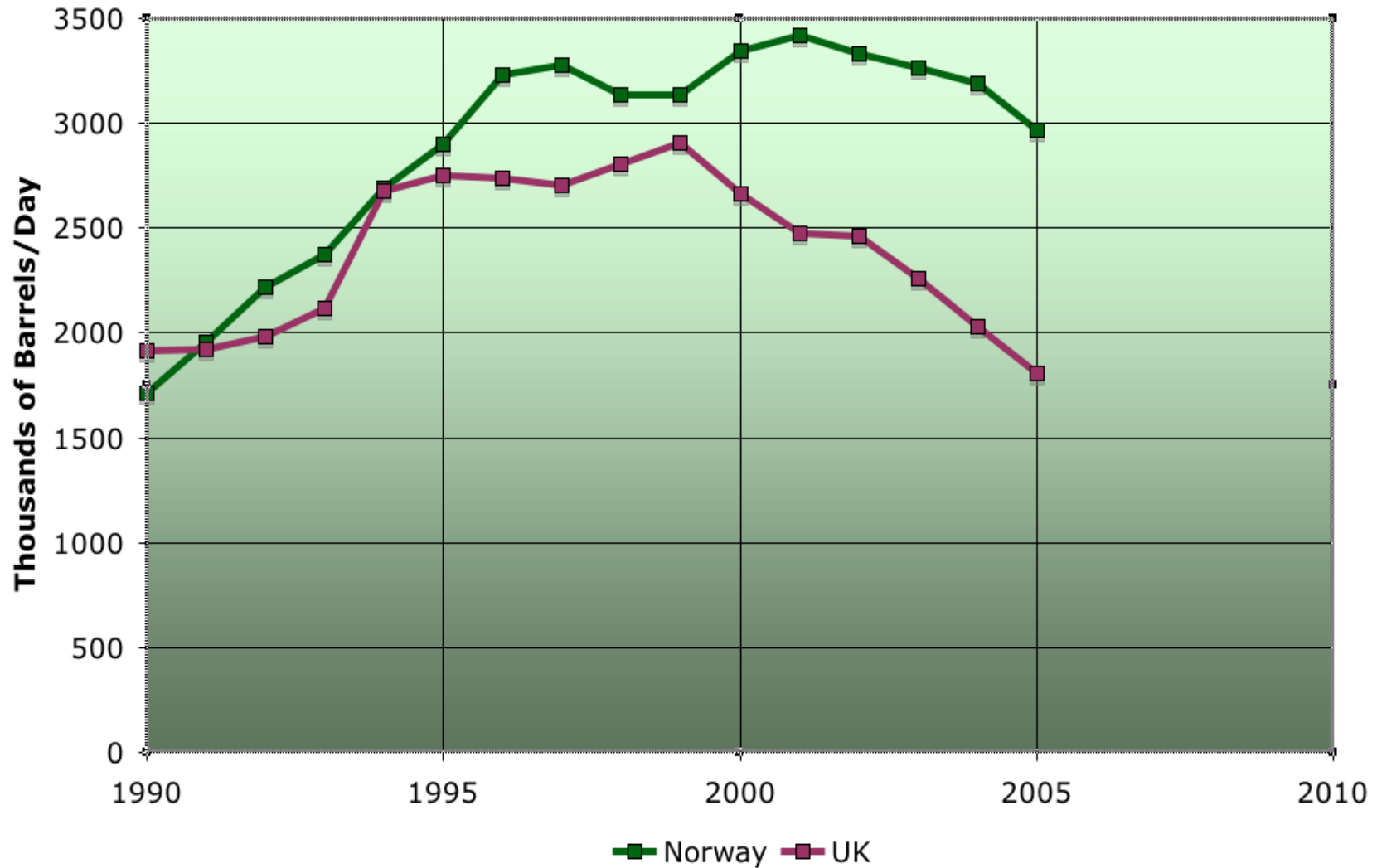
US Oil Production and Imports



Energy & Peak Oil

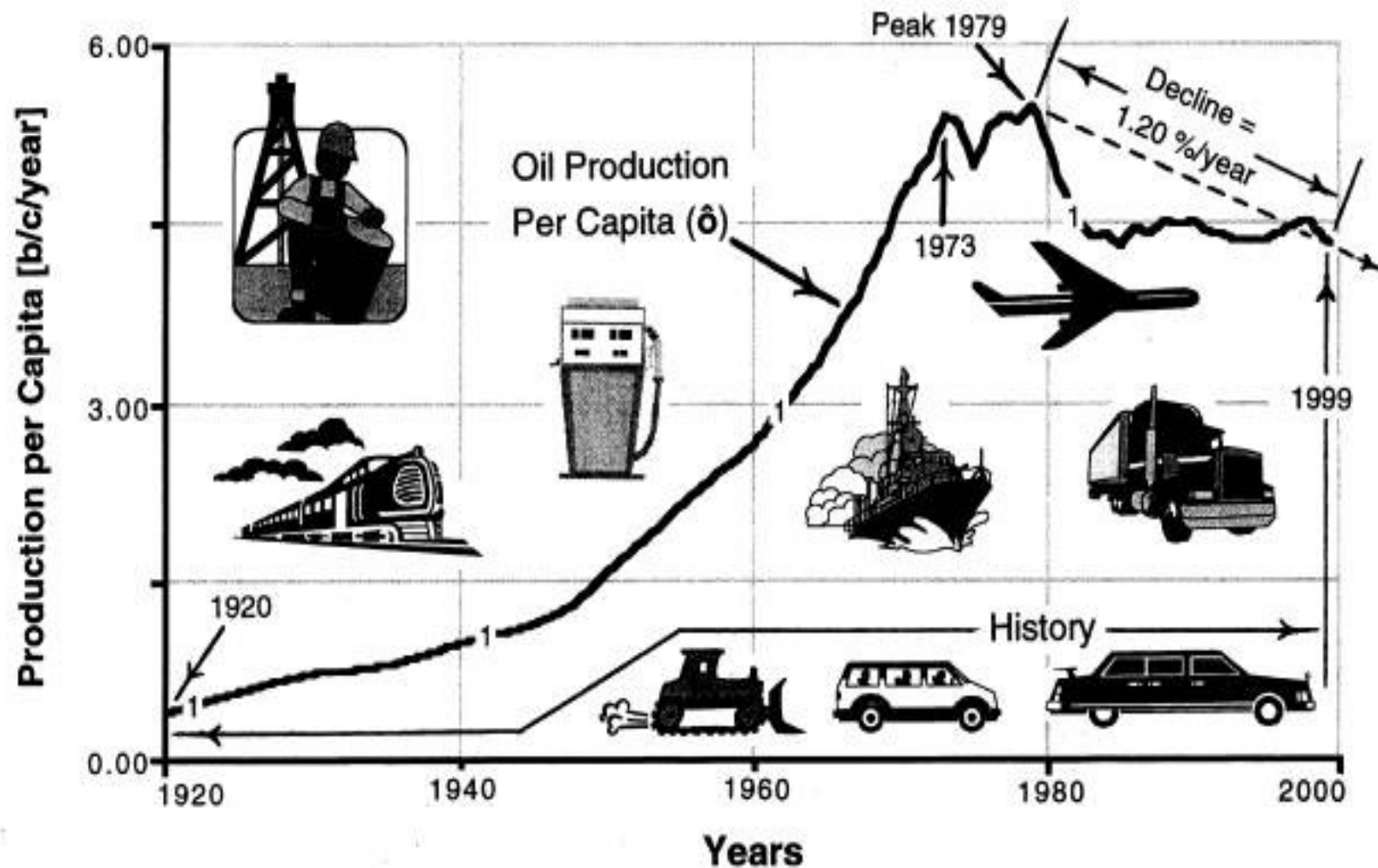
North sea has peaked

Great Britain is no longer an oil exporter



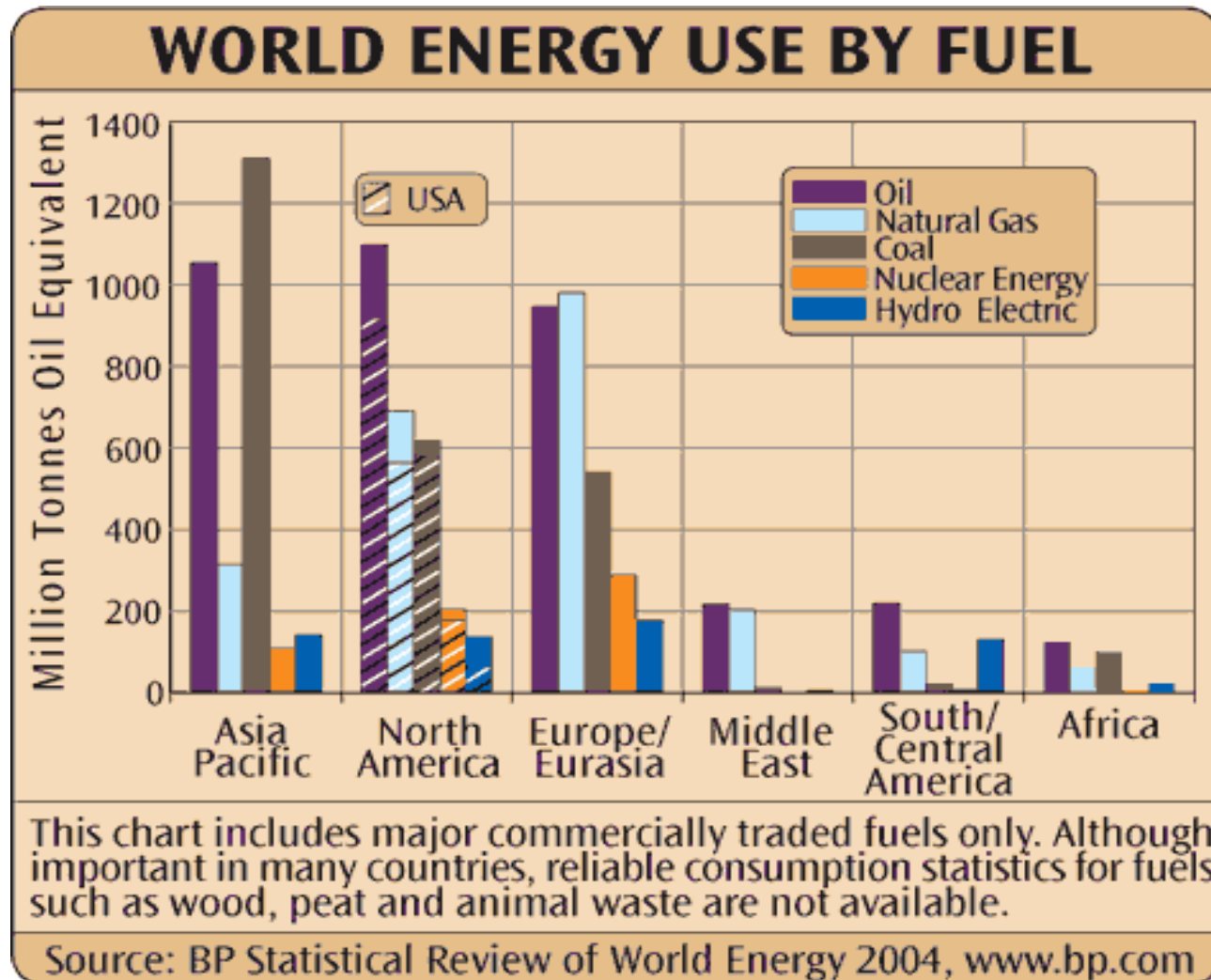
Energy & Peak Oil

Oil Production per Capita has dropped



Energy & Peak Oil

Renewables barely register on world energy use:



Peak Oil

The Global Issues:

Energy: Western Society & Energy Scarcity ...

Climate: The Easiest Alternative to Oil ...

Conflict: Producers vs. Consumers ...

Peak Oil

The Political Issues:

No one ever gets elected on an “austerity” platform!

Politics works with simple black/white sound bites

Peak Oil requires a subtle understanding of

Ancient History, 20th C. History, Foreign Policy, Sociology,
Politics, Monetary Policy, Economics, Demographics, Statistics,
Complex Systems Theory, Electrical Engineering, Chemical
Engineering, Thermodynamics, Environmental Science,
Geophysics, Agriculture, Internet Savvy ...

Peak Oil

The Main Issues:

1. The End of Cheap Oil
2. Energy Returned on Energy Invested
3. Inherent Energy Needs of Western Society

Peak Oil

1. The Cost of Oil:

Free: Near-Surface Gusher

Cheap: Pressurized Reservoir

Unpressurized Reservoir (pumped)

Medium: Off-shore Deposits

Tar Sands

Expensive: Oil Shale, Super-Deep Deposits

Peak Oil

2. Energy Returned on Energy Invested (EROEI)

How many barrels of oil does it take to produce the next barrel of oil?

How many kg of coal does it take to produce the next kg of coal?

