NARBO ANNUAL REPORT

Network of Asian River Basin Organizations

2008

FOREWORD

First of all, I would like to thank for all supports and trusts to NARBO activities in 2008. As you may know, I was elected as NARBO Chairperson at the 3rd General Meeting in Solo, Indonesia in February 2008. I already engaged in conducting many activities which respond to the member's requirement.

In 2008, based on NARBO Action plan 2008-2009, NARBO has improved its activities in order to achieve the goals and objectives of NARBO. One of NARBO achievement is to contribute in preparing the IWRM Guidelines at river basin level which was made by UNESCO in cooperation with Ministry of Land, Infrastructure, Transport and Tourism (MILT), Government of Japan and Japan Water Agency (JWA). This guideline was made with a view to raise awareness and to facilitate the practical implementation of IWRM at the river basin level and launched quite successfully at the occasion of 5th World Water Forum in Istanbul Turkey in March 2009. In preparing this guideline, we had several meeting last year and could incorporate NARBO's experiences into this. Thanks to members' cooperation, we can see NARBO's logo on the surface of this guideline. I think this is quite meaningful for future activities of NARBO. We would like to use this guideline at our trainings and workshops and contribute to improve the contents of this guideline continuously.

Beside the Guideline, one important step was also taken place, on 12th of January 2009. LOI which titled 'The Letter of Intent for Collaboration to Improve Water Security in River Basins" through the Network of Asian River Basin Organizations (NARBO) was signed between ADB and JWA. I and Mr. K. W. Ivan de Silva, Vice Chairperson of NARBO, Director General Mahaweli Authority of Sri Lanka, witnessed the signing of the LOI. The LOI signed this time will explore expanding and strengthening the NARBO's presence and capability, and this is also meaningful to future NARBO activities.

Beside these events, we conducted the 3rd General Meeting,

twinning program, several workshops and IWRM Training in 2008. With regard to the IWRM Training, we established a Technical Advisory Committee (TAC) and conducted training according to the recommendation of the Committee. Thus, we conducted training in new style and finished it quite successfully.

Although we already had conducted these activities, I consider that we are facing many constrains in managing water resources as a result of climate change and environmental degradation. So we still need to enhance the cooperation and improve the implementation of IWRM by increasing NARBO members' participation, improving strong support of NARBO Secretariat and accelerating NARBO's activities.

I do hope that NARBO Annual Report of 2008 could become a valuable input to improve and enhance our activities.

Chairperson of NARBO

Dr. Ir. Moch. Amron, M. Sc

MESSAGE FROM THE FORMER CHAIRPERSON

LOOKING BACK NARBO ACTIVITIES 2004 – 2008 THE SIGNIFICANCE AND FUTURE EXPECTATIONS

It is my great pleasure to contribute this article to the NARBO Annual Report 2008 as requested by NARBO Secretariat to take a look back on the past five years since NARBO was officially established in 2004. By taking a look back, it is expected that we will be able to observe the significance of NARBO activities which have been implemented by all constituents of NARBO including the Secretariat and the members.

Firstly, let's refer to the history of NARBO establishment to remind us about the background of NARBO establishment. The need for partnerships for action to achieve IWRM was recognized at the Third World Water Forum held in Japan, in March 2003, where it was noted that several developed and developing countries in Asia have already established RBOs to implement IWRM. The Forum highlighted the need to support these RBOs through knowledge sharing and capacity building, especially in developing countries. Recognizing the need for networking and capacity building in the implementation of IWRM, the Water Resources Development Public Corporation (WARDEC) of Japan (later on reconstituted as the Japan Water Agency), the Asian Development Bank (ADB), and the Asian Development Bank Institute (ADBI) decided at the Forum to collaborate in launching NARBO, and a letter of intent was signed at the Forum on 21 March 2003. Then the First General Meeting of NARBO was held in Batu, Indonesia in February 2004.

Before we observe the significance of NARBO activities, let's first evaluate the success of NARBO in term of membership. The membership of NARBO has increased significantly from 43 members from 13 countries just after the 1st General Meeting in 2004, become 69 members from 16 countries as of June 2009. The increase of NARBO members is one of the indications that existence of NARBO is considered very important by many organizations related to IWRM and

river basin organization, not only in Asian region, but also other regions in the world. I think that one of their considerations to join NARBO is to have benefits from this network by sharing information good practices and lessons learned on IWRM among the members.

