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European Sustainable Development Network ESDN

Framing and Focussing:
European Resource Policies in the Context of Sustainable Development

27 - 29 June 2011 in Szentendre, Hungary

Resources as Subject of Social, Economic and Ecological Systems.

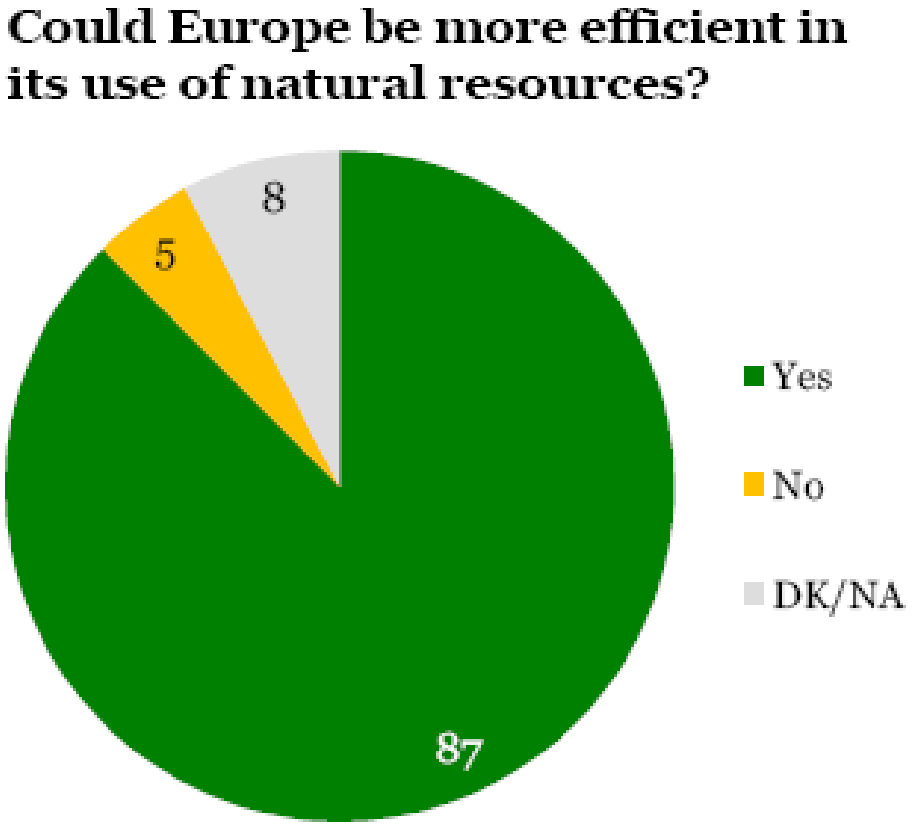
Challenges for an integrated resource approach in Europe

Prof. Ernst Ulrich von Weizsäcker
Co-Chair

UNEP

International Resource Panel

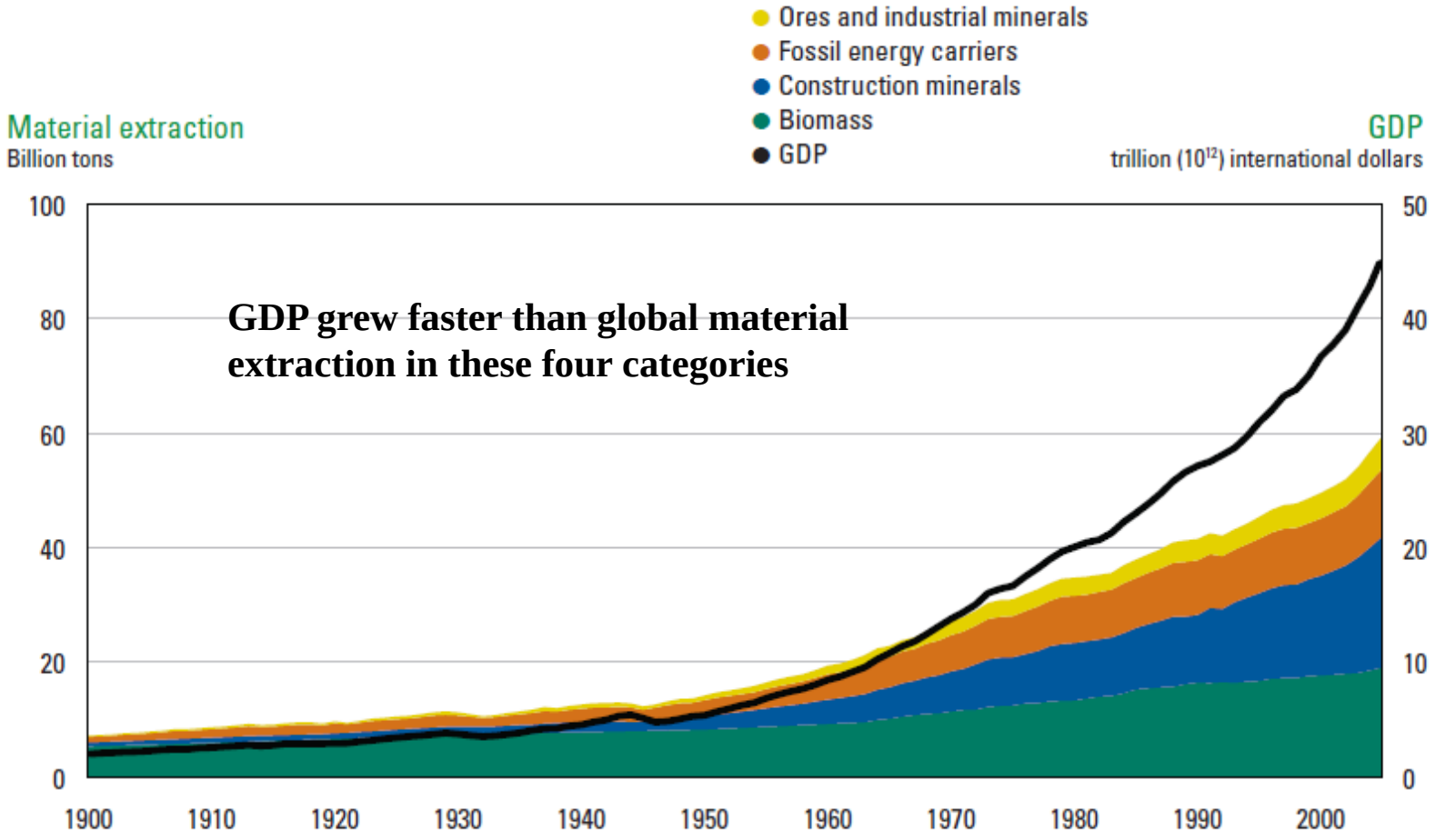
A recent Eurobarometer study shows that Europeans believe that we can become more resource efficient!



Source: http://ec.europa.eu/pblic_opinion/flash/fl_316_en.pdf

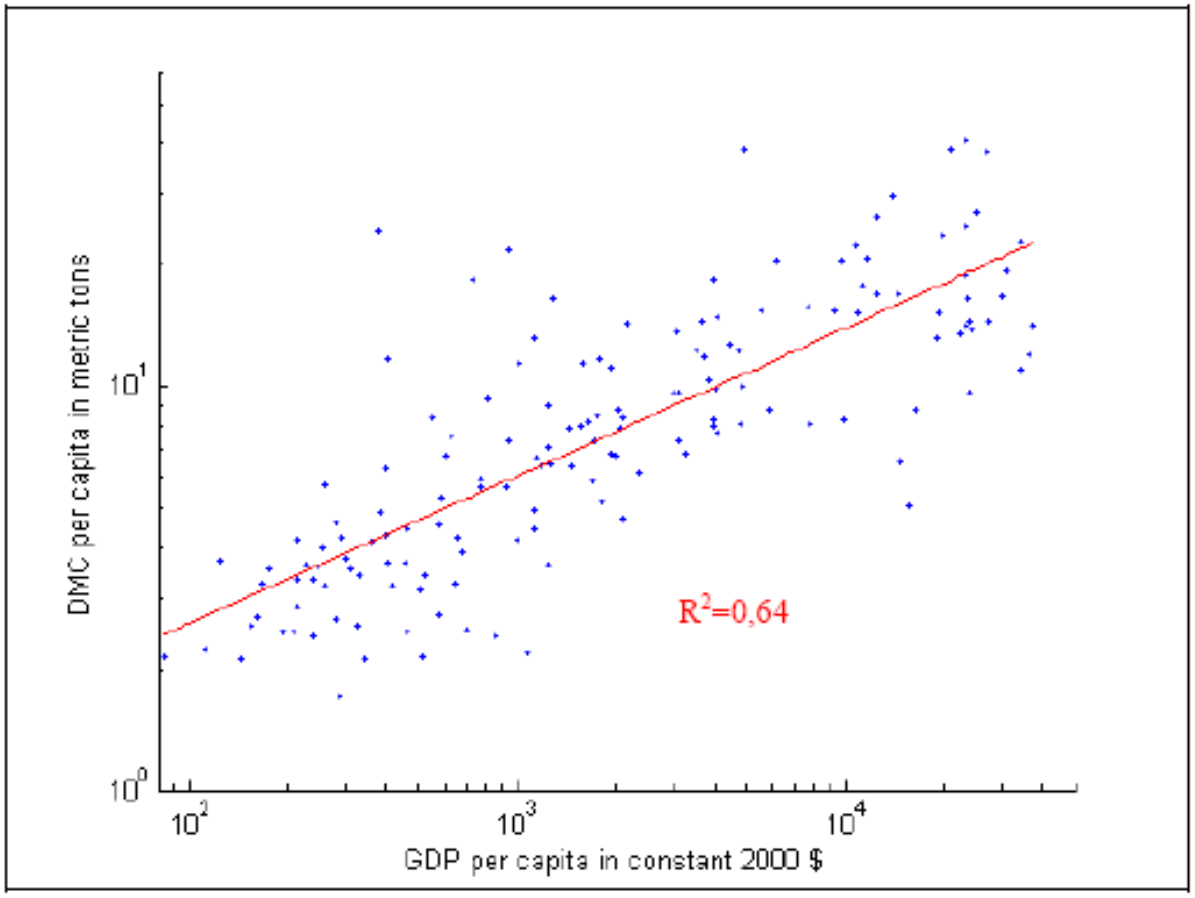
This year‘s Green Week of the EU Commission entirely concentrated on resource efficiency

There's a 'natural' trend of decoupling GDP from global material extraction.
The reason, however, is mostly saturation.



Source: Krausmann *et al.*, 2009

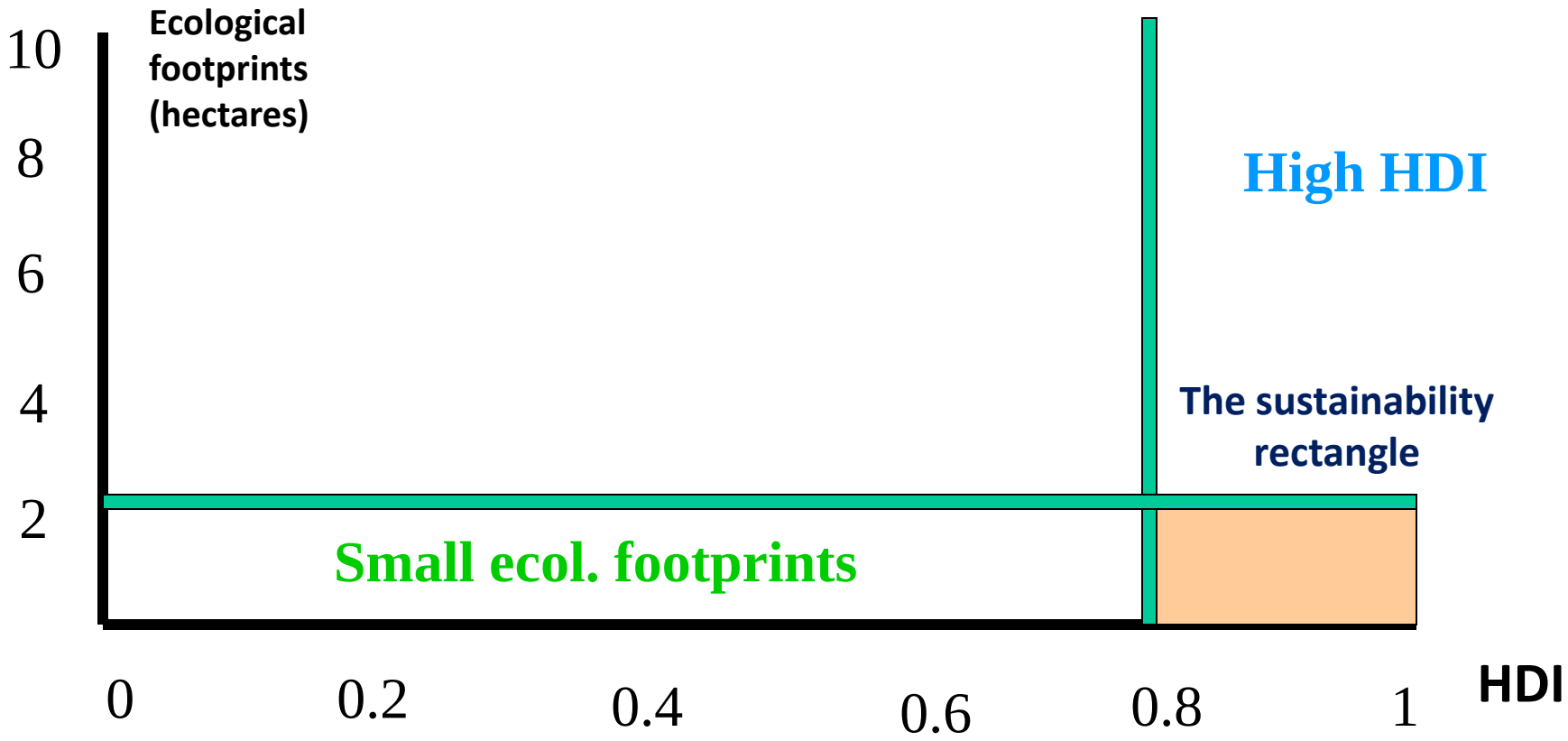
On a logarithmic scale, GDP still goes with DMC (Domestic Material Consumption)



