

AFTER 1972

energy transition and digitization in a material perspective

publ. juni 2021

The report Limits to Growth¹⁾ appeared in 1972. Ecological developments around that year were getting out of hand and should be reversed. In fact, since then the opposite has happened.

The ecological burden on the Earth actually increased more than substantially²⁾:

a] The world population doubled (x2.05) in the period from 1970 to 2020, moreover, material prosperity increased almost worldwide in that period.

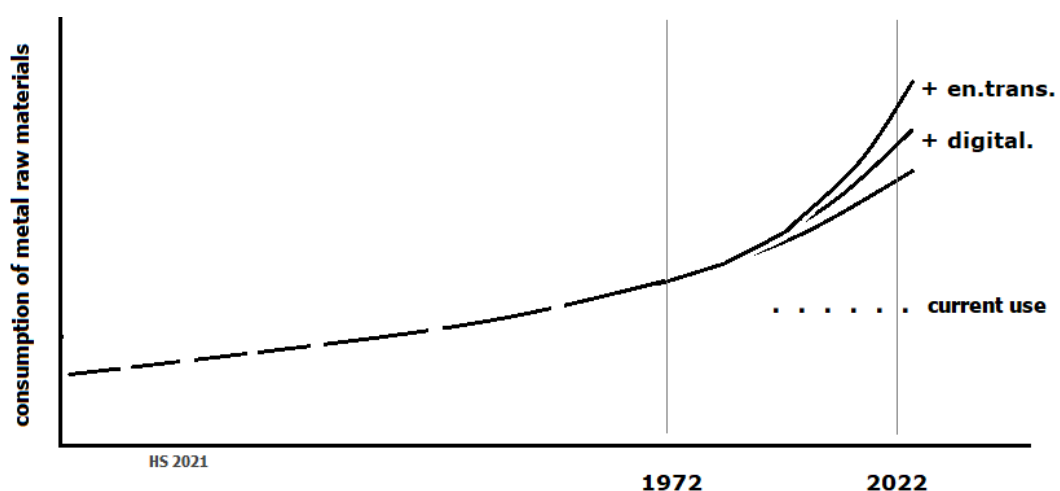
b] New eco-polluting techniques have been allowed since 1972 (this terminology to express the lack of policy-based quota³⁾); the energy transition⁴⁾ and the digitization⁵⁾ were among the most decisive of these new developments. They have a substantial eco-burden, mainly due to a double metal dependency; the planet's metal reserves were among the main concerns of Limits to Growth. This has not fundamentally changed since then⁶⁾. In addition, mining interventions in the planetary subsurface disrupt the geology and are impossible to repair, unlike what is true in principle for the bio-surfaces and the atmospheric layers⁷⁾.

The dual metal dependence explained in more detail:

1] The hardware required for all accessories in the *world of digitization* and in *energy transition*, especially the essential components, consists almost entirely of depletable metals, and is produced with processed metals. There are no material alternatives and the circularity principle⁸⁾ or recycling is of limited application for non-recoverable substances.

(N.B.: The production of fossil-free energy also requires more earth's surface than fossil energy)

2] The same applies to the expansion of the necessary energy supply, 'electrification', for the aforementioned digitalisation and fossil-free energy supply: in particular, the essential components consist almost entirely of exhaustible metals, and are produced with processed metals. Metals are indispensable for the generation, operation, storage and transport of that electricity. There are no material alternatives and the circularity principle⁸⁾ or recycling is of limited application for non-recoverable substances.



Current use: The consumption of exhaustible metal components for industry in terms of established purposes (products) continued to increase after 1972.

New purposes (products) with further increasing consumption of those metals are mainly related to electrification: the energy transition to replace fossil consumption (>en.trans.) and digitization (>digital.).

The graphic shows the trend only

Both developments are in addition to the eco-disrupting developments, not mentioned here, which were already taking place in 1972 and which increased further afterwards (*current use* in the graphic). Think, for example, of the ongoing mobility movement. These are substantial in themselves but will not be discussed further here⁹⁾.

The development of the energy transition has its roots in the undesirable climate-disrupting effects of fossil wastes (CO₂). The depletion of fossil raw materials and the related planetary degeneration in geophysical terms is rarely cited as a motivation. The same phenomena of depletion and degeneration are brought about by the consumption of metals. As discussed, this is precisely what is increasing due to the scaling down of fossil fuels. There were no compelling reasons for the development of an unlimited information and communication technology (ICT) chain beyond luring profit expectations. The consequences are far-reaching; the social order became dependent on it in its systemic operation and considerably more vulnerable and less sustainable as a result. Both the supply of metals and the generation and distribution of electricity would then have to be guaranteed worldwide, without interruption. According to this analysis, there are no opportunities to keeping it up.

original title: "1972 VOORBIJ"

SOURCES:

- 1) Meadows, Dennis et al; 'Limits to Growth', report of the Club of Rome (1972)
- 2) For political-economic backgrounds see Achterhuis, Hans; 'The utopia of the free market' (2010) and Wikipedia; 'The Lewis Powell Memorandum, 1971'.
- 3) Consumption limiting by legislation: a) increasing over time and b) harmonising globally from rich to poor countries.
- 4) Energy transition: non-fossil electricity generation such as wind turbines, solar panels, etc.
- 5) ict, digitization: information and communication technology including computer technology and data processing.
- 6) See periodicals of EuChemS.eu or: Harald Sverdrup "What remains...".
- 7 A still insufficiently highlighted aspect, also in 'Limits to Growth'.
- 8) Circularity is based on the biological, not geological, principle of regeneration.
- 9) Further technological development in industry, agriculture, mobility, construction, health care, services, defence and others.