

*Prioritising the processes beyond the water sector that will secure water for society - farmers in political, economic, and social contexts*

Tony Allan

KCL & SOAS London

**Re-thinking paradigms: water and food security**

*4<sup>th</sup> Marcelino Botin Water Workshop - Rethinking water and food security.  
Santander - 21-23 September 2009*

# Sub-themes

Communication and impact

Doing the right thing a little badly is better than doing the wrong thing extremely well

Wicked problems - uncertainty linked to urgency

Risk >>>> Probability v Uncertainty >>>> Ambiguity

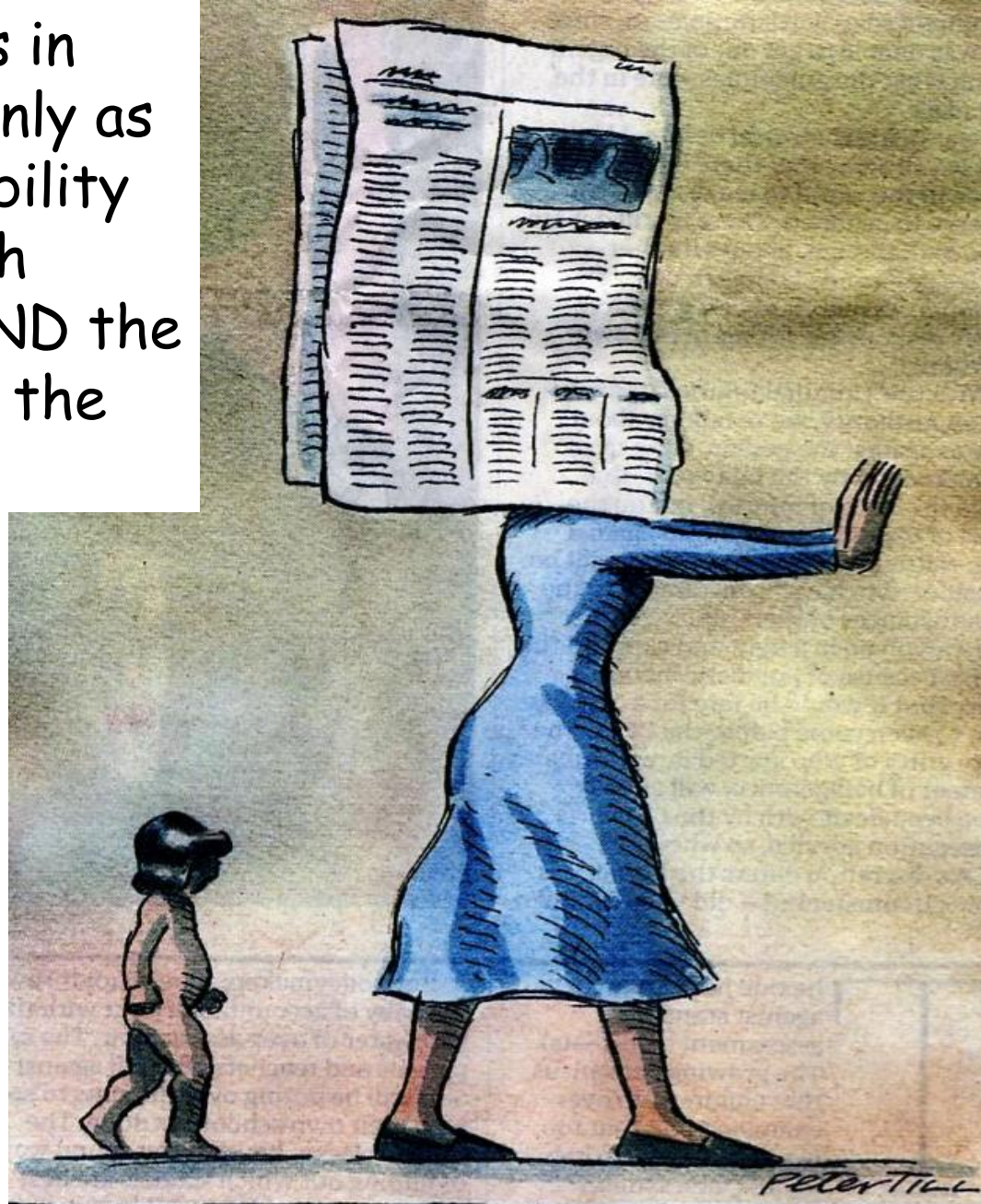
Sub-themes

Communication and impact



*Guardian 20080813*

What appears in the press is only as good as our ability to engage with journalists AND the prejudices of the media owners



*Guardian 20080813*

## Sub-themes

### Communication and impact

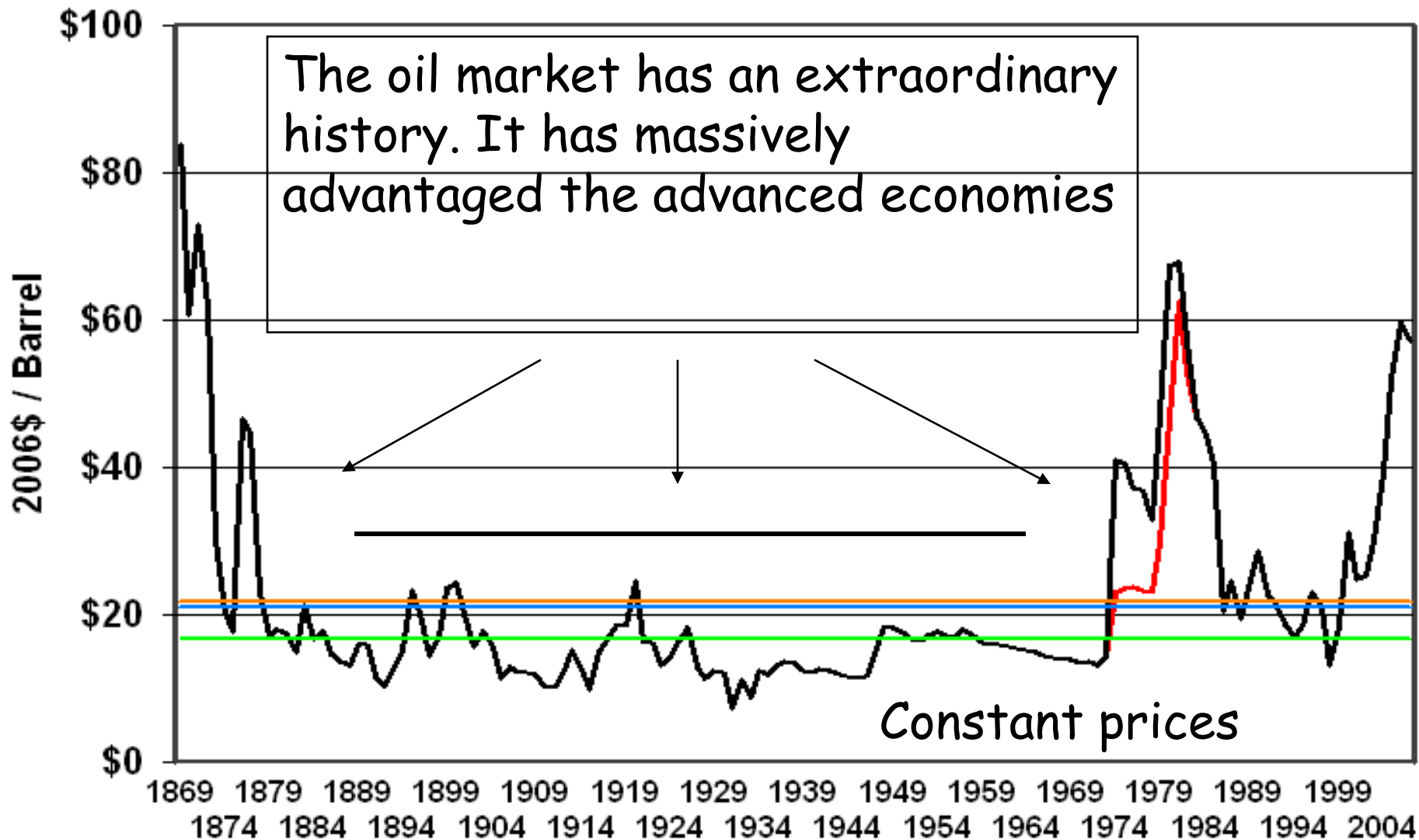
Doing the right thing a little badly is better than doing the wrong thing extremely well

