Samples of wastewater may provide information about local viral loads

GERMAN GOVERNMENT AND FEDERAL STATES PROGRAMME

Bund-Länder-Programm (BLP)

Federal state – partner country
Hesse – Viet Nam

Title
Implementing an Early Warning System
for Surveillance of SARS-CoV-2
by Analysing Wastewater in Viet Nam

In cooperation with the GIZ programme
—

Financing arrangements

BMZ contribution	€ 256,951
Hesse contribution	€ 201,250

Duration
01.11.2021 – 31.12.2022

Responsible ministry
Hessian Ministry of Economics, Energy,
Transport and Housing

This project helps to achieve the following
Sustainable Development Goals (SDGs):

3 GOOD HEALTH AND WELL-BEING

4 QUALITY EDUCATION

17 PARTNERSHIPS FOR THE GOALS

Early Warning System Based on Analysing Viruses in Wastewater

Local situation

Viet Nam has been severely hit by the coronavirus pandemic which challenges the Vietnamese health sector. Specific testing of wastewater samples from sewers and a new waste-water-monitoring system could be a crucial element of an overall strategy to protect public health. If local outbreaks can be detected at an early stage, the authorities can respond with targeted measures to combat the pandemic.

Viet Nam and Germany use different methods of collecting wastewater. Whereas in Germany wastewater passes along pipes to sewage treatment plants, in Viet Nam septic tanks have to be constructed under every building. This means that sampling has to be adapted to the specific features of the drainage and wastewater disposal infrastructure in Viet Nam.

Cooperation arrangements

The project is part of the German Government and Federal States Programme (German: Bund-Länder-Programm; BLP).

> *"Our project has the potential to supply important findings for a wastewater-based early warning system for pathogens, such as SARS-CoV-2 and other viruses or antibiotic-resistant germs, so that future pandemics can be prevented or brought under control more rapidly."*

Prof. Susanne Lackner,
Technical University of Darmstadt, IWAR Institute

© Prof. Dr. Susanne Lackner, TU Darmstadt, Institut IWAR

Prof. Susanne Lackner, from the Chair of Water and Environmental Biotechnology at the Technical University of Darmstadt's IWAR Institute, advises on the implementation of the BLP project

It is based on a long-standing partnership between the German federal state of Hesse and Viet Nam with intensive contacts at numerous levels. The BLP project is being implemented in cooperation with the Hessian Ministry of Economics, Energy, Transport and Housing (MWEVW). Its implementation partners are the Technical University of Darmstadt, in cooperation with the Vietnamese-German University (VGU), and the University of Tübingen, in cooperation with the Vietnamese-German Center for Medical Research (VG CARE). These partners support the project by providing laboratory capacity and training for VGU staff.

What we are doing – and how

The project's objective is to set up an early warning system in Viet Nam for detecting SARS-CoV-2 in wastewater. To this end, studies are being conducted in major cities, in small municipalities and in industrial parks along with their associated residential areas. A number of regional issues have to be clarified before the project can be implemented. These include:

- selecting appropriate sampling points and adapting sampling methods to the local conditions in Viet Nam, taking account of the specific features of the local drainage and wastewater disposal infrastructure;
- establishing the scientific resources needed to sample and analyse wastewater;
- providing on-site training for project partners in the use of molecular biological measurements;
- sampling and testing wastewater for SARS-CoV-2 at selected sites;

- compiling and analysing the data and producing recommendations for action.

The project supports the VGU laboratory by providing both staff training and equipment/materials for molecular biological studies. The transfer of knowledge to Viet Nam is supported by the provision of scientific and diagnostic capacity for analysing wastewater for SARS-CoV-2 and other infectious diseases.

Useful links

- Technical cooperation programme One Health: Preventing and Combating Pandemics Worldwide: https://www.giz.de/en/worldwide/95590.html
- Hessian Ministry of Economics, Energy, Transport and Housing: https://english.hessen.de/about-us/state-chancellery-ministries/ministry-economics-energy-transport-and-housing
- Technical University of Darmstadt: https://www.tu-darmstadt.de/index.en.jsp
- Vietnamese-German University (VGU): https://vgu.edu.vn/
- More information on the programme: https://bund-laender-programm.de/en https://www.giz.de/en/worldwide/91262.html https://www.giz.de/en/worldwide/34949.html