

Chair:	Ökologische Systemanalyse / Ecological Systems Design (ESD)
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Title:	Where are the metals? – Natural vs human stocks
Description:	<p><u>Background</u> Mineral/metal resources are mined from the so-called biosphere (nature or the natural environment) and end up in the so-called techno-sphere (the man-made environment). While some Life Cycle Impact Assessment methods assess the depletion of natural mineral resource stocks as a long-term issue for material availability, there is the argument that minerals/metals do not disappear and hence there is no depletion problem when using natural stocks. It is of course true that minerals/metals do not disappear, they only may be dissipated (i.e. “diluted” to a concentration that a re-concentration becomes impossible) so that humankind cannot any longer access them. Besides these dissipative losses, minerals/metals stay within the techno-sphere and change from natural to anthropogenic (human-made) resources.</p> <p><u>Tasks and goals</u> Several questions with regard to the change from natural to anthropogenic stocks should be answered by the student(s) for a specific mineral/metal: Where (in which countries) were and are the natural stocks located and where (in which countries and in which products) are the present and will the future anthropogenic stocks be located? Can the highest per capita stocks be assumed as being representative for the future, e.g. will all societies have similar anthropogenic per capita stocks? How accessible will these stocks be? With regard to population growth, will there be any risk of quantitative supply risk? And if possible: with regard to resource quality, will there be any risk of supply risk? In order to answer these questions, the student(s) will set up basic material flow charts based on literature review and simple scenario analysis. They will illustrate the results in global maps.</p>
Miscellaneous:	<p>Several students may apply for this topic since several minerals/metals can be assessed. Arbeit auf Deutsch oder Englisch / Thesis in English or German</p>