Announcement of NTNU-CSC PhD Scholarship - template

**Type of scholarship:** degree seeking PhD

**Period of the scholarship:** 2020/08 – 2024/08

**Short description of the scholarship:**
Materials currently stored in buildings, infrastructures, and products are highly valuable as potential future secondary resources, replacing primary resources and thereby reducing associated energy and greenhouse gas emissions. Robust information about these “urban mines” is further relevant for estimating future material demand for alternative pathways for urban development, and thus for informing strategies for a low-carbon circular economy. However, current data for urban mines tend to be highly fragmented and sparse. In addition, the high aggregation level and the poor spatial resolution of the data limits their practical usefulness in urban and regional planning.

In this project, we aim at quantifying the urban mines from a bottom up perspective using a combination of Material Flow Analysis (MFA), Geographical Information Systems (GIS), and Building Information Modelling (BIM). The aim of this project is to develop a framework and a prototype information system that will allow users to integrate resource management in urban and regional planning. The framework will be first tested in a case study on construction materials (focus on construction minerals and wood) in the Trøndelag county, and subsequently applied for a region in China.

On the Norwegian side, the candidate will work closely with people from different departments at NTNU, the Norwegian Geological Survey (NGU), the Trøndelag county administration, and industry. A close cooperation with Chinese stakeholders will be established, in order to foster learning processes between Chinese and Norwegian researchers as well as partners in industry and public administration.

**Qualification and requirement:**
- Master degree in engineering or natural sciences or equivalent
In addition, for all applicants the following applies:
  - Fluent English language, both written and spoken with certificates of TOEFL minimum 95 or IELTS minimum 6.5
  - Chinese citizenship documents (copy of his/her passport or national ID of P.R. China
  - CV
  - A motivation letter

**Deadline for submission of application:** 20th February 2020

**Scholarship:** 17’000 NOK/month for a period of 48 months
**Supervisor info:** Daniel B. Müller, Professor, Department of Energy and Process Engineering (EPT), NTNU; daniel.mueller@ntnu.no, +47 91897755.

**Email and contact information for where to send the application:**
Daniel B. Müller (Daniel.mueller@ntnu.no)