Sustainability Strategies – Roots, state and challenges

Lessons from historical experience

Keynote Presentation at the Conference
Towards Sustainable Futures – Tools and Strategies
Tampere/Finland, June 14th to 15th, 2004

Can't see the forest for the trees

- Humans have always destroyed the environment.
- Wood was a key resource for building houses and ships, for heating, cooking and refining.
- The idea of sustainability was born out of resource scarcity.
- Wood meant money for the king (France), ships for the navy (Britain) and fuel for silver smelting (Saxonia).
- Four strategies serve to bring consumption in line with resource availability.

Sustainable Development History Lessons: Four options for escaping the scarcity trap

Three opt for an expansionist paradigm

- The imperial option
- The liberal option
- The engineering option

One opts for an adaptation paradigm

- The political sustainability option

Lead question:

Expansionist options have dominated in the past – Are they capable of providing solutions for tomorrow ?

The imperial option

Essentially increasing supply by seizing distant, so far unused resources is the purpose of the imperial option, thus exporting local unsustainability by means of conquest, colonisation and 'plunder economies'. This included the rather systematic suppression of local industries (e.g. textile in India) and investments in man-made and human capital exclusively for export purposes.

Military overstretch and lack of cultural and economic hegemony have led to failures in the past and undermine its effectiveness today.

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The imperial option: dividing the World…

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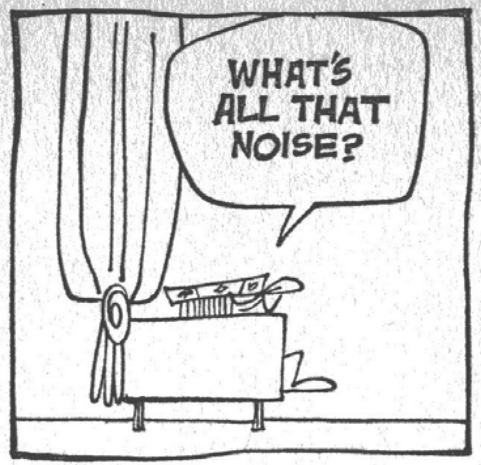
...by military means, even if peoples prefer peaceful solutions...



