The Steady State Economy Conference

Working Towards an Alternative to Economic Growth

Policy Proposal

Workshop 1: Limiting Resource Use and Waste Production

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Question: In a steady-state economy, how will levels of resource use and levels of permitted pollution be agreed, monitored and enforced?

1. Background

The main objective of a steady-state economy is to reduce the level of material and energy flows to within ecological limits. The achievement of this needs to be consistent with the goals of a Steady State Economics – fair distribution, efficient allocation, and a high quality of life.

There is a wide range of indicators that aim to quantify ecological limits (e.g. cumulative CO_2 emissions, ecological footprints). All demonstrate that humans are beginning to have a significant and potentially irreversible impact on patterns and processes in the biosphere such as the biophysical properties, plant productivity, primary production, biodiversity and biogeochemical cycles.

Ecological modernisation of the economy (assumes that the existing political, economic and social institutions can adequately deal with environmental problems) has been unable to achieve the level of institutional and infrastructural change necessary to curtail over-exploitation of natural resources, nor has it been successful in redressing existing socio-economic inequalities and improving levels of well-being.

Daly (1990) proposes three principles on which to base limits on the throughput of an economy:

1. For renewable resources such as fisheries and forests this means these resources should not be harvested faster than they can regenerate.
2. For non-renewable resources, their rate of depletion should not exceed the rate of creation of renewable substitutes; and
3. Waste products (e.g. CO_2) should not be created faster than they can be assimilated.

But achieving these objectives will not be straightforward.

- Setting limits is complex. Earth systems change and react in often non-linear ways. The erosion or overburdening of one system can affect the behaviour and resilience of another.
- Indicators of complex systems (e.g. marine ecosystems) often only show detectable change once a regime shift is approaching or underway.
- Socio-economic inequalities translate into increased vulnerability to hazards (i.e. the impacts of climate change, resource scarcity other exogenous shocks) and, therefore maintain or amplify existing social injustices. As such, economic wellbeing, the degree of human development, education and skills, health, infrastructure, access to other services and political
- atmosphere are all primary determinants of vulnerability rather than simply the level of exposure to a defined hazard.

The challenge is, therefore, to develop a policy framework that recognises and adheres to specific ecological limits, has the capacity to rapidly adapt to new information (e.g. where uncertainty is high) and is consistent with the additional societal goals identified above.

2. Proposal

Setting of absolute limits and managing uncertainty

Measuring human demand on, and nature's supply of, natural capital are necessary for tracking progress, setting targets and driving policies in a steady state economy. Given this, defining caps on throughput should be established for all non-renewable resources. Sustainable yields should be identified for renewable resources. Limits should be identified for pollutants (e.g. CO_2e).

Where there is uncertainty, the 'precautionary principle' should be applied.
Examples of limits already in place or historical precedents include: UK 5-year climate change budgets, rationing (e.g. post-war, Cuba), fishing quotas.

National and international monitoring systems need to be in place to ensure targets are being achieved. Mechanisms must be in place to provide rapid feedback should absolute limits need to be readjusted

Indicators proposed to monitor resource use and waste production include: the ecological footprint, material flows analysis (MFA), ecosystem resilience, human appropriation of net primary production (HANPP), and CO_2 emissions.

An aggregate figure is a useful communication tool, but conceals a significant amount of detail. There are significant differences among environmental impacts of different constituents of throughput. Environmental consequences for the same quantity of resources also differ depending on location and technology used (Victor, 2008).

Policies should be aligned to the principles of environmental justice

Interventions that maximise environmental, economic *and* social benefits will be the most effective way of reducing both risk and vulnerability in the context of an uncertain future (e.g. climate change and resource scarcity more generally) (e.g. Cox and Johnson, 2010). Furthermore, policies considered fair are more likely to receive support at the national and international level.

