



(Announcement)

**Seminar  
on  
Impact of Climate Change on Irrigation Systems  
(Flood in Chao Phraya River Basin in 2011)**

**Topics:** The impact of Climate Change on Irrigation Systems and Adaptation Measures in Indochina Region

**Date:** Tuesday, 21 February 2012

**Time:** 9:30 AM – 4:00 PM (one and half hour lunch break)

**Venue:** RID conference room

**Proposed Program:** The seminar program is as follows. The title of each topic will be confirmed later.

- 9:00 – 9:30 Registration
- 9:30 – 9:45 Opening Remarks (From RID and JIID)
- 9:45 – 10:25 Projection of Global and Regional Climate Change  
by Dr. Kusunoki
- 10:25 – 11:05 Climate Change in the Mekong River Basin by Dr. Masumoto
- 11:05 – 11:20 Coffee break
- 11:20 – 12:00 Flood in Chao Phraya River in 2011 by Dr. Sucharit
- 12:00 – 13:30 Lunch break
- 13:30 – 14:10 Structure of computer-based Hydrological Model  
by Dr. Higuchi
- 14:10 – 14:30 Coffee break
- 14:30 – 15:30 Topics from RID (TBD)
- 15:30 – 16:00 Q&A Session
- 16:00 Close

**Resource Speaker:** The following persons are tentatively the resource speakers;

**Dr. Kusunoki, Shoji**

Head of First Research Laboratory, Climate Research Department,  
Meteorological Research Institute,

**Dr. Masumoto, Takao**

Team Leader, Research Team for Global Warming and Environment,  
National Institute for Rural Engineering

**Dr. Higuchi, Takao**

Hydrological Model Specialist, JIID staff

**Dr. Sucharit Koontanakulvong**

Associate Professor of Chulalongkorn University

Staff from RID (TBD)

**Facilitator:** Dr. Miyazato, Tetsuro, JIID

**Participants:** RID staff in Headquarters and staff from regional office (about 30 in total)

**Language:** English

**On-hand Seminar**  
**For**  
**Hydrological Model for Climate Change**

**Topics :** The development of computer-based hydrological model of the Chyao Phraya River basin for the projection of impact of climate change on irrigation systems

**Date :** Wednesday, 22 February 2012

**Time :** 9:00 AM to 4 PM (one hour lunch break)

**Venue :** RID conference room

**Resource Person**

**Dr. Higuchi, Takao**

Hydrological Model Specialist, JIID staff

**Participants :** RID staff in Headquarters (about 10)

**Equipment :** A computer for each participant is necessary.

**Purpose:** To share the hydrological software, which is being developed under Japan Institute of Irrigation and Drainage (JIID).

#### **Software specification:**

This software can calculate Runoff (water depth, velocity, discharge) hourly using 2-D flow plus sub-surface, which is useful for planning flood control and water resources development.

This software can install dam operations, flood control basin.

This software can provide 3-D view

#### **Simulation:**

Target area: JIID built up the sample models for upper-middle Chao Phraya basin, excluding Chao Phraya delta because of lack of Digital Elevation

Spatial resolution: 2km by 2km

Weather dataset:

Observed rainfall (1979-2006) by Chulalongkorn Univ.

Simulated rainfall: end of 20<sup>th</sup> century (annual dataset \* 25years) and end of 21<sup>st</sup> Century (annual dataset \* 25years) by Meteorological Reserch Institute, Japan.

Simulated condition in Global warming: A1B scenario (temperature is increased up to 3<sup>o</sup> degree)

#### **Program structure**

This hydrological model is composed by 3 parts and 3 applications (shown in Fig.1). That is, 3 parts are pre-processor, simulator and postprocessor, and more, 3 applications are "Microsoft Excel", "JIIDsimulator.exe", "MicroAVS".

Result of simulation can be handled time-series in each grid by Microsoft Excel (furthermore Microsoft Access is more suitable) and also make 3D view using MicroAVS.

#### **On-hand seminar**

- JIID plan hand out seminar for sharing the hydrological program as follows;
- ■Contents (See Table 1):
  - Demonstration (1-hour)
  - Training of simulator (3-hour)
- ■Number of participants : Maximum 10 persons and Desktop PC (specification is in Table2)

Table1 Schedule of software sharing

	Hour	Comments
Demonstration (Morning 1-hour, 22 <sup>nd</sup> , Feb)	1	Introduction of JIID hydrological model /purpose and main result
Training (Afternoon 3-hour, 22 <sup>nd</sup> , Feb)	3	On-hand seminar (10 PCs)