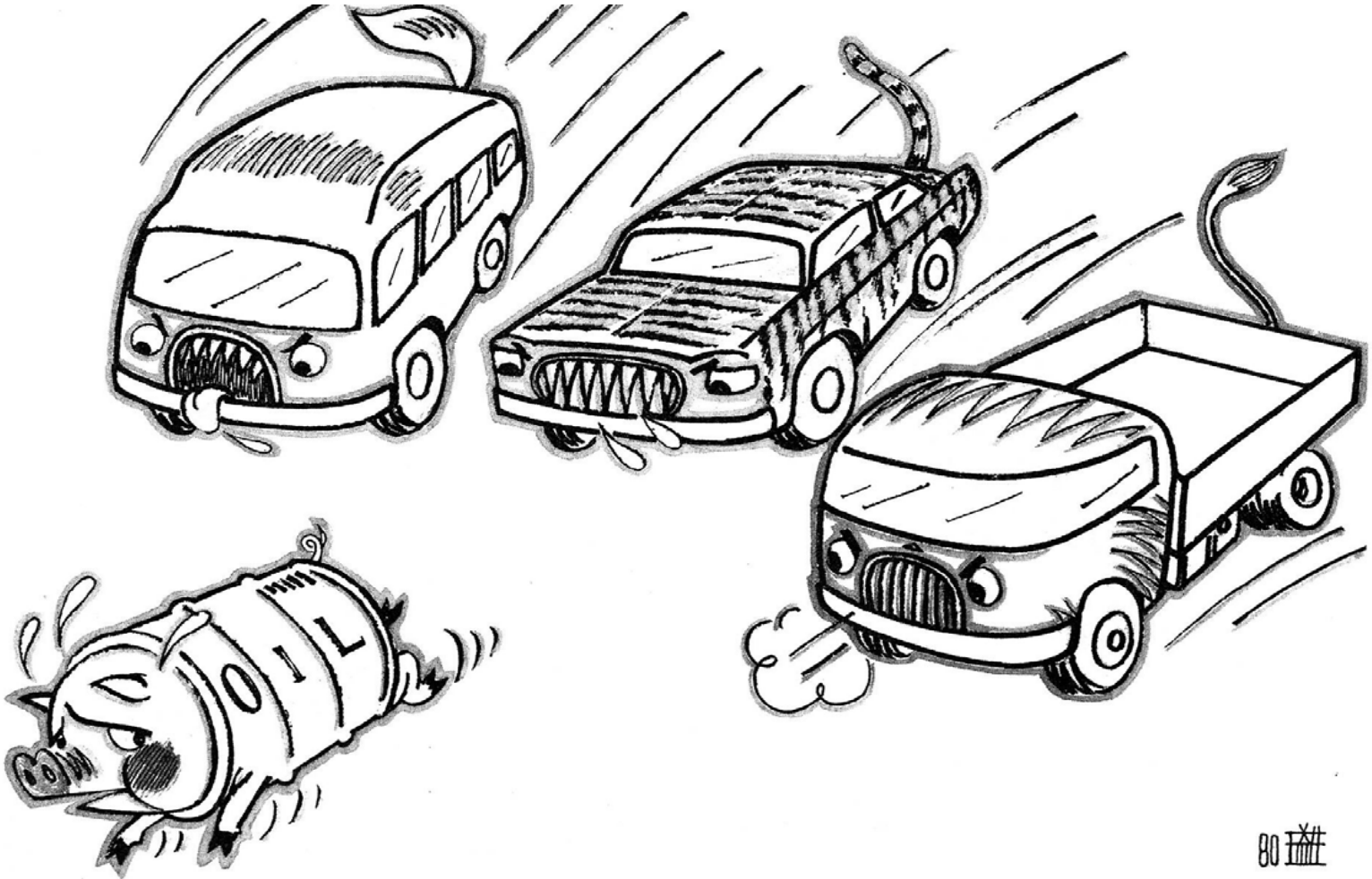
The liberal option: trade & investment

There are two liberal options:

- increasing supply by demanding and enforcing open markets and free trade, or
- exporting the resource intensive production units to countries with abundant resources.

Experts recommended the dislocation of the ironworks from ‘Old England’ to the territories of ‘New England’, i.e. the American colonies, as they were densely-wooded in that time.

Free trade: helps with allocation, but solves neither distributional nor scarcity problems



The engineering option

Overcoming shortage of supply by substitution was a rather obvious option as the substitution of coal for wood was already under way in late 17th century.

Although well known in China in the 13th century, it was massively exploited only with the beginning of the industrial revolution in England, against warnings of serious health and environmental impacts.

Climate change as a result of fossil fuel consumption was predicted by Arrhenius in the late 18th century).

