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Editorial

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Increasingly scarce resources require an urgent change in the way we produce and use materials and products – also in the construction industry. A few weeks ago, the draft of the German national strategy for circular economy (Nationale Kreislaufwirtschaftsstrategie, NKWS) was published, setting out the German government's plans for such a transition. On the one hand, many stakeholders from politics, civil society, and industry call for clear framework conditions to create planning certainty for investments in recycling technologies. On the other hand, the comments on the NKWS draft raise controversial questions: How high is the technical potential for increasing the supply of recyclates? Can high-quality recyclates be produced in sufficient quantities to meet mandatory recyclate quotas? To what extent can incentives be implemented to reduce the consumption of primary raw materials without slowing down housing construction or the energy transition? Technology assessment (TA) can provide an important contribution to this discussion. In 2023, the Office of Technology Assessment at the German Bundestag published a study on three important waste streams – plastic packaging, mineral construction waste, and waste electrical and electronic equipment –, outlining obstacles and approaches for increasing the use of recyclates.

There is still a long way to go before a materials transition can be realized – so there is still a lot to do for TA. Given the technological progress in the field, such as bioenzymatic and chemical recycling or digital watermarks for product passports, the technical potential for a materials transition needs to be regularly reassessed. A central task for TA is not only to identify promising technologies, but also to examine the conditions under which the further development of technological innovations can advance the materials transition without causing harmful side effects on poorer population groups or the German economy. Since the obstacles differ from one material flow to another, it is important to consider the specific characteristics of each material type. To do so, a policy mix of different instruments will need to specifically address the existing obstacles to the use of recyclates while at the same time taking the limits of recycling into consideration. In this issue's Special topic, the authors outline what the future of the materials transition in the construction industry and in architecture could look like.

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