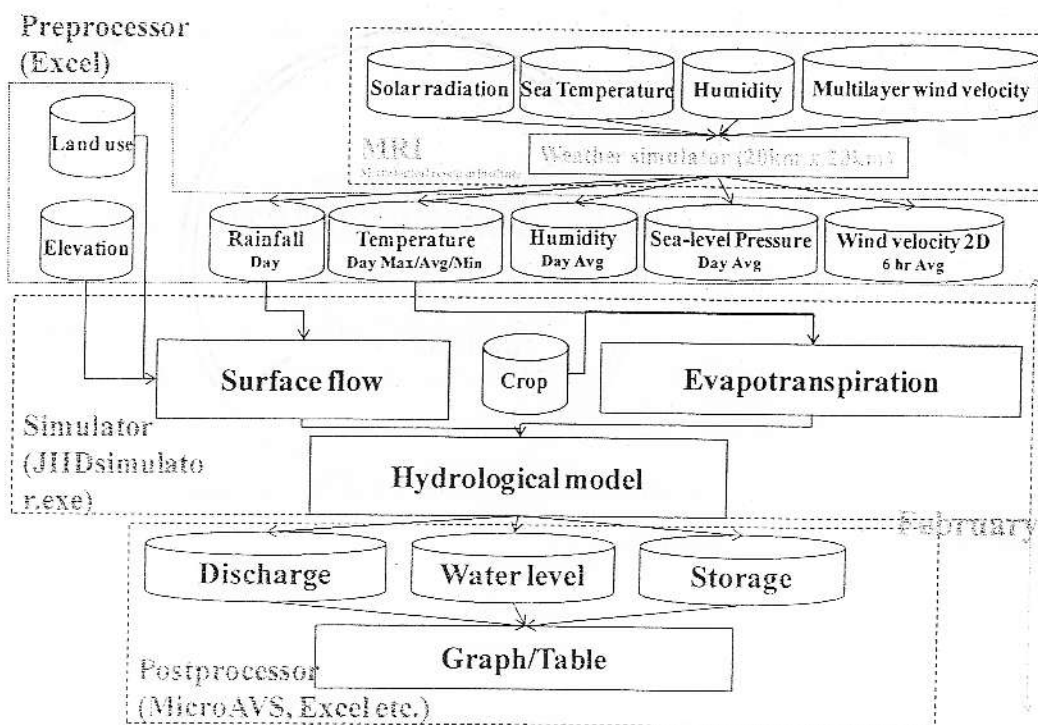


Fig1 Structure of program and schedule of developing

Table2 Specification of demonstration on November

Items	Descriptions
Hardware specification	<input type="checkbox"/> CPU: Core 2 Duo or higher (Recommend: Passmark CPU Mark 1000 or higher) <a href="http://www.cpubenchmark.net/">http://www.cpubenchmark.net/</a> <input type="checkbox"/> Memory: 2GB
Software specification	<input type="checkbox"/> OS: Windows XP or later <input type="checkbox"/> Microsoft Excel and Access 2003 or later <input type="checkbox"/> MicroAVS 14 (E): Trial version
Participants	<input type="checkbox"/> Less than 10 PC

