

Sustainable News – 19th October, 2016.

An excellent reference resource across all relevant disciplines

https://www.sciencedaily.com/news/earth_climate/sustainability/

A resource I turn to more often than I thought I would! Rather good

<http://www.huffingtonpost.com/news/sustainability/>

Focal point for lots of those working in this area

<http://sustainability.com/>

Always worth a visit

<http://www.humansandnature.org/sustainability-well-being-and-economic-growth>

Sustainable Development – in a nutshell

According to the World Bank, sustainable development is about people - better lives now and a healthy planet for future generations

According to the late David Pearce, sustainable development means that each generation should pass on at least as much "capital" as it inherits, the Pearce approach defines capital in broad terms, to include physical capital (machinery and infrastructure); intellectual capital (knowledge and technology) and environmental capital (which includes quality and the stock of natural resources).

The [Brundtland Commission on Environment and Development](#) defined sustainable development as: "**development that meets the needs of the present without compromising the ability of future generations to meet their own needs**".

The UK Government supports the concept of sustainable development and focuses on four main objectives set out below:

1. **Social progress which recognizes the needs of everyone:** Everyone should share in the benefits of increased prosperity and a clean and safe environment. Needs must not be met by treating others, including **future generations** and people elsewhere unfairly.
2. **Effective protection of the environment:** We must limit global environmental threats, such as climate change to protect human health and safety from hazards such as poor air quality and toxic chemicals and to protect things that people need or value, such as wildlife and landscape
3. **Prudent use of natural resources:** We need to ensure that non-renewable resources are used efficiently and that alternatives are developed to replace them. Renewable resources, such as water, should be used in ways that do not endanger the resource or cause serious damage or pollution.

4. **Maintenance of high and stable levels of economic growth and employment**, so that everyone can share in high living standards and greater job opportunities.

Growing interest in the impact of economic activity on our natural and man-made resource base has led to the development of concepts such as ecological footprints and carbon footprints. Many environmentalists are inherently cautious about the long-term impact of growth on our living environment. They are deeply skeptical about the effects that growth might have in preserving and or improving it.

Others argue that the pessimists are over-stretching their case. [Bjorn Lomborg](#) in "The Skeptical Environmentalist" challenges beliefs that the environmental situation is getting worse and worse.

Decoupling growth and the environment impact

Can countries successfully manage to **decouple** the impact of economic growth on the environment?

- Can they find innovative ways of reducing the ecological impact of production and consumption?
- Can the right incentives lead producers and consumers to alter their behaviour in ways that benefit the wider environment?
- Can countries agree and then enforce policies to mitigate and adapt to existing climate change?
- What scale of economic **growth sacrifice** might be needed to achieve a sustainable rate of GDP growth in the future?

Natural Capital

- Natural capital is an economic metaphor for **environmental assets**, such as air, forests, soils or marine habitats that supply resources to the economy or offer a receptacle for disposal of wastes.
- Economic development changes the profile of a nation's capital stock - for example industrialization leads to **deforestation** and a rapid run down of natural capital, replaced often by life-changing physical capital, intellectual capital and human capital.
- Living standards have been raised through this substitution process but the fundamental question central to the whole environmental debate is the extent to which the natural stock of capital can continue to be run down at present rates. The weight of scientific knowledge says that the answer is no - we cannot replace a stable climate by more human and physical capital under a business as usual pathway.
- There are many externalities created by the destruction of natural capital – for example, tourism can be deterred by industrial pollution and wilderness degradation

To mark the 2012 Rio Summit, the United Nations has started to publish an **Inclusive Wealth Index** which builds into an evaluation of a country's wealth the impact of growth and development on the stock of a country's natural capital. Scientists and environment groups have been pressuring governments to include the value of their countries' natural resources (or natural capital) - and use or loss of them - into future measurements of economic activity to show their true future growth prospects.

According to the Economist

"Comprised of human, natural and produced capital, the index covers 20 countries between 1990 and 2008. Between them they account for 58% of the world's population and 73% of its GDP. As GDP does not consider natural-resource depletion or environmental degradation, the UN's index records lower annual average growth in wealth compared with GDP, of 1.7 percentage points."