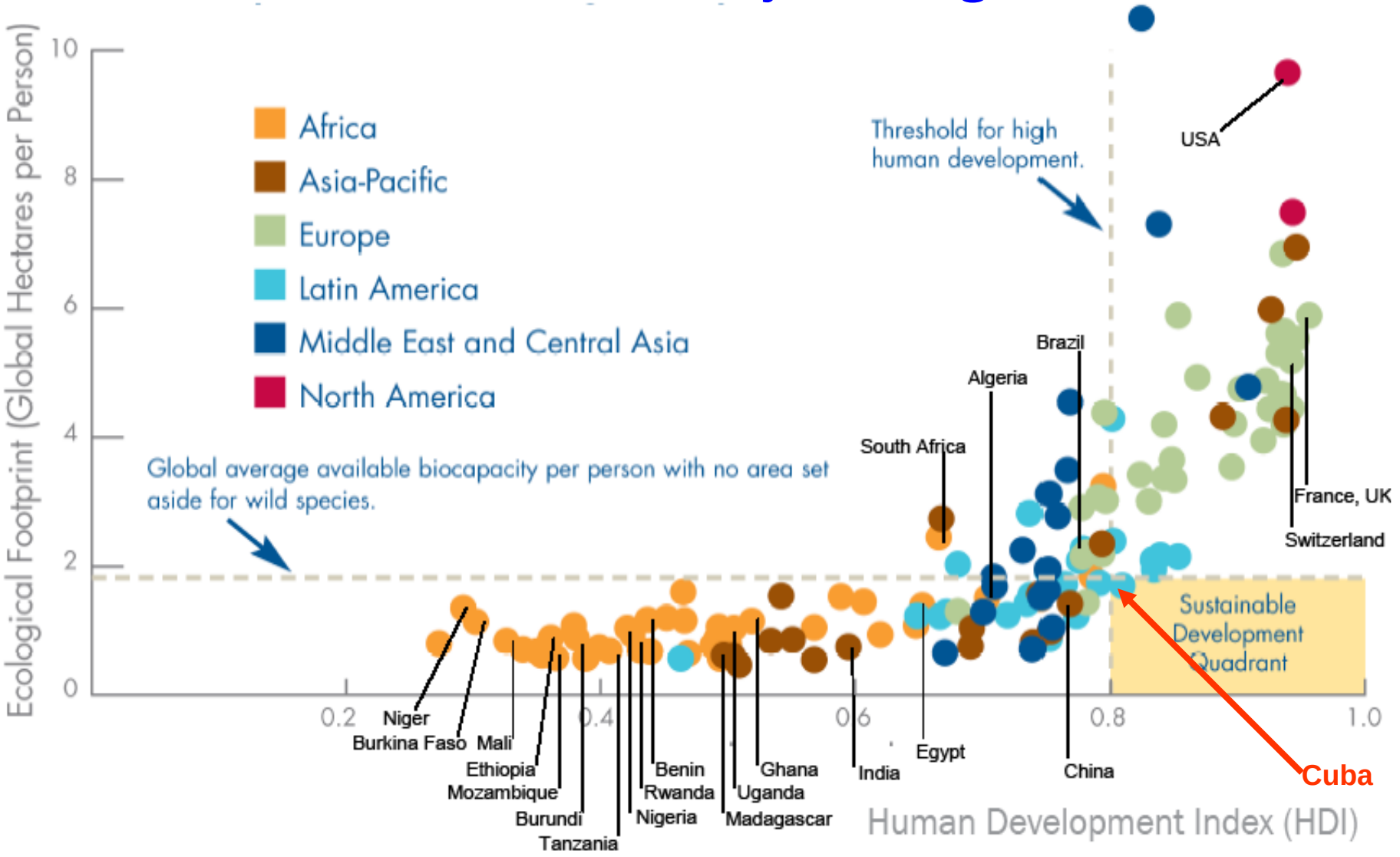
The challenge of this conference, arranged by the European Sustainable Development Network (ESDN) is on resource policies in the context of sustainable development.

So let me ask the question what sutainable development is (beyond the fairly abstract Brundtland Report definition).

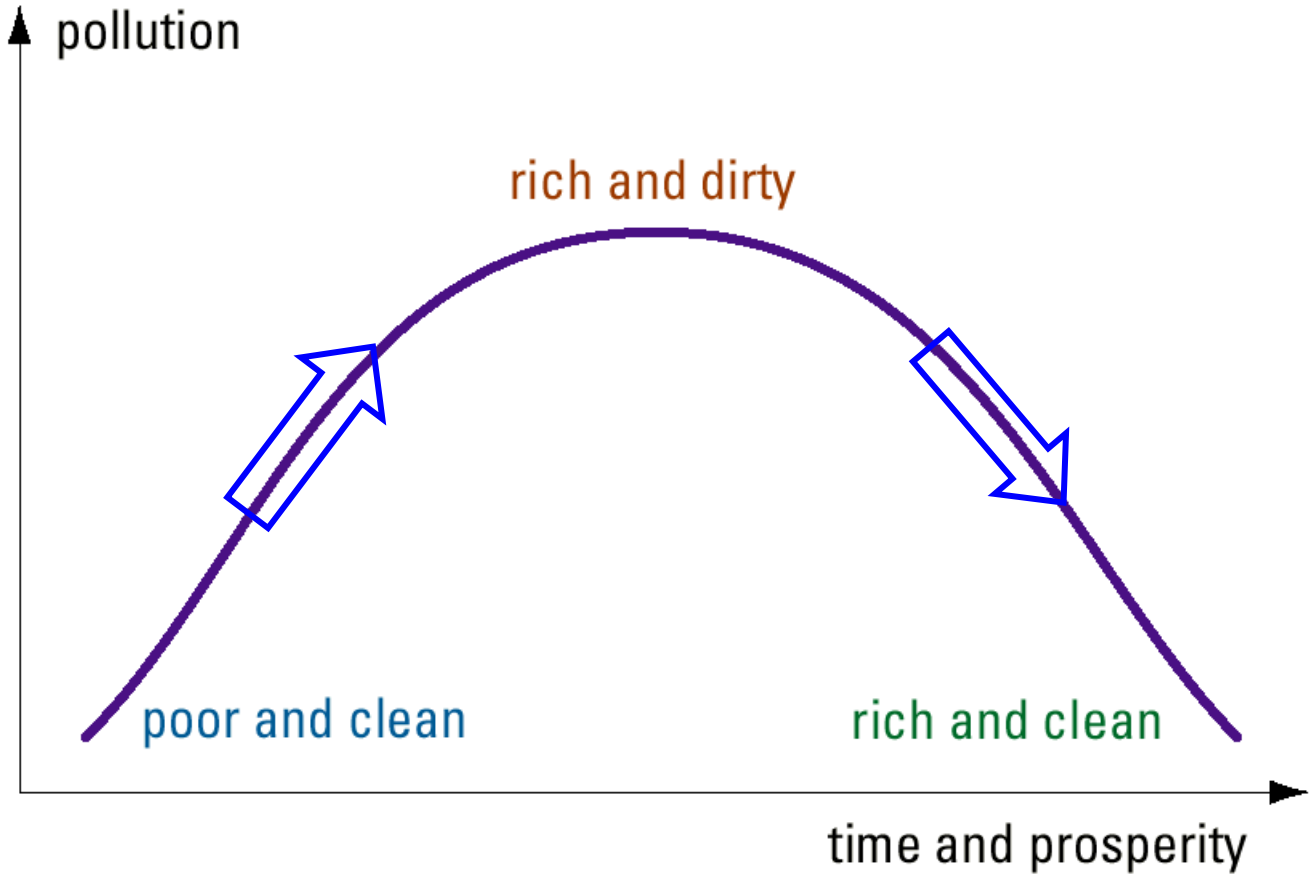
Sustainable development can be said to mean small ecological footprints and a high Human Development Index (HDI)



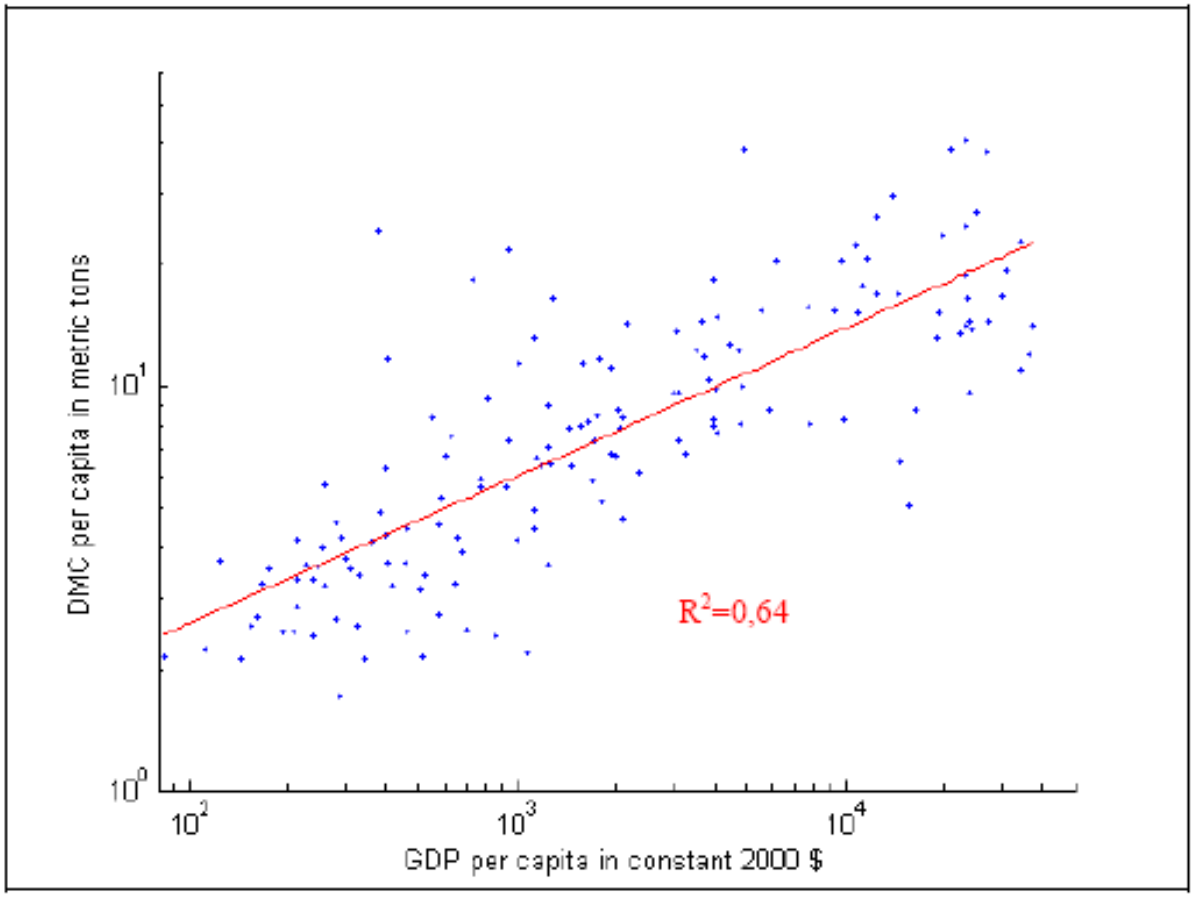
Alas, only one country currently populates the sustainability rectangle



