Case study area

Further partners in Germany

- Saxony Economic Development Corporation, Dresden
- United Nations University, Institute for Integrated Management of Material Fluxes and of Resources (UNU-FLORES), Dresden
- HAVER NIAGARA GmbH, Münster
- Allgemeine Baustoff-Handels-Contor GmbH, Erfurt

Further partners in Vietnam

- Province government Hoa Binh, Department of Natural Resources and Environment (DoNRE)
- Quang Long Company of Construction and Trading, Hoa Binh
- Hop Tien Company of Trading and Construction & Transportation, Hoa Binh
- Binh Minh Joint Stock Company of Trading and Construction, Hoa Binh
- Research Centre for Environmental Monitoring and Modeling (CEMM), VNU University of Science
- Institute of Geological Sciences, Vietnam Academic of Science and Technology
- Institute of Geological Technology and Minerals, Vietnam Union of Geological Sciences
- Department for Control of Mineral Activities – Northern Region Branch
- Vietnam Institute of Urban and Rural Planning, Ministry of Construction

Partners

Leibniz Institute of Ecological Urban and Regional Development

TECHNISCHE UNIVERSITÄT DRESDEN

technische universität dortmund

C&E · Consulting und Engineering GmbH

The Institute of Environment and Automation

VNU University of Science, Vietnam National University

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Leibniz Institute of Ecological Urban and Regional Development

in cooperation with:

The Institute of Environment and Automation

Management of Mineral Resource Extraction in Hoa Binh Province – a Contribution to Sustainable Development in Vietnam (MAREX)

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Federal Ministry of Education and Research

Ministry of Science and Technology

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Project outline

MAREX is a joint German-Vietnamese project in applied sciences. The main objective of the project is to improve the management of mineral resources in Vietnam and to contribute to Vietnam's Sustainable Development Strategy. In adopting an international as well as interdisciplinary scope, the collaborating partners come from both countries, encompassing scientific as well as public authorities and the private sector. The project exposes the growth of Megacities and its impacts on the environment as one of the most relevant societal factors in many Asian economies. Scientific investigations are directed on the building industry based on local finite resources, taking into consideration all related activities like extraction and processing of raw materials, transport, building sector as well as potential recycling of construction and demolition waste. We will focus on the City of Hanoi and Hoa Binh Province as a model region. The region shall serve as a comprehensive basis for wider application within and outside of Vietnam.

Background information

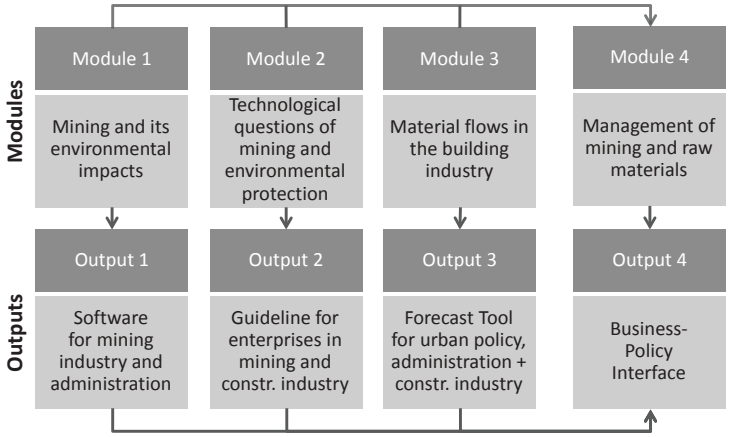
Vietnam is a fast developing country realizing strong economic growth in recent years. Urban population is projected to increase from 30 % in 2013 to more than 50 % in 2025. Dominant cities are the drivers of development initiatives, whereas Hanoi (6.6 mill inhabitants) is playing a vital role: the city is envisioned to become a large-scale capital as well as a political-administrative, cultural, scientific, educational, economical and trading hub of national and international importance. The urban hinterland, such as Hoa Binh Province, is expected to support this strategy, providing a broad range of natural resources.

Mining and related processing activities pose negative impacts on ecosystems and the provision of ecosystem services both during and after the end of mining operations. Typical externalities are landscape devastation, soil degradation, loss of biodiversity, and air and water pollution. Oftentimes, land use conflicts emerge from the degradation of cultivated land. This is especially true for mining regions located close to fast growing metropolitan areas, as the construction sector poses high demand on the extraction of so called 'aggregates', that means stone, gravel and sand.

Project objectives and outputs

The joint project is addressing four goals:

1. To enhance the knowledge base of environmental problems and land use impacts in mining regions. Output: a *software tool* for efficient monitoring and evaluating mining activities and correlated environmental impacts;
2. To improve the capacity of mining companies to implementing cleaner production technologies and applying environmental rehabilitation techniques in mining areas. Output: a *guideline* to implement cleaner production technologies in mineral resource extraction in Vietnam;
3. To introduce Material Flow Analysis as an instrument to calculate demand and supply in the minerals mining industry, and to foster optimized land use planning. Output: a *forecasting tool*, both suitable to analyse future demand for construction materials as well as for quantifying impacts of mining activities on land-use conditions in the surrounding provinces;
4. To establish a cooperation platform involving relevant stakeholders of this topic area. Output: a *Business-Policy Interface (BPI)*, to integrate the private sector (producers and customers) as well as public authorities with focus on regional planning and environmental development.



Who shall benefit from the project?

The pilot project is targeting relevant stakeholders in the field of minerals extraction, processing including the building construction sector, as well as Vietnamese and Non-Vietnamese parties (e.g. foreign investors of mining projects). Adressees of the project are public authorities, companies in the extracting and building industry, non-governmental organisations and also the scientific community.