Exploration, Drilling, Mining, Processing, Food for Workers, Transportation, Steel Production, Necessary infrastructure,

Peak Oil

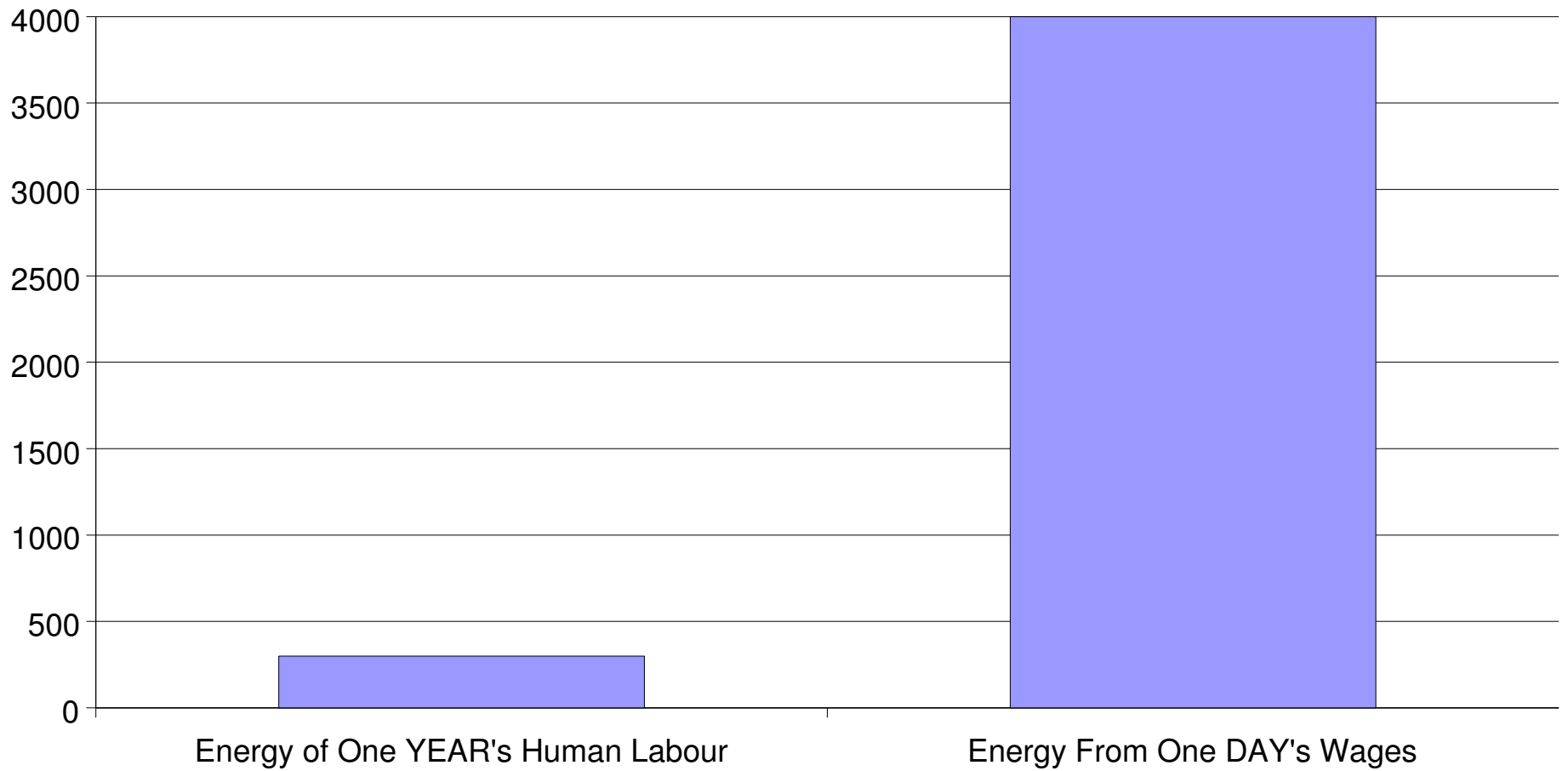
3. Inherent Energy Needs:

Our infrastructure and societal organization are *premised* on super-cheap energy:

- Suburban sprawl
- Car / Truck-dominated transportation
- Low inventory / Just-in-time delivery
- Distant, off-shore manufacturing
- Distant separation of home and work
- Distant separation of family / community (cheap flights)

Peak Oil

Energy is Mindbogglingly Cheap ...



Peak Oil

... That's Why We Use So Much of It.

One tank of gasoline ...

... has the energy equivalent of 4 YEARS of
human labour (HARD labour!)

Peak Oil

But are oil supplies really so precarious?

They recently discovered a BILLION barrel reservoir in the Gulf of Mexico.

(Chevron / Jack II)

Peak Oil

A billion barrels

Peak Oil

A billion barrels

will take care of the world's oil needs,

Peak Oil

A billion barrels

will take care of the world's oil needs,

for TWELVE DAYS

Peak Oil

A billion barrels

will take care of the world's oil needs,

for TWELVE DAYS

We're not finding a billion barrels every 2 weeks!

Peak Oil

To Think About:

- The high GNP and apparent productivity of Western countries is due to the leverage of cheap energy.
- Food production is enormously energy-intensive; fertilizers and pesticides are fossil-fuel based.
- Our infrastructure is long-term, and cannot be substantially changed without a lot of energy (steel for cars, concrete for buildings etc).

Peak Oil

OK, so I'll work hard to reduce my energy usage:

- Turn the thermostat down
- Buy an energy efficient furnace
- Buy a smaller car

These are attempts to preserve status quo,

Tweaking our lifestyle to avoid significant change.

If oil peaks soon or depletes rapidly, status quo is gone. We will need massive, radical change.

(alternatives)

Climate Change

Climate Change

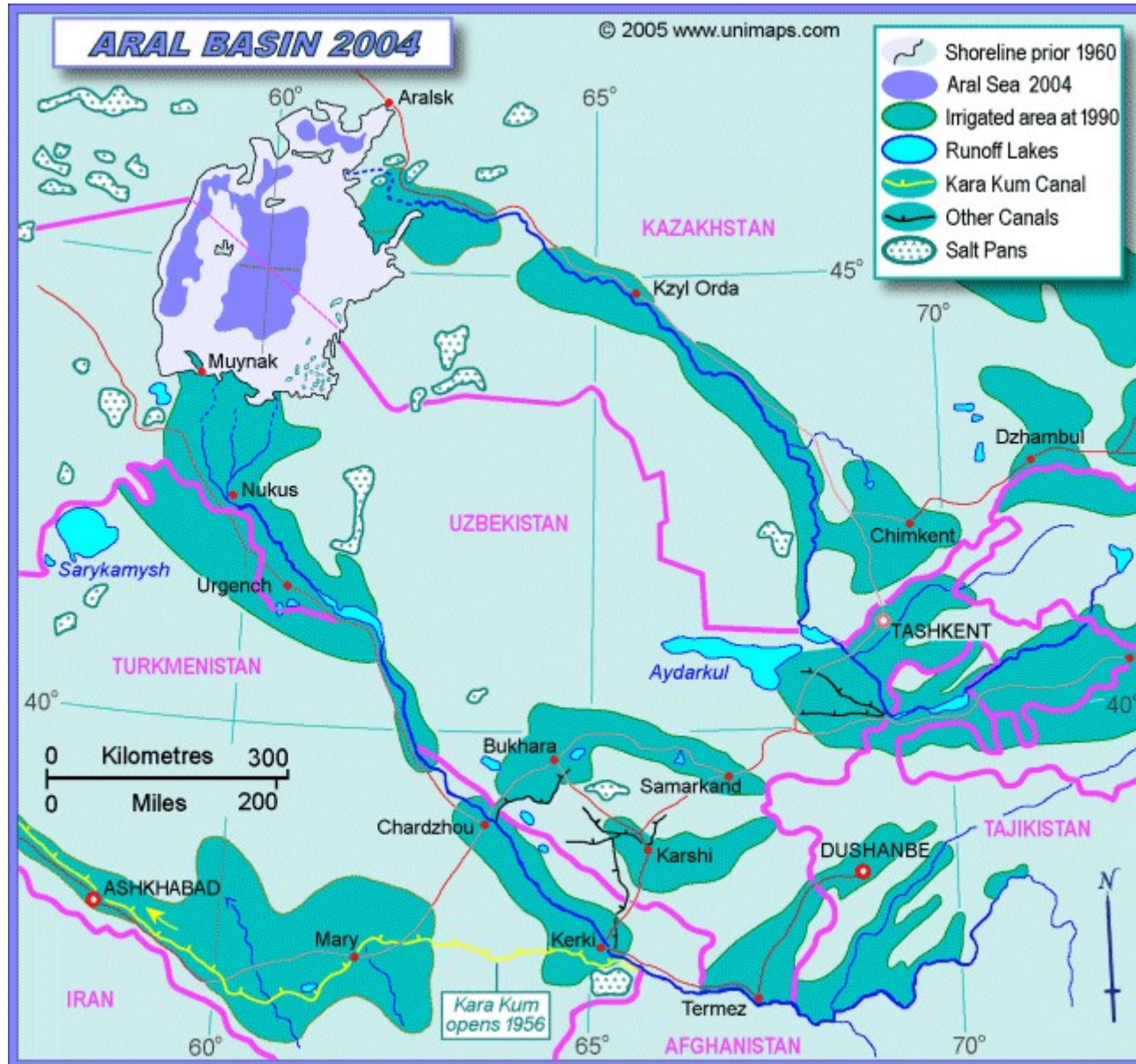
... is more than “just” global warming.