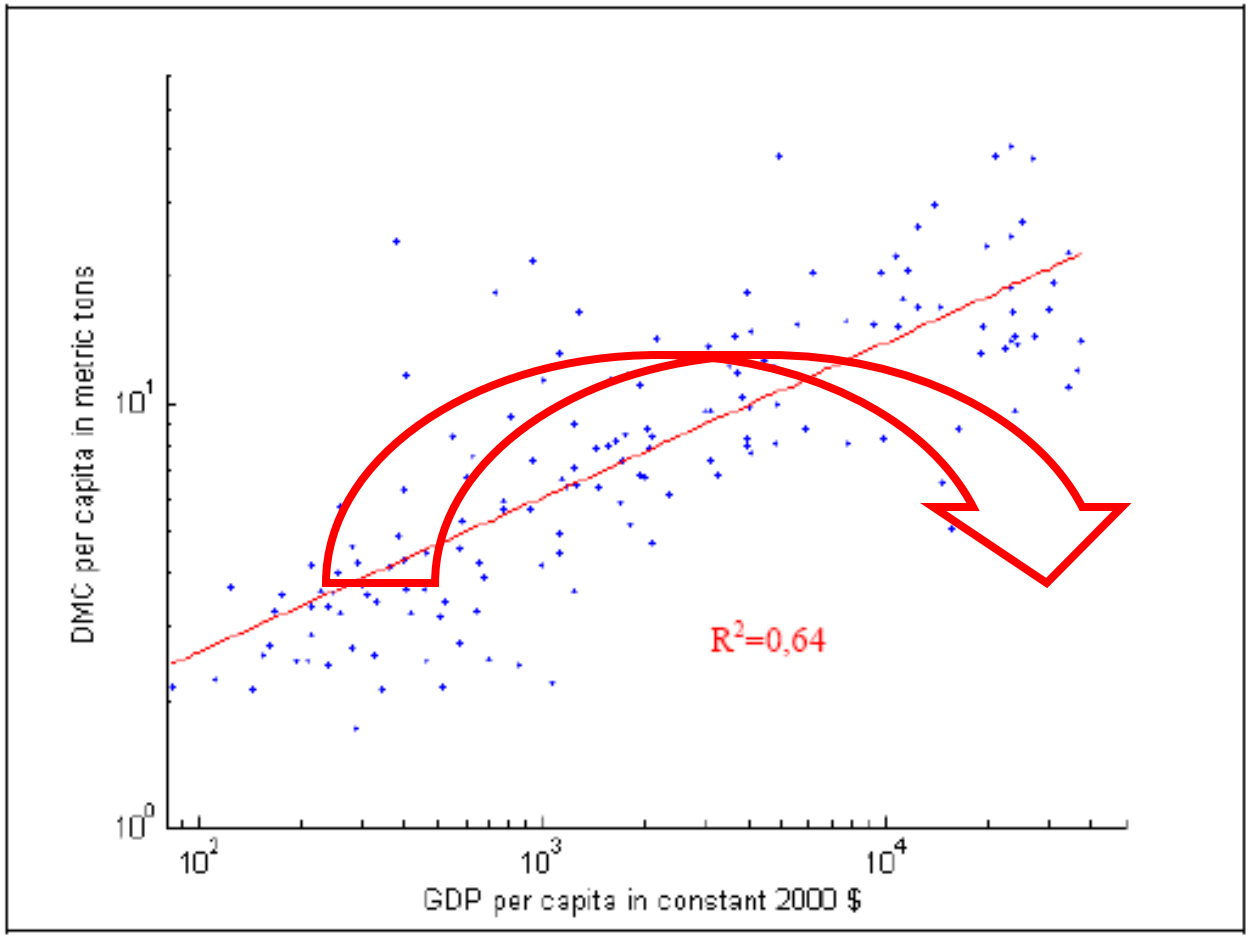
And yet, sustainability policies (and, correspondingly, climate diplomacy) are extremely slow. Why?? - Because of the convenient paradigm of the Kuznets curve of pollution



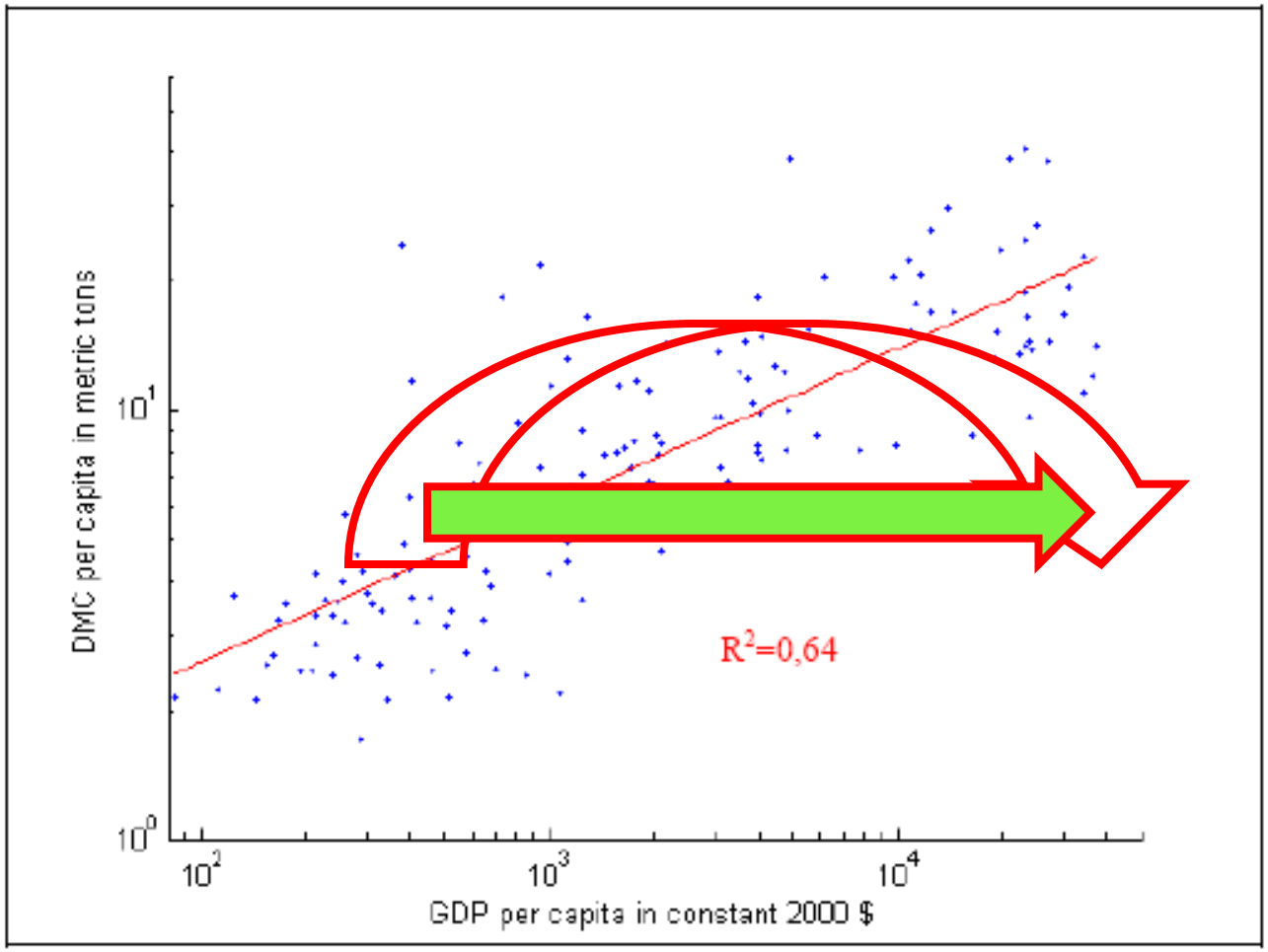
Even worse: there is not even a Kuznets Curve for material consumption!



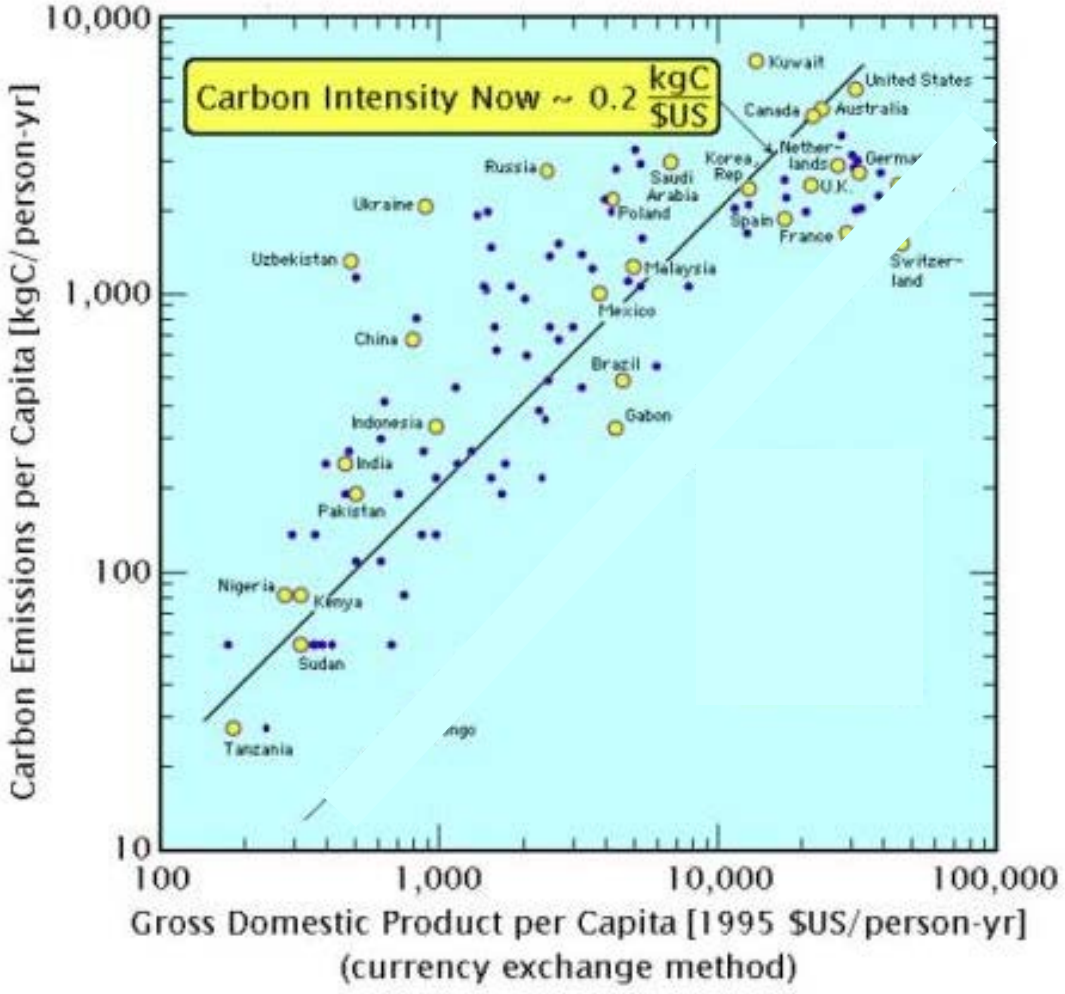
So our first task is to create that Kuznets Curve