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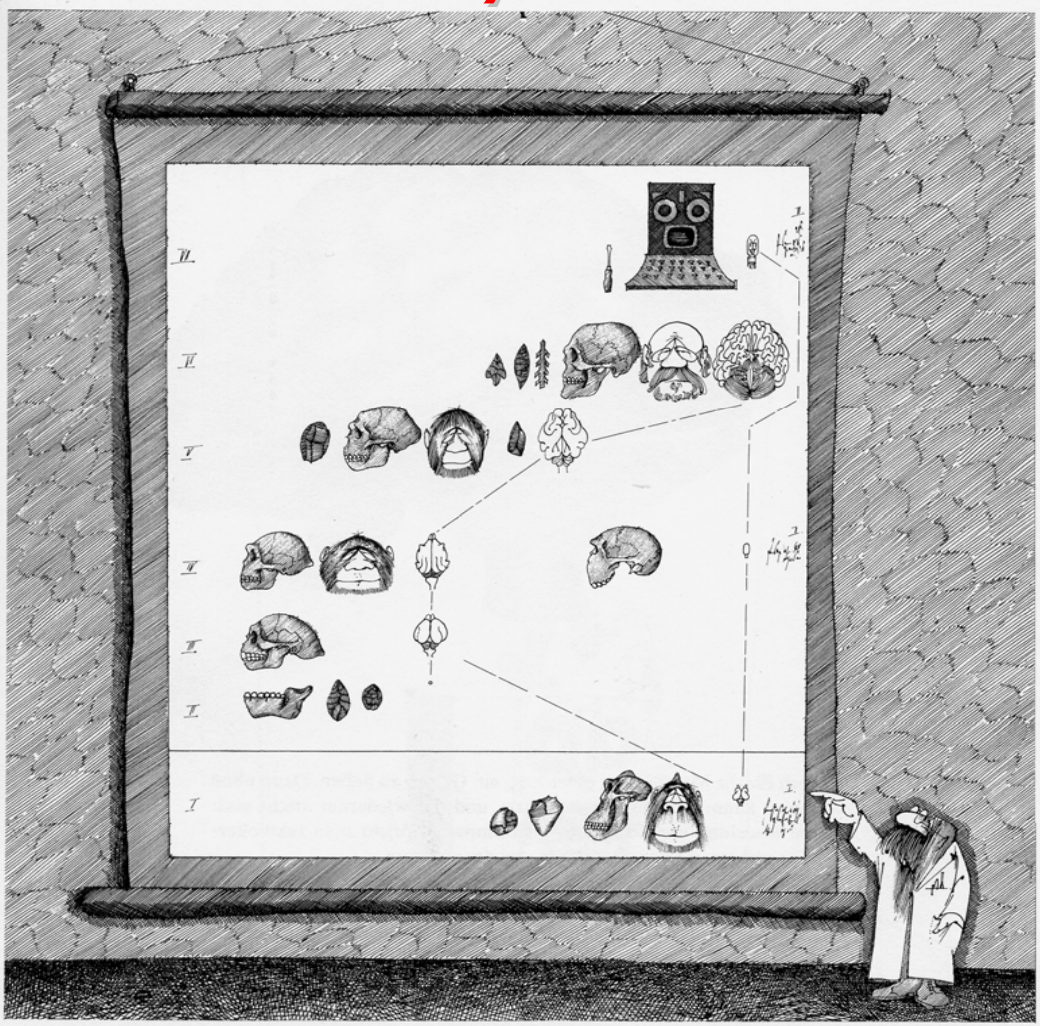
Paradise science does not exist: no better humans, no solution beyond humanity