Climate Change

Human Forced Ecosystem Change is Massive

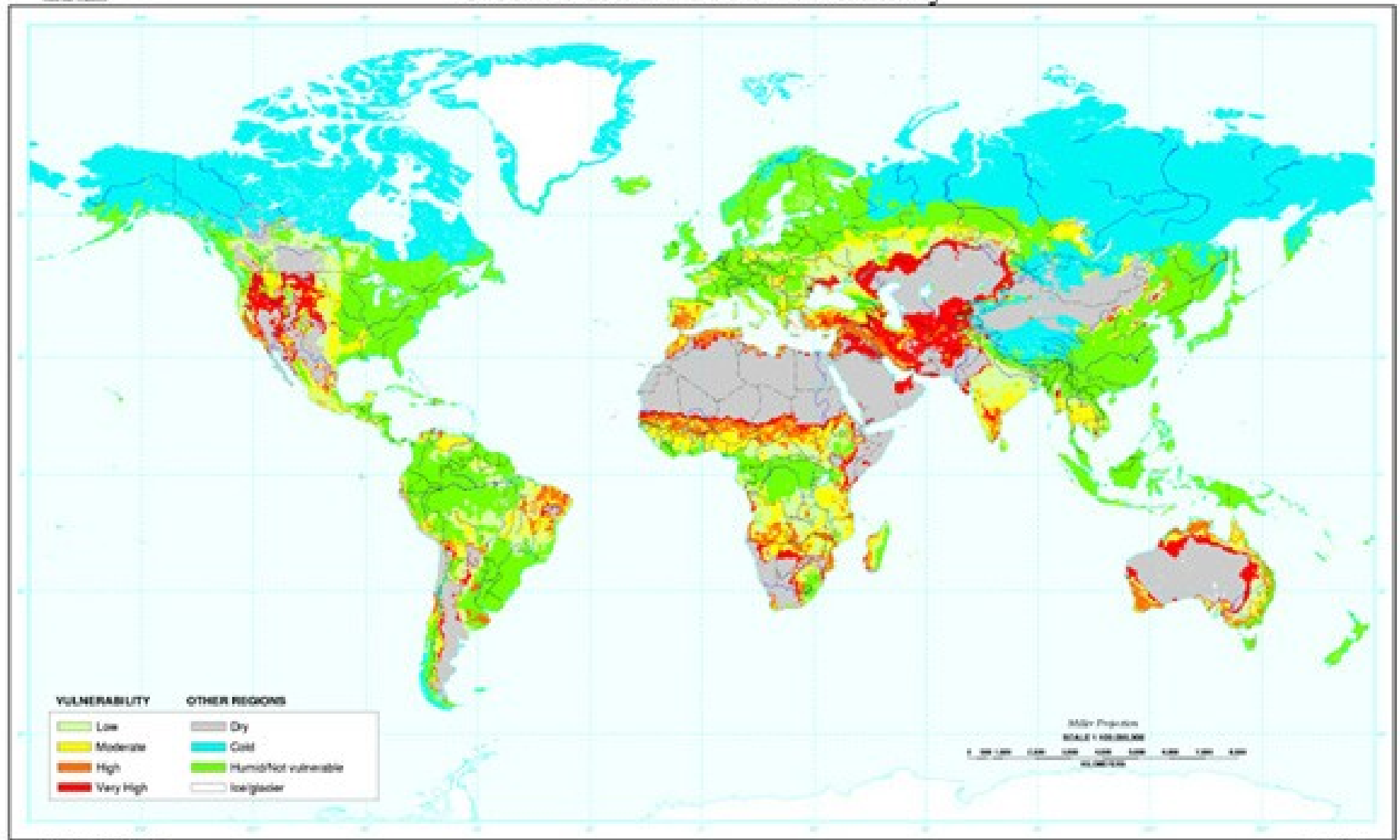
1. Species extermination
2. River diversion
3. Soil erosion / salination
4. Aquifer draining
5. Air, water, soil pollution (short & long term)
6. ... and Global Warming