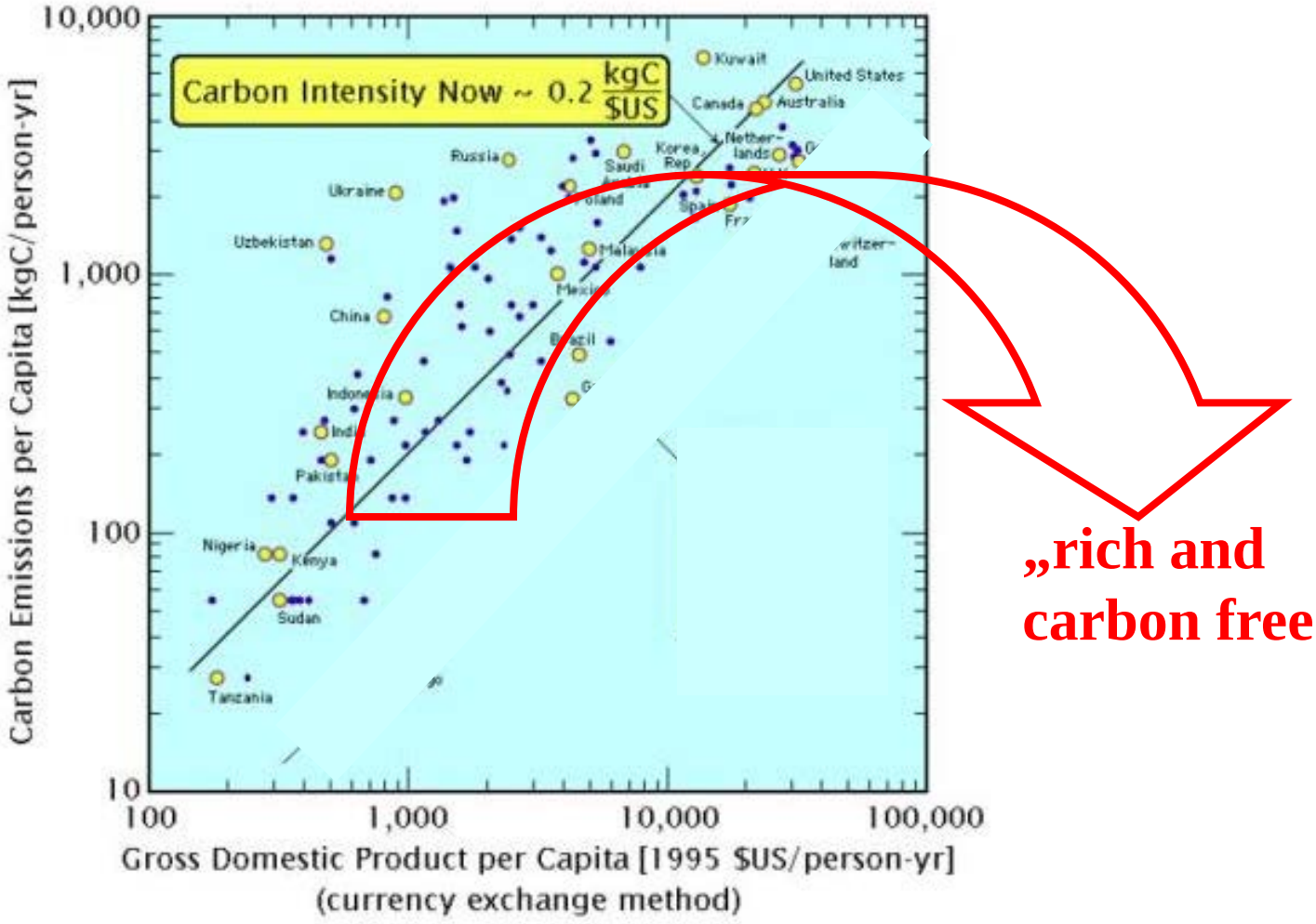
… and then assist developing countries to tunnel through the Curve



More or less the same two tasks exist for decoupling GDP from CO_2 intensity

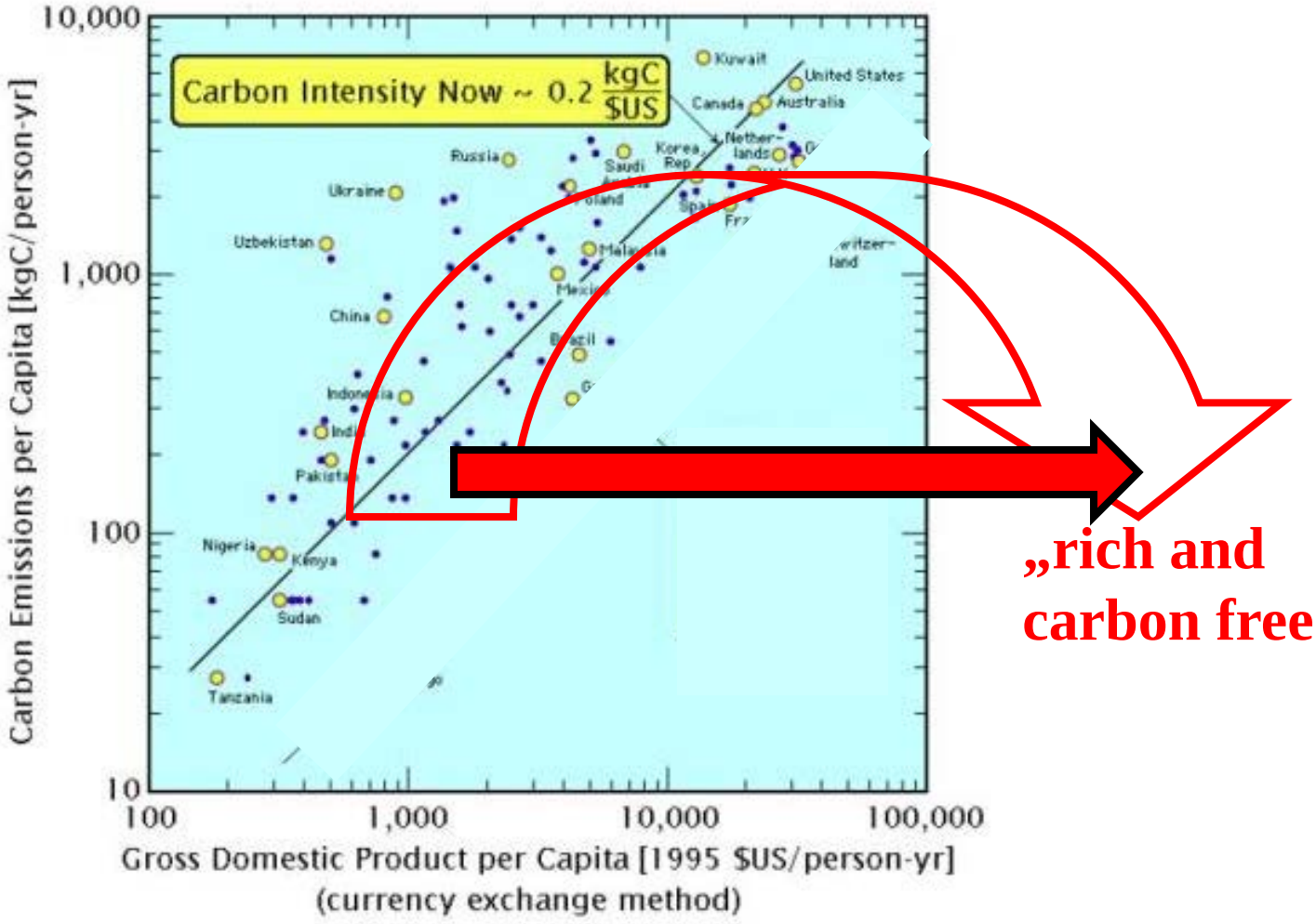


First create a Kuznets Curve of decarbonization

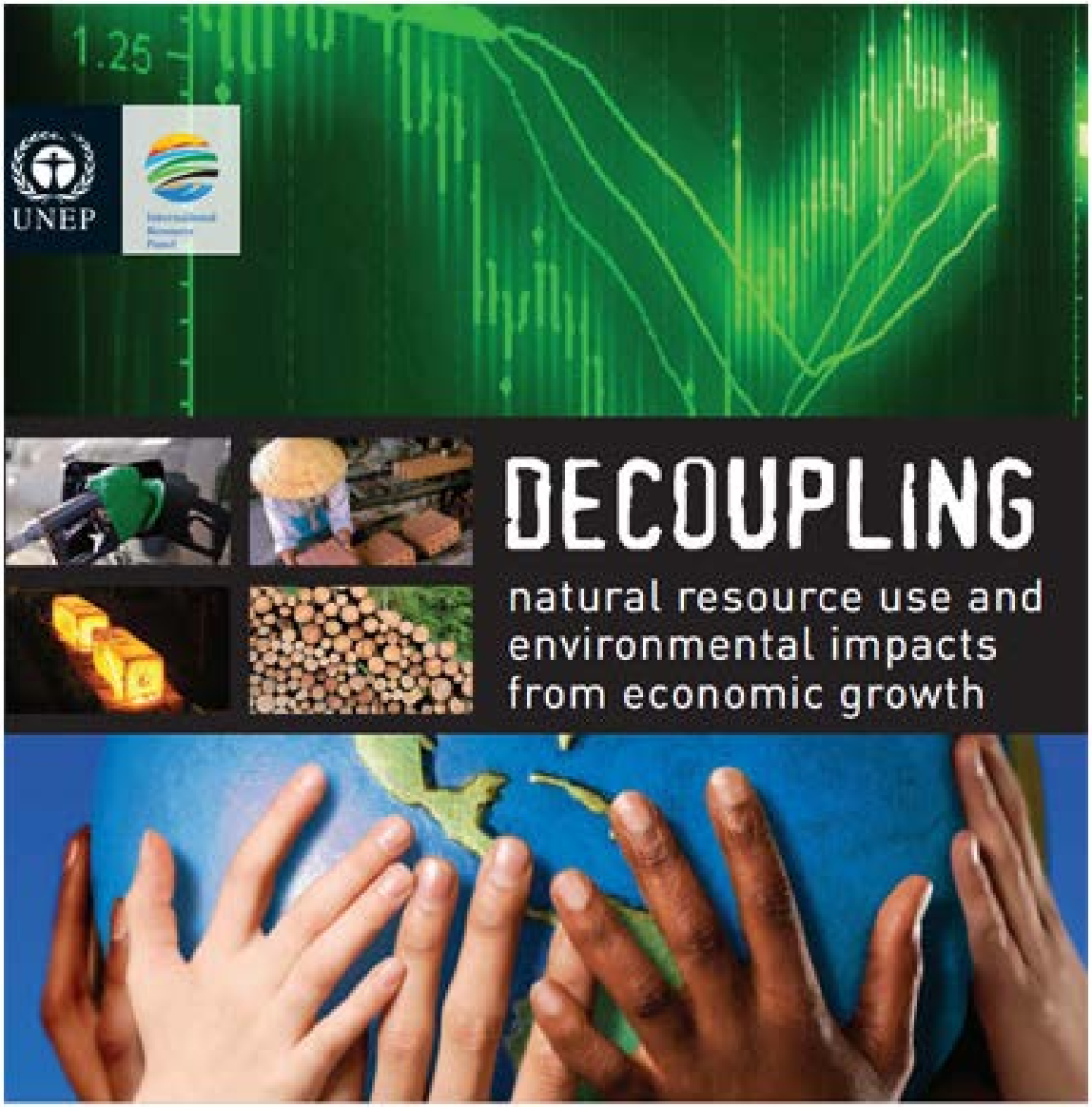


„rich and carbon free“

… and second to assist developing countries tunneling through it.