Wicked problems - uncertainty linked to urgency

Risk >>>> Probability v Uncertainty >>>> Ambiguity

CRUDE OIL PRICES  
2006 DOLLARS

The oil market has an extraordinary history. It has massively advantaged the advanced economies

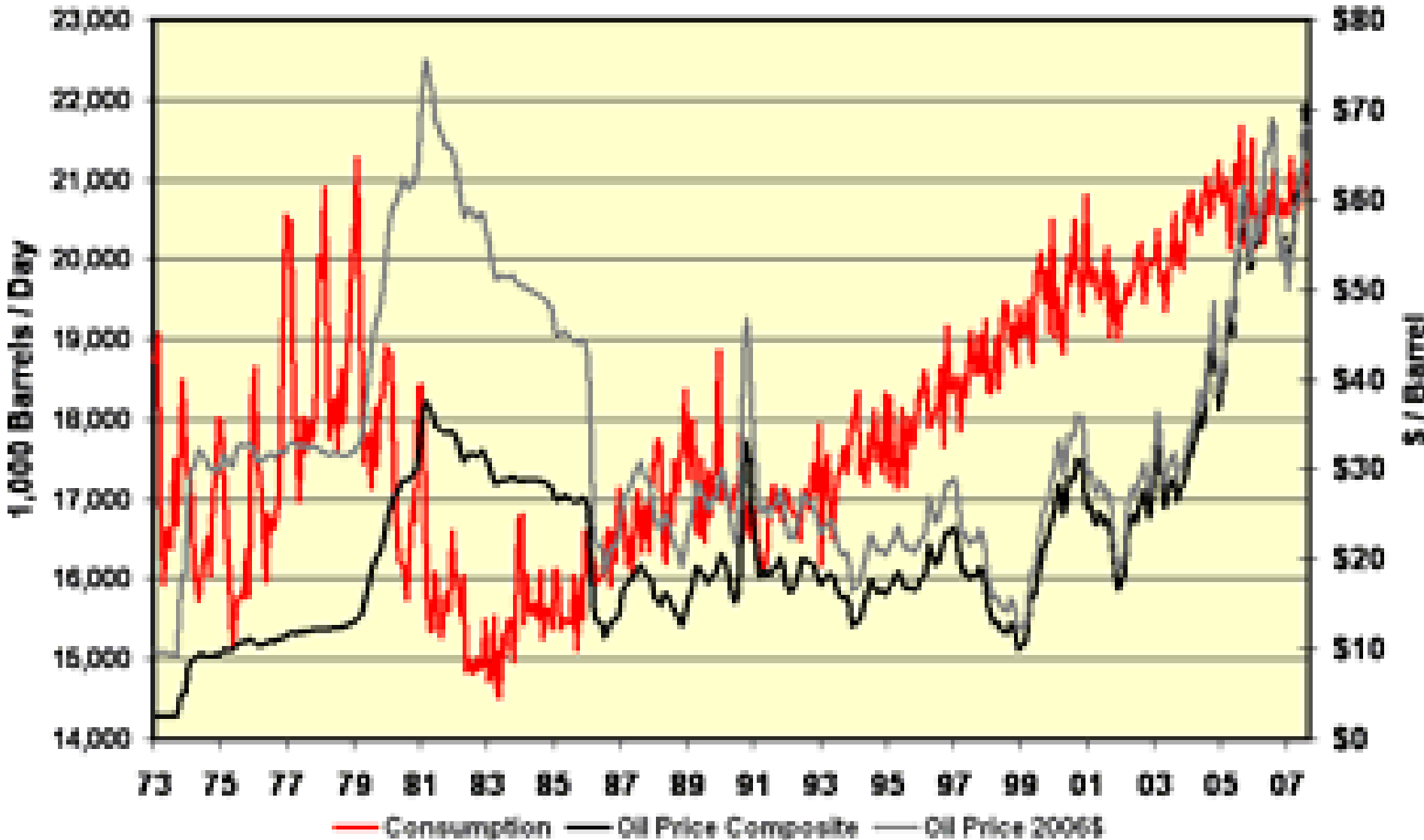


1869 - Aug. 2007 WTRG Economics ©1998-2007

www.wtrg.com  
(479) 293-4081

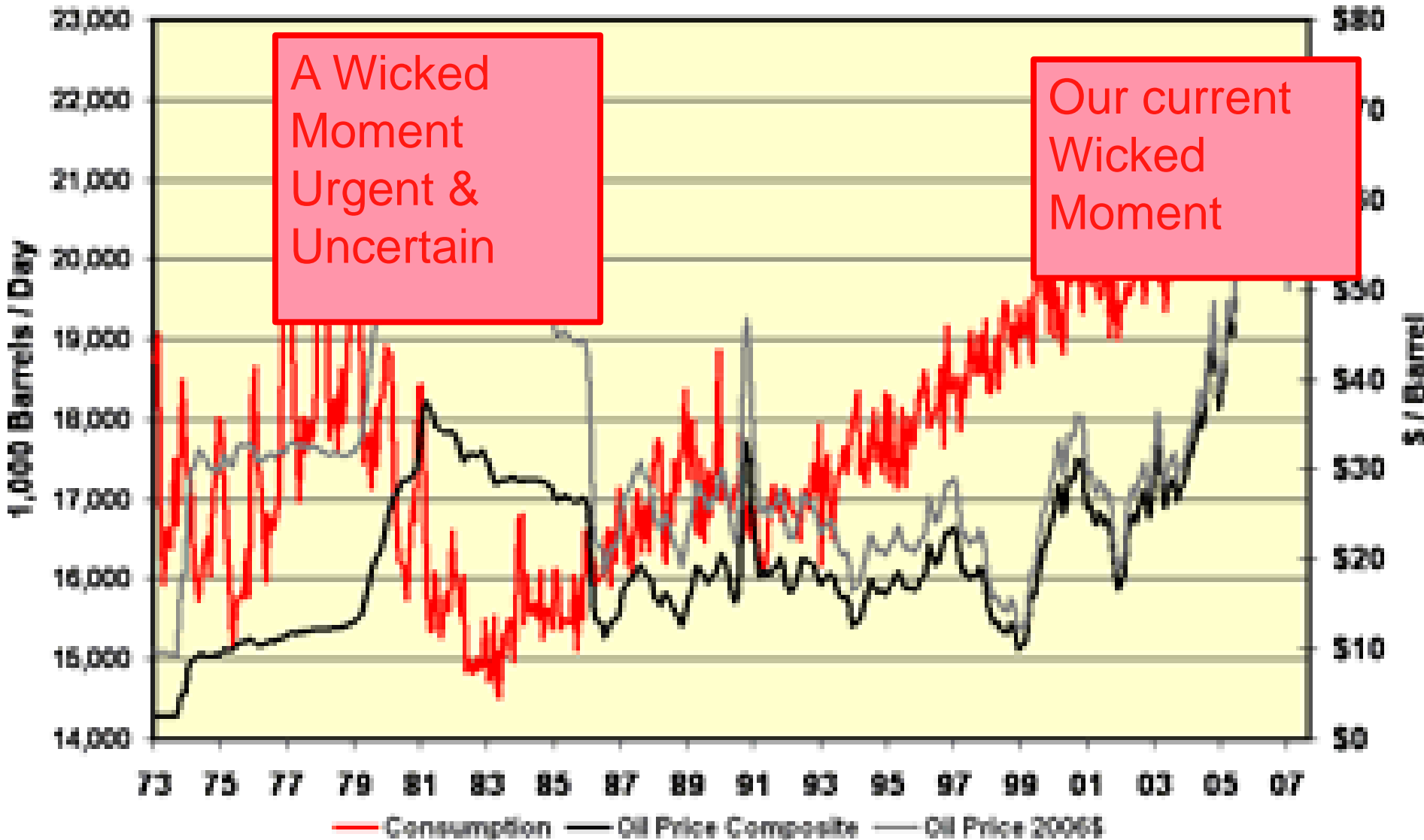
- U.S. FIRST PURCHASE (Wellhead)
- World Price\*
- Avg U.S. \$21.05
- Avg World \$21.66
- Median U.S. & World \$16.71