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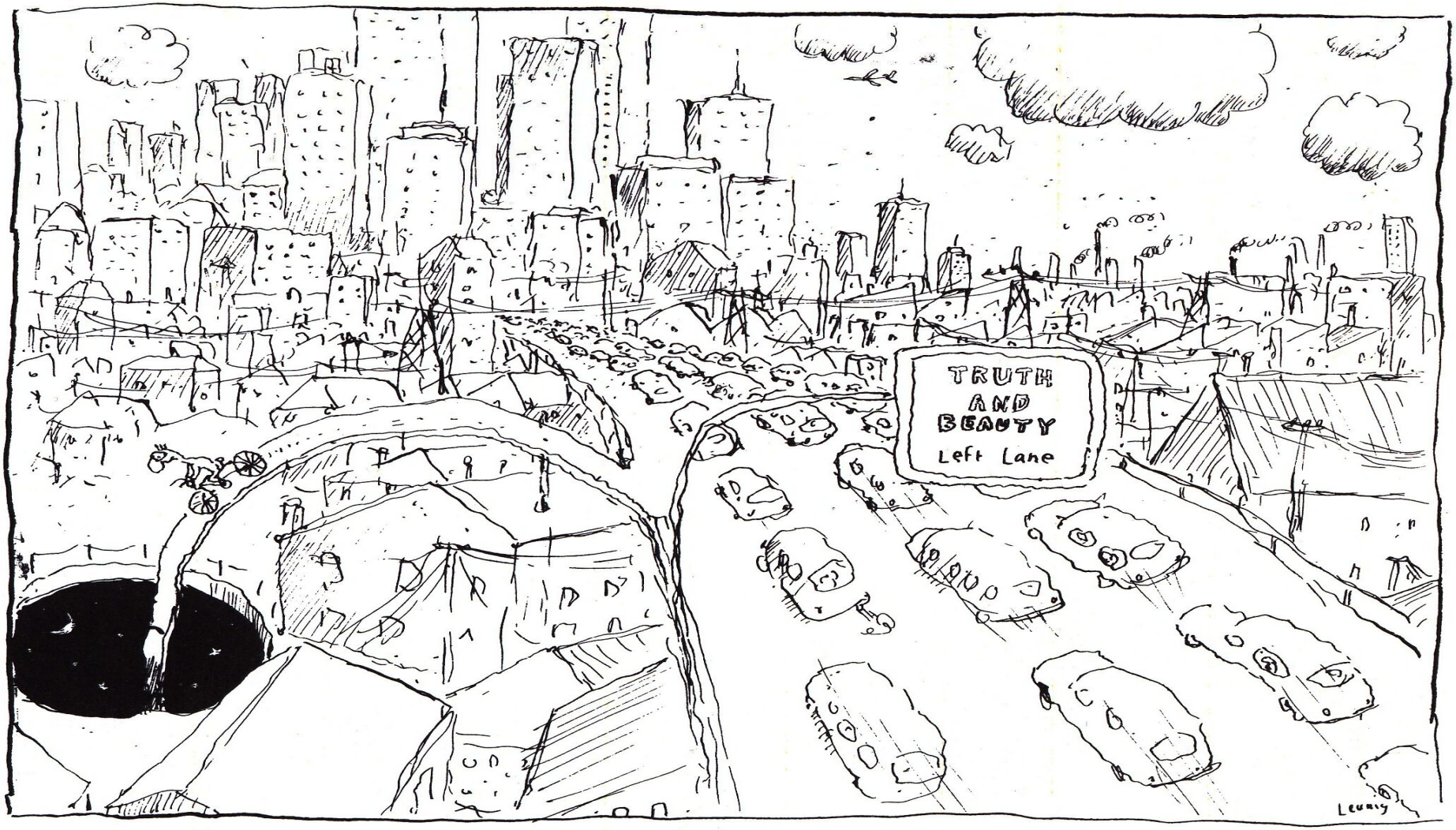
The three options can be easily combined, based on a shared expansionist world view.

It aims to maintain future options by seeking some maximum level of production and consumption, based on the greatest possible exploitation of resources, and relying on full information, predictability of costs and benefits, and steering capabilities.

Another option at hand...



...requires a different, adaptation based world view.

It aims to maintain future options by safe-guarding adaptive capabilities and capacity to change beyond challenges known today by promoting redundancy and diversity. Life in complex, evolving, non-linear and unpredictable systems suggests such a strategy, including the minimal possible exploitation of resources.