„rich and carbon free“

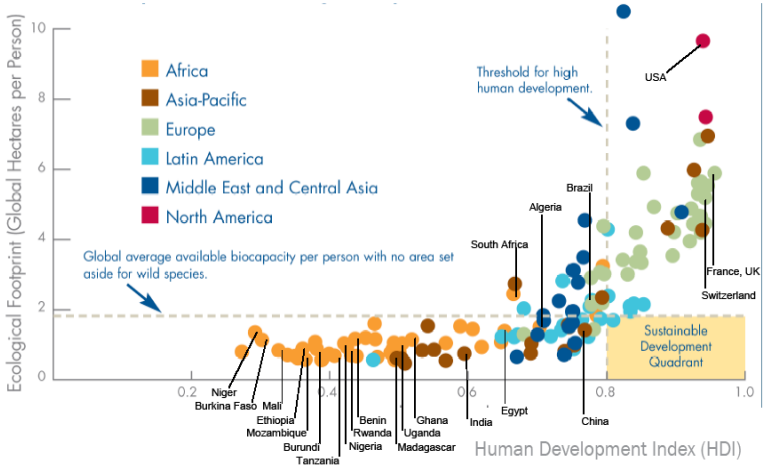


Our International Resource Panel works on this Decoupling agenda

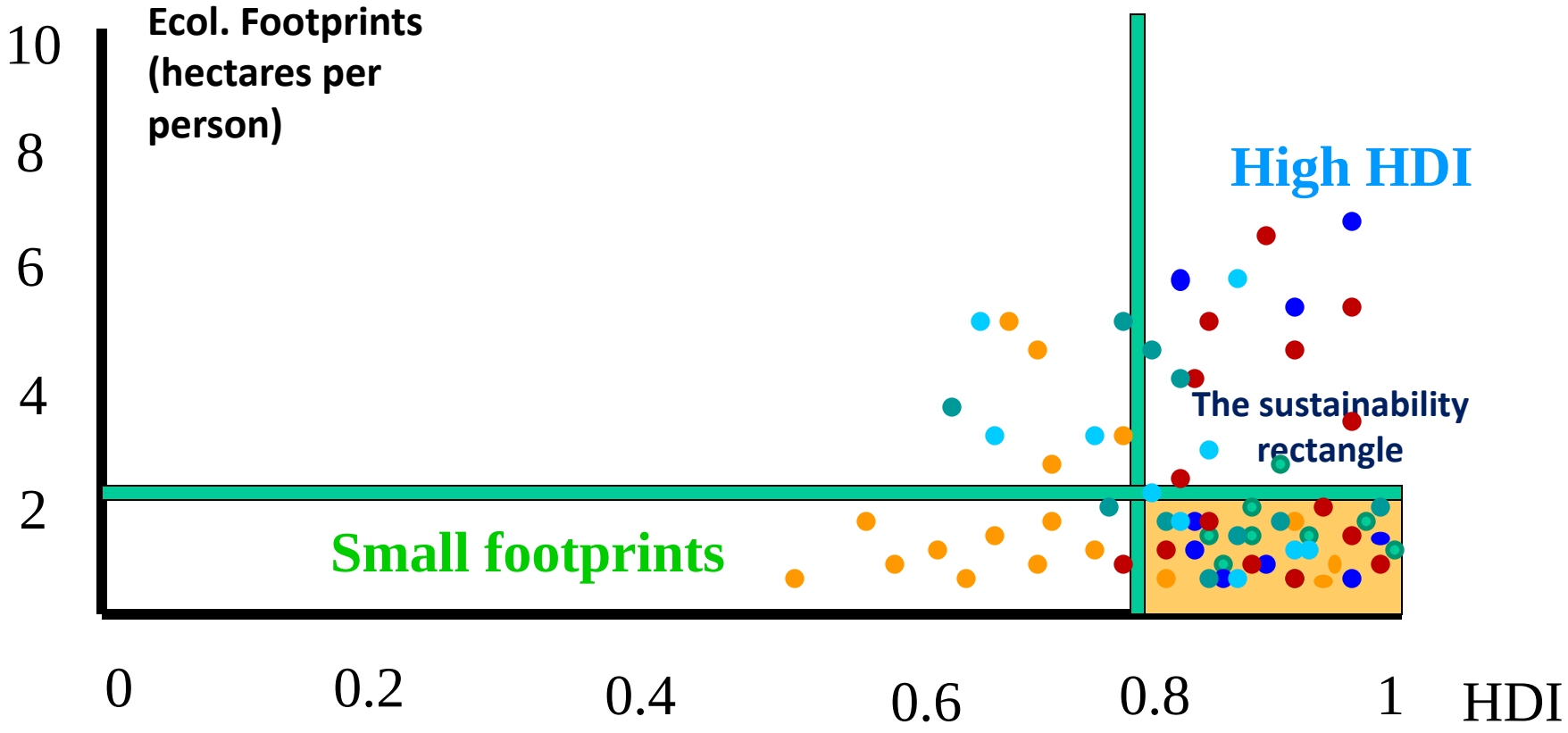
In May, our first Decoupling report was presented to the press, - with considerable media attention.

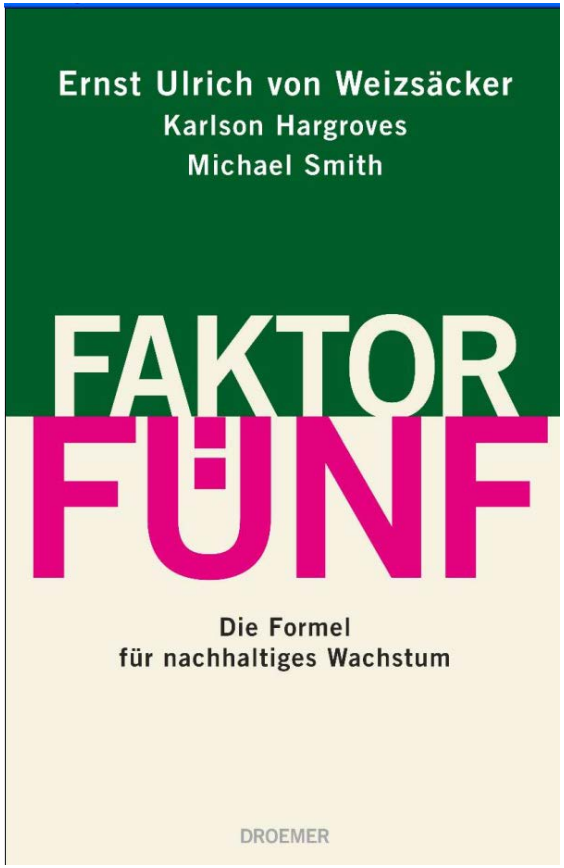
But that Report essentially formulated the challenge and provided facts and figures about non-decoupling.

This brings us back to the earlier picture:



Now I am proposing an answer to that challenge: A factor of five in the increase of resource productivity could pull or push most countries into sustainability!





December, 2009 **March, 2010** **October, 2010**

Factor Five **is a book documenting that technologies and policies are available for a five fold improvement!**

Let me now try and convince you that we can become a lot more prosperous consuming less resources.

For material extraction, this essentially means the Japanese „3 R“ principle.

For energy, I am asking you a question from a freshman‘s class of physics.

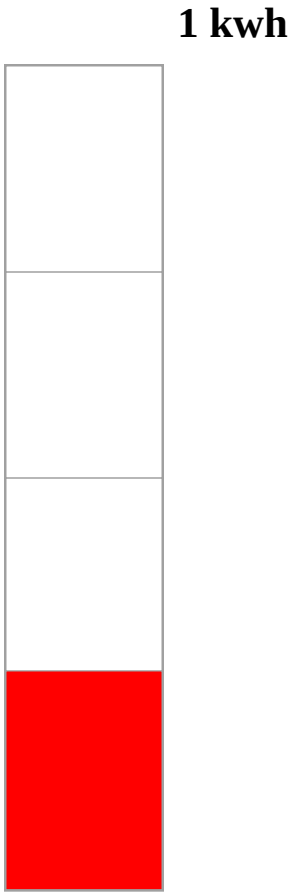
Imagine a bucket of water of 10 kg weight

How many Kilowatt-hours

do you need to lift it from sea level to the top of Mount Everest?

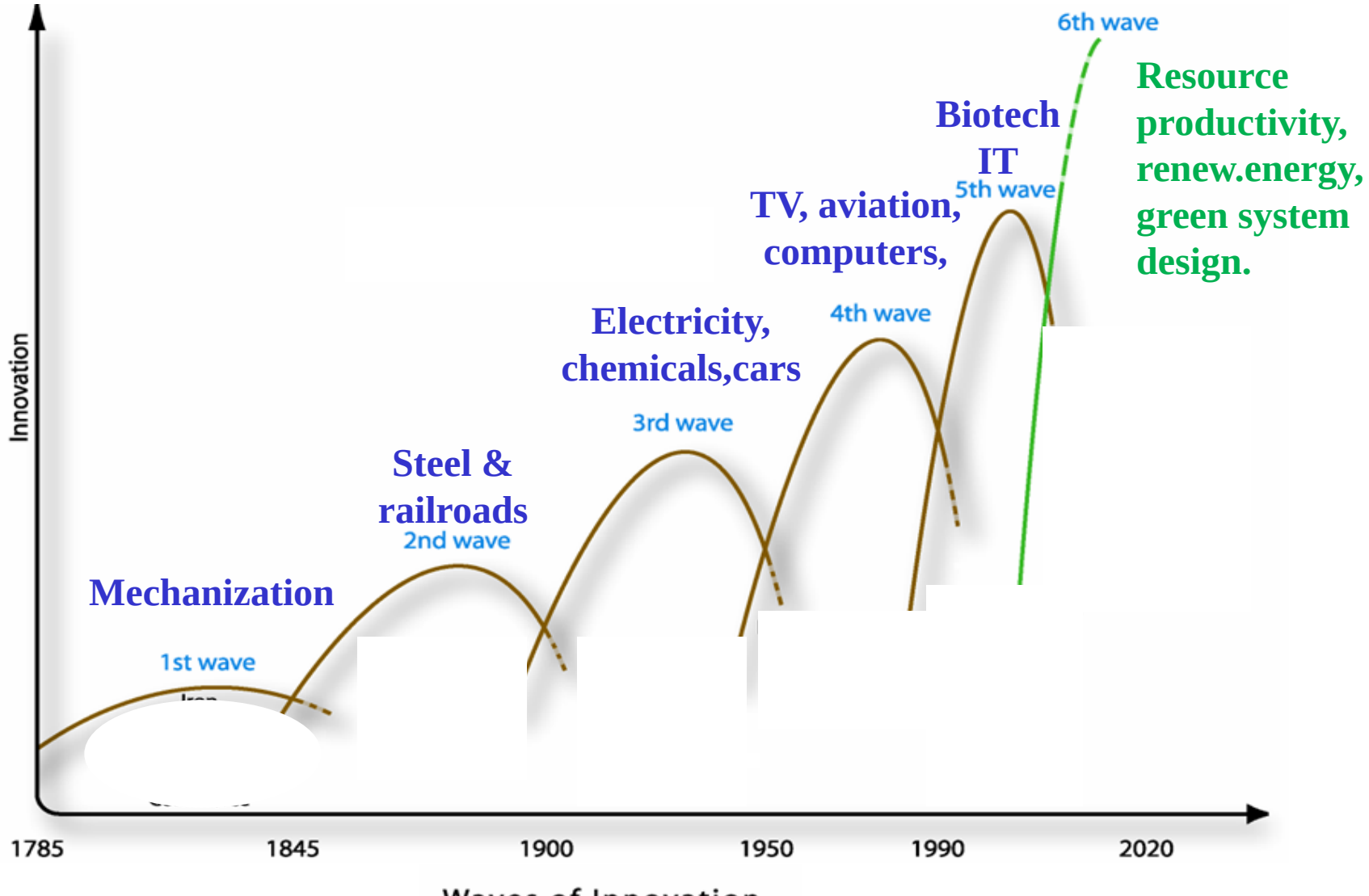
The answer is:
One quarter of a kilowatthour!

(knowing that one watt-second is one Joule or one Newton-meter; ¼ kwh is 900.000 watt-seconds)



Are you now convinced that we can extract a lot more wealth from a kilowatt-hour, or from ton of material resources?

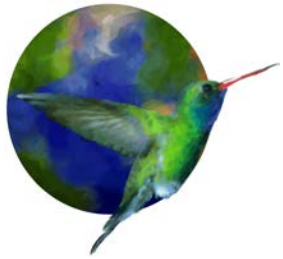
I go as far as postulating a new Kondratiev Cycle, based on energy & resource productivity



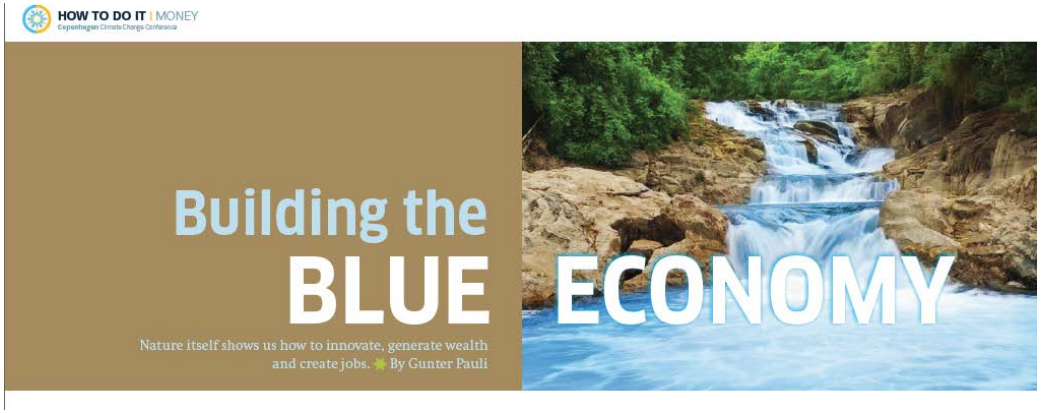
Another 2010 Report to the Club of Rome:

Building the Blue Economy

10 years, 100 innovations, 100 million jobs



The Blue Economy



- by Gunter Pauli. From over 2.000 innovations, he selected 100 that are published on a weekly basis at www.blue.economy.de

Let us run through some examples of the „Factor Five“ revolution.