- When measured solely by GDP, the economies of China, the United States, Brazil and South Africa grew by 422 percent, 37 percent, 31 percent and 24 percent respectively between 1990 and 2008.

- When their performance was assessed by the IWI, China's economy grew by 45 percent, the United States by 13 percent, Brazil by 18 percent and South Africa decreased by 1 percent due to the depletion of natural resources
- Six nations - Russia, Venezuela, Saudi Arabia, Colombia, South Africa and Nigeria - experienced negative growth under the IWI, whereas it was positive under GDP measurements

Collapses in Fish Stocks – The Tragedy of the Commons

A controversial study by Worm et al published in Science in 2006 projected that if current behaviour persists, all of the world's fisheries would collapse by 2048.

According to the United Nations Development Programme, "The world's oceans and coastal areas are the source of a variety of life-sustaining goods and services—including food, transport, oil and gas, tourism, and minerals. Marine and coastal resources directly provide at least US\$3 trillion annually in global economic output." Over-fishing represents a fundamental threat to economic activity in many countries, accelerating degradation of the marine environment stems primarily from market and policy failures. Market and policy failures have led both the private and public sectors to **under-invest** in environmental protection measures, such as **wastewater treatment** and **coastal habitat protection**, and **over-invest** in activities detrimental to the marine environment, including over-fishing and chemically intensive agriculture.

Deforestation

The Human Development Report 2011 reported that deforestation is a severe problem. In the last two decades, Latin American and Sub-Saharan Africa have experienced severe forest losses, especially when compared to the rest of the world. Deforestation causes flooding and disrupts agriculture and other economic activity.

For economists the economic and social costs of rapid deforestation represent a telling example of the **tragedy of the commons** where the pursuit of individual self-interest can risk a permanent destruction of natural resources that undermines the sustainability of communities and societies for current and future generations. The United Nations calculates that deforestation and degradation is responsible for nearly 20 per cent of global greenhouse gas emissions. One of the policy approaches is the REDD programme. Carbon pricing systems – such as emissions trading systems that cap emissions or carbon taxes that charge per ton – send a long-term signal to companies by creating an incentive to reduce polluting behaviors and to invest in cleaner energy choices and low-carbon innovation.

The REDD Programme

REDD stands for Reducing Emissions from Deforestation and Forest Degradation in Developing Countries and is designed to provide financial incentives funded by advanced nations for developing countries to preserve their forests and instead invest in low-carbon paths to sustainable development.

The United Nations estimates financial flows of up to \$30bn could come from REDD and related initiatives - the scheme effectively allows rich countries to offset their carbon emissions from domestic industries and consumers by funding clean low-carbon development projects in developing countries. But it is highly controversial and opposed by many organisations such as Friends of the Earth and the World Rainforest Movement.

Between 2003–2013, natural hazards and disasters in developing countries affected more than 1.9 billion people, and caused more than \$494bn in damages. Economic losses from natural disasters have tripled over the past decade, and continue to rise

Poor Countries and Vulnerability to Natural Disasters

According to 2014 Human Development Report, *"Environmental threats highlight potential tradeoffs between the well-being of current and future generations. If current consumption surpasses the limits imposed by our planetary boundaries, the choices of future and current generations will be seriously compromised."*

From tsunamis to tornadoes, from droughts to floods, 2011 was a particularly nasty year for natural disasters in many parts of the world. These natural disasters inevitably have demand and supply side effects

affecting not just those countries affected but ripple impact across regions and in the broader global economy. These include:

- Effects on the stock of physical capital / infrastructure
- Impact on a country's human capital
- Effects on commodity prices, export revenues
- Effects on agricultural output, profits, investment, productivity
- Ripple effects on manufacturing industries and energy supply/cost
- Impact on state tax revenues and the costs of re-building and providing emergency financial support
- Effect on the movement of population following extreme climatic events
- Natural disasters and changes in the distribution of income / risk of poverty

According to the World Bank, since the year 2000, almost 1 million people have lost their lives to disasters caused by natural hazards. 2 billion people have been affected. 1 trillion dollars in damage was caused. Globally, floods account for one-third of losses caused by natural disasters.