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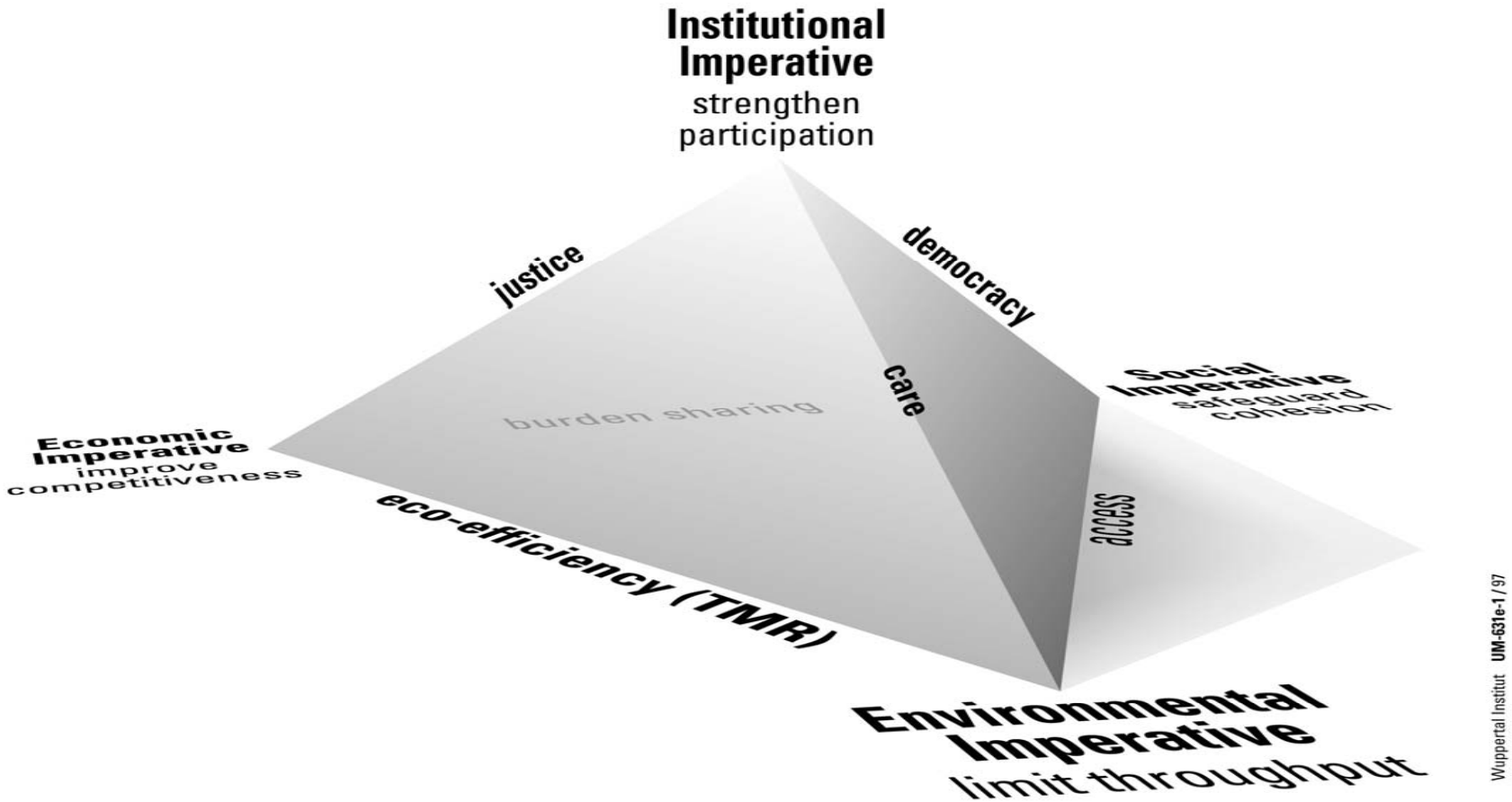
In a full world, there is no alternative to sustainable development



The political sustainability option

Sustainability includes *reducing demand* and thus *process efficiency, consumption sufficiency, and improved management and institutions*. This poses a *political challenge*, calling for adequate policy action towards substantial sustainability as a public good.

In the continental European tradition (as opposed to Anglo-Saxon thinking) the pursuit of public interests must be part of the *public sphere* and can not be handed over to private interests and the economic calculus. *Authorities* and (later) the '*citoyen*' were considered key actors, rather than business and the consumer.

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This includes managing a World of Paradoxes

Efficiency – Diversity

Sufficiency – Opulence

Bottom-up – Top-down

Normative – Subjective

Quantitative - Qualitative

Target-bound – Evolutionary

Environmental – Social

Local – Global, ...

