Earth resources criticality on the doorstep into the new Era: an Estonian example

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Earth resources criticality is the concept that mainly evaluates economic and technological dependency on a certain raw material or element. Commonly it also includes a variable which assesses the probability of supply for a defined region, stakeholder group and in many cases the timeframe (short or long term). Criticality methods use a broad variety of indicators in order to describe mutually or separately related factors including geological, technological, social, geopolitical, environmental and financial factors. For instance, European Union has listed 27 raw materials in 2017 and 30 materials in the updated version of 2020. Timewise, the number and type of raw materials differ. However, in most of the Earth resources criticality concepts, not enough focus has been set on the present environmental-social-economic situation, where the Earth population has confronted with environmental and climate changes, fast-growing population in a number of regions, shortage of food, drinking water and raw materials in general and possible health and military issues. All these aspects could be assessed together and in relations to the new criticality concept, in order to make it workable and useful for decision makers. European Green deal is just an example of the New Era in development of the sustainable environmental-social-economic realm of the planet. Moreover, very little attention has been put on the raw material criticality of small counties, where the EU list may have even minor relevance in some countries. For example, Estonian economy and social-environmental development is vastly dependent on raw materials like gravel, sand, carbonate rocks for construction sector, and it has been dependent recently on oil shale in the power generation sector. In rebuilding these and other sectors in a more sustainable way in a small country, the geomaterial criticality concept needs to be re-addressed. In the presentation I will provide an overview about criticality assessment approaches, its time and region dependency and how the criticality can be related to small countries, Estonia as an example, in the course of rebuilding environmentally and economically more sustainable bases for the development.