In term of NARBO activities, during the last five years, NARBO has implemented many activities based on NARBO Action Plans which formulated and agreed by all members during NARBO General Meetings. The scope of activities consist of 1) advocacy, raising awareness, sharing information, good practices and lessons learned on IWRM through the NARBO web site, publications, case studies, electronic newsletter, guidelines and sourcebooks, and media relations; 2) capacity building of RBOs in implementing IWRM and improving water governance through training courses, workshops, performance benchmarking activities, advisory visits, scholarship programs, RBO exchange visits, staff exchange programs, and twinning programs; 3) technical advice on planning, conservation, development, and the proper and efficient operation and maintenance of water resources facilities; and 4) fostering regional cooperation for improved management of water resources in transboundary river basins.

Advocacy, raising awareness, sharing information, good practices and lessons learned on IWRM through the website and electronic newsletter have been done very actively by NARBO Secretariat and members. Related to activities on thematic workshop, NARBO has implemented workshop on various topics on practical water resources management such as water-related disaster and its management in Asian Countries, water allocation and water right, and sustainable management for water resources infrastructures. By implementing these thematic workshops, NARBO members who participate in the workshops, could learn from each other on the topics for capacity building in implementing IWRM and water governance. For the others who didn't participate in the workshop also could learn the topics by assessing the materials from NARBO database.

Related to capacity building of RBOs in implementing IWRM and improving water governance through training courses, NARBO has successfully carried out five training programs in Thailand, Sri Lanka, Korea and Viet Nam. After conducting the 5th IWRM Training, I do believe that NARBO has improved the quality and credibility of its annual program on IWRM to the level of a prestigious regional flagship program. The training program has used a participatory,

trans-disciplinary approach to develop the capacity of participants in understanding and implementing IWRM in their respective river basins. The training that includes pre-training, in-training and post-training activities, have been based on adult learning principles, centered to the needs of the participants.

Related to NARBO performance benchmarking, this activity is considered very important as systematic exercise that ensures an organization's development. This activity is very useful for the RBO members to improve their performance in basin management. In Indonesia, this activity has inspired Directorate General of Water Resources, Ministry of Public Works to conduct performance benchmarking to all RBOs in Indonesia gradually in order to improve river basin management in Indonesia.

From the above evaluation, it could be concluded that NARBO activities in 2004-2008 have reflected its significance to the intention of NARBO establishment. I believe that after implementation of NARBO activities in 2004-2008, NARBO is on the right track to realize the goal of NARBO to help achieve IWRM in river basins throughout Asia and the objective of NARBO to strengthen the capacity and effectiveness of River Basin Organizations (RBOs) in promoting IWRM and improving water governance. Therefore, in the future, it is expected that NARBO will continue the implementation of its activities based on Action Plan agreed by all members. However, NARBO should improve continuously the quality and credibility of each activity.

What are the expectations in the future? It is understood that climate variability results in significant impacts on water availability and safety. Every year, millions people are affected by droughts and floods in our region. In the future, climate change is likely to increase both the number and magnitude of hydrological extremes. It is hoped that NARBO could participate in many initiatives on climate change adaptation and mitigation. By taking into account this issue to NARBO activities, NARBO can assist its members to prepare climate change projections and to assess the impacts of global climate change and land use change on water balance and water quality in the basin level and to develop appropriate policies for the management of the water resources of the region in basin level in mitigating potential impacts of climate changes.

During 2004-2008, NARBO has participated in many activities in the

world for its promotion. I do believe that by participating in International water related events such as World Water Forums, Asia Pacific Water Summits, World Water Week, etc; and participating in specific program such as preparation of IWRM Guidelines at River Basin Level in cooperation with UNESCO, NARBO will strengthen its existence because of increased recognition to the roles of NARBO. I hope that in the future, NARBO will participate more actively in water related events at international and regional levels as many as possible.

Finally, I would like to express my sincere thanks to all NARBO Secretariat Members for their dedication to support NARBO and to all NARBO Members for their active participation in this network. It is hoped that NARBO always has strong support from the Secretariat Member from Japan Water Agency (JWA) and Asian Development Bank, as well as the increased active participation from all NARBO members. With the support from all constituents of NARBO, I will be able to achieve the goal of NARBO to help achieve IWRM in river basins throughout Asia and the objective of NARBO to strengthen the capacity and effectiveness of river basin organizations (RBOs) in promoting IWRM and improving water governance.