For instance:

For Political Sustainability,

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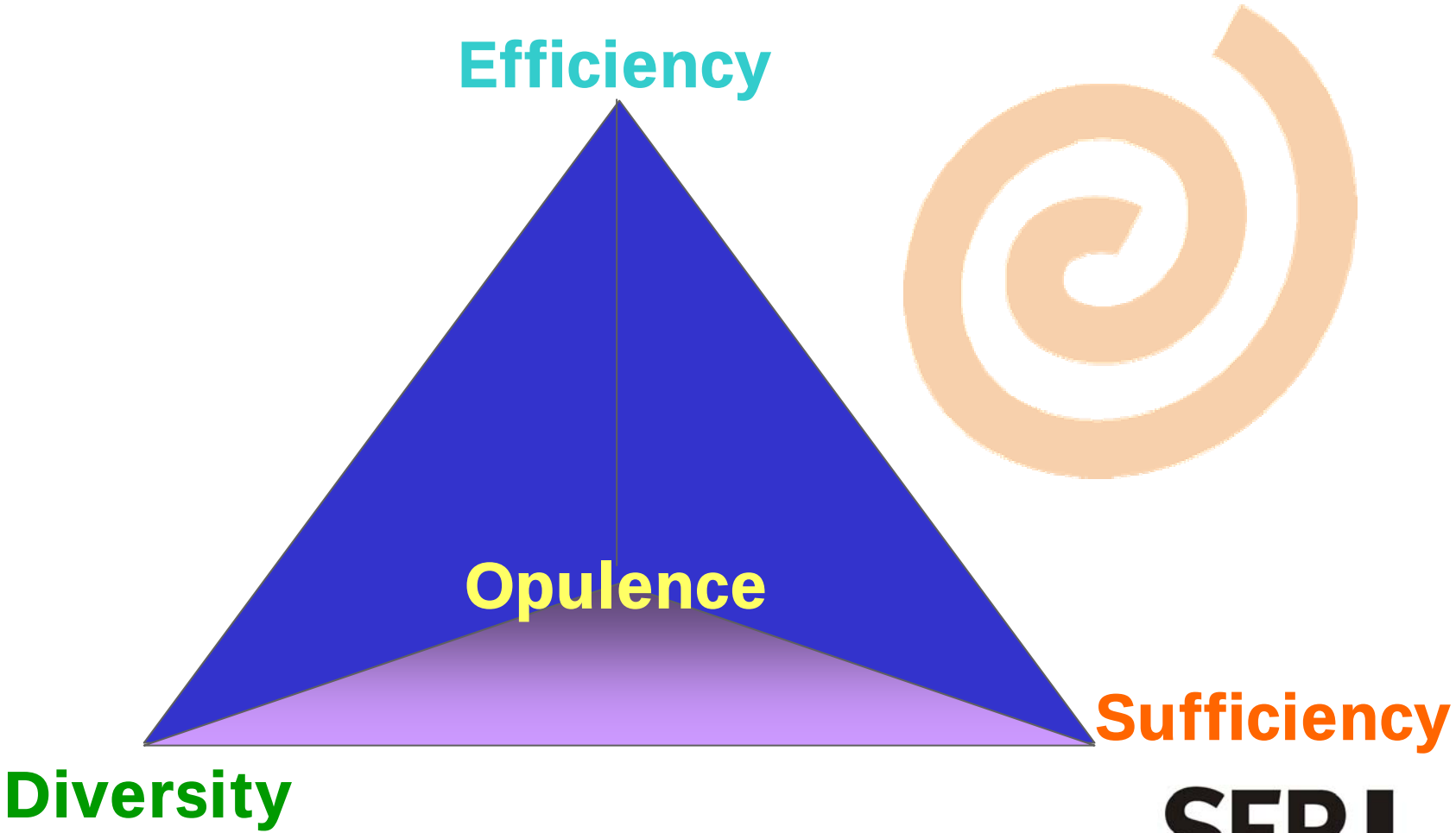
Qualities count – another Prism for Sustainability



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Bridging the Gap towards Application: Measuring for Management

Indicators should be

- Directionally secure
- Easy to understand
- Limited in number
- Cost effective
- Measurable (ordinal and cardinal)
- Comprehensive in covering the dimensions of sustainability and their interlinkages.

