

A world of complexity



- Everything is tied to everything else.
- The complexity is total. Outcomes are unpredictable and unknowable.
- How can all this be managed?

Codependent goals

an indivisible global goal-set

Climate stability

Sustainable development

National security

Economic growth

Energy security

Which can be met in future without meeting the other goals?

Patchwork policy - a response to complexity

Separate institutions

“I’m just doing my job”

Separate nations

‘Bubbles’ of self-protection

Separate expertise

“We specialise in this area”

Separate issues

“This is the priority problem”

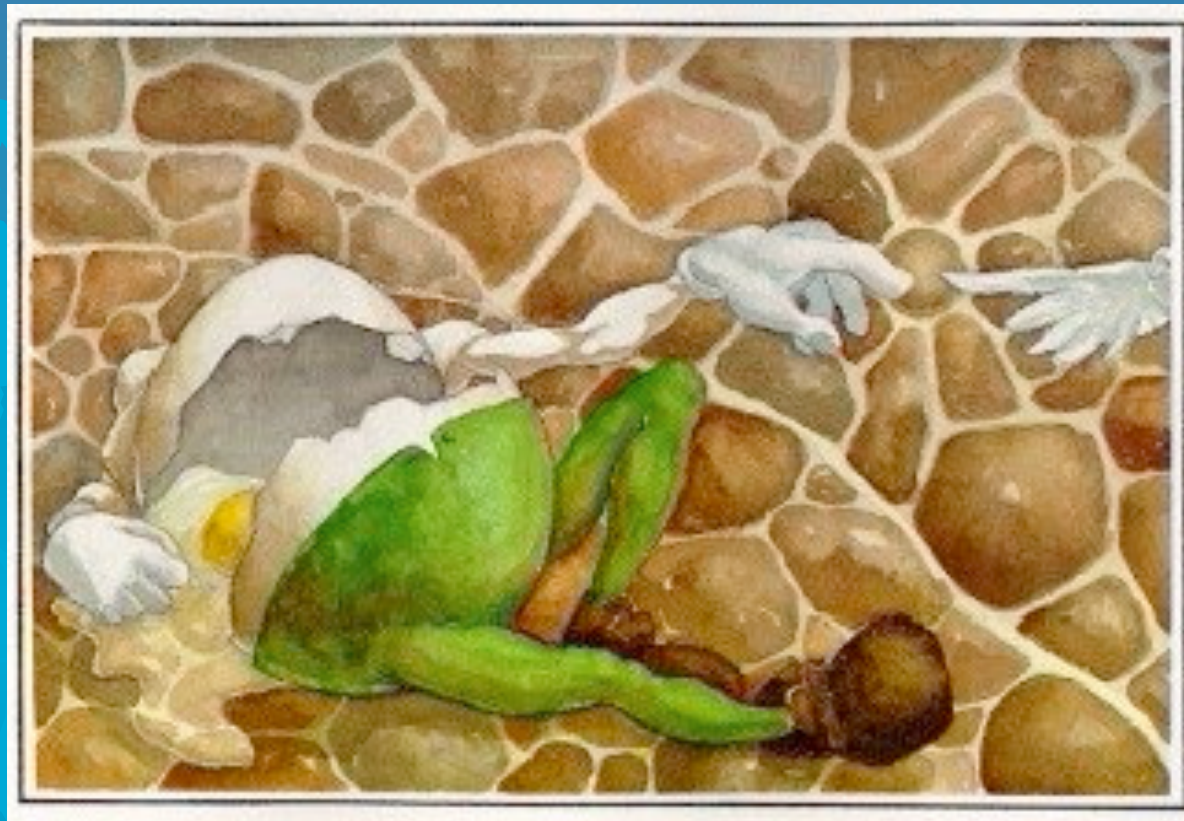
Separate policies

“We’re just doing our bit”

United excuses

“Any other approach is impractical and unrealistic”

Is it anyone’s job to join everything up?



All the policies and all the initiatives couldn't put Humpty Dumpty back together again. What next - push harder or think harder?

Thinking about complex systems as a whole



- Symptoms, direct causes and underlying (systemic) 'leverage points'.
- Large distributed effects from a small change in the rules of the game.
- Problem prevention.
- Self-correction.
- New 'paradigms'

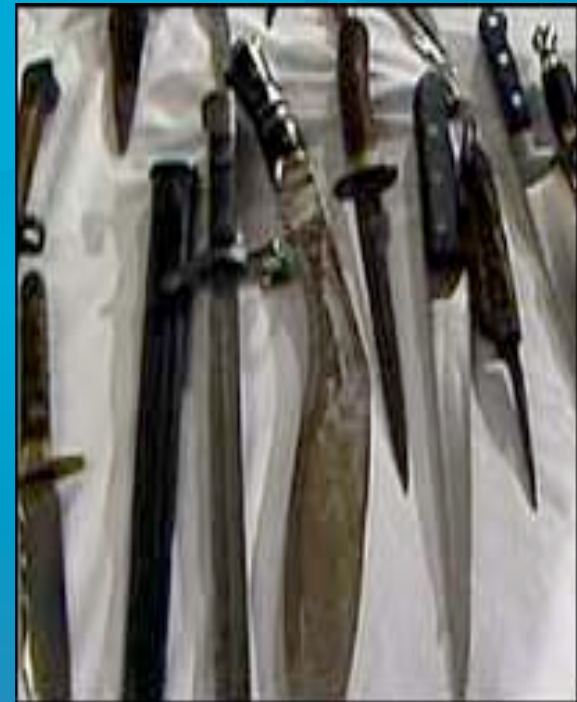
Rough stuff

a habit of responding to problems with force

World War III
Will it Begin in the
Middle East?