Given this, policies need to be aligned to the principles of environmental justice, which encompasses the following four cornerstones:

- The human right to a healthy and safe environment and the responsibility to maintain it;
- A fair share of natural resources and the right not to suffer disproportionately from environmental policies, regulations or laws;
- The civil right to be able to access environmental information and participate in decision-making; and
- The most vulnerable in society, in particular the poorest, should not suffer the disproportionate, negative effects of environmental omissions, actions, policy or law.

Building social and environmental value should be central to the goal of policy-making

Consumers are locked-in to current consumption patterns. This is due to factors such as the land-use patterns and physical infrastructures, rapid obsolescence of consumer goods and the difficulty of reducing the number of hours worked. In addition, in the developed world, luxury consumption fulfils deep psychological needs. Given this, widespread adoption of sufficiency is unlikely to develop through voluntary action alone.

Approaches proposed to limit resource use and waste production in a steady state economy include: a cap-auction-trade system, a cap-and-share system, individual entitlement-based schemes (e.g. Tradable Energy Quotas), ecological tax reform, and regulation (see Table 1).

For different resource and waste flows, approaches will vary. There is no one specific policy mechanism that will be suitable for all. But each solution must meet the goals outline above whilst incentivising long-term structural change.

In the case of climate change, a global fair deal on climate change needs to be agreed urgently. This must include a cap on CO_2 emissions that is in line with the latest science. There are a variety of ways in which this could be achieved. But it is still not clear which is the most effective mechanism/ combination of mechanisms.

In addition:

- Significant investment will be necessary to remove infrastructural barriers, deploy and develop mitigating technologies and support adaptation (see also Table 1).
- Intellectual property rights need to be reformed to ensure essential new technology can be adopted across the world easily and cheaply once it has been developed while promoting innovation.

Possible questions for further discussion

- What changes need to take place at the science-policy interface to ensure scientific understanding of ecological limits is more effectively used in policymaking?
- A number of indicators exist but are we confident enough in the ability of existing indicators? For example, can they be used for specific and comprehensive policy guidance on resource use and waste production? Where should research and resources be directed?
- What are the most appropriate institutions for monitoring? And how can data be used to rapidly feedback into the setting of limits?
- Once limits have been agreed, how and to whom should these be distributed in the UK and internationally?
- What combinations of policies are likely to be most effective and progressive?
- Which policies are most likely to influence planning for the long-term?

3. Information Resources

Cox and Johnson (in press) 'Decarbonising local economies' in Peters, Fudge and Jackson *Low Carbon Communities* (Cheltenham: Edward Elgar).

Druckman and Jackson (2009) 'The carbon footprint of UK households 1990-2004: A socio-economically disaggregated, quasi-multi-regional input-output model' *Ecological Economics* **68**: 2066-2077.

Ekins *et al* (2009) *The Case for green fiscal reform – The final report of the Green Fiscal Commission* (London: Green Fiscal Commission)

Green New Deal Group (2008) A *Green New Deal* (London: **nef**)

Haberl *et al* (2004) 'Ecological footprints and human appropriation of net primary production: a comparison' *Land Use Policy* **21**: 279-288.

Jackson T (2009) *Prosperity without growth? The transition to a sustainable economy* (London: SDC)

Martinez-Allier J (2002) The Environmentalism of the Poor: A Study of Ecological Conflicts and Valuation (Cheltenham: Edward Elgar Publishing).

Simms *et al* (2009) *Other worlds are possible: Human progress in an age of climate change* (London: **nef**/ Working Group on Climate Change and Development)

Simms *et al* (2009) *Consumption explosion: The third UK interdependence day report* (London: **nef**)

Victor P (2008) *Managing without growth: slower by design, not disaster* (Cheltenham: Edward Elgar)