# Petroleum Consumption and Price





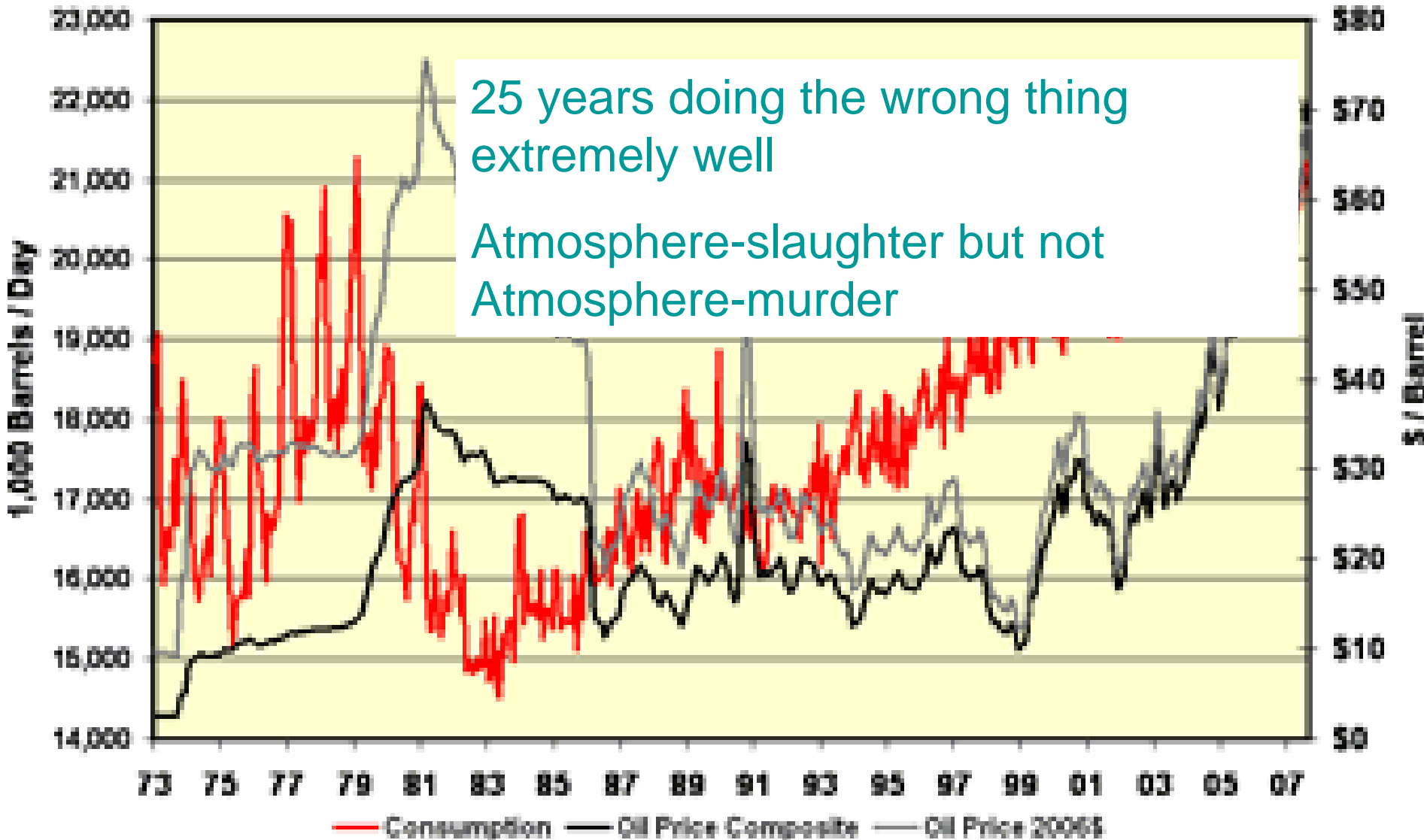
# Petroleum Consumption and Price



# Petroleum Consumption and Price



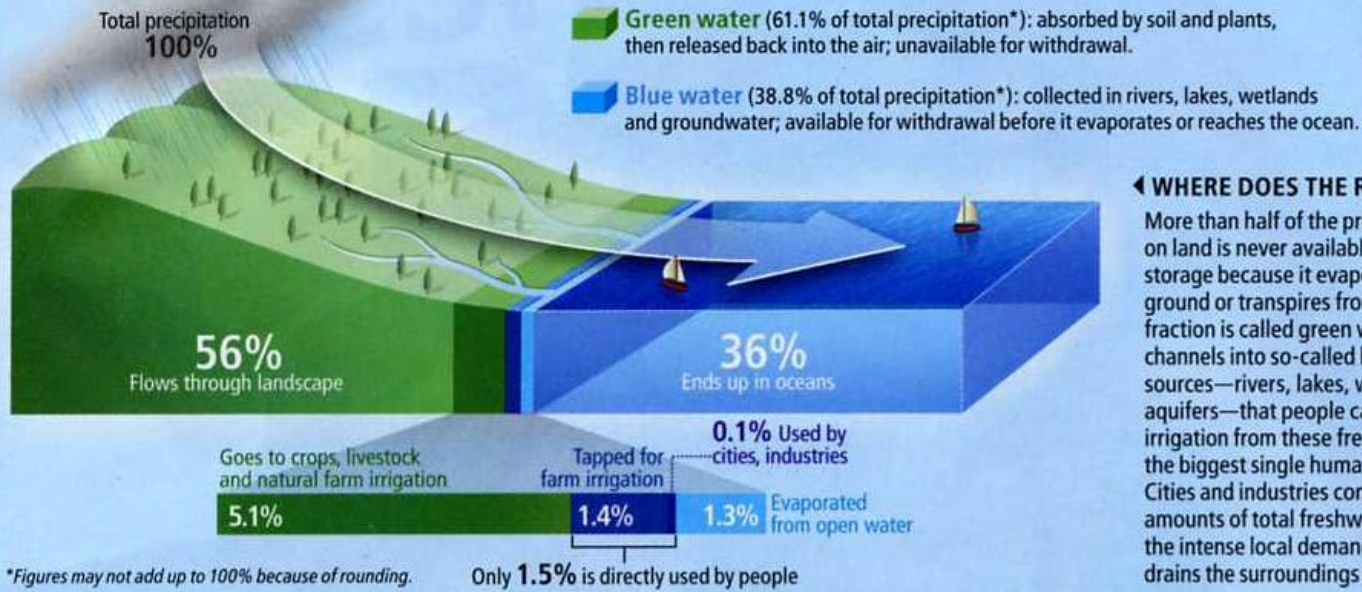
# Petroleum Consumption and Price



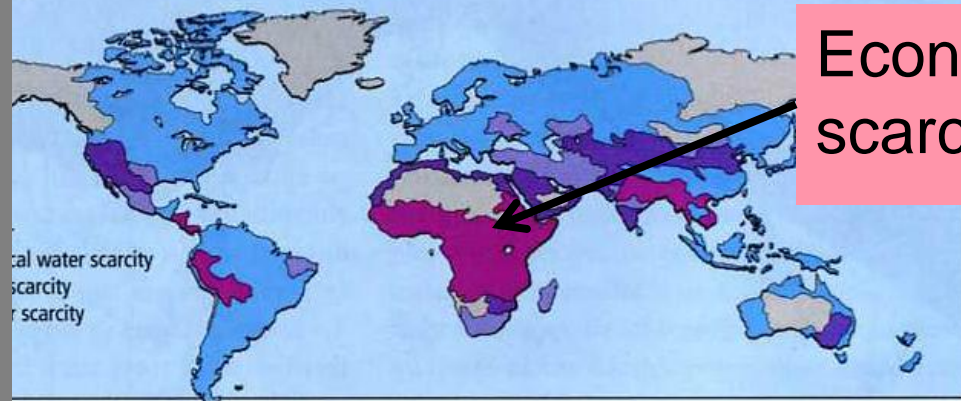
Two types of water of water availability

# Lots of Water, but Not Always Where It Is Needed

One hundred and ten thousand cubic kilometers of precipitation, nearly 10 times the volume of Lake Superior, falls on the planet's land surface every year. This huge quantity would be enough to easily fulfill the requirements of everyone on the planet if the water arrived where and when people needed it. But much of it cannot be captured (*top*), and the rest is distributed unevenly (*bottom*).



Two types of water by volume of demand – water for food is ten times all other uses



Economic scarcity

The purpose of the presentation is to focus on four elements of the **intellectual challenges** and the **water policy challenges** associated with this vast topic.

The purpose of the presentation is to focus on four elements of the intellectual challenges and the water policy challenges associated with this vast topic.

*1Farmers manage big water*

The purpose of the presentation is to focus on four elements of the intellectual challenges and the water policy challenges associated with this vast topic.

*1 Farmers manage big water*

*2 Farmers compete with the environment on our behalf for water - and some of us over-consume*

The purpose of the presentation is to focus on four elements of the intellectual challenges and the water policy challenges associated with this vast topic.

*1 Farmers manage big water*

*2 Farmers compete with the environment on our behalf for water - and some of us over-consume*

*3 The importance of food commodity prices for farmers - and other determining contexts*



The purpose of the presentation is to focus on four elements of the intellectual challenges and the water policy challenges associated with this vast topic.

*1 Farmers manage big water*

*2 Farmers compete with the environment on our behalf for water - and some of us over-consume*

*3 The importance of food commodity prices for farmers - and other determining contexts*

*4 International food commodity trade - successes and failures*

*First*, farming communities manage the big water used and consumed by society.

They manage about 80 per cent of the water used in our economies - about 70 per cent by volume of this water is green water and 30 per cent is blue water.