Jakarta, July 2009

DR. M. Basuki Hadimuljono

NARBO Senior Advisor

(Former Chairperson of NARBO)

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Preface

As the recognition of importance of IWRM has been surging, the lack of the network to assist RBOs in Asia in their work of introducing and implementing IWRM approach came to light.

With this background, the 3rd World Water Forum was held in Japan in March 2003. At the forum, JWA, ADB and ADBI signed a Letter of Intent to jointly launch NARBO in recognition of the need to cooperate and support RBOs in order to promote IWRM in Asia. Subsequently, the three organizations made inquiries to governmental agencies, RBOs and other related organizations in Asia about their intention to participate in NARBO and solicited their cooperation. After the inaugural NARBO General Meeting was held after the Inception Meeting in Chiang Mai, Thailand in November 2003, NARBO was established in February 2004 with 43 member organizations.

Five years have been passed since the establishment of NARBO. The number of members becomes 68 (member list is attached in Baseline 3) organizations from 16 countries as of March 31, 2009.

Various NARBO activities had been conducted from January 2008 to March 2009 and those activities are summarized in this NARBO annual report 2008.

1. General Information of NARBO

(1) Introduction

The world community has recognized the importance of managing water resources in a more integrated manner. Over the past decades, a series of regional and global water conferences, including the World Water Forums in 1997, 2000, 2003, and 2006, and 2009 have underlined the need to adopt and operationalize the approach of integrated water resources management (IWRM), which is defined by the Global Water Partnership as "*a process to improve the planning, conservation, development, and management of water, forest, land, and aquatic resources in a river basin context, to maximize economic benefits and social welfare in an equitable manner without compromising the sustainability of vital environmental systems*."

By focusing on the management of water and related resources in a river basin context, it is implied that IWRM will be undertaken with the involvement of stakeholders at the basin level. The water conference in Dublin in 1992 referred to the need for management of water resources at the lowest appropriate level. This has become one of the basic principles underpinning the IWRM approach, and it has led to increased recognition that river basin organizations (RBOs) can realize

IWRM at the basin level. Since Dublin, the world community has also recognized the importance of promoting gender and development work as part of the IWRM approach to ensure that women participate in water management at all levels.

"Many forms of RBOs have been established in recent decades, and countries have developed various governance approaches for RBOs, for example, river basin commissions in the People's Republic of China, river basin parliaments in France, river basin committees in Australia, river basin authorities in the United States and Sri Lanka, a lake basin development authority in the Philippines, water resources public corporations in Japan and Indonesia, inter-state RBOs like the river basin tribunals in India and the Murray-Darling Basin Commission in Australia, and international RBOs in the Mekong basin, the Syr and Amu Darya basins, and in the Tumen basin.

Some RBOs were established decades ago and have ceased to exist, while many new RBOs have been established recently. Some RBOs have a large technical capacity, employing thousands of staff, while others may employ just a handful, like the newly established river basin committees in Southeast Asia. While there are many differences between these RBOs, they share a common mission, which is to operationalize IWRM in their respective river basins.

A network to assist RBOs in Asia in their work of introducing and operationalizing the IWRM approach does not yet exist. Consequently, RBOs lack opportunities for exchanging information and experience on their operations, and access for their staff to training and capacity building that draws on the technical and non-technical experience in managing water resources in Asia.

The need for partnerships for action to achieve IWRM was recognized at the 3rd World Water Forum held in Kyoto, Osaka, and Shiga, in the Lake Biwa and Yodo River Basin, Japan, in March 2003, where it was noted that several developed and developing countries in Asia have already established RBOs to implement IWRM. The 3rd World Water Forum highlighted the need to support these RBOs through knowledge sharing and capacity building, especially in developing countries.

The 3rd World Water Forum also emphasized the contributions that IWRM can make to improve the water security of the poor, by incorporating the needs of the poor explicitly in water policies and management practices at all levels.