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Core indicators: three historical dimensions

The *economic dimension* refers to the system of production and consumption (including finance) and refers to the market based and to the unpaid economy.

Objective	*Indicator(s)*
sufficient supply and goods and services	GDP/capita[1]
efficient wealth creation	total factor productivity
economic system's evolution and competitiveness	net investment, R&D expenditures, accumulated public and private debt

The *social or human dimension* refers to individual development (intrapersonal).

Objective	*Indicator(s)*
social cohesion, social security	UNDP Human Poverty Index HPI 2
access to education	Education expenditure per capita[2]
identity, self-realisation	unemployment rate[3]
security	crime rate, corruption rate

The *environmental dimension* refers to the biosphere

Objective	*Indicator(s)*
protect eco-systems' functions and evolution	percentage of protected reserves
enhance (genetic, species, and ecosystems) biodiversity	average size of protected reserves (research on interconnections needed)
reduce anthropogenic resource throughput and degradation of land and sea	TMC per capita[4], land use intensity per capita, including "ecological rucksacks"; energy use per capita (research needed for the land use part)

Core indicators: the institutional dimension

The *institutional dimension* refers to societal processes (interpersonal). Institutions include organisations, mechanisms, values and orientations. According to this definition, institutions are the key tool for the governance of sustainable development. It is essential to develop appropriate institutional settings, which allocate responsibilities at the highest possible level and ensure effective implementation of comprehensive and holistic politics for sustainable development. Guiding principles for governance for sustainability are accountability, transparency, legitimacy and reliability. For the institutional dimension, only objectives are stated.

Objective	*Indicator(s)*
ensure structural change to reflect the need for societal development	to be defined
improve societal interchange, communication and intercultural learning	to be defined
protect cultural diversity	to be defined
achieve distributional fairness and justice, equity and sufficiency	to be defined
develop anticipatory capacities for the democratic process	to be defined

Interlinkage indicators

The objectives and indicators for the *economic-environmental* interlinkage are:

Objective	*Indicator(s)*
minimise the burden for the environment: improve resource productivity (mass, energy and area)	TMC/GDP[5]; land use pattern productivity, energy?
minimise damage for the economy: reduce costs related to environmental degradation (damage costs, compliance costs, administrative costs, avoidance costs…)	damage costs/GDP, compliance costs/GDP, avoidance costs/GDP
minimise the impacts on health and environment: minimize outputs of known (eco-)toxics	(research on qualitative indicators needed)

Interlinkage indicators (cont.)

The objectives and indicators for the *socio-environmental* interlinkage are:

Objective	*Indicator(s)*
equitable access to food, drinking water and natural resources	(indicator must be country- or region-specific)
provide healthy and secure shelter	Proposals include "homes judged unfit to live in" and "% of the population living in sub-standard housing"
readjust the demand for resource consumption, environmental impact of household consumption	MIPS (including rucksacks) of consumption basket resource consumption and actors' matrices for construction and housing, mobility and nutrition
provide and secure environmental quality for the health of human beings	years of life expectancy lost by environmental health problems

Interlinkage indicators (cont.)

The objectives and indicators for the *socio-economic* interlinkage are:

Objective	*Indicator(s)*
enhance the distributional justice (equity principle)	Gini coefficient
efforts (paid and unpaid) should be devoted fairly to generate sustainable incomes	labour force participation, gender distribution of unpaid work
provide opportunities for paid labour to all willing and able to work	unemployment rate
increase knowledge intensity	See Human Development Report of UNDP : to be defined
refocus innovation and adapt its speed to societal demands	to be defined