Unless society reduces its food consumption we shall have to rely on farmers worldwide to raise the productivity of green and blue water to meet the food consumption needs of a future global population of about nine billions.

*Secondly*, farmers compete on our behalf with the environment for water and tend to impair the water services of the environment.

A joint effort is needed - both via:

- 1 increases in water productivity on the farms
- 2 changed patterns of food consumption by society.

The latter will both *enhance human and environmental* health and reduce the consumptive use of water.

The *third* element of a more secure water managing scenario is one where the prices of food commodities and other incentives and other messages send signals to farmers that they should produce crops with less water and with practices that do not impair the services of the water environment.

Farmers have achieved spectacular increases in returns to water even in our own lifetimes. Price incentives work when they are reliable and long term and not a misguided solution to wicked problems.

e.g. NW Europe, India & China, Vietnam

The *fourth* element of fundamental importance is international *trade*.

International food commodity trade has been spectacularly successful in meeting the needs of at least 150 economies that have run out of water.

But global trade is not fair. International trade in agricultural commodities has been severely distorted for decades.

Its terms punish the weak economies of for example Africa. Food production is the major livelihood of most of the peoples of Africa. But the water productivity of African farmers is the lowest worldwide.

Millions of African farming families are repeatedly driven back into poverty by the level of international food prices kept low by the governments and food producing interests in Europe and the United States.

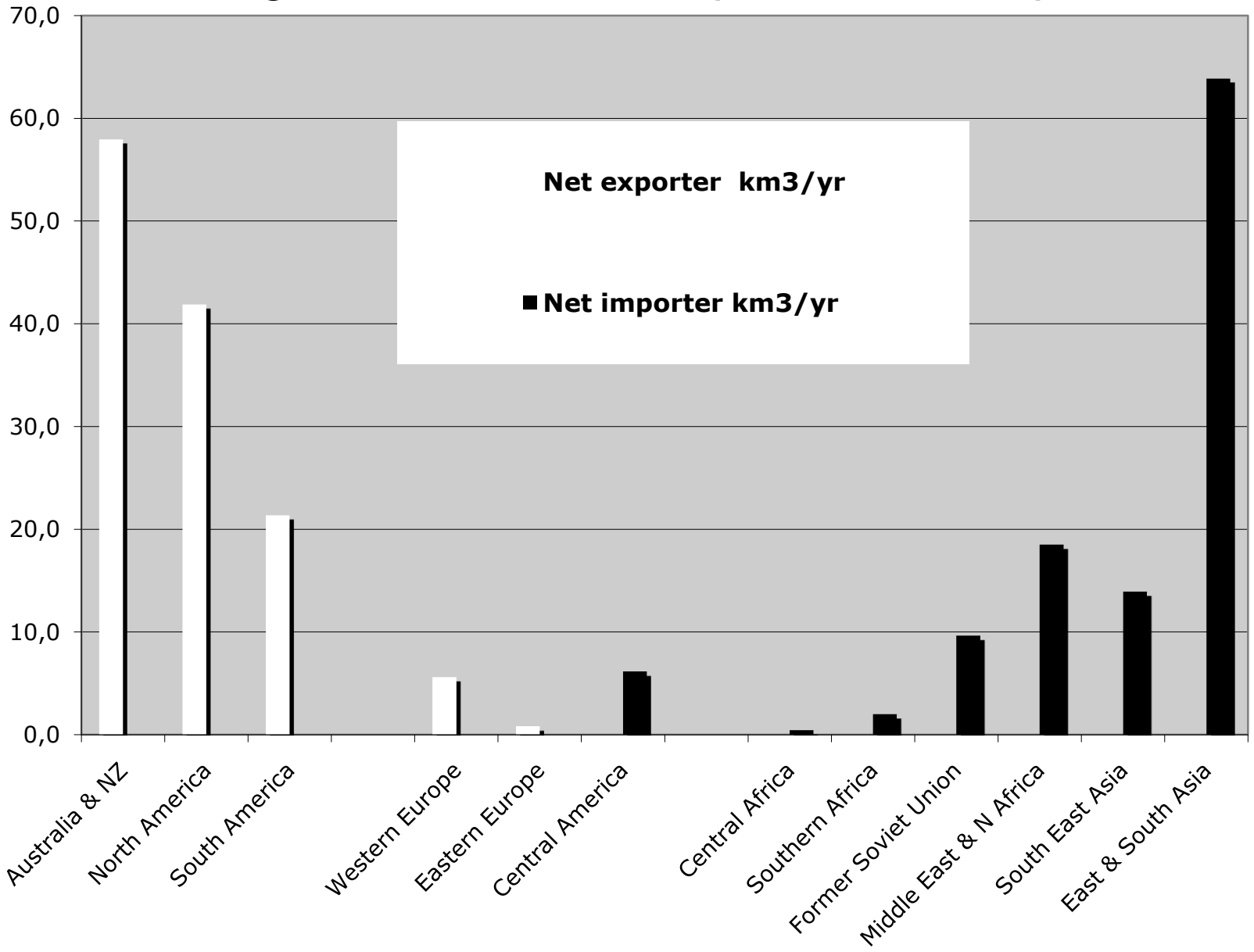
Farmers everywhere must be nurtured and encouraged to prosper by increasing - in some cases doubling or more their water productivity.

Doubled rainfed water productivity in Africa would be of global significance with respect to future global water security. [Absence of FAO]

