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Session: A Green Economy

**A Genuine 'Green' Economy must be Ecologically
Sustainable and Socially Just**

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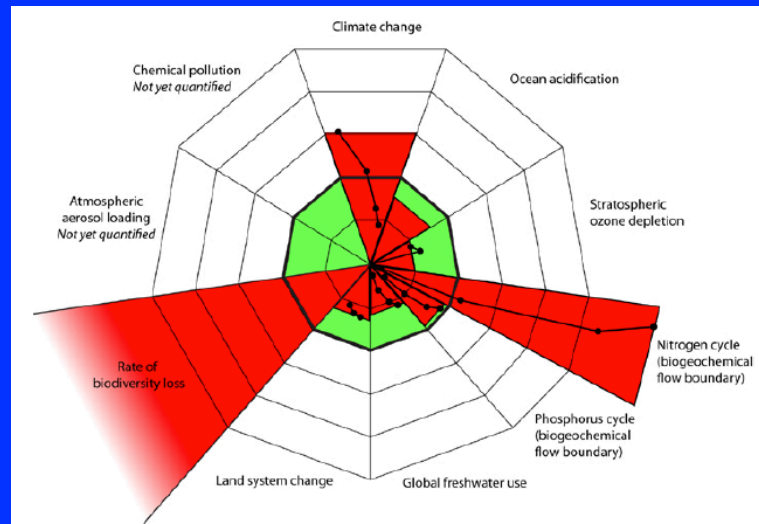
Humans are totally Dependent on Nature

(Washington 2013)

- ★ Plants capture solar energy by photosynthesis → carbohydrates & fats
→ food energy
- ★ The oxygen we breathe in is also produced by photosynthesis, mostly
from other species such as blue-green algae
- ★ Ecosystems of micro-organisms digest food in our stomachs
- ★ Nature drives the great bio-geo-chemical cycles that enable us and
other species to exist and function, eg:
 - Carbon cycle
 - Water cycle
 - Phosphorus cycle
 - Nitrogen cycle

We humans are interfering with all these systems on global scale.

Threats to 7 Planetary Boundaries, from Pre-Industrial to Present Level



In particular, Climate Change Impacts include

- ★ Loss of biological diversity and hence threats to our life support system
 - Eg, fish, shellfish, coral, forests
- ★ Acidification of oceans
- ★ Heat waves, droughts, wild fires
- ★ Floods
- ★ Coastal inundation from sea-level rise
- ★ Likely decline in global food production → forced migration
- ★ Spread of vector-borne diseases, eg malaria, dengue

Economic Implications of Planetary Threats & Responses

- ✦ Since natural environment is the basis of the economy – providing natural resources, waste dump and life support systems – there are increasingly severe economic impacts
- ✦ Response of neoclassical economics – that if the price is right we can replace natural resources and systems with human-made – is unscientific nonsense
- ✦ Response of the some environmental economists (eg, David Pearce and Michael Jacobs) and the interdisciplinary field of ecological economics: the existing economic system is a major cause of damage to our life-support systems

Neoclassical Economy Damages our Life Support System and Social Inequity

- ✦ Competition drives increased production
- ✦ Even when large corporations have little competition, they grow to increase the value of their shares
- ✦ To support increased production, advertising fosters increased consumption
- ✦ Almost all increased production has adverse environmental impacts
- ✦ Failure to internalise environmental, health and social costs of industries and products increases adverse impacts
- ✦ These impacts fall mostly on the poor and politically powerless
- ✦ The financial industry also drives unsustainable economic growth by creating new debt-money that expands economic activity
- ✦ Some industries (housing, construction, tourism) lobby for population growth

Greening of technologies only addresses one of these drivers.

More Generally, Environmental Impact has 3 Principal Drivers

$$I = PAT$$

Impact = Population x Affluence x Technology

where *Affluence* = *Consumption \$ /person*

and *Technology* = *Impact/Consumption \$*

$$I = P \times \frac{(GDP)}{P} \times \frac{I}{(GDP)}$$

We must address all 3 drivers. To address *A* and *P*, we need a steady-state economy with low throughput

Aside: Occasionally Technological Change Can Play a Major Role

- ★ 100% renewable electricity is the official target in Denmark, Scotland and de facto in Germany
- ★ Hourly computer simulations technologies (Elliston, Diesendorf & MacGill 2012; 2013) show that 100% renewable electricity could be supplied reliably and affordably to Australia's National Electricity Market from commercially available technologies
- ★ But technologies rarely implement themselves. They must be chosen and financed. These decisions are based on (biased) economic calculations and the power of vested interests.
- ★ There are no technological solutions to destruction of native forests, decimation of fisheries, degradation of soils and inequity; these are primarily political and economic issues.

An Ecologically Sustainable & Socially Just Economy: Principles

- ★ To enhance individual and community wellbeing.
- ★ To provide for equity (equal opportunity in the basics) between and within generations.
- ★ To protect biological diversity and maintain essential ecological processes and life support systems.
- ★ To apply the Precautionary Principle, namely:
'Where there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.'