Amory Lovins'
"Hypercar":
1,2 l/100km

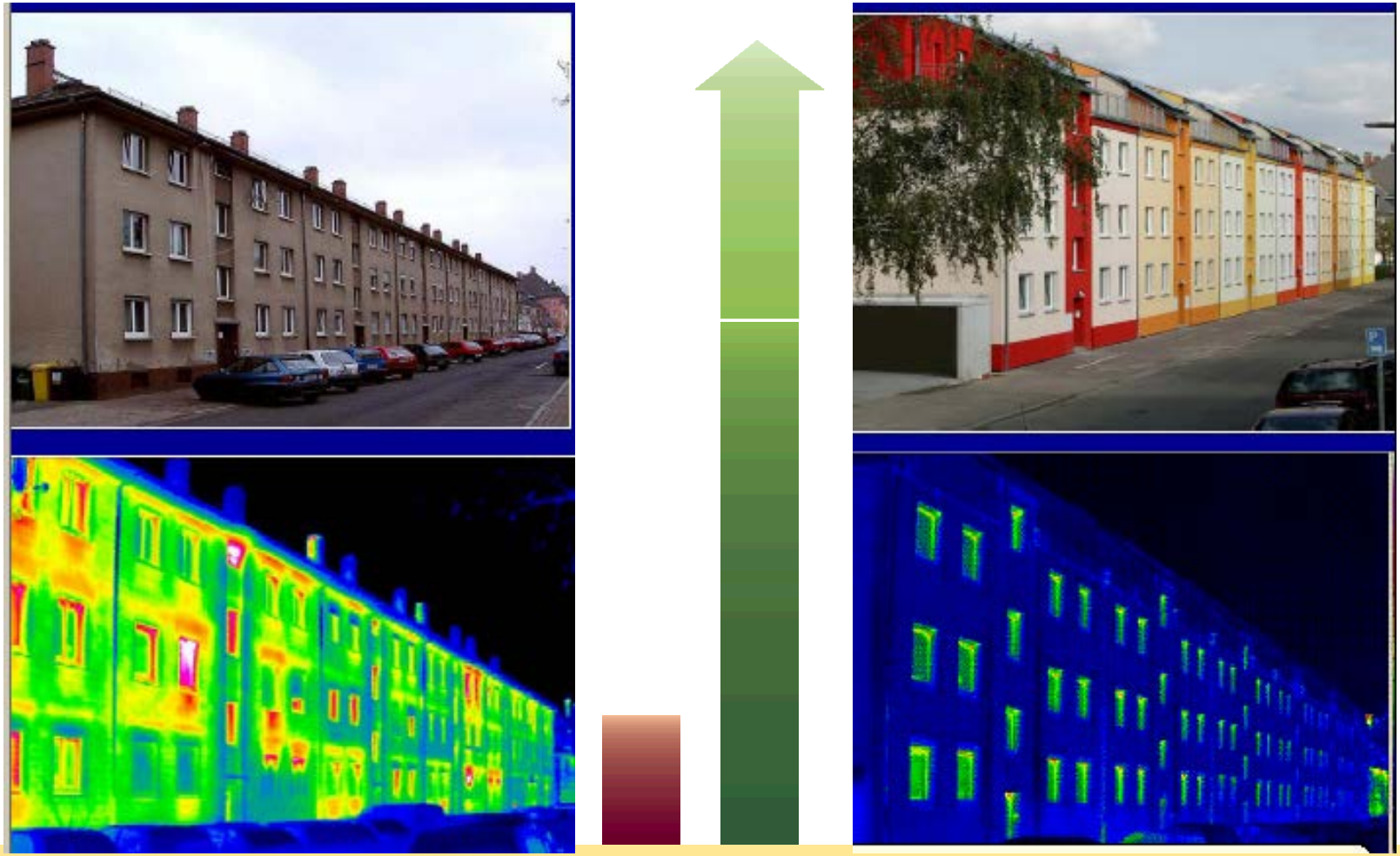
Today's fleet
6-12 l/100km

Fuel efficiency

“Passive houses”: a factor of ten more heat efficient; exciting news for the Russian Winter!

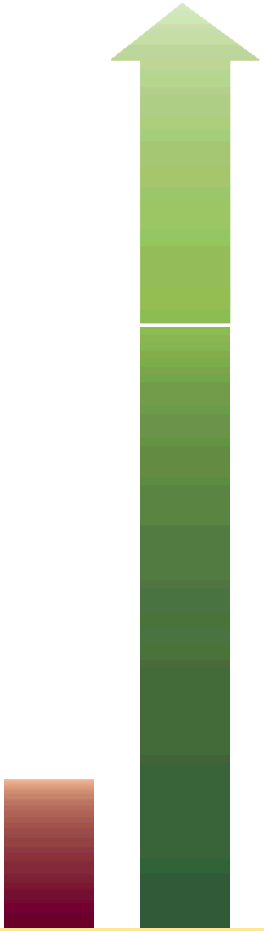
Energy efficiency

Refurbishing existing buildings



Upper row: Photographs
Lower: Thermograms

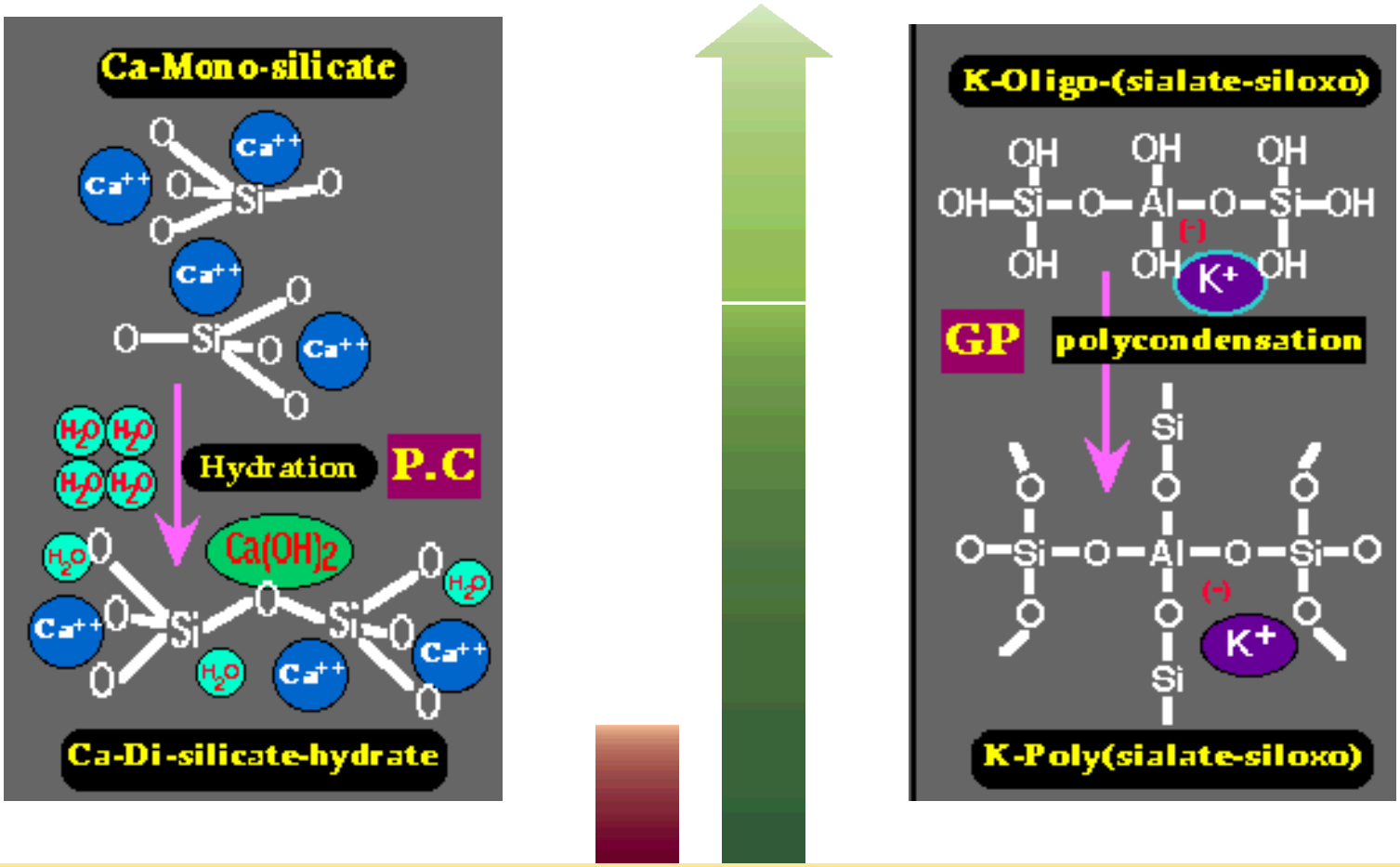
LED replacing incandescent bulbs: a factor of 10



Philips 7W Master LED

Energy efficiency

From Portland cement to geopolymer cement



Carbon efficiency

City structure

USA

Energy and space efficiency

Copenhagen (above)
Freiburg , Vauban (below)

