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# Notes from the Icehouse



## **An environmental history perspective on the UN agenda 2030 ('Sustainable development goals')**

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In 2015, the UN adopted an Agenda to transform the world by ensuring sustainable development. In consultations with lay people and experts, seventeen goals covering important aspects of social, ecological and economic sustainability were defined. The inter-linked goals are broken into 169 targets, and are monitored using more than 200 indicators. Official depictions show them as a set of brightly-coloured quadrangles on a white background. Each contains a number, a pictogram and a short text. They have been represented as tiers of a wedding cake or as networks, and have been turned into complex matrices depicting trade-offs and synergies. Critical assessments identified various problems of measurability, inclusiveness, and comprehensiveness (e.g. Weber 2017). Nevertheless, the Agenda

2030 merits serious attention in hope that its shortcomings will be transcended in subsequent documents, much as the SDGs improved on the Millennium Development Goals.

A recent sustainability handbook gives a very succinct description of the current situation:

As the process of industrialisation progresses and the associated problems related to it such as biodiversity depletion, climate change and a worsening of health and living conditions – especially but not only in developing countries – intensify, there is a perceived need to search for integrated solutions to make development more sustainable. The current model of economic growth used by many countries, heavily based on the exploitation of natural resources, is not viable. There are many evidences which show that a more careful, i.e. a more sustainable approach towards the use of our limited resources, is needed. (Leal Filho 2018: 983).

Internationally, the SDGs are evaluated by an ‘Independent Group of Scientists’ charged with monitoring the progress of Agenda 2030. The group published its first report, ‘The Future is Now’ in September 2019. The 250+ page document is a fervent call for action, showing that little progress was made in the first four years of the Agenda and that, for some crucial SDGs, the world is moving in the wrong direction.

‘Biospheric’ sustainability goals – water (SDG 6,14), climate (SDG 13), soils and biodiversity (SDG 15) – cannot be achieved by economic growth or better education. Positive developments in reducing hunger, increasing education, limiting industrial development or achieving more responsible production and consumption depend upon improvements in the state of the Earth’s Life Support Systems. Their good state in the rich global North is in part ‘borrowed’; it rests on the exploitation of other countries, due to so-called spill-over effects. As a result of global trade linkages, every rich country can in effect export its environmental consumption, which must be taken into account in all assessments. Such critical comments have been made on numerous occasions. Yet, they miss an important point.

From my perspective as an environmental historian, the SDGs

do a relatively poor job of analysing and assessing the long-term effects of anthropogenic environmental changes. Consideration of legacy risks would seem to be an important part of the journey to sustainability. Yet, there is little of this in the burgeoning literature on the SDGs.

Sustainability concepts such as ‘Planetary Boundaries’ or the ‘Ecological Footprint’ (and others) are problematic because they ignore legacies. These are long-term consequences of past interventions, which in the future will require labour and energy and pose a considerable risk. A societal transformation towards sustainability must recognise the mortgages that societies have already raised on the future by producing Plutonium, by creating and abandoning underground mines, by saturating soils with long-lived synthetic chemicals, in short, by threatening the integrity of land and marine ecosystems. Societies need to incorporate the longevity of legacies and their relative danger into the prioritisation of environmental protection measures. Long-term risks are amplified by societal limitations. The size of the risk resulting from a ‘legacy’ depends on societal regulation (‘governance’). A highly problematic legacy in a LICUS state (low-income country under stress) will have to be assessed differently from one in a developed democracy. But all long-term risks are dangerous in their own right.

Sivapalan and Blöschl (2015: 7001) point to the long-term consequences of regulatory measures. The depletion of the Ogallala High Plains Groundwater Reservoir in the USA, for example, has continued for at least forty years, despite a multitude of efforts to deal with this problem, all marred by the mismatch between locally regulated resource management and the larger, regional scale of groundwater movement.

Like groundwater depletion, soil contamination creates a significant risk to both human health and natural ecosystems; it is initially site-based, but can spread through all environmental media. It remains after the productive activity has ceased and may need centuries, or millennia, of management to limit environmental contamination and protect human health. Legacy sites are a worldwide problem, but we have no good inventory of them. The best data are

available for the United States and the EU. Worldwide, some of the most afflicted areas are documented the least. The US has earmarked 1317 'Superfund'-sites, for extra funding and proper management.

Mining activities leave behind a legacy of waste dumps, which may serve as a permanent source of toxic substances. Extracting gold from pyrite and in particular from arsenopyrite offers one good example. Because gold is often preferentially associated with these minerals, large amounts of highly toxic arsenic oxide are created in the process of extraction. This needs to be stored safely for the foreseeable future (and the challenges of doing this are often severe, as revealed by the Giant Mine in Yellowknife, Canada). Mine tailings and overburden heaps (such as those from gold mining in South Africa) are a constant threat, in particular for populations living close to these often uncovered sites.

Nuclear facilities are another type of legacy site. Weapons production facilities are a particular concern, due to limited available information and often ongoing restrictions on information release. The most expensive weapons production legacy site in the US is the plutonium factory in Hanford (WA), the remediation of which has been plagued by corruption and mismanagement (Mueller 2019). Similar sites exist in the former Soviet Union and in other countries producing nuclear weapons (Brown 2013).

The long timescale involved in radioactive waste management complicates assessment of the appropriate level of protection, and questions the relationship between dose and risk in the long term. The International Commission on Radiological Protection draws particular attention to the 'period of no oversight', when 'loss of memory ... may take place, either progressively or following major unpredictable events such as war or loss of records'. In their view, 'inadvertent human intrusion in the disposal facility cannot be ruled out during this time period'. So, although 'the intrinsic hazard of the waste decreases with time ... it may continue to pose a significant hazard for a considerable time'. (ICRP 2013: 33, ICRP 2014) Regulatory frameworks for environmental protection from radiation are numerous and quite different. A global legal framework is missing, but such a framework alone will not be enough.

Types of human legacies have changed massively. They can be classified as benign, problematic and insidious, or wicked. Insidious arrangements create very long-term legacies. Societies that have created nuclear legacies must act in the long term, as international policy towards Iran or Pakistan testifies. They are therefore ‘transformative’ for society: as long as fissile material exists, it must be protected (Winiwarter et al. 2013, 2016).

Suicide bombers currently act as individuals. But what if a larger group or state decides that the lives of its own group or citizens and those of others are not as important as detonating a nuclear bomb? The costs of guarding nuclear arsenals and the various civilian locations of the fuel cycle are so high in the end that not even the power plants promise a net energy gain.

A really sustainable environmental policy has to focus on long-term learning processes. It must prioritise avoiding legacies with transformative potential; this can perhaps be summarised under the term ‘long-term precaution’. The European Environment Agency has presented important preliminary work for such a policy in two reports that address how to better learn from early warnings (Harremoës et al. 2001, EEA 2013). The environmental history community has already done a lot of research on legacies. But we have not brought that research into the context of the SDGs. This critical appraisal should be part of our mission.

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