Table 1: Summary of possibly policy options

Mechanism	Definition	Pros	Cons	Examples / precedents
Ecological tax reform (also known as green fiscal reform, environmental tax reform, green tax reform)	'A reform of the national tax system where there is a shift of the burden of taxes from conventional taxes such as labour to environmentally damaging activities, such as resource use or pollution' (EEA)	▪ Reduces social and environmental bads (pollution). ▪ Efficient way of raising tax revenues ▪ Simple to design and implement, knowledge and experience in using them ▪ Stable price incentivise long-term investments/systemic change ▪ Revenue neutral and therefore politically acceptable	▪ Difficulty in setting the right level – without a cap, environmental outcomes remain unknown. ▪ Could be regressive ▪ Indemnity payment mechanisms can be complex and not always perfect	▪ Globally-harmonised carbon tax ▪ Landfill tax ▪ Fuel duty
Cap and trade (upstream)	Cap divided into permits	▪ Viable at the international level ▪ Cap almost guarantees limits adhered to ▪ Proceeds could be channelled to fund mitigation or adaptation (e.g. Kyoto2)	▪ Revenues could accrue to producers rather than consumers/ state. ▪ Focus on efficiency could result in short-term profits favoured over long-term structural change; ▪ Problems with verification	▪ European Union Emissions Trading Scheme ▪ Carbon Reduction Commitment ▪ Clean Development Mechanism/ Joint Implementation ▪ Clean Air Act 1990 ▪ Kyoto2 (Tickell, 2008)
Cap and trade (downstream)	Cap set and permits traded at an individual level.	▪ Viable at national or regional level ▪ Cap almost guarantees limits adhered to ▪ High levels of public engagement ▪ Encourages behaviour change ▪ Likely to be more progressive than taxation and therefore no need for an indemnity payment mechanism	▪ May not be viable at the global level ▪ Prices could be volatile, making it difficult for organisations to make informed investment decisions. This could be minimised by floor (minimum) and ceiling (maximum) price. ▪ Possible high set-up and transaction costs ▪ Difficult to operate in just one sector of the economy	▪ PCA (e.g. Fawcett, 2005) ▪ TEQ (Fleming, 2007)

Cap and share	Cap distributed to: ▪ Individuals (e.g. Cap & Share – equal per capita basis) ▪ Nations (e.g. Contraction and Convergence – converge to equal per capita basis)	▪ Viable at the international level ▪ Cap almost guarantees limits adhered to ▪ (C&S) Bypassing government limits opportunities for major corruption at the international level ▪ Greater autonomy to individuals (C&S) / nations (C&C) ▪ Could be implemented very rapidly ▪ Cost of enforcement and ensuring compliance are low ▪ Potentially progressive	▪ Untested at global level (C&S - macro and micro implications of giving every person on the planet a significant amount money are not fully understood) ▪ Logistical problems (C&S ensuring permits reach their rightful owners) ▪ C&C could be considered that it does not take into account global equity concerns, based on historic emissions, or countries current capacity to change, based on wealth. ▪ Public participation is limited – it has been argued that it acts like a tax on downstream users and does not provide public motivation incentives found in TEQ-style schemes (EAC, 2008) ▪ Price of permits could be volatile. But this could be minimised by floor (minimum) and ceiling (maximum) price. This would also limit speculation as would time-limited permits. ▪ Government would receive no direct revenue, although this could be raised by VAT.	▪ Cap & Share (Feasta, 2008) ▪ Contraction and Convergence (Meyer, 2004)
Regulation ('command and control')	Direct deployment of government power to control harmful activities and change behaviours such as standard setting or phasing out of harmful substances	▪ Simulates innovation by reducing uncertainty for investors ▪ Encourages investment by increasing costs and risks for firms	▪ If expressed as ratio (i.e. performance standards), will not prevent total damage from rising if activity rises unless a cap is also in place ▪ Unpopular with industry	▪ IPPC ▪ Performance standards
Public finance, Green New Deal / green fiscal stimulus	▪ Raising funds for an environmental transformation through structural reform of national and international financial regulation combined with ecological tax reform. ▪ Procurement policy	▪ All big new technological transition have required significant government support ▪ Creates employment and therefore increased tax revenues ▪ Stimulates innovation, reduces prices of technology (i.e. low carbon).		▪ Green New Deal ▪ Sustainable Commissioning Model (**nef**)