Socio-economic transformation needed to reduce resource extraction

A new report has estimated that if business continues as usual, global resource extraction and associated CO₂ emissions could triple by 2050. It concludes a coordinated change across policies is needed with targets for resource extraction, environmental impact and efficiency of supply.

The worldwide transformation from a predominantly agricultural society to an industrial regime has rapidly increased our use of resources, such as fossil fuels, metals and timber, especially in the second half of the 20th century. Newly industrialised and developing countries are playing an increasing role.

The study constructed three scenarios of resource extraction for the year 2050. In the business-as-usual scenario, industrial countries maintain the same rate of resource use per capita whilst developing countries catch up. Under this scenario, annual global resource extraction could triple, as would average per capita emissions to 3.2 tons CO₂ per capita, compared to the year 2000.

Under a moderate contraction and convergence scenario, industrial countries reduce their rate of resource use by a factor of two, while developing countries catch up to these reduced rates. Compared to 2000, this could produce an increase in annual resource extraction of 40 per cent and an increase in average per capita emissions of nearly 50 per cent (1.6 tons CO₂ per capita).

Under a tough contraction and convergence scenario, the consumption levels of resources in 2050 are the same as levels in 2000. It requires industrial countries to reduce their rate of resource use by a factor of 3 to 5 and developing countries by 10-20 per cent. This could decrease per capita emissions of CO₂ by 40 per cent.

These results suggest a need for policy intervention. The study identified four types of policies:

1. Policy targets to ration extraction rates. These need to be negotiated on a global level and adjusted depending on whether the resource can be substituted by acceptable alternatives.

2. Targets on the environmental impact of resource use. IPCC targets, for example, have implications for reductions in the use of fossil fuels, types of biomass use and animal livestock numbers, if severe climate change is to be avoided, and no functioning carbon storage technology is available.

3. Targets on the supply of services to people, in the sense of providing maximum benefit to people at the expense of minimum resources. These would base targets on resource use per capita.

4. Policy targets on economic productivity, i.e. providing maximum income with as few resources as possible. These face problems in deciding at which point in a product’s life cycle to measure productivity.

The report suggests that different types of target cannot be set independently and should be applied in a coordinated manner. This could trigger a socio-economic transformation on the same scale as the industrial revolution it seeks to address.


Contact: marina.fischer-kowalski@uni-klu.ac.at

Theme(s): Resource efficiency, Sustainable consumption and production, Sustainable development and policy analysis