

## **Ageing infrastructure and circular economy: challenges and risks**

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A reliable infrastructure is crucial for proper functioning of a society. This holds for the most primitive infrastructure as well as for the most advanced ones. Apart from its crucial role in the functioning of a society, the infrastructure also represents a large share of a country's national wealth. Depending on what is considered as infrastructure, it makes out up to 50% of the national wealth. For realizing this infrastructure huge amounts of raw materials and energy were needed. At the same time we have to realize that the infrastructure stock is ageing (average lifetime 30 to 80 years). Maintenance, repair, renovation and new-built are needed to ensure undisturbed use of our infrastructure. On top of that there is a demand for growth of the infrastructure stock, particularly in countries with booming economies as well as in countries that are in serious need for a good infrastructures to get their economy off the ground.

Growth of the infrastructure stock implies an increasing impact of building activities on the environment (demand for raw materials and energy). Today a circular economy is considered the appropriate concept for the future, also for the building industry. In this contribution need for new strategies for mitigating the environmental burden, and hence societal burden of building activities will be discussed. On the one hand the potential, challenges and risks of a circular building industry are evaluated. On the other hand the need for fundamental research on ageing of materials, structures and systems will be highlighted. It will be shown that more knowledge on ageing phenomena is of utmost importance for developing a circular economy that can really meet the expectations of all stakeholders, who too often seem to believe that adopting a new concept, i.e. circularity, will solve all our problems. The contribution ends with an estimation of societal savings that might be expected from investments in fundamental research.