



Report of activities developed at the Hydraulic Research Institute (IPH), Federal University of Rio Grande do Sul (UFRGS), Brazil

Masato Kobiyama, João Gabriel Fontes Maciel, Emanuel Fusinato, Alessandro Gustavo Franck
Hydraulic Research Institute, Federal University of Rio Grande do Sul



Background

Hydraulics and hydrology have been investigated at the basin level, on a very wide range of scales, from a zero-order to the Amazon basin scale. Research methods are mainly field observations and simulations using physical and computational models.

Objects

- Water-related disasters management.
- Integrated management of disasters, water resources and environment.
- Hydraulic engineering works planning.

Expectation from a future partner

Establishment of research networks with other institutes working for tropical/subtropical regions as well as Latin America. Exchanging of knowledge about socio-hydrology and sociogeomorphology applied for disaster risk management.

Seeds and Needs

Among various groups and laboratories at the Hydraulic Research Institute (IPH), the Natural Disasters Research Group (GPDEN) has been working more directly and effectively for understanding the mechanisms of natural hazards and seeking an integrated approach for disaster risk reduction.

In Brazil, the disasters with the highest number of deaths are flash floods, debris flow and shallow landslides. Droughts also cause considerable socio-economic losses, but not to the point of causing deaths. Under these circumstances, the GPDEN has been conducting basic and applied researches, mainly focusing on flash floods, debris flow and shallow landslides.

As part of the university's extension project, the GPDEN has frequently given short-term intensive lectures on disaster prevention education to local residents and public institutions. Furthermore, in 2022 the GPDEN carried out the 6th Hydrogeomorphological Modeling Course for Risk Mapping with an off-line mode, for more than 20 scientists and managers over the country. Though this course is traditionally offered by the GPDEN and very popular in Brazil, it had been ceased because of the Pandemic for about 3 years.

In this way, the IPH's activities centered on the GPDEN contribute to education, research and extension not only within the university but also at the national and South American continental level. However, looking at the current state of natural disasters occurring in Brazil, it cannot be said that the IPH's activities are performing to a satisfactory level. More scientific and technological cooperation should be established with national institutions as well as South American institutions.