

Title: Exploring Human Labour in times of low carbon and no growth economies

Authors: Willi Haas and Marina Fischer-Kowalski

Affiliation: Institute of Social Ecology, IFF, Alpen Adria Universitaet

Contact: Willi Haas (willi.haas@aau.at)

Keywords: energy transitions, human labour, degrowth

Abstract:

Willingly or not, slowly or fast, due to climate change and/or scarcity of resources human society is in a transition away from the use of fossil fuels. We assume that this new transition towards a low carbon society will have as many and equally far reaching implications for human labour as the transition towards the fossil fuels based industrial society has had. To understand this better, we develop a simple and basal scheme applicable throughout human history. By using this scheme we make an effort at exploring historical interrelation between socio-metabolic regimes and the amount of human lifetime spent on labour, the respective critical qualitative capacities of human labour power, and the institutional forms in which labour is employed.

Most analyses of “green jobs” deal with a fairly close future and mainly with the future of gainful employment in some economic sectors. Furthermore they are inseparably interwoven with the basic idea of promoting economic growth mainly by an ecological modernisation approach. To overcome this narrow approach we open up the time horizon and discuss hunterer and gatherer, swidden agricultural communities, agricultural societies, early industrialization and fully industrialized societies in terms of quantitative daily working hours and further qualitative aspects.

Throughout human history the maximum of labour time per inhabitant and day was spent under agrarian conditions. Physical power was the key feature of human labour during the agrarian regime. Improving skills and knowledge base of the majority of the population engaged in agricultural production was not in the interest of the ruling classes – as long as they feed themselves and deliver their tithes and taxes.

Germany 1870-1998

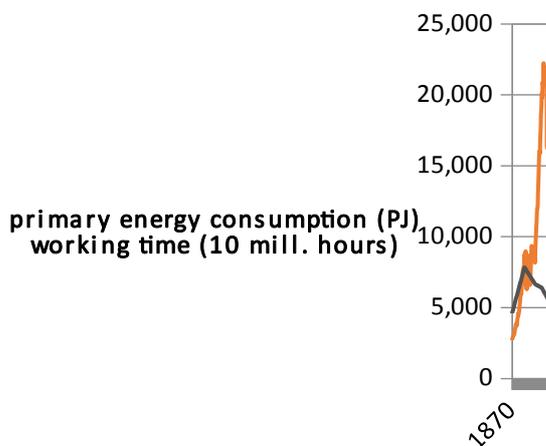


Figure: Primary energy consumption (PEC) and working time (hours) for Germany as an example for most industrialising countries for 1870 to 1998.

The industrialisation of agriculture relieved labour time by the use of fossil fuel technologies. At the onset of the coal based industrial regime steam engines added physical power to the economies. This increased labour demand in the urban centres of industrialization. Thus, wage labour became an increasingly important institutional form of labour.

During the oil based industrial regime liquid fossil fuels and electricity allowed for the substitution of the physical power dimension of human labour by decentralized energy services. Key technologies were (and still are) the internal combustion engine used for cars and multi-purpose electro-motors linked to electricity grids. Liquid fossil fuels used for tractors, and in chemical conversion for mineral fertilizers and pesticides, also substitute for a large part of physical human and animal labour in agriculture. In effect, physical strength and prowess loose much of their economic and in consequence cultural value.

Coinciding with the first world oil crisis 1973, structural change in the relation between energy and labour becomes apparent: the trend of steeply increasing primary energy input in high income countries is over, and gives way, after some sharp fluctuations, to a more stationary energy consumption, both overall and per working hour. There is no discernible correlation between energy use and working time any more. Intellectual educational standards in the labour force keep rising, as does school and university enrolment, and qualified white collar work increases while industrial blue collar work continues to decline. Since the 1970s information and communication technology is substituting for knowledge work of human labour. At the same time physical work of human labour is further reduced in high income countries by the externalization of industrial production to the world's periphery.

Against this backdrop we ask ourselves: as the fossil-fuel based socioecological transition apparently induced such major changes in work and life, what changes we may expect from a major societal transition away from fossil fuels? And: Can this imagined under a growth scenario or under conditions of degrowth only?

However, since future is uncertain, we can only provide informed speculations. This we do by exploring developments of various economic sectors like energy supply, agriculture and forestry, construction, transport, body related services, and supply with raw materials.

Summarizing, it seems inevitable that the socioecological transition impacts labour, quantitatively and qualitatively. Demand for labour and the availability of gainful employment does not seem to be at risk. But the challenge seems to be the economic balance between the remuneration of labour, the cost of raw materials, and the expectation of profits. To enable such developments a low or no growth society seems to be a pre-condition.