River Diversion

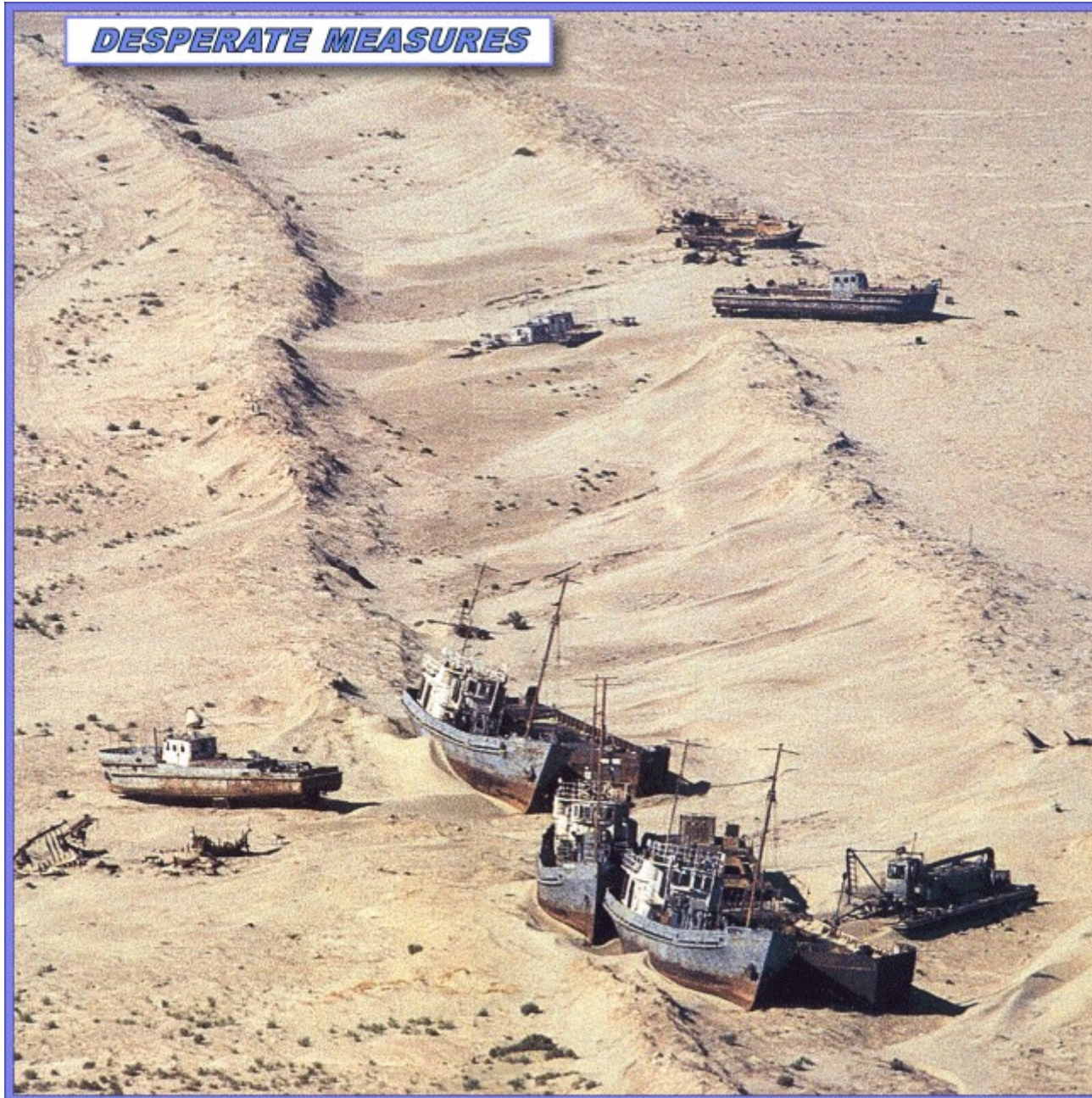


Desertification

Global Desertification Vulnerability



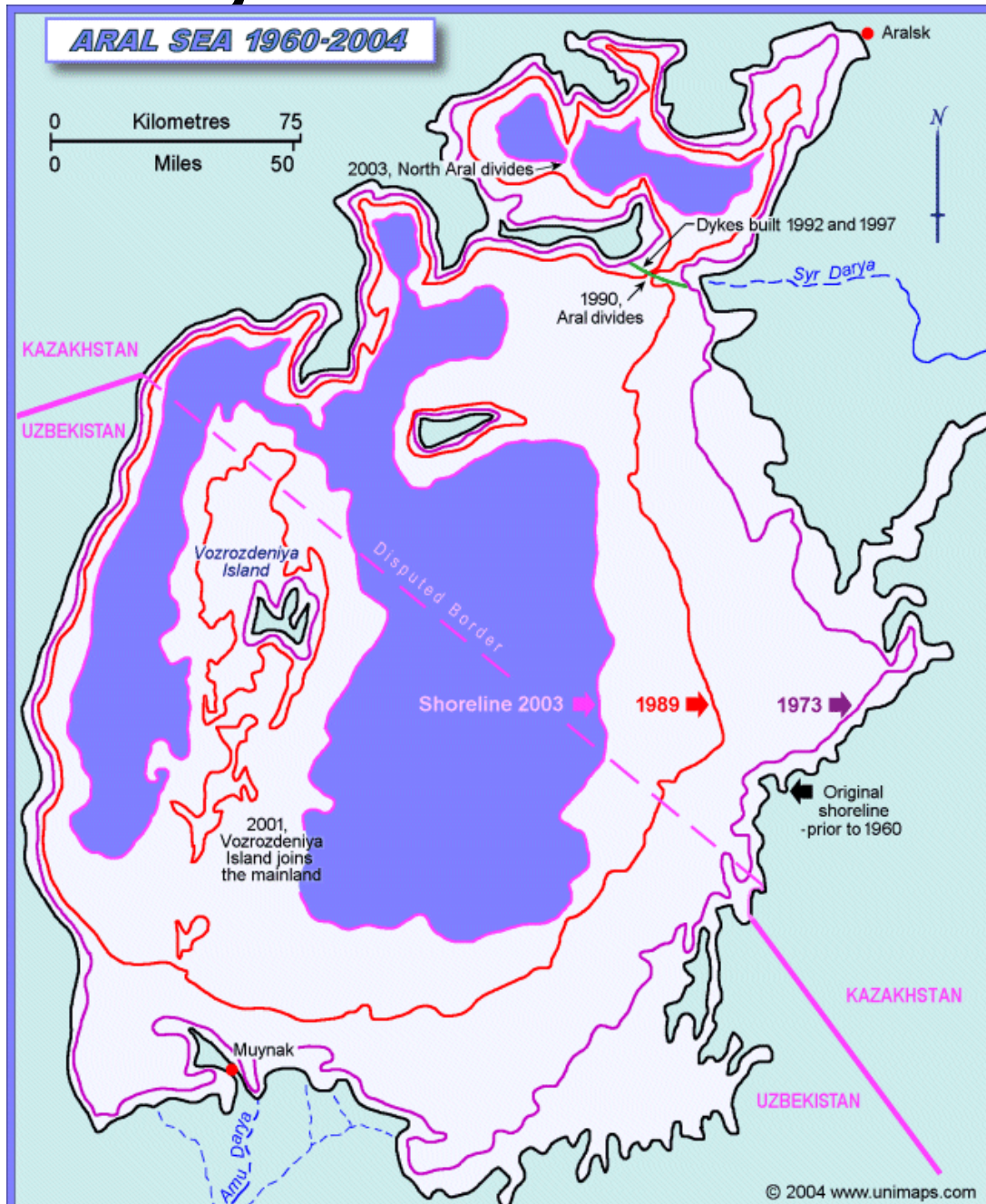
Salination / Desertification



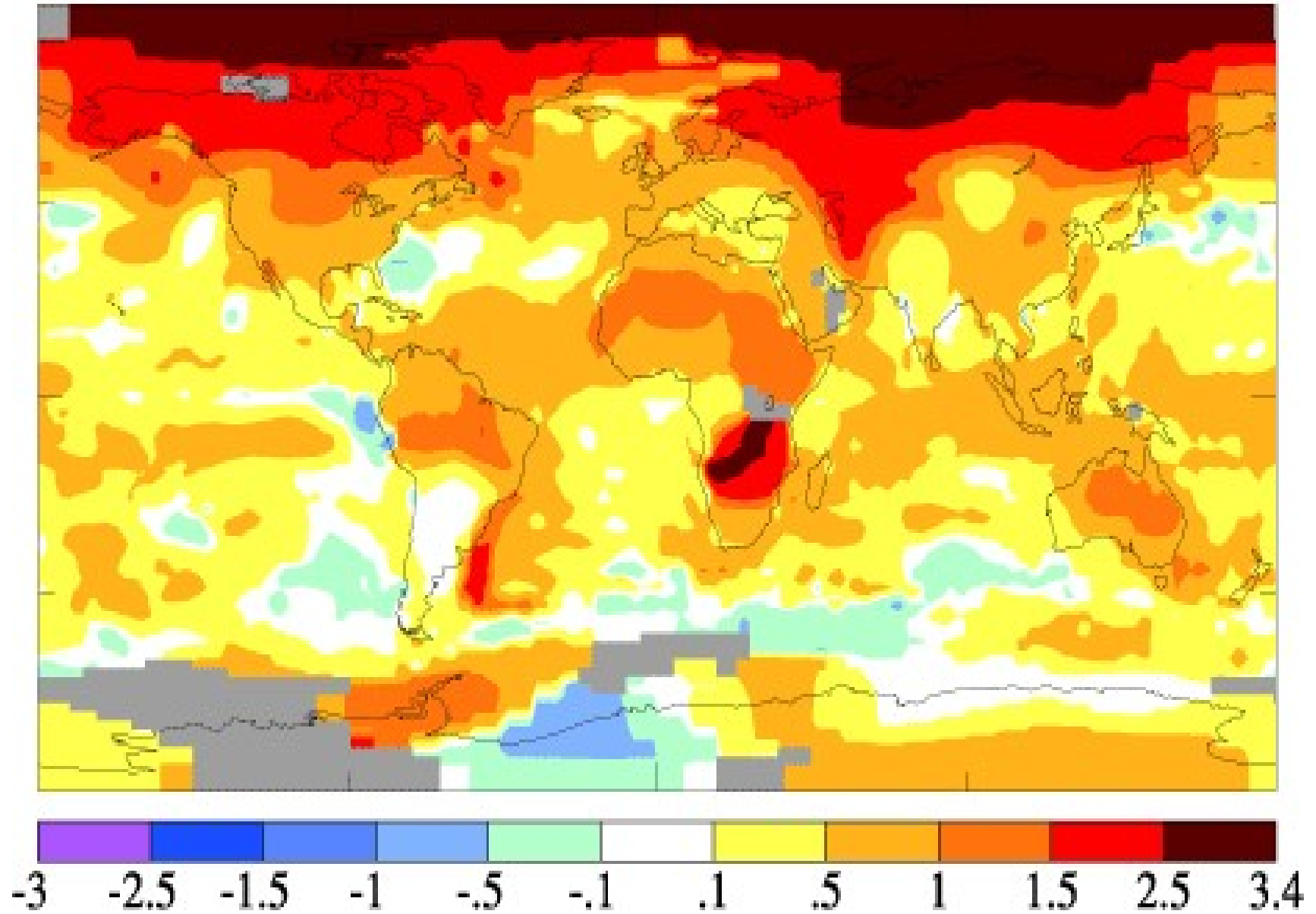
Salination – the once fertile crescent



Ecosystem Destruction



Global Warming



Climate Change

Global Warming has entered mainstream ...

Climate Change



Climate Change

Positive proof of global warming.



***18th
Century***

1900

1950

1970

1980

1990

Climate Change

However by focusing debate on global warming:

1. Issue is long term – no need to act today
2. Issue is complex and with some uncertainty

(Exxon funds scientists \$10,000 willing to write articles against climate change)

3. Ignores other human-driven catastrophes

Peak Oil

The Global Issues:

Energy: Western Society & Energy Scarcity ...

Climate: The Easiest Alternative to Oil ...

