

# Development of Hydroinformatics Platform for Hydrohazard Resilient Asia

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# Purpose of collaborative research

In the Asia-Pacific regions, various hydrologic analysis methods have been applied for designs of hydraulic structures, river improvement works, rainfall-runoff predictions, flood and inundation prediction and so on. These hydrologic analysis methods have different characteristics in terms of climate, topography, development history of the catchments, etc. To develop a platform to share these hydrologic analysis methods is quite helpful to improve the ability for estimating water-related hazard risks and reduce the damage of disasters; however, most of researchers and engineers do not have knowledge of analysis methods used at the other countries and sectors in the Asia-Pacific region.

To improve this situation and enhance the risk estimation ability in ASEAN research and engineering communities, we form a research team and develop a hydroinformatics platform in the Asia-Pacific region for realizing hydrohazard resilient Asia. Specifically, to enhance the ability for evaluating water-related disaster risks, we develop a Catalogue of Hydrologic Analysis, CHA with the collaboration of researchers and engineers in the Asia-Pacific region.

# Outline and progress of research

The purpose of CHA is to collect documents and software for various hydrologic analysis methods from practical use to advanced studies for short-term rainfall prediction, rainfall-runoff prediction, flood and inundation prediction, hydrologic frequency analysis, and eco-hydrology, which will be freely accessed through the CHA home page. Developing CHA and share the knowledge through the CHA, we provide a platform to improve the ability for evaluating water-related disaster risks, which will strengthen the cooperation among researchers, governmental agencies and private sectors; serve to reduce the damage of water-related disasters; and will be a local contribution to achieve targets of SDGs and UNESCO IHP-VIII.

CHA website is shown in Figure below. The address is <http://hywr.kuciv.Kyoto-u.ac.jp/ihp/rsc/cha.html>.



# IHP RSC for Southeast Asia and the Pacific

UNESCO International Hydrological Programme

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## Catalogue of Hydrologic Analysis for South East Asia and Pacific

In the Asia-Pacific regions, various hydrologic analysis methods have been applied for designs of hydraulic structures, river improvement works, rainfall-runoff predictions, flood and inundation prediction and so on. These hydrologic analysis methods have different characteristics in terms of climate, topography, development history of the catchments and so on. To develop a platform to share these hydrologic analysis methods is quite helpful to improve the ability for estimating water-related hazard risks and reduce the damage of disasters; however, most of researchers and engineers do not have knowledge of analysis methods used at the other countries and sectors in the Asia-Pacific region.

To improve this situation and enhance the risk estimation ability in ASEAN research and engineering communities, we form a research team and develop a hydroinformatics platform in the Asia-Pacific region for realizing hydrohazard resilient Asia. Specifically, to enhance the ability for evaluating water-related disaster risks, we develop a Catalogue of Hydrologic Analysis, CHA with the collaboration of researchers and engineers in the Asia-Pacific region. The Catalogue will collect documents and software for various hydrologic analysis methods from practical use to advanced studies for short-term rainfall prediction, rainfall-runoff prediction, flood and inundation prediction, hydrologic frequency analysis, and eco-hydrology, which will be freely accessed through the CHA home page. Developing CHA and share the knowledge through the CHA, we provide a platform to improve the ability for evaluating water-related disaster risks, which will strengthen the cooperation among researchers, governmental agencies and private sectors; serve to reduce the damage of water-related disasters; and will be a local contribution to achieve targets of SDGs and UNESCO IHP-VIII.

### Development of Hydroinformatics Platform for Hydrohazard Resilient Asia

- Develop a Catalogues of Hydrologic Analysis, CHA for students, engineers, and researchers;
- Enhance cooperation among researchers, policy makers and private sectors in the Asia-Pacific region through development of the CHA;
- Improve abilities to evaluate water related disaster risks in the region using the CHA; and
- Contribute to SDGs and IHP-VIII from the Asia-Pacific region through the development of CHA.



CATALOGUE OF RIVER x

hywr.kuciv.kyoto-u.ac.jp/ihp/cha/theme1/index.html

アプリ 新しいタブ その他のブックマーク

# CATALOGUE OF HYDROLOGIC ANALYSIS

October 22, 2016

Theme 1: Water-Related Disasters and Hydrological Change

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## Flood runoff analysis

- Flood prediction using a distributed flow routing model, 1K-FRM (Y. Tachikawa and T. Tanaka, Japan)
  - [document](#)
  - [related information](#)
- Rainfall-runoff and flood inundation predictions using RFI model (T. Sayama and Y. Iwami, Japan)
  - [document](#)
  - [related information](#)

## Water and heat balance analysis

- Estimation of monthly potential evapotranspiration using Thornthwaite method (K. Kobayashi, Japan)
  - [document](#)
  - [Excell sheet for calculation](#)

## Hydrologic frequency analysis

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<http://hywr.kuciv.Kyoto-u.ac.jp/ihp/rsc/cha.html>



**The UNESCO-IHP Regional Steering Committee  
for Southeast Asia and the Pacific**



**JASTIP**  
Japan-ASIA  
Science, Technology and  
Innovation Platform

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Water Security, Addressing Local, Regional and Global Challenges

# Expected outcomes and Prospects for the social implementation (1).

CHA was proposed at the 22nd International Hydrological Programme Regional Steering (IHP-RSC) Committee meeting in Yogyakarta, 2012. Since then the following activities were undertaken (cited by Draft report of 24<sup>th</sup> IHP-RSC meeting in Mongolia, 2014):

- ◆ In December 2013, the first regional call for contributions was made.
- ◆ At ICWRER2016, the first technical coordination meeting took place during the session with IDI and IFI and UNESCO Jakarta (June 2016).
- ◆ A Japanese coordination meeting took place in August 2016.
- ◆ The latest regional call for contributions was made at the region at Bali meeting (July 2016).
- ◆ In the 24th IHP-RSC, Ulaanbaatar, Mongolia, 24-26 October 2016, the RSC members discussed on 1) if the name “Catalogue of Hydrological Analysis” was appropriate, 2) what CHA was trying to achieve. The CHA Japanese team underlined CHA is not intended to be a Japanese initiatives but all RSC members were encouraged to participate and contribute what they can or want.

## Expected outcomes and Prospects for the social implementation (2).

Based on these activities, the expected outcomes are:

- ❑ **CHA includes documents and software of various hydrologic analysis** according to an integrated format;
- ❑ **A home page is established** to widely share the contents of CHA;
- ❑ CHA will contribute to improve the abilities to estimate the risks of water-related disasters as a platform for hydrohazard resilient Asia;
- ❑ The process to develop CHA will enhance the cooperation among researchers, governmental agencies, and private sectors;
- ❑ **The process to make CHA will also contribute to strengthen the human and information network among ASEAN researchers, governmental agencies, and private sectors; and**
- ❑ **To develop CHA will be a local contribution to achieve targets of SDGs and UNESCO IHP-VIII.**