**Data/Information Necessary for JICA Chao Phraya Study as of January 30, 2012**

Organization	Data/Information	Specification	JICA Consultant in charge
RID, MOAC	Rainfall data	<ul style="list-style-type: none"> <li>• Stations: Chao Phraya River Basin</li> <li>• Period: 51 years (1961- 2010, 2011)</li> <li>• Type of data: Daily</li> <li>• Element: rain</li> </ul>	Mr. Masami KATAYAMA <a href="mailto:katayama@ctii.co.jp">katayama@ctii.co.jp</a> Mobile: 0849329805
RID, MOAC	River Discharge Data	<ul style="list-style-type: none"> <li>• Stations: <ul style="list-style-type: none"> <li>- Chao Phraya; C2(Nakhon Sawan), C13, C30 (Chainat), CT5A (Utaitani), C3(Singburi), C7A (Angtong), C35 (Ayuttaya), C29 (Bangsai), C55 (Pathumthani), C12 (RID Bangkok)</li> <li>- Ping; P14(Mae Cheam), Bhumibol dam, P1 (Chiang Mai), P2A (Tak), P7 (Kampangpech), P17 (Nakhon Sawan)</li> <li>- Wang; W1C (Lampang)</li> <li>- Yom; Y1C, Y6, Y17</li> <li>- Nan; Sirikit dam, N1, N7, N67</li> </ul> </li> <li>• Period: 51 years (1961- 2010, 2011)</li> <li>• Type of data: Daily</li> <li>• Element: river discharge, water level, location (lon/lat)</li> </ul>	Mr. Masami KATAYAMA <a href="mailto:katayama@ctii.co.jp">katayama@ctii.co.jp</a> Mobile: 0849329805
RID, MOAC	Hourly Water Level data	<ul style="list-style-type: none"> <li>• Stations: C.4 (Memorial Br.), C.12 (Samsen), C.22 (Pak Krat), C.31 (Pathum Thani)</li> <li>• Period: as long as available</li> <li>• Type of data: hourly/annually</li> <li>• Element: location (lon/lat), hourly data, annual maximum, mean, minimum water level</li> </ul>	Mr. Masami KATAYAMA <a href="mailto:katayama@ctii.co.jp">katayama@ctii.co.jp</a> Mobile: 0849329805
RID, MOAC	Dam Operation Data	<ul style="list-style-type: none"> <li>• Stations: Pasak Dam, Kewlom dam, Khuwanoi dam, and others in the Chao Phraya River Basin</li> <li>• Period: 32 years (1980- 2010, 2011)</li> <li>• Type of data: Daily data (digital if possible)</li> <li>• Element: daily inflow, outflow, storage, pump return</li> </ul>	Mr. Masami KATAYAMA <a href="mailto:katayama@ctii.co.jp">katayama@ctii.co.jp</a> Mobile: 0849329805
RID, MOAC	Specifications of dam	<ul style="list-style-type: none"> <li>• Stations: Pasak Dam, Kewlom dam, Khuwanoi dam</li> <li>• Type of data: Specification data</li> <li>• Elements: location (lat/lon), salient features, established year, objectives, operation rules</li> </ul>	Mr. Masami KATAYAMA <a href="mailto:katayama@ctii.co.jp">katayama@ctii.co.jp</a> Mobile: 0849329805
RID, MOAC	Characteristic information of main river	<ul style="list-style-type: none"> <li>• Rivers: Chao Phraya, Ping, Wang, Yom, Nan</li> <li>• Period: current , past</li> <li>• Type of data: digital data (if possible)</li> <li>• Elements: cross section of river</li> </ul>	Mr. Masami KATAYAMA <a href="mailto:katayama@ctii.co.jp">katayama@ctii.co.jp</a> Mobile: 0849329805
RID, MOAC	Characteristic information of other rivers	<ul style="list-style-type: none"> <li>• Rivers: Lop Buri, Noi, Pasak, Bang Luan, Ban Kaco, Bang Bal, Tha Chin and Bang Pakon Rivers</li> <li>• Period: current , past</li> <li>• Type of data: digital data (if possible)</li> <li>• Elements: location, cross sections of river and their location (lot/lat)</li> </ul>	Mr. Masami KATAYAMA <a href="mailto:katayama@ctii.co.jp">katayama@ctii.co.jp</a> Mobile: 0849329805
RID, MOAC	Characteristic information of major irrigation canals and drainages	<ul style="list-style-type: none"> <li>• Area: Chao Phraya river Basin</li> <li>• Period: current , past</li> <li>• Type of data: digital data (if possible)</li> </ul>	Mr. Masami KATAYAMA <a href="mailto:katayama@ctii.co.jp">katayama@ctii.co.jp</a> Mobile: 0849329805

