

G8-UNESCO World Forum on
« Education, Research and
Innovation : New partnership
for sustainable development »

Trieste, May 12, 2007

Edouard Brézin, Ecole Normale Supérieure,
Paris

Two topics

- I. Remarks on sustainability and public acceptance of science
- II. Science and globalization ... of our mutual understanding

- 1972 : the futurologists of the club of Rome (Meadows report) were mainly concerned by the “population bomb“.
- The population bomb has not exploded. The world may grow to 9-10 billion, but the « endless exponential model » which is incompatible with « sustainability » is behind us.

- The *knowledge based economy* is not simply a concept for a part of the world, such as EU, in order to compete with some other part, US or Asia, it is the belief that the “golden triangle“ is relevant to the whole planet.
- Examples of “leap-frogging“ advances such as cell-phone, internet

Energy challenges

Double challenge : exhaustion of fossil fuels
(coming 'oil peak'), greenhouse gases

Solar, wind , biomass, nuclear (gen IV) all
needed

Megapoles require concentrated forms of
energy

But...

Science and technology will be more important than ever : PV, CO₂ sequestration, hydrogen economy, efficiency,...

An example: refrigerators went from

1 800 kwh per year in 1977 to 450 kwh in 2002
(although volume increased by more than 20%,
and price declined by 60%)

US : 150 million refrigerators ; cost saving \$ 17 billion/year , and CO₂ saving!

There is more than one model

Yesterday Dr Lanvin (World Bank) presented a world map of the Human Development Index.

UNDP and Univ of Sao Paulo have studied the correlation between HDI and energy consumption :

for the same HDI the energy/person varies from 1 to 6 .

Acceptability of the « golden triangle of knowledge »

In this forum everyone agrees. What happens outside?

Do governments agree?

The Lisbonne agenda (Prof Rubbia's talk) is a reason to doubt it.

Do our fellow citizens agree?

Public fears

- GMO, nuclear technologies, nanoscience, stem cells research,...
- Two kinds of “greens”
 - Legitimate concern about environment
 - Catastrophic view, punishment for our bad habits, holy ‘mother nature’

We need social sciences to help in the relationship science/society.

Education, education, education

- Hands on (La main à la pâte)
- Basic science training remains essential
no matter what

Brain drain

- External
(Prof. Attar-Ur-Rahman's talk)
- Internal : drop of the attractiveness of science and engineering
- Shortage of « grey matter »

II Science as a way to erase dotted lines
on maps ...and in our minds

1) International Centre for Theoretical
Physics

2) SESAME

Proposed in 1997 (H.Winick,G.A.Voss)

2.5 GeV synchrotron light source of 3rd generation, sponsored by UNESCO, to be installed near Aman.

8 countries (Bahrain, Cyprus,Egypt, Israel, Jordan,Palestinian authority, Pakistan, Turkey)

Council : H. Schopper, K. Toukan, D. Ikü

- Create a world-class facility
- Capacity building through science
- *Use scientific cooperation to promote peace & understanding between people from different traditions, religions, races, & political systems (UNESCO)*

3) IPSO

Israeli-Palestinian Science Organization

- Founded by Menahem Ya'ari & Sari Nusseibeh.
- International Council chaired by Torsten Wiesel
- Endorsed by most Academies
- Two calls for proposals 2004-2006
- The rule is one PI on each site.
- 52 & 72 applications.

Conclusion

The future of the planet requires a global approach. Education, science and technology, only possible path towards sustainability and development.

- But one should not forget R. Feynman's warning

Science is the belief in the ignorance of the experts