Ecologically Sustainable & Socially Just Development: Definitions

- ★ 'Types of social and economic development that protect and enhance the natural environment and social equity' (Diesendorf 2000)
where development is 'qualitative improvement in human well-being' and 'unfolding of human potential', (Herman Daly).
- ★ 'development that meets the needs of the present while safeguarding Earth's life-support system, on which the welfare of current and future generations depends' (Griggs et al. 2013)

Both definitions recognise that the economy is a subset of the natural environment and so they avoid trade-offs between economic development and our life-support systems in nature.

Implications of Sustainable Development for the Economic System and Society

- ✳ Reduce throughput / flows of materials and energy
- ✳ Reduce population non-coercively
- ✳ Reduce land use
- ✳ Clean up technologies
- ✳ Reduce poverty and inequities: ie, contraction and convergence

In short, we must create a lean, clean and fairer economic system. On a finite planet with limited 'ecological space', everyone cannot live at the standard of average Australian. Ecological sustainability and social justice must be addressed together

Aside: Can the Economy be Dematerialised?

- ✳ Present trends show increasing use of materials and energy in most of the world (eg, Stern 2007; Schandl & West 2012)
- ✳ These increases are correlated with economic and population growth
- ✳ Do service industries (other than financial industry) depend ultimately on natural resources?
- ✳ The present paper focuses on limiting biophysical growth, treating economic (\$\$) growth as a byproduct
- ✳ If economic growth declines as consequence of limiting biophysical growth, this will be offset (partially?) by increases in environmental, social and individual value.

Policies for a Steady-State Economy in Biophysical Terms: General Remarks

All types of policy should be considered. Horseshoes for courses.

- ★ Pricing: eg, taxes, emissions trading, feed-in tariffs & portfolio standards for renewable energy technologies
- ★ Directed government funding: eg, grants for research, development and demonstration and for essential infrastructure
- ★ Regulations and standards: eg, for energy efficiency, low toxicity and durability of consumer products
- ★ Planning and design: eg, for sustainable buildings, other products and cities)
- ★ Education, training and information
- ★ Institutional change: eg, global caps on resource extraction & wastes; energy service companies; international & national change managers

Specific Policies for a Steady-State Economy

- ★ International and national caps on mining of non-renewable resources and rates of extraction of renewable resources
- ★ International caps on disposal of toxic and hazardous wastes, including GHG emissions
- ★ Regulations and standards to ensure all consumer 'goods' are energy efficient, low in toxicity, durable and reusable or, failing that, recyclable
- ★ Environmental tax reform to make damaging products & services more expensive, with revenue hypothecated to assist transition to benign substitutes
- ★ Tax reform to include removal of subsidies to production & use of fossil fuels
- ★ Guaranteed minimum income and maximum income (Daly)

Specific Policies for a Steady-State Economy

- ✦ Replace payroll tax with environmental taxes and increased income tax for high-income earners
- ✦ Target accumulated wealth with estate tax and land tax (Stilwell)
- ✦ Tax corporations according amount of capital they use (Victor)
- ✦ Working time reduction coupled with increased social wage
- ✦ Tighter standards for advertising
- ✦ Reduction in powers of corporations (a thesis in itself)
- ✦ Law reforms to facilitate the formation and operation of cooperatives and other not-for-profit organisation

Specific Policies for a Steady-State Economy

- ✦ Gradually shift private sector lending to 100% reserve as default, with adjustments according to social & environmental benefits of projects
- ✦ Public financial sector to lend money at low interest for large ecologically sustainable and socially just projects
- ✦ Incentives to increase savings, eg, tax real interest, not nominal
- ✦ Tobin tax on international financial transfers; revenue hypothecated to sustainable development of poor countries
- ✦ Rich countries increase overseas aid to support education, family planning and ecologically sustainable development programs in poor countries
- ✦ In rich countries remove incentives & propaganda for population growth and reduce skilled immigration

Institutions and Indicators

- ★ New institutions, eg
 - For decisions about environmental taxes
 - For decisions on financing worthy projects without 100% reserves
 - For coordinating Contraction & Convergence
- ★ No single indicator can describe quality of life.
- ★ GDP should be replaced with a set of mostly non-monetary indicators that give a broad picture of the state of, and trends in, the environment, health, social justice, employment and access to public facilities/services.

Conclusion

- ★ Radical changes are needed in the economic system, because of:
 - Climate change
 - Other global environmental crises
 - Global financial crisis
 - Peak oil
 - Growing poverty and social inequity
- ★ These changes should create a 'steady-state' or 'degrowth' economic system to serve ecological sustainable and socially just development
- ★ While the transition appears politically very difficult, business-as-usual is leading to socio-economic collapse.
- ★ Political economy has a vital role to play in the transition, along with non-violent social change strategies.