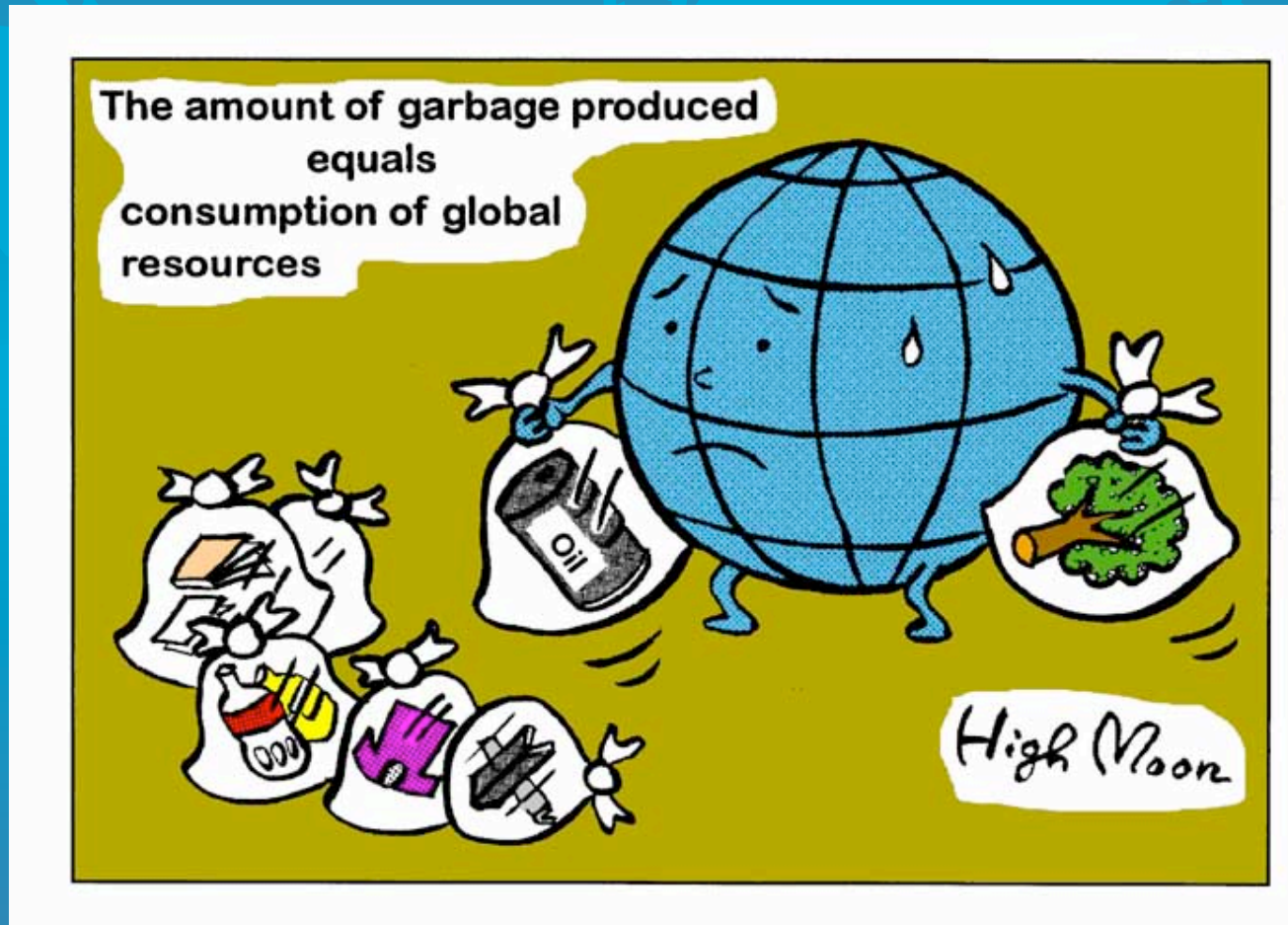
If the problem
is violence,
then how
much should
the solutions
use violence?



'Investment' in weapons

- US\$1.2 trillion global spend in 2006.
- Added to GDP and economic growth.
- Also added to peace and security?
- Growth incentive to spend more.
- Can correct GDP for weapons spending.
- Gross Peaceful Product to replace GDP
- Benefits to growth and security.