Recognizing the need for networking and capacity building in the implementation of IWRM, the Water Resources Development Public Corporation of Japan (reconstituted as Japan Water Agency in October 2003), the Asian Development Bank, and the Asian Development Bank Institute decided at

the 3rd World Water Forum in March 2003 in Kyoto, Japan, to collaborate in launching a Network of Asian River Basin Organizations (NARBO), and a letter of intent was signed at the Forum on 21 March 2003. After the forum, the three organizations made inquiries to governmental agencies, RBOs and other related organizations in Asia about their intention to participate in NARBO and solicited their cooperation. The inaugural NARBO General Meeting was held after the Inception Meeting in Chiang Mai, Thailand in November 2003 and the Preparation Meeting for NARBO General Meeting in Tokyo, Japan in January 2004.

(2) Purposes

The goal of NARBO will be to help to achieve IWRM in river basins throughout Asia.

NARBO's objective will be to strengthen the capacity and effectiveness of RBOs in promoting IWRM and improving water governance, through training and the exchange of information and experience among RBOs and their associated water sector agencies and knowledge partner organizations in Asia and to advise the establishment of RBOs in Asia."

To promote IWRM in Asia, the focus of NARBO's activities will be as follows:

1) Activities for the whole of NARBO

The activities joined by all members of NARBO will be as follows:

- Advocacy and raising awareness for IWRM among RBOs, water sector apex bodies, and leading water sector agencies in the region, mainly through regional workshops.
- Sharing of information, good practices, and lessons learned for IWRM among the participating organizations, mainly by operating databases and a web site for IWRM exchanging information, and by sending a newsletter by e-mail as well as posting on the web site and holding (sub) regional workshops.

2) Activities for regional areas of NARBO

RBOs, national and federal governmental organizations with expertise in IWRM, regional and interregional knowledge partner organizations for IWRM, and bilateral and multilateral development cooperation agencies, will be requested to support RBOs in Asia in the following types of activities.

- Supporting NARBO members to improve water governance, including the enabling policy, institutional, and legal framework for IWRM, and the formulation of the action plans.
- Building capacity of RBOs in implementing IWRM, mainly through staff exchange and training among participating organizations.
- Supporting RBOs with technical advice in regard to the planning, conservation, development, and the proper and efficient operation and

maintenance of water resources facilities, to improve IWRM.

- Fostering regional cooperation for improved management of water resources in transboundary river basins.

3) The scope of IWRM activities to be supported by NARBO will be approved by the NARBO General Meeting.
4) NARBO's activities will initially focus on the monsoonal areas of Asia.

(3) Charter

NARBO Charter serves as a constitution because it stipulates NARBO organization and activities. The charter was presented and explained by NARBO Secretariat on February 23, 2004, the first day of the 1st General Meeting, and then it was duly approved without change. The charter consists of introduction and five sections. These five sections are as follows:

"Section 1. Denomination and Working Language", "Section 2. Goal and Objective", "Section 3. Activities", "Section 4. Organizations" and "Section 5. Resources".

The secretariat revised the charter partially in August 2005, February 2006 (At the 2nd General Meeting) and February 2008 (At the 3rd General Meeting) in an effort to make it to be complete.

About the whole NARBO Charter, please refer to BASELINE

(4) Action Plan

The action plan 2008-2009 was proposed by the secretariat at the 3rd General Meeting on February 22, 2008. The action plan was divided into three categories:

A. Advocacy, Raising Awareness, and Exchange of Information and Good Practices on Integrated Water Resources Management (IWRM)
B. Capacity Building in River Basin Organizations (RBOs)
C. Network Support.

In each category, the activities are divided in two parts, namely led by the NARBO Secretariat and NARBO member organizations. Since NARBO is a network organization, members' contribution is highly required.

About the whole NARBO Action Plan (2008-2009), please refer to BASELINE

(5) Members

At the 1st General Meeting, 43 organizations from 11 countries signed the Agreement to Membership in NARBO and 8 organizations signed the Expression of Interest for Membership in NARBO.

After the 1st General Meeting, 11 organizations newly joined NARBO and one organization withdrew (It was abolished in the organizational reform in its country) and another 3 organizations joined NARBO at the 2nd General Meeting (February 14-16, 2006) in Indonesia. As a result, the number of members became 56 from 12 countries.