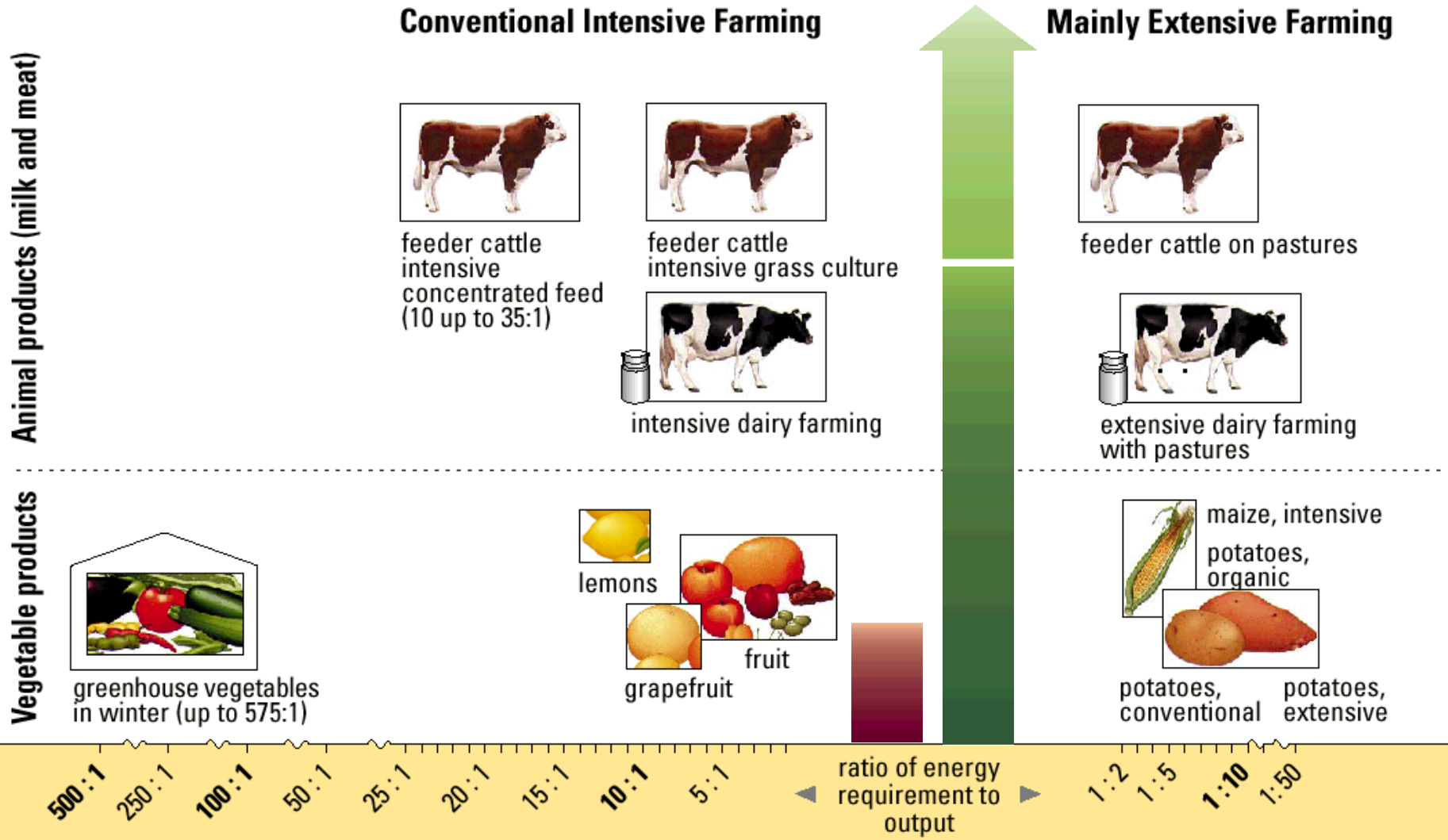
From rotten trains to high speed trains

Amtrak

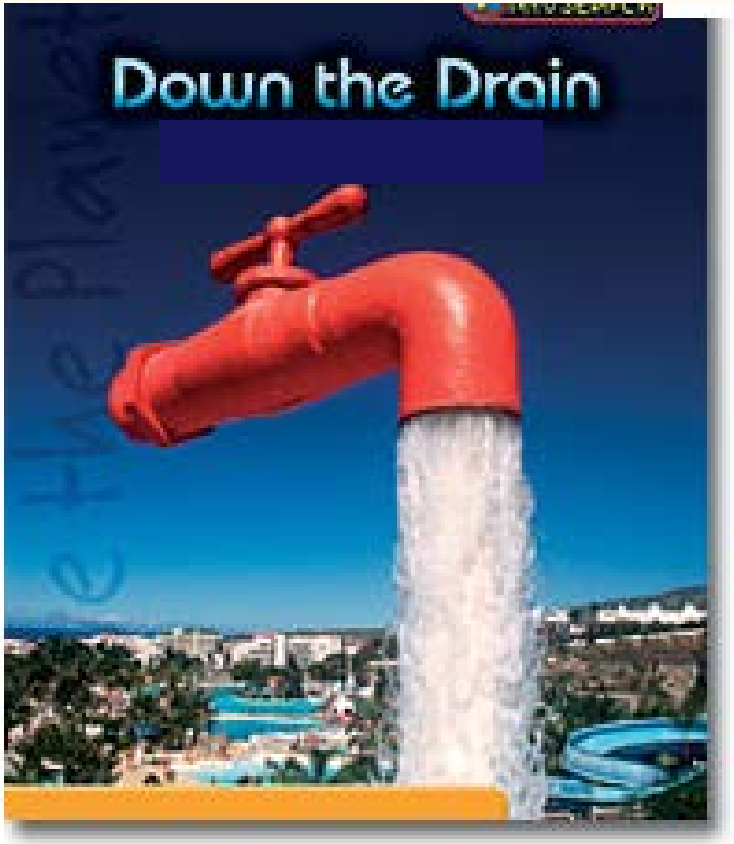
Shinkansen

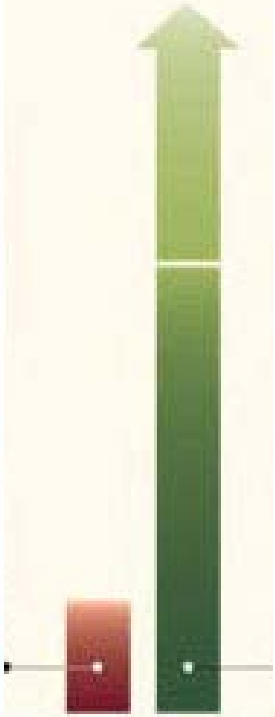
Time and resource efficiency

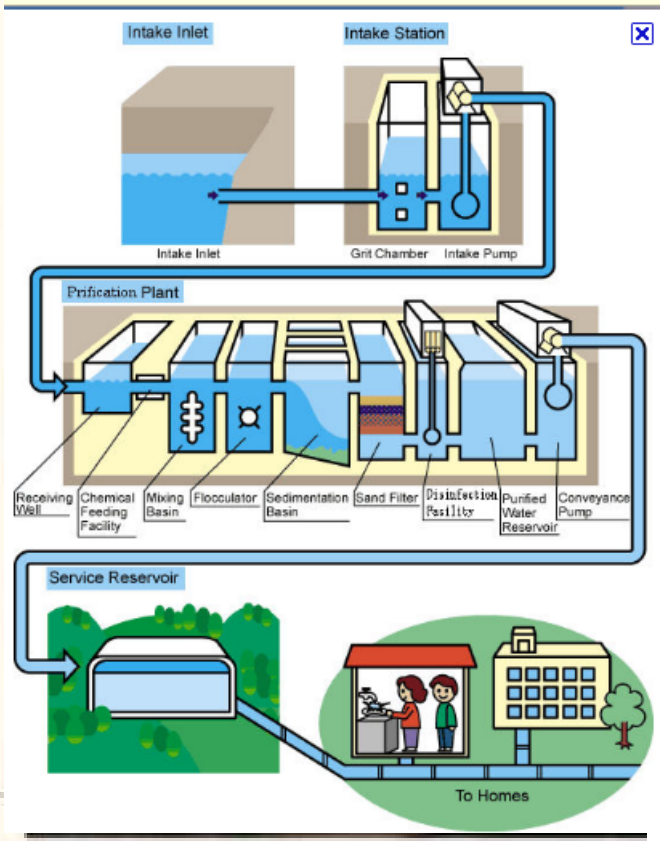
Seasonal diets, organic farming, a little less beef



From using water once to purifying (recycling) it

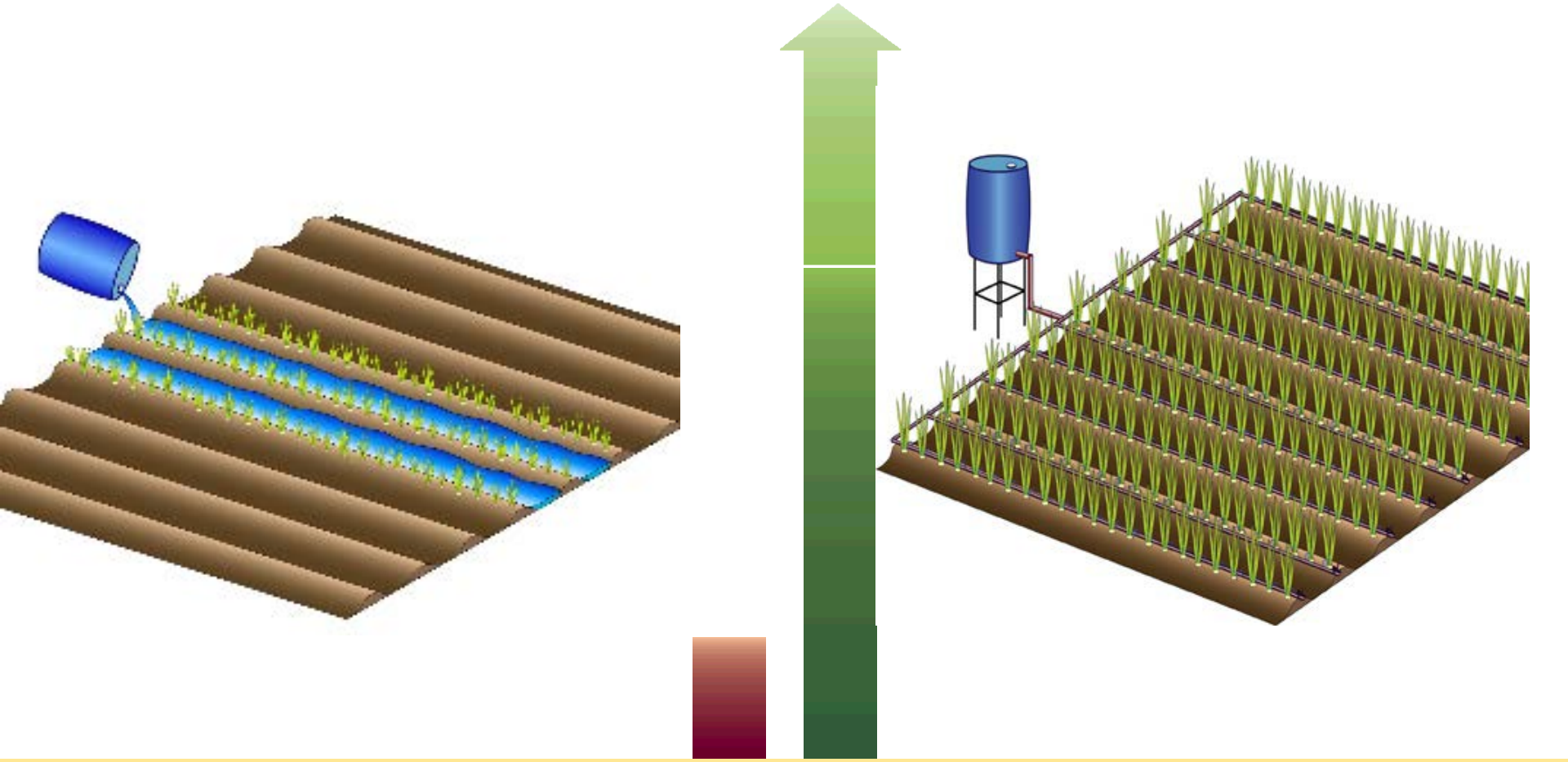






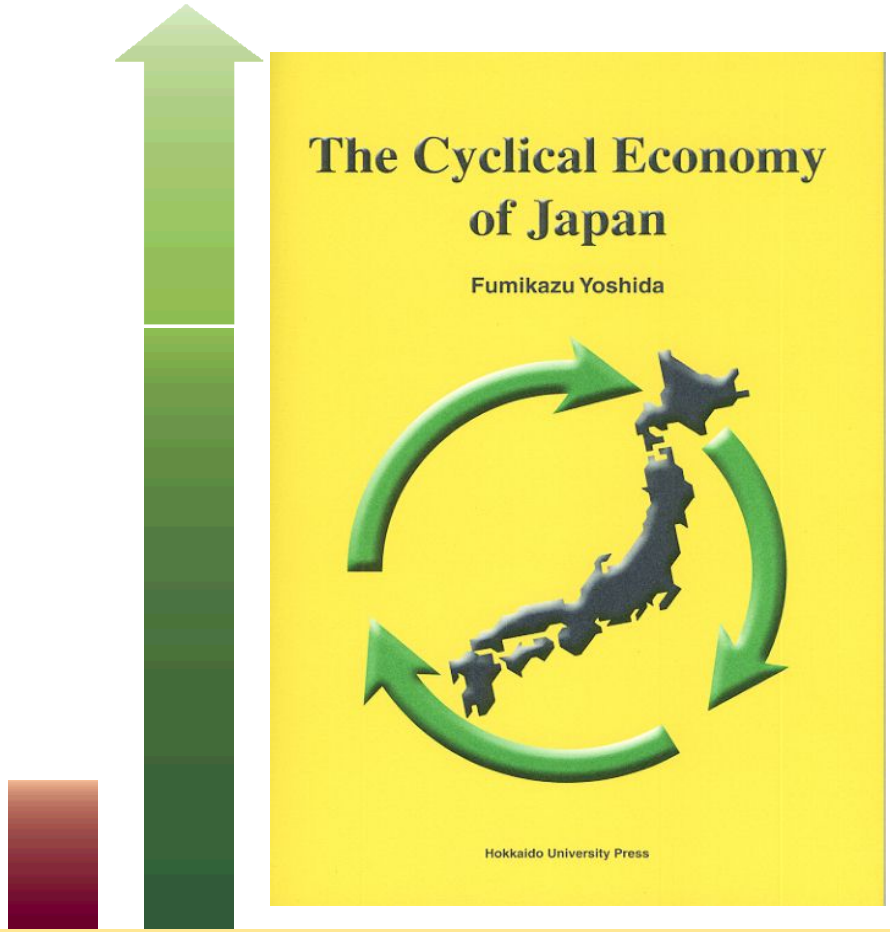
Water efficiency

From flood irrigation to advanced drip irrigation



Water efficiency
(Source: www.driptech.com)

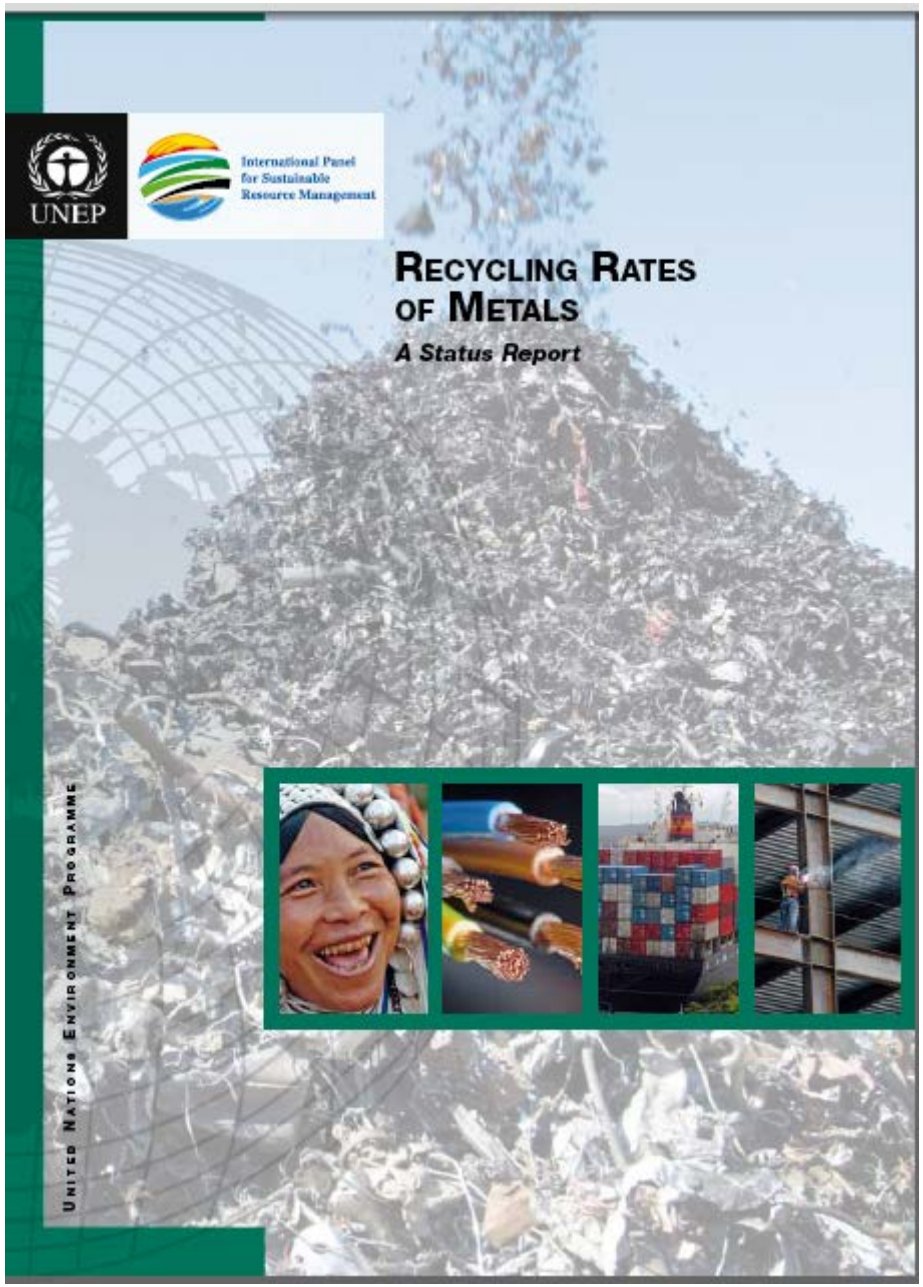
From excessive mining to the “cyclical economy”



Minerals efficiency

This was a little window opened to the new world of a five-fold increase of resource productivity.