The sustainability challenge of systems thinking

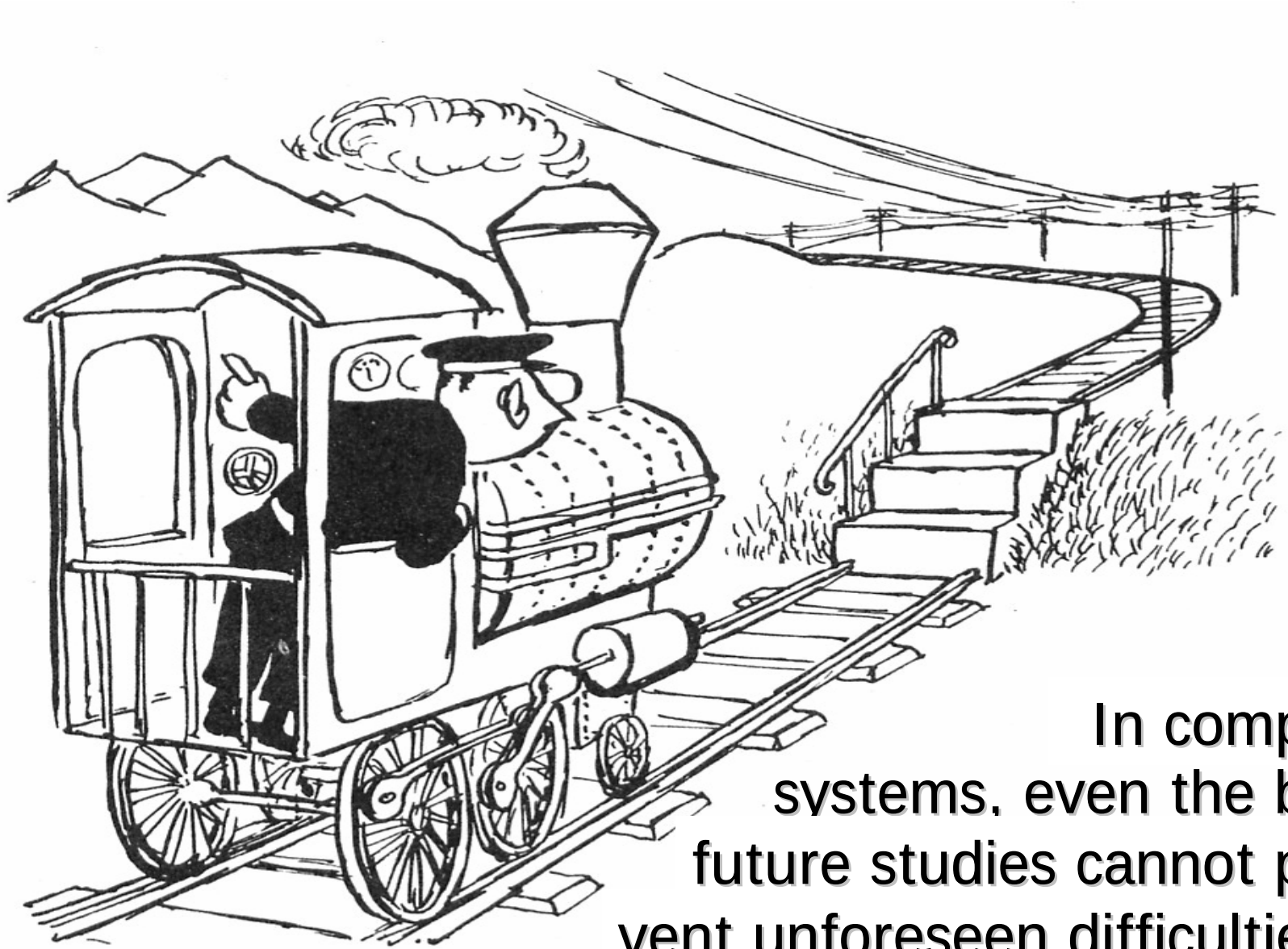
Sustainability strategies have to deal with the uncertainty inherent to non-linear evolving systems, meaning

- no prediction is possible, and
- cost-benefit-analysis fails.

Sustainability strategies need

- reflectivity to deal with system reflexivity
- new institutions and policy models to deal with this challenge.

Sustainability Strategies



In complex systems, even the best future studies cannot prevent unforeseen difficulties.

Thank you for your attention.

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- to download publications

you are invited to visit the Sustainable Europe Research Institute at:

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