Not everyone trades

# Inter-regional trade – net exporters and importers

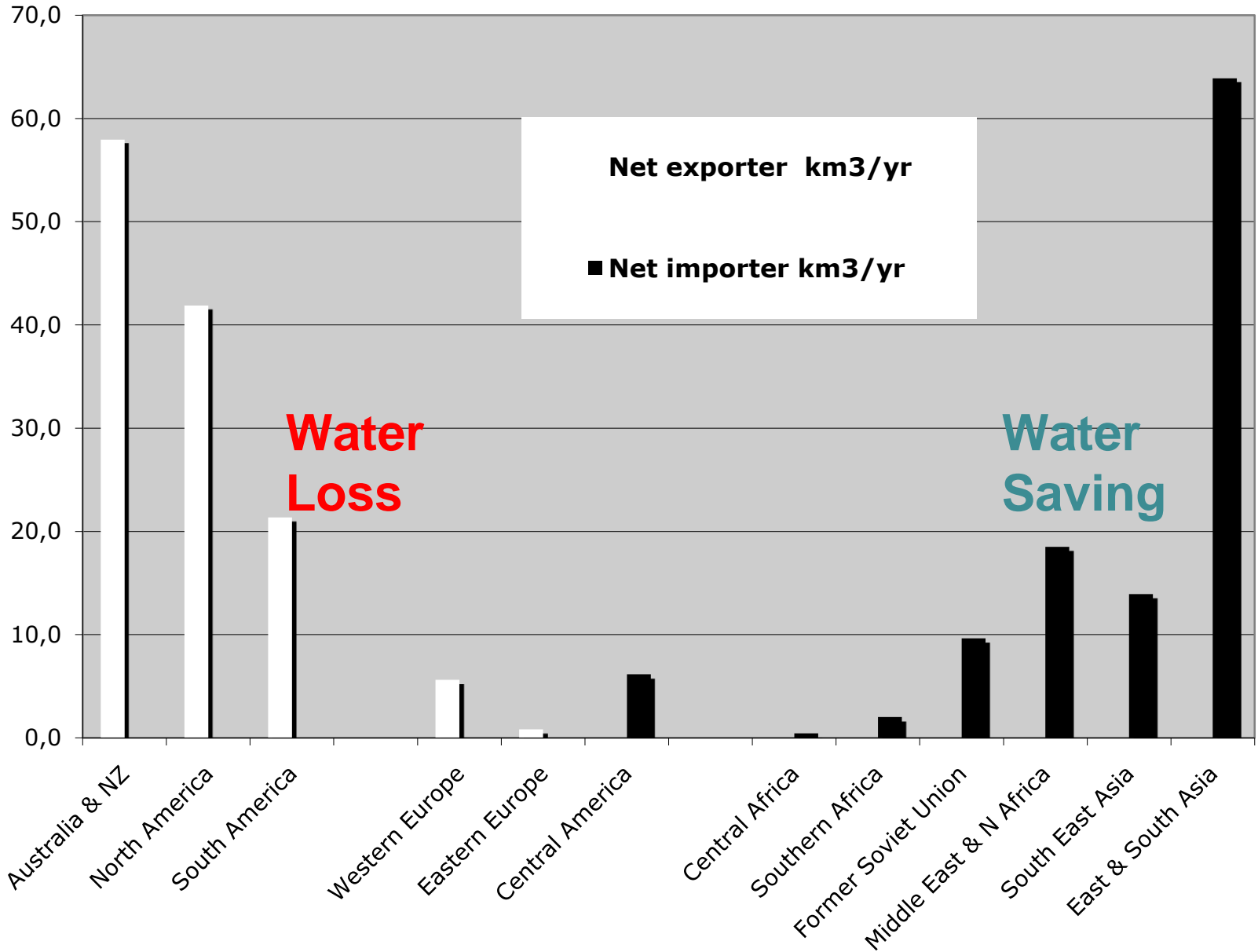
Cubic kilometres per year



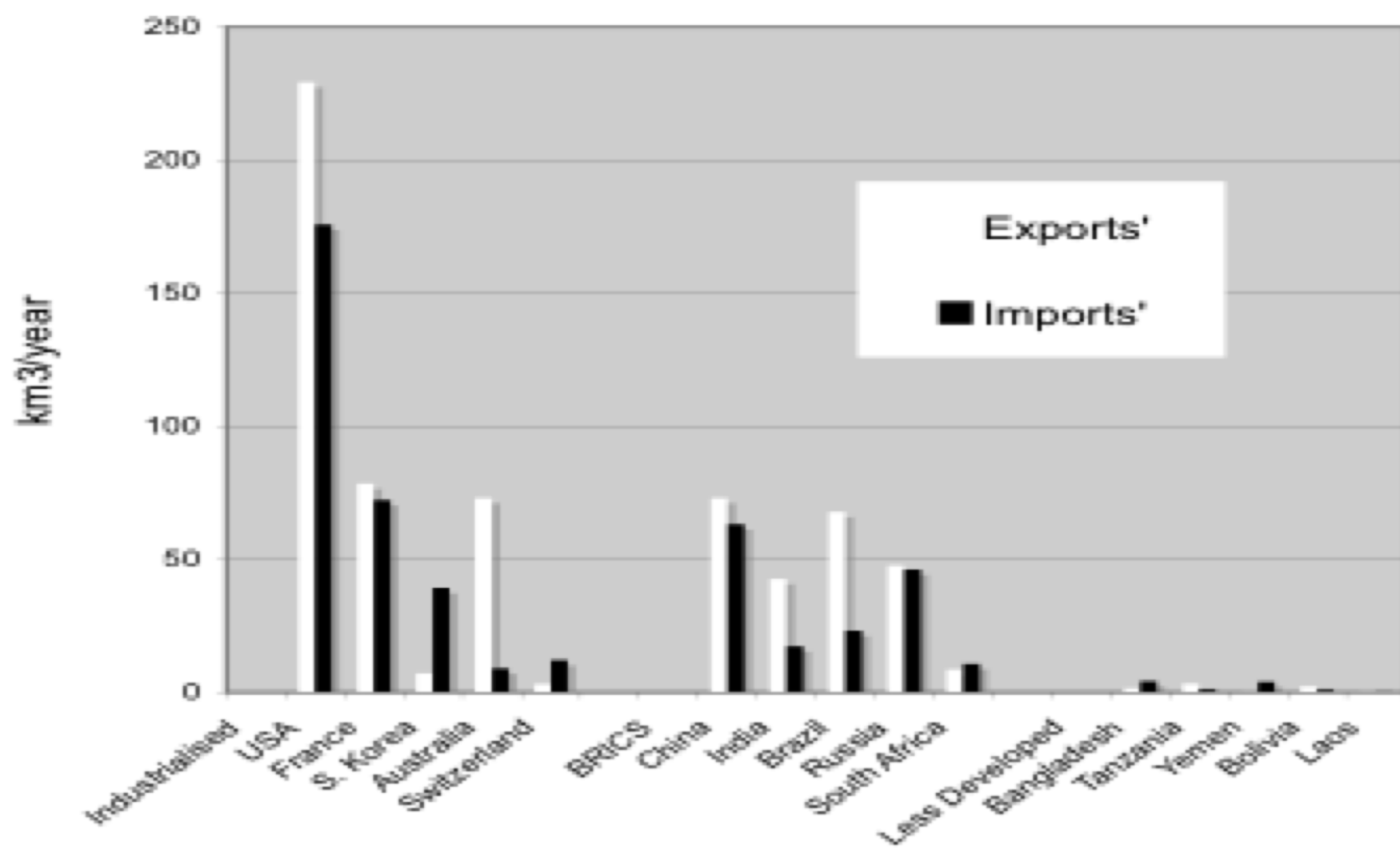


# Inter-regional trade – net exporters and importers

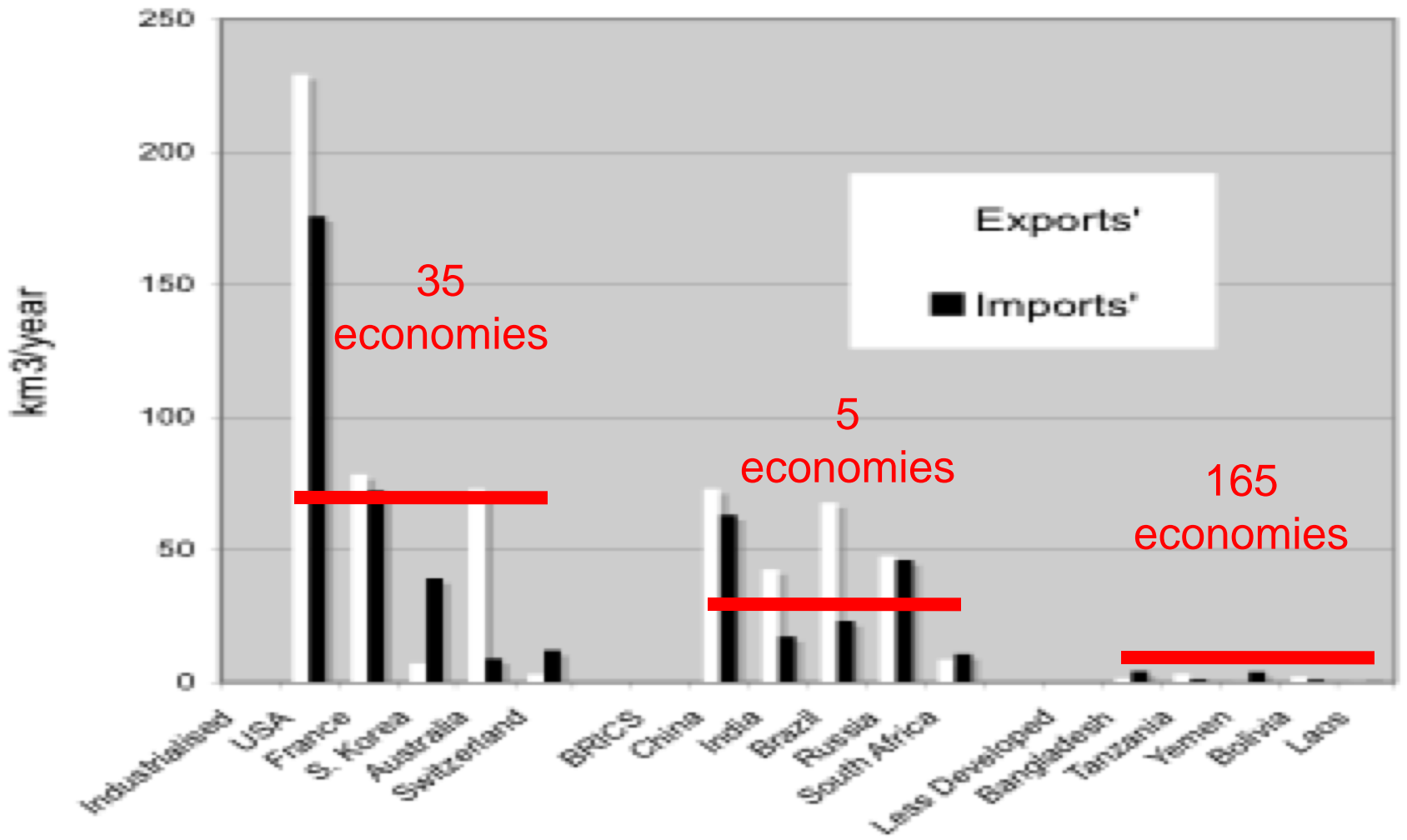
Cubic kilometres per year

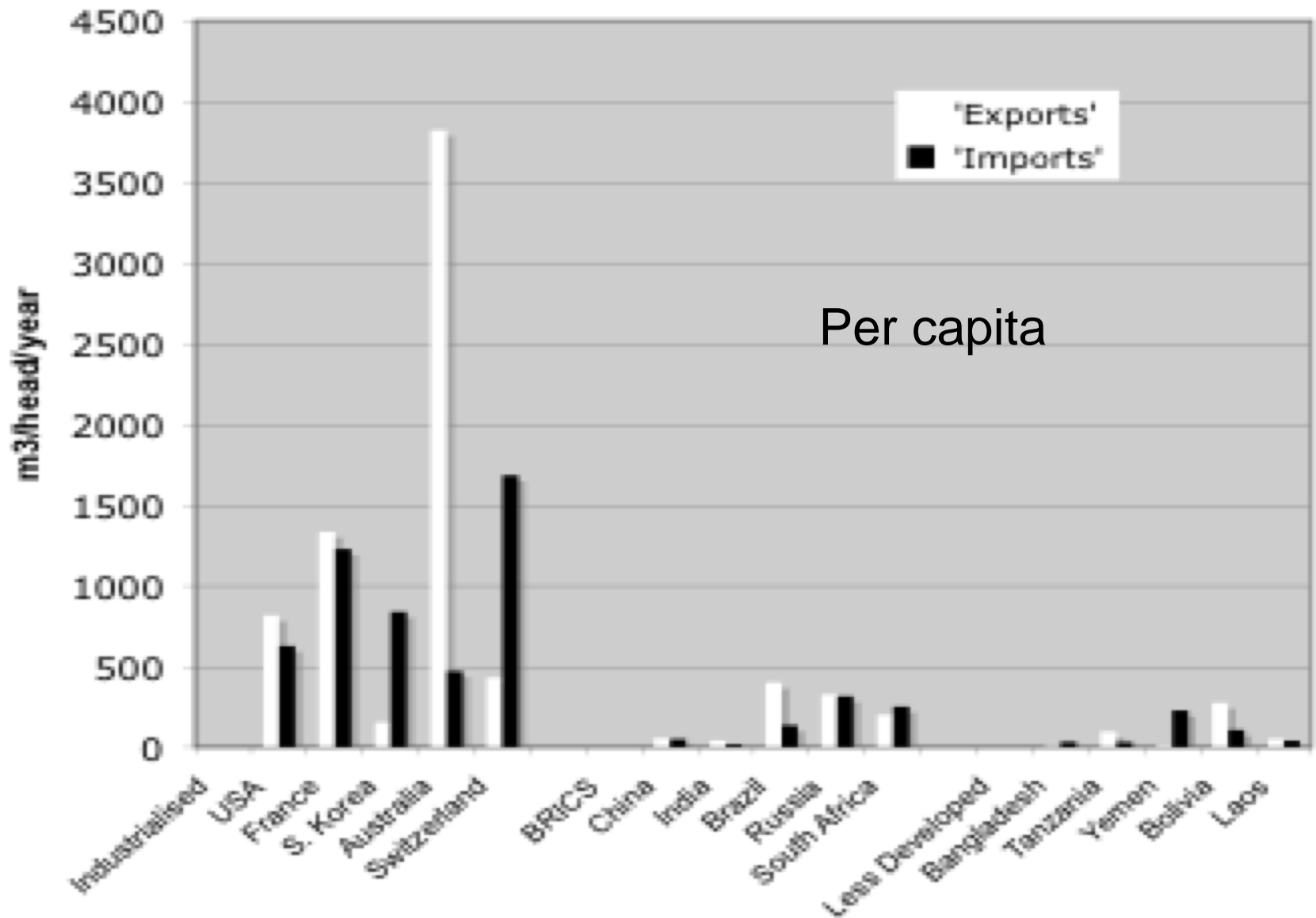


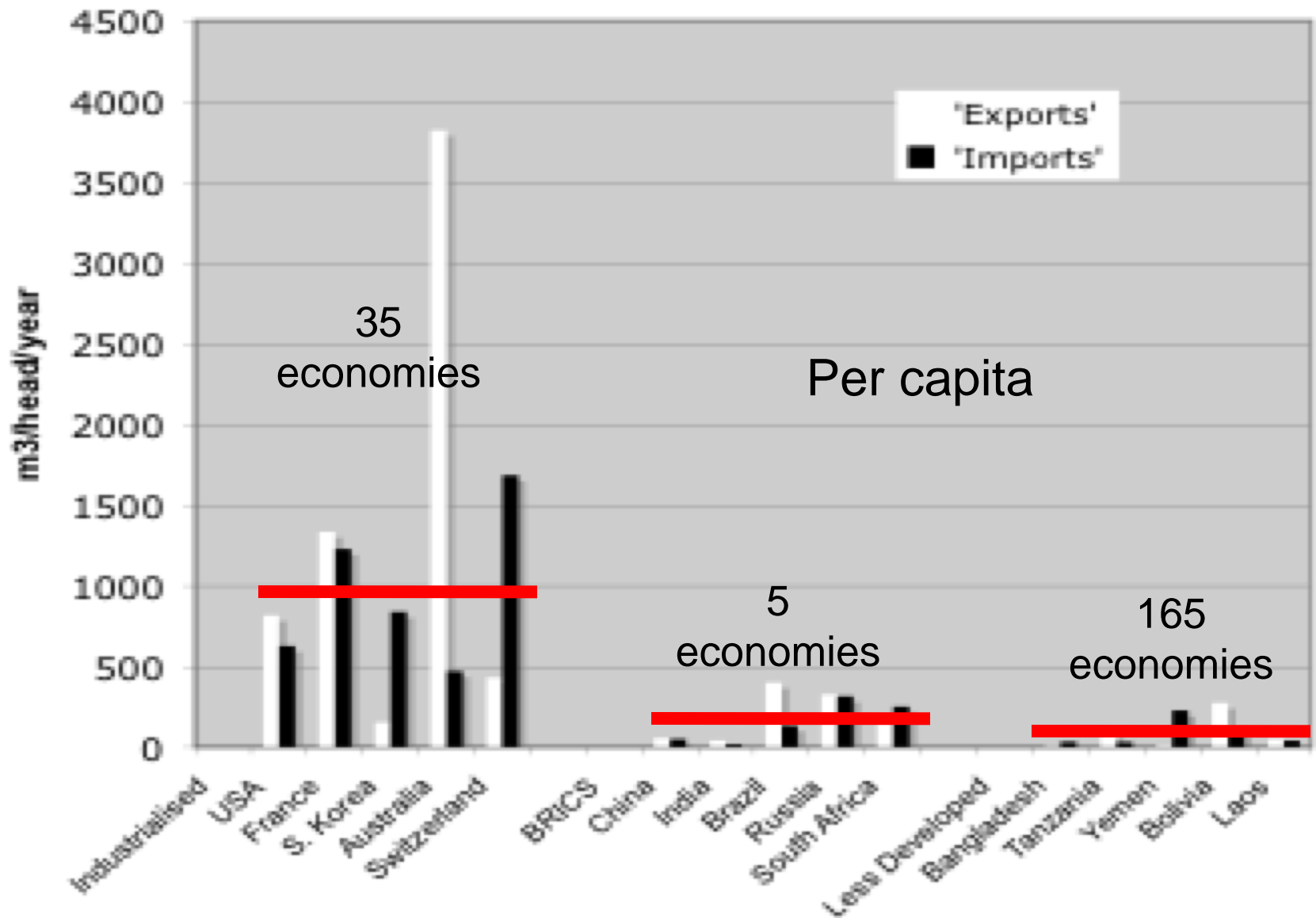
**Virtual water 'exports' and 'imports' - some industrialised, BRICS and less developed economies - 1997-2001 - cubic kilometres per year**



**Virtual water 'exports' and 'imports' - some industrialised, BRICS and less developed economies - 1997-2001 - cubic kilometres per year**







Water security is an elusive concept.

The volume of water is important  
but  
what we do with water is more important.

Farmers do more with water than any other agent and societies need to nurture farmers and incentivise them to gain even higher returns from green and blue water than they have. They can achieve higher returns, in some cases much higher returns, in conditions that protect them from environmental and especially market uncertainties.

.

In addition society itself has the solution in its own hands as it can modify its demands for water resources by reducing waste, modifying diet and levelling-off the rate of population increase either as a consequence of socio-economic advancement or demographic policy.

As usual

We need to look beyond the water sector to achieve water security.

.

In addition society itself has the solution in its own hands as it can modify its demands for water resources by reducing waste, modifying diet and levelling-off the rate of population increase either as a consequence of socio-economic advancement or demographic policy.

As usual

We need to look beyond the water sector to achieve water security.



Thank you

ta1@soas.ac.uk

# Other ways of considering water saving

Through raising crops in places that achieve high returns to water

1 Global system savings thro' trade in:

Grains 222 km<sup>3</sup> Oil crops 68 km<sup>3</sup> Total 352 km<sup>3</sup>/yr

Chapagain & Fraiture make similar estimates

2 National water savings – for example Egypt

Total saving thro' vw 'trade'

3.2 km<sup>3</sup>/yr

Chapagain