Conflict: Producers vs. Consumers ...

Climate Change

To most easily avoid Western energy problems ...

1. Price developing world out of energy market
2. Ethanol (price developing world out of food)
3. Tar sands (HUGE natural gas requirements)
4. Coal-to-oil (HUGE carbon output)
5. Coal (carbon, mercury, strip mining ...)

most of these would be economic / developmental /
environmental disasters

Climate Change

OK, so I'll work hard to reduce my energy usage:

- Turn the thermostat down
- Buy an energy efficient furnace
- Buy a smaller car

These are attempts to preserve *status quo*,

Tweaking our lifestyle to avoid significant change.

If soil erosion / crop failures / coal binge takes place, status quo is gone. We will need massive, radical change.

(how to address)

Peak Oil

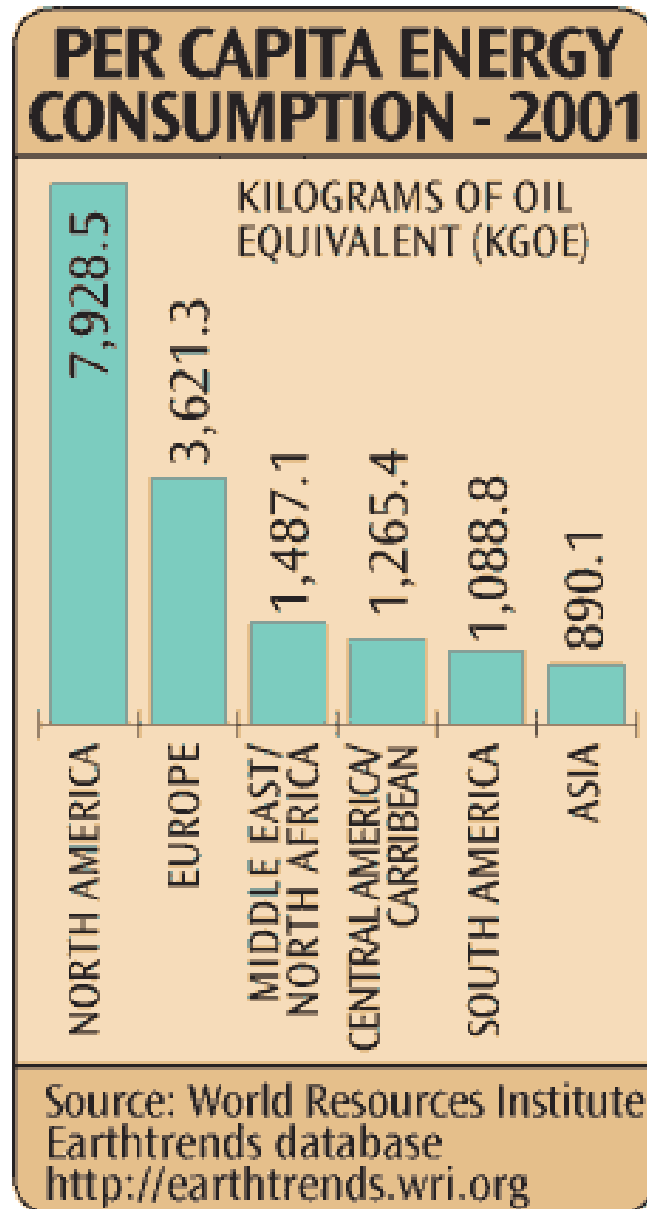
The Global Issues:

Energy: Western Society & Energy Scarcity ...