After the 2nd General Meeting, 9 organizations newly joined NARBO by the 3rd General Meeting (February 20-22, 2008) in Indonesia. As of March 31 2009, the number of members became 68 from 16 countries. (Australia, Bangladesh, Cambodia, China, India, Indonesia, Japan, Korea, Laos, Malaysia, Pakistan, Philippines, Sri Lanka, Thailand and Vietnam, Nepal)

If an organization wants to become a member, the organization is requested to get the application form from NARBO website (http://www.narbo.jp/narbo/registration/join_NARBO.htm).

All they need is to fill registration form and to get a recommendation letter from the existing member, and to send it to the Secretary General. The membership fee is not collected for the time being.

[The list of NARBO members]

As of March, 2009

Category	Member
River Basin Organization (RBO)	24
Government Organization (GOV)	17
Regional Knowledge Partner (RKP)	19
Inter-Regional Knowledge Partner (IRKP)	8
Development Cooperation Agency (DCA)	1
Total	69

River Basin Organizations

Classification		Country/Region		Organization
Member	RBO	Indonesia	M	Jasa Tirta I Public Corporation (PJT I)
		Indonesia	M	Jasa Tirta II Public Corporation (PJT II)
		Indonesia	M	Jragung-Tuntang Basin Water Resources Management Unit (BWRMU) (Balai PSDA Jragung-Tuntang)
		Indonesia	M	Balai Besar Wilayah Sungai Bengawan Solo
		Indonesia	M	Balai Besar Wilayah Sungai Pompengan Jeneberang
		Indonesia	M	River Basin Water Resources Management Unit Pekalan Sampean (PSDA)
		Indonesia	M	Balai Pengelolaan Sumber Daya Air Ciujung-Ciliman Banten (BPSDA)
		Indonesia	M	Sermo Water Resources Management Unit (BPSDA)
		Indonesia	M	River Basin Water Resources Management Unit Citarum (PSDA)
		Japan	P	Japan Water Agency (JWA)
		Korea	M	Korean Water Resources Corporation (K water)
		Laos	M	Nam Ngum River Basin Development Sector Project
		Malaysia	M	Selangor Water Management Authority (SWMA)
		Pakistan	M	Indus River System Authority (IRSA)
		Philippines	M	Laguna Lake Development Authority (LLDA)
		Sri Lanka	M	Mahaweli Authority of Sri Lanka (MASL)
		Thailand	M	Bang Pakong River Basin Committee (BPRBC)
		Viet Nam	M	Cuu Long & Dong Nai River Basin Organization
		Viet Nam	M	Red River Basin Organization (RRBO)
		Viet Nam	M	Day River Basin Organization
		Viet Nam	M	Vu Gia Thubon River Basin Organization
		Viet Nam	M	Ca River Basin Management Council
		Viet Nam	M	Cau River Basin Planning Subcommittee
		Southeast Asia	M	Mekong River Commission Secretariat (MRC)

Governmental Organizations (GOVs)

Classification		Country/Region		Organization
Member	GOV	Bangladesh	M	Bangladesh Water Development Board (BWDB)
		Bangladesh	M	Local Government Engineering Department (LEGD)
		Cambodia	M	Ministry of Water Resources and Meteorology (MOWRAM)
		Cambodia	M	Department of Hydrology and River Works (DHRW)
		Indonesia	M	Directorate General of Water Resources (DGWR)
		Indonesia	M	Water Resources Development, West Nusa Tenggara Province
		Japan	M	Water Resources Department, Land and Water Bureau, Ministry of Land, Infrastructure, Transport and Tourism
		Laos	M	Water Resources Coordination Committee Secretariat
		Malaysia	M	Department of Irrigation and Drainage (DID Malaysia)
		Philippines	M	National Water Resources Board (NWRB)
		Philippines	M	Department of Environment and Natural Resources (DENR)
		Sri Lanka	M	National Water Resources Authority (NWRA)
		Thailand	M	Department of Water Resources, Ministry of Natural Resources and Environment (DWR, MoNRE)
		Viet Nam	M	Department of Water Resources Management, MoNRE (General Office for RBO, WRD, MARD)
		Viet Nam	M	General Office for RBOs in Viet Nam (GO-RBO)
		Viet Nam	M	Southern Institute for Water Resources Planning (SIWRP), Ministry of Agriculture & Rrural Development (MARD)
		Viet Nam	M	Department of Natural Resources and Environment of Dong Nai Province