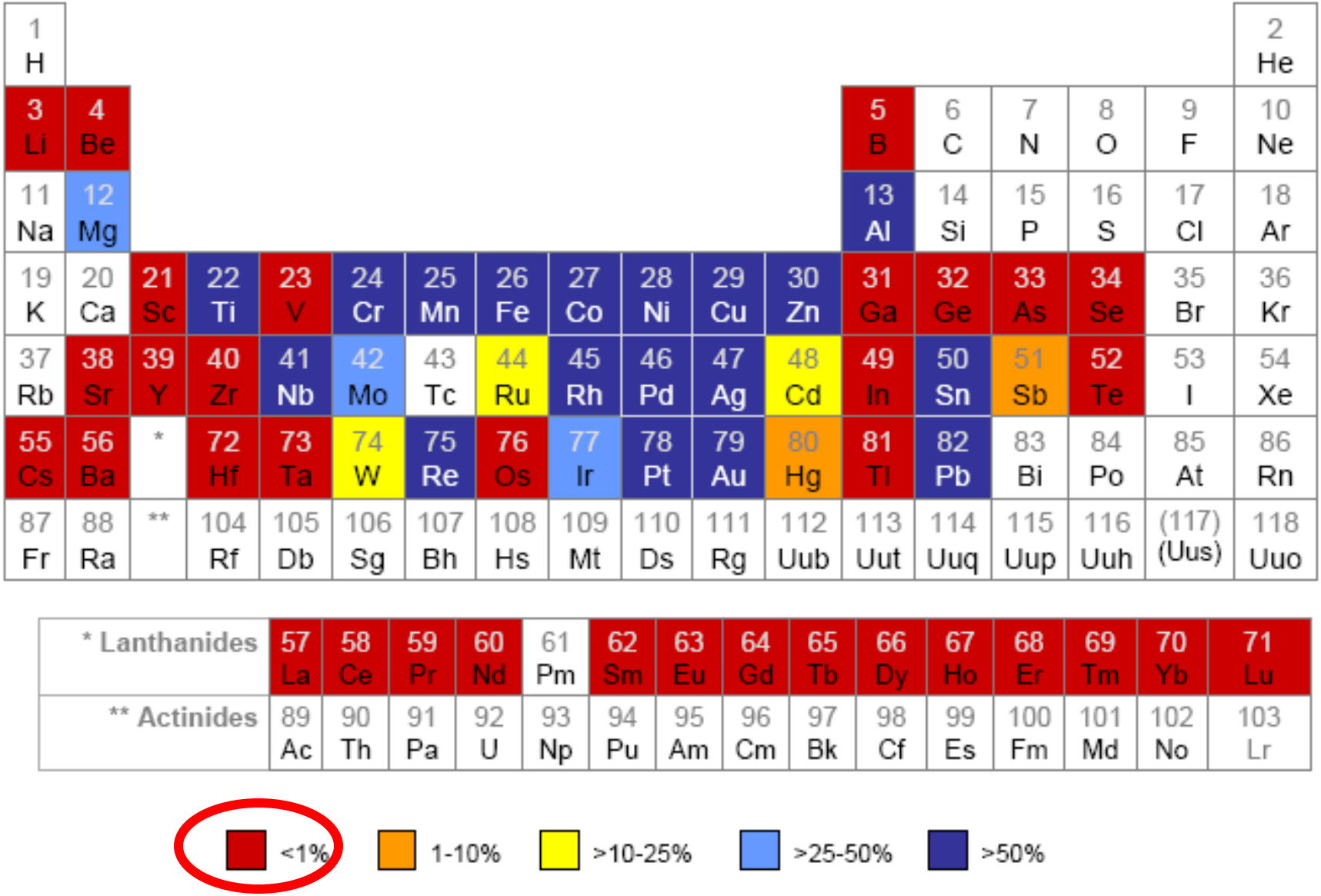
Let us now shed some light at the challenges of the „Cyclical Economy“



Another 2011 Report by the International Resource Panel, on recycling rates of metals.

Specialty metals recycling rates are below 1%!!

(Int. Resource Panel: Graedel et al, 2011)



A ton of old mobile phones contains 30 – 50 times more gold than a ton of gold ores from South Africa.

Recycling is also desirable because it reduces energy, pollution, and mining.

Recycling can also help profits. A recent study shows that material resources are more expensive to business than human labour!

Source: MaRess Report, Wuppertal Institute, 2010

The 6th Kondratiev needs a new understanding of productivity

Old :

Increasing labour productivity

New :

Increasing resource productivity

Labour productivity increased twentyfold since 1850. After learning about the Factor Five opportunities, we can‘t consider it utopian to think of resource productivity increasing fivefold in 50 years and perhaps tenfold in 100 years!

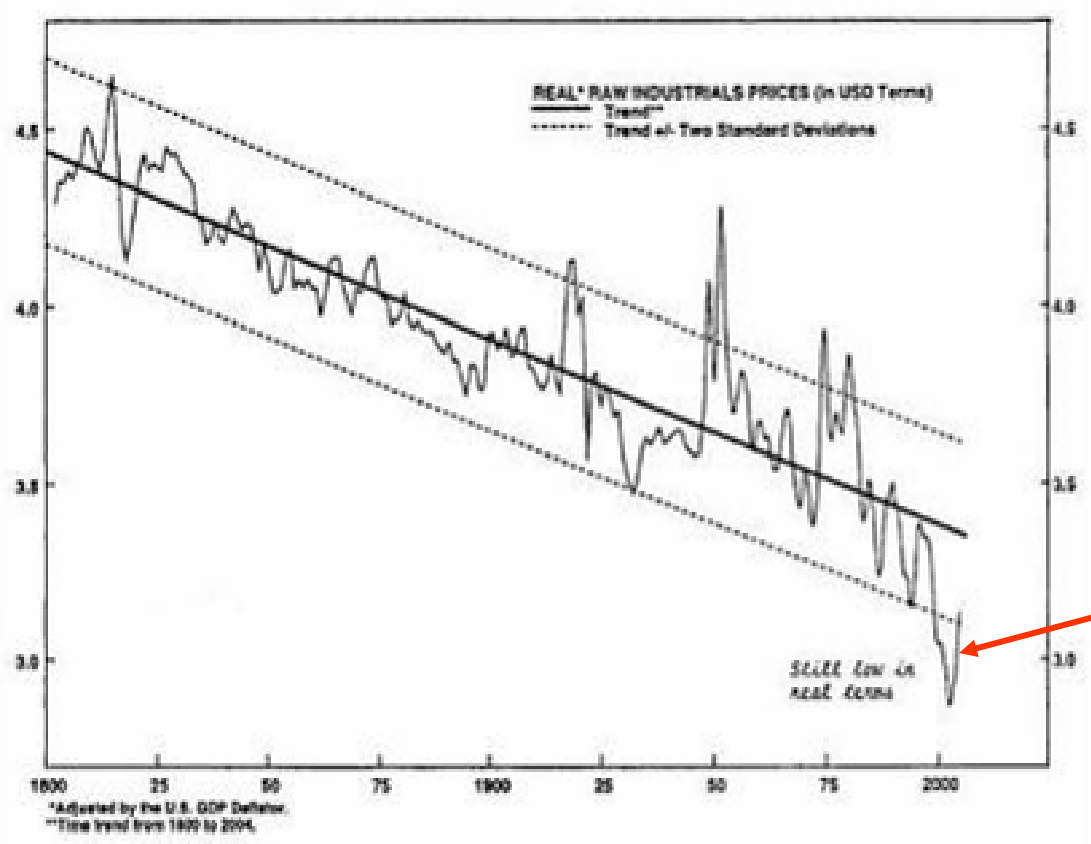
Labour productivity rose in parallel with labour costs

Labour productivity rose in parallel with labour costs

This suggests a strategy of actively elevating prices of energy & raw materials in parallel with productivity increases

Because, for 200 years resource prices were falling. Recent price hikes just brought us back into the lower confidence interval!

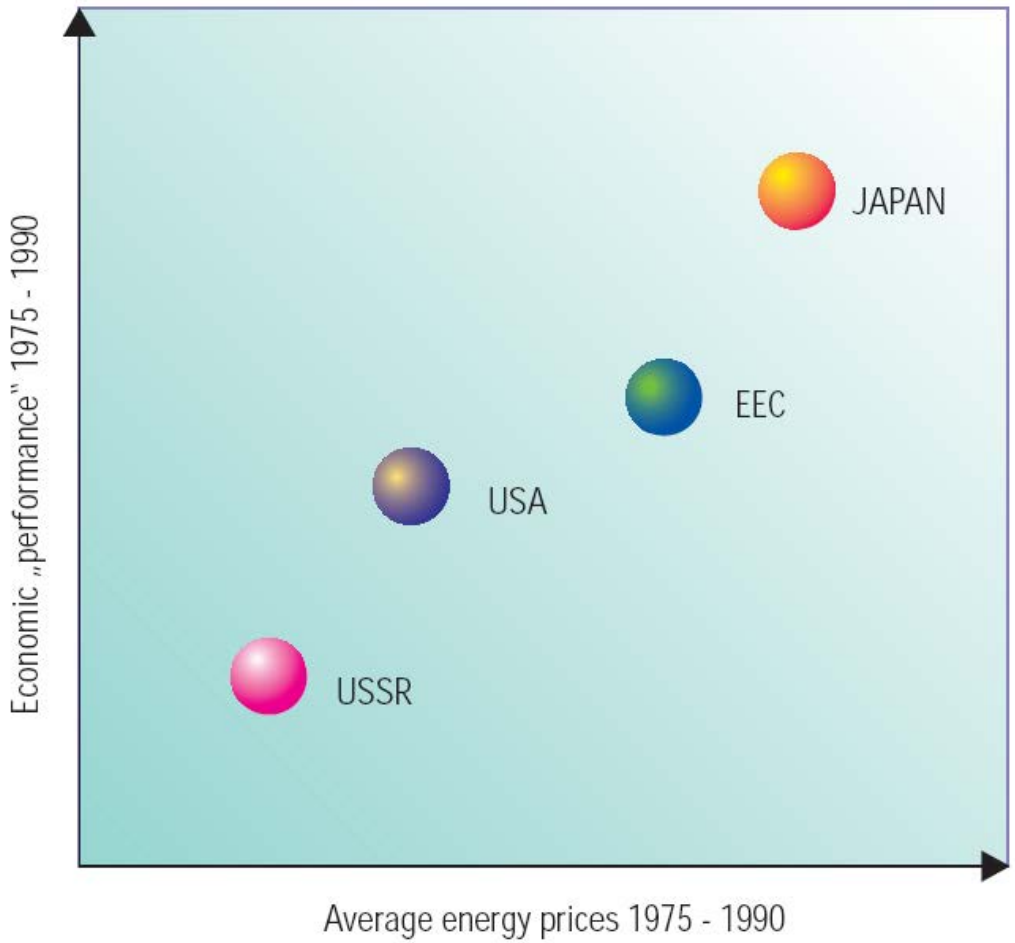
Prices of industrial commodities & energy, in constant dollars



2000-2004

Source: The Bank Credit Analyst

High energy prices need not hurt the economy. Japan blossomed during the 15 years of highest energy prices.



Who would win, who would lose?

Winning: green business including recycling, renewable energies, water purification, high tech; crafts; science; education; communication; railroads; consultants (not all!); culture.

Losing: heavy transport industry, heavy industry, urban sprawl, wasteful consumers, extractive industries.

The winning team may represent 80% of the people of the world! And it would include the next generations!

For success, we need well functioning markets but also a strong state, and a strong international governance!

The relative success of China, Korea, Japan, Germany compared with the USA may have to do with the US tendency of dismantling the state.

Rio + 20 (2012) should not make the mistake of the Johannesburg 2002 World Summit, which totally avoided binding commitments and left everything to voluntary action.

Rio + 20 must resurrect the states setting the rules of the game!
States, in turn, should serve as advocates for resources and ecosystem services!

And Europe should play an active role in resurrecting the role of the state and indeed of supra-national authorities defining rules that are binding for member states,

- to the evident benefit of all!

Thank you!