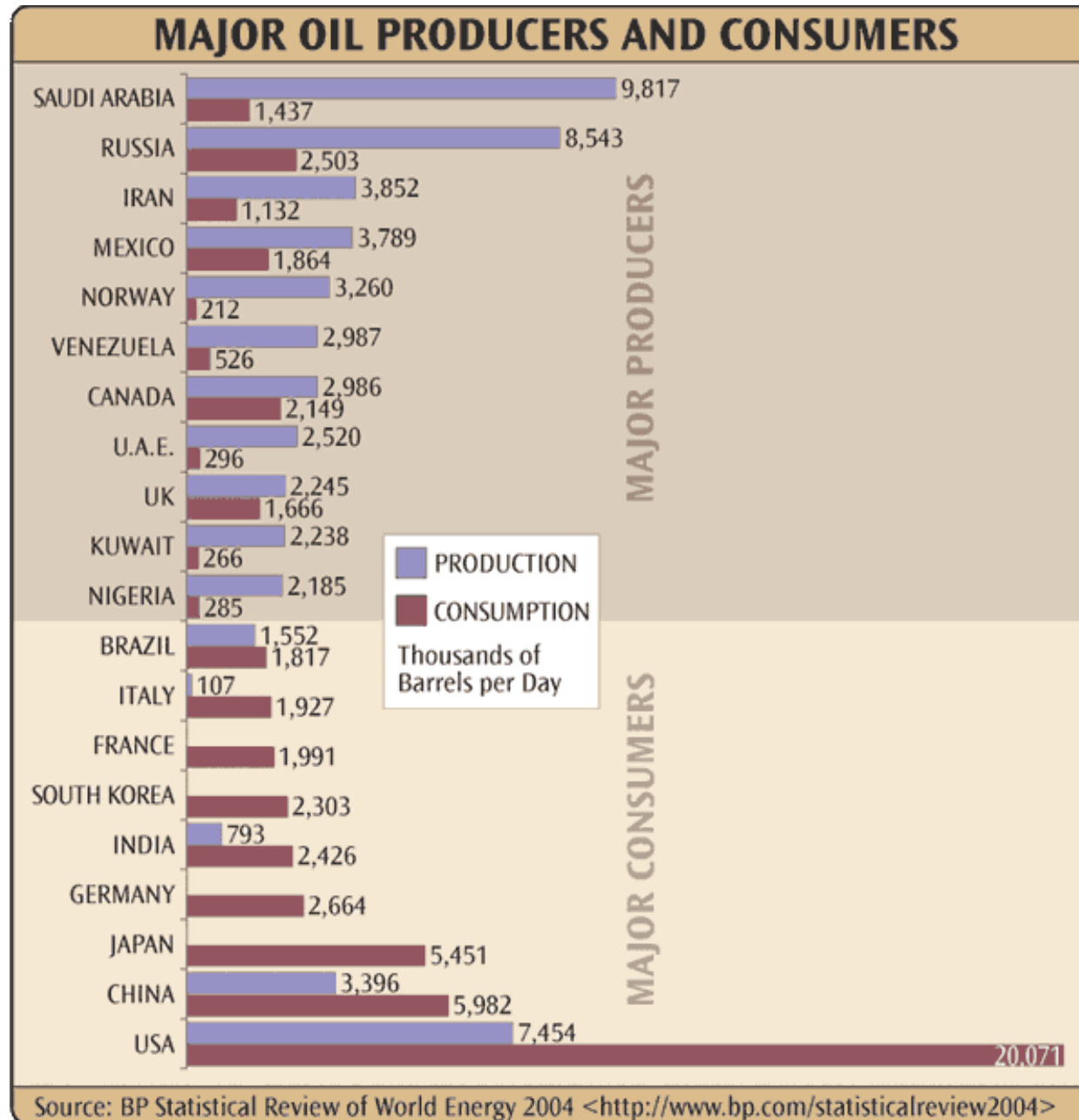
Climate: The Easiest Alternative to Oil ...

Conflict: Producers vs. Consumers ...