The linear economic paradigm: resources go down as waste goes up



The language of waste

- Waste connects all SD issues
- Define waste by disposal or ecological accumulation?
- Visible and invisible wastes
- Possibility of zero waste at global scale?
- ‘Allergies’ to zero waste as an aim. Avoid this term.
- Waste prevention - many actions at many scales



Will this product add to levels of wastes in ecosystems?

'Waste risk' is definable.

1. What proportion is recyclable or biodegradable?
 2. What proportion is handled by producer's addition to processing capacity of nature or industry?
- Measurement and prediction of all impacts for all products is impossible (complexity). So use waste risk as a proxy for impacts.
 - Can apply to raw materials, chemicals, components, fuels and infrastructure. Not air, water and earth.
 - SD = economic, societal and ecological actions to cut waste risk.

Precycling - action to cut waste risk

Implementing circular economics and SD



1. Phase out waste-dependent substances.
2. Apply the waste hierarchy up to the point of disposal.
3. Build nature's productive capacity.
4. Meet more needs.

3rd party car insurance

- Obligatory
- Regulated by government
- Run by insurance businesses
- Premiums from drivers
- Payments for a range of losses.

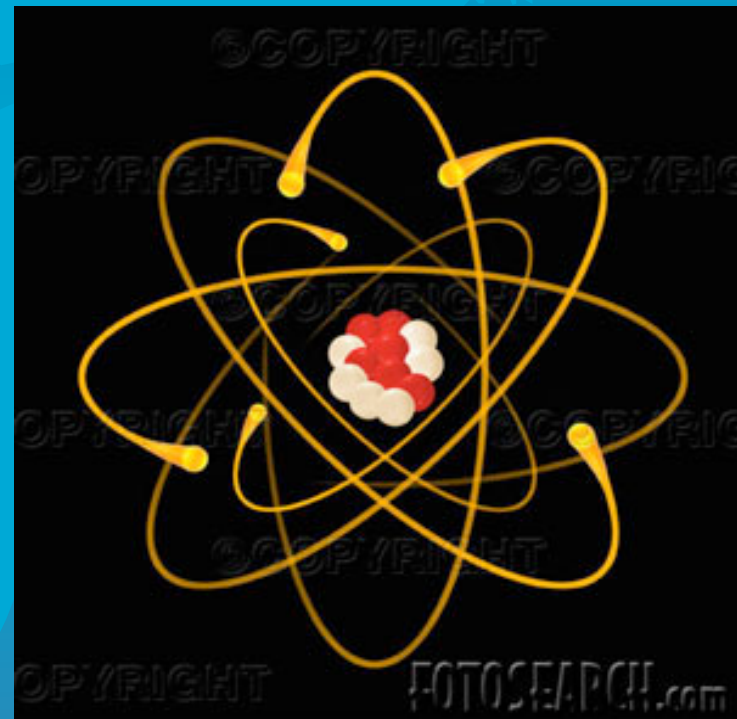


Precycling insurance

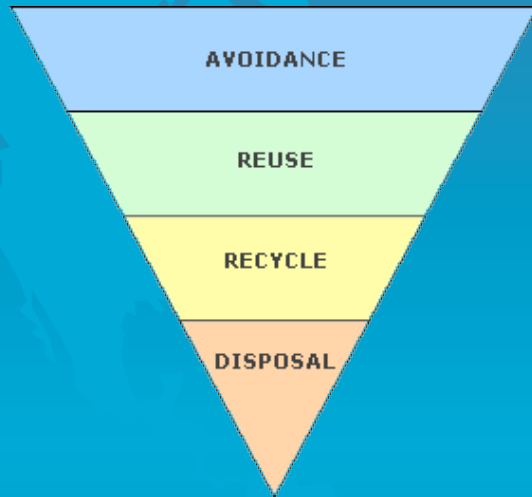
- Premiums on waste risk paid by producers. Avoidable by precycling.
- Payments to support precycling.
- Collections and payments regulated by government but run by NGOs/businesses.
- Reduced burden on government = lower taxes. Higher prices but lower risks.
- New market signals at 4 points; investors, premiums, subsidies, customers.
- Capitalism becomes the hero not the villain.
- An economic tool for meeting codependent global goals.

Carbon belongs in carbon cycles

- Climate protected by accounting for externalities (cost of getting it right not damage costs).
- Fuels can be precycled by efficiency, substitution with renewables and ecosystem growth.
- Economic growth decoupled from material metabolism and energy demand.
- No fast-track for nuclear energy or incineration.
- No need for top-down government prescription or emissions limits.



How to lock-in long-term dependence on disposal



Two versions of the waste hierarchy (for prioritising waste management options)



- Apply the waste hierarchy upside down.
- Place waste burning alongside recycling.
- Fund waste at end-of-life rather than before point-of-sale.
- Stress the urgency of cutting dependence on landfill.
- Bypass public opinion and health effects of pm2.5s.
- Promote 28 year contracts for incineration and MBT

Be prepared for the unexpected



- Patchwork policy...expect one or more problems to become irreversible with non-linear change (fast and unmanageable).
- OR Joined-up policy-making... systemic changes may unexpectedly help many symptomatic problems (drugs, crime, population, health, etc). However legacy problems remain.