Securing Human Well-being within the Means of Nature:

The links between energy and environment and their impact on security and co-operation?

Sebastian Winkler
21st OSCE Economic and Environmental Forum

RESULTS: CHANGES IN RANKING FOR CO$_2$ PER CAPITA EMISSIONS (20% PROB. OF EXCEEDING 2C)

Energy adjusted HDI
Rare Earths? →
Fossil Fuel? →
5X Move out of fossil?
1700 ppm?

Biocapacity!
The Food-Water-Energy Nexus

Accounting Framework for Energy and Ecosystem Services

Biocapacity: How much bioproductive area is available to us?

Ecological Footprint: How much bioproductive area do we demand?
The Ecological Footprint

[Diagram showing various types of land use and their impact on the ecological footprint]

World Ecological Footprint

- Carbon
- Fishing Grounds
- Cropland
- Built-Up Land
- Forest Land
- Grazing Land

Number of Earths demanded

World Biocapacity
Humanity’s Ecological Footprint and biocapacity, 1961 – 2008

Ecological Creditors and Ecological Debtors – 1961
Ecological Creditors and Ecological Debtors – 2008

Global Footprint = 1.5
Global Biocapacity

What happens when an infinite-growth economy runs into a finite planet?
Framing question:

What do you need to know in order to operate “the plane” safely?

Dilemma:

Sustainable
How many resources does it take compared to what we have?
Footprint?

Development
How well do we live?
HDI?
Measuring “sustainable development”

Conventional belief (palliative) → Transformative path → Sustainable (fits on one planet?)

HDI

Global Footprint Network
Moving the Nation to Sustainability.
For comparison:
biocapacity per person
in the world is 1.8 global
hectares (in 2007)

Biocapacity Deficit and Absolute Income (1985 – 2007)

Relative Income
compared to
world total

...global
auction?

Biocapacity Deficit and Global Income Share (1985 – 2007)
Ecuador

Ecological Footprint per person

Biocapacity per person

Italy

Ecological Footprint per person

Biocapacity deficit per person

Biocapacity per person
Composition of Italy's Biocapacity Deficit

Global hectares per capita

Fishing_ground
Forest_land
Grazing_land
Cropland
Carbon

Ecological Footprint per person

Biocapacity per person

Biocapacity Deficit

×

World Commodity Prices

=

Cost of Biocapacity Deficit
Shrinking Biocapacity Credit

Increasing Ecological and Social Instability

Biocapacity

Ecological Footprint

New principles for success

• Nature has a budget. Do you know how much biocapacity you have? and how much you use?

• Biocapacity is the currency of the 21st century. Key to prosperity.

• Self-interest for countries, cities to reduce their resource deficit is overwhelming.

• How does development work within the resource constraints of ecosystems?

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Thank you!

For more information please visit:
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