Conflict

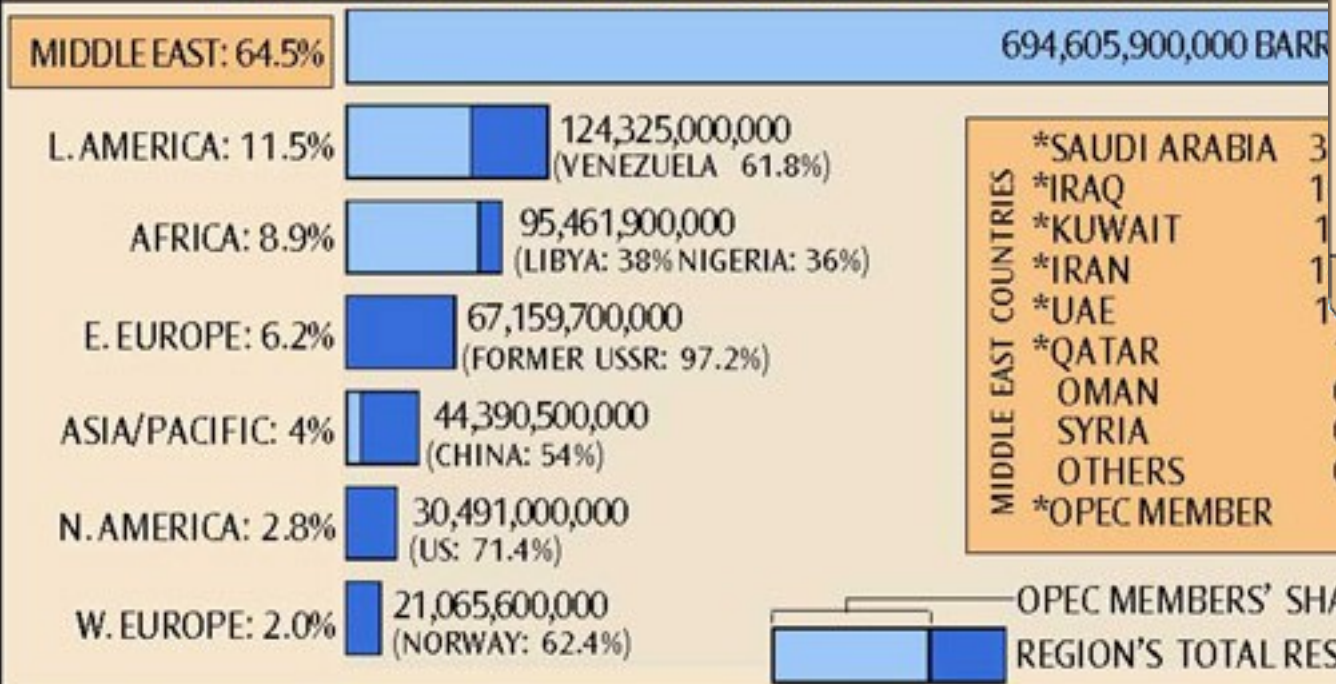


Conflict



Conflict

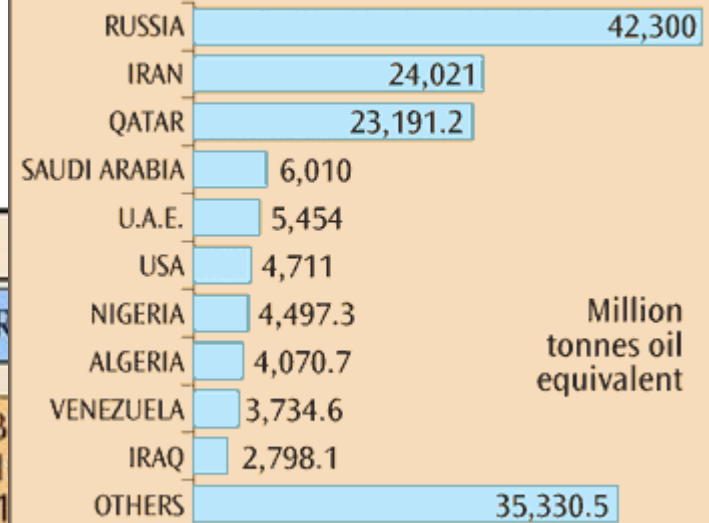
WORLD PROVEN CRUDE OIL RESERVES BY REGION



Source: OPEC Annual Statistical Bulletin, Tables 10 and 33
www.opec.org/Publications/AB/pdf/Ab002000.pdf

PROVEN NATURAL GAS RESERVES

TOP TEN COUNTRIES



Source: World Resources Institute Earthtrends database,
<http://earthtrends.wri.org>

PROVEN COAL RESERVES

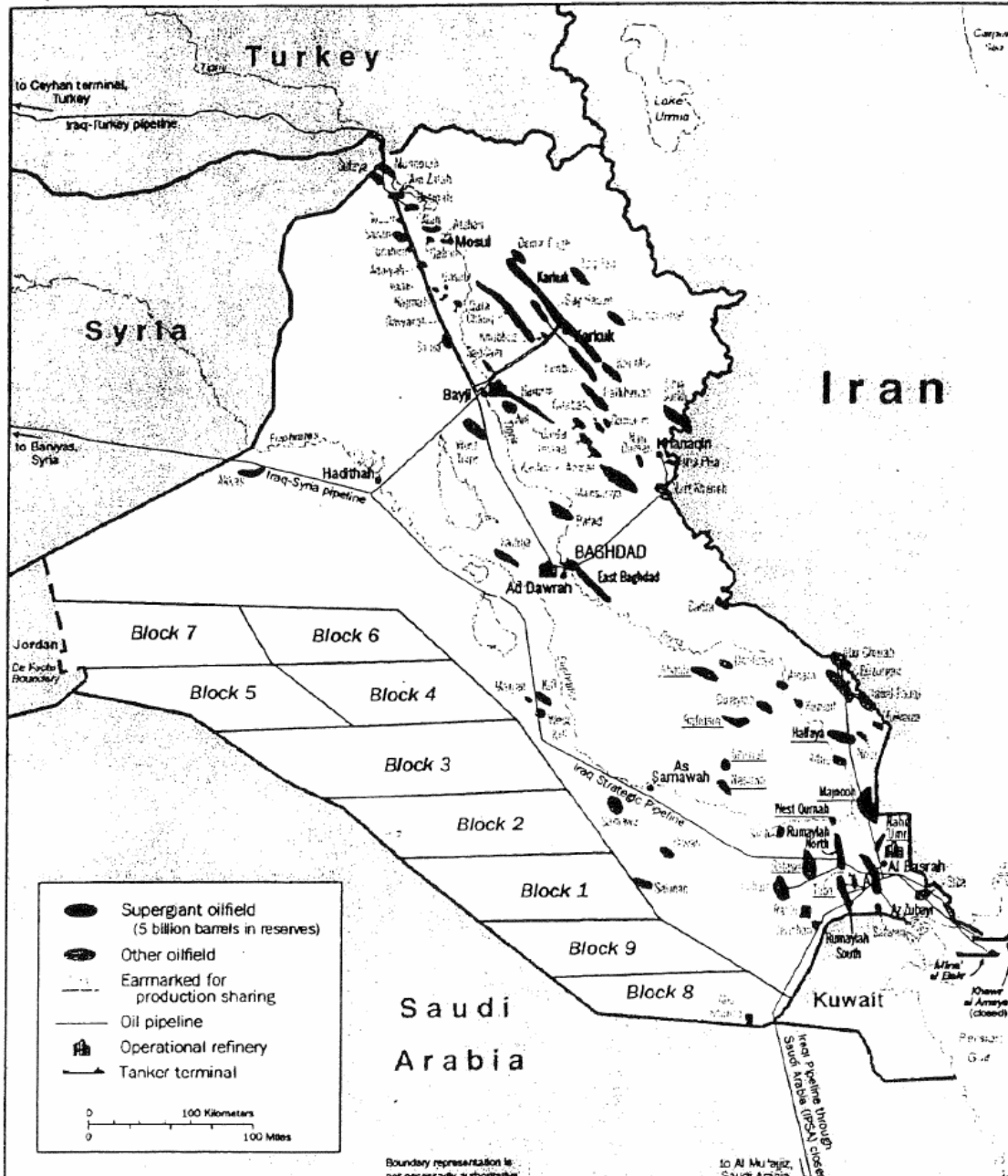
TOP TEN COUNTRIES



Source: World Resources Institute Earthtrends database,
<http://earthtrends.wri.org>

Conflict

Iraqi Oilfields and Exploration Blocks



Lifestyle Status Quo = Conflict

Energy / Climate / Conflict

To Think About:

– Upside-Down Kingdom:

- Poor subsistence farmer in warm, third-world climate, vs
- Rich, globalized, highly-dependent first-world worker

– The Meek Shall Inherit:

- Living at peace with the earth means doing & having less
- North America uses A LOT more than its fair share!

Energy / Climate / Conflict

To Think About:

– Cheap Energy:

- It is hard to take action – energy is still dirt cheap
- Noah built his ark while the weather was still dry ...

– Out of Sight, Out of Mind:

- Many poor countries have already suffered a “peak oil”
- Why are do we want to take action only now that it might actually affect us?

Energy / Climate / Conflict

To Think About:

– Who Blinks First ...

- Wait for wealth or military might to allocate energy?
- Wait for ecosystem to collapse before acting?

– Status Quo ...

- An anachronism
- We need a fundamental shift in attitude / outlook

Energy / Climate / Conflict

What to do ... how do we live with integrity as peacemakers in a wasteful, affluent society?

- Massive reduction in energy consumption
- Reduced-material lifestyle
- Support for local food production
- Support for alternative energy production
- Building strong, local communities
- Localized production, localized skills