

## ESR24-047 - Modelling and evaluating Anthropogenic Mineral Resources in urban areas from geological, technological, and societal perspectives

### Zusammenfassung

Most resources consumed and wastes generated by urban societies are construction minerals. Circularity of these will be key for sustainable urban development. This project develops a model based on experimental data to locate, evaluate and classify anthropogenic mineral resources in urban areas for their use as recycling materials for a circular economy in construction. Therefore, an anthropo-geological geo information map of Vienna is developed containing all relevant anthropogenic mineral resource flows and stocks like waste from excavation, construction and demolition, biomass and waste incineration. Then, samples of the anthropogenic mineral resources are collected and used to experimentally produce recycling materials for different applications of high-performance low-carbon cement and concrete. In the next experimental step, these secondary raw materials are tested, and in addition, a quantitative stakeholder analysis with potential producers and users of these materials, but also authorities and civil society organizations, is carried out. Furthermore, environmental and socio-economic impacts are quantitatively modelled. Based on the data, an integrated model is developed for the evaluation and classification of anthropogenic mineral resources for construction. This model helps major stakeholders in cities like Vienna in the transformation towards a circular low-carbon economy.

Wissenschaftliche Disziplinen:

Environmental engineering (40%) | Engineering geology (30%) | Urban planning (30%)

Keywords:

Circular Economy Anthropogenic Resources Secondary Raw Materials Urban Planning Low-carbon Concrete Resource Evaluation Resource Classification

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Status: Vertrag in Vorbereitung

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Weiterführende Links zu den beteiligten Personen und zum Projekt finden Sie unter

<https://wwtf.at/funding/programmes/esr/ESR24-047/>