Organization	Data/Information	Specification	JICA Consultant in charge
		<ul style="list-style-type: none"> <li>• Elements: location map, cross sections of river and their location (lon/lat)</li> </ul>	
RID, MOAC	Regulators	<ul style="list-style-type: none"> <li>• Rivers: rivers and major irrigation canals and drainages in Chao Phraya River basin</li> <li>• Period: past and current</li> <li>• Type of data: Specification data</li> <li>• Elements: location(lon/lat), gate type, dimensions, discharge capacity, establishment year, objectives, operation rules</li> </ul>	Mr. Masami KATAYAMA <a href="mailto:katayama@ctii.co.jp">katayama@ctii.co.jp</a> Mobile: 0849329805
RID, MOAC	Pumps	<ul style="list-style-type: none"> <li>• Rivers: rivers and major irrigation canals and drainages in Chao Phraya R iver basin</li> <li>• Period: past and current</li> <li>• Type of data: Specification data</li> <li>• Elements: location (lon/lat), pump type, number of pumps, total pump capacity, establishment year, objectives, operation rules</li> </ul>	Mr. Masami KATAYAMA <a href="mailto:katayama@ctii.co.jp">katayama@ctii.co.jp</a> Mobile: 0849329805
RID, MOAC	Operation records of Regulators and Pumps during 1995, 1996, 2006 and 2011 floods	<ul style="list-style-type: none"> <li>• Rivers: rivers and major irrigation canals and drainages in Chao Phraya R iver basin</li> <li>• Period: 6 months (July to December) of 1995, 1996, 2006 and 2011</li> <li>• Type of data: Daily data (digital if possible)</li> <li>• Elements: Daily operation records (discharge)</li> </ul>	Mr. Masami KATAYAMA <a href="mailto:katayama@ctii.co.jp">katayama@ctii.co.jp</a> Mobile: 0849329805
RID, MOAC	Dikes	<ul style="list-style-type: none"> <li>• Rivers: rivers and major irrigation canals and drainages in Chao Phraya R iver basin</li> <li>• Period: past and current</li> <li>• Type of data: digital data (if possible)</li> <li>• Elements: location, length, cross sections, elevation, establishment year, design scale (return period)</li> </ul>	Mr. Masami KATAYAMA <a href="mailto:katayama@ctii.co.jp">katayama@ctii.co.jp</a> Mobile: 0849329805
RID, MOAC	System for data management	<ul style="list-style-type: none"> <li>• Stations: Chao Phraya river basin</li> <li>• Type of data : explanation about management of above data</li> <li>• Element: methods for observation, collection, accumulation and verification</li> </ul>	Mr. Masami KATAYAMA <a href="mailto:katayama@ctii.co.jp">katayama@ctii.co.jp</a> Mobile: 0849329805
RID, MOAC	Flood forecasting and early warning system	<ul style="list-style-type: none"> <li>• Area: Chao Phraya River Basin</li> <li>• Type of data: Specification data or documents</li> <li>• Element: telemetry system, flood forecasting system (simulation model), early warning system, operation guidelines</li> </ul>	Mr. Masami KATAYAMA <a href="mailto:katayama@ctii.co.jp">katayama@ctii.co.jp</a> Mobile: 0849329805
RID, MOAC	GIS data	<ul style="list-style-type: none"> <li>• Area: Chao Phraya River Basin</li> <li>• Type of data: GIS data</li> <li>• Element: rivers and canal networks, road networks, land use, structures, topography, geology, vegetation, structures, towns, railways, public utilities, satellite images, administration boundaries, basin boundaries, regional office boundaries, etc.)</li> </ul>	Mr. Masami KATAYAMA <a href="mailto:katayama@ctii.co.jp">katayama@ctii.co.jp</a> Mobile: 0849329805
RID, MOAC	Study reports after JICA 1999 Study	<ul style="list-style-type: none"> <li>• Area: Chao Phraya River Basin</li> <li>• Period: 1999 to 2011</li> <li>• Type of data: Digital data (if possible)</li> <li>• Element: Study reports on flood mitigation, water resources management, water utilization)</li> </ul>	Mr. Masami KATAYAMA <a href="mailto:katayama@ctii.co.jp">katayama@ctii.co.jp</a> Mobile: 0849329805
RID, MOAC	Potential dam sites	<ul style="list-style-type: none"> <li>• Area: Chao Phraya River Basin</li> <li>• Type of data: Digital data (if possible)</li> <li>• Element: location (lon/lat), topographical map, geological map, potential reservoir capacity, study report</li> </ul>	Mr. Masami KATAYAMA <a href="mailto:katayama@ctii.co.jp">katayama@ctii.co.jp</a> Mobile: 0849329805
RID, MOAC	Damages and Situations of 2011 Flood	<ul style="list-style-type: none"> <li>• Area: Chao Phraya River Basin</li> <li>• Period: 2011 flood</li> </ul>	Mr. Masami KATAYAMA <a href="mailto:katayama@ctii.co.jp">katayama@ctii.co.jp</a>



Organization	Data/Information	Specification	JICA Consultant in charge
		<ul style="list-style-type: none"> <li>• Type of data: Digital data (if possible)</li> <li>• Element: Flood Reports from regional offices, location (lon/lat) and breadth of overtopping and dike breaches</li> </ul>	Mobile: 0849329805
RID, MOAC	Flood protection plan	<ul style="list-style-type: none"> <li>• Plan of Chao-Phraya river basin in 2011 or past plans developed by RID? or MOAC?</li> <li>• Process of developing the plan (particularly stakeholder involvement and coordination with other agencies, provinces and EGAT)</li> <li>• Issues to be improved</li> </ul>	Mr. Tatsuo KUNIEDA Tatsuo_kunieda@water.go.jp: Mobile: 0892342782
RID, MOAC	Operational plan for water allocation	<ul style="list-style-type: none"> <li>• Plan of Chao-Phraya river basin</li> <li>• Outline and the charter (if exist) of Joint Chao-Phraya Operations Committee.</li> <li>• Issues to be improved</li> </ul>	Mr. Tatsuo KUNIEDA Tatsuo_kunieda@water.go.jp: Mobile: 0892342782
RID, MOAC	Regional offices in Chaophraya basin	<ul style="list-style-type: none"> <li>• Outline (mandate, activities, budget, current projects, etc)</li> <li>• Demarcation of mandate between RID and Provincial government</li> </ul>	Mr. Tatsuo KUNIEDA Tatsuo_kunieda@water.go.jp: Mobile: 0892342782

Project for Comprehensive Flood Management Plan for The Chao Phraya River Basin  
In Kingdom of Thailand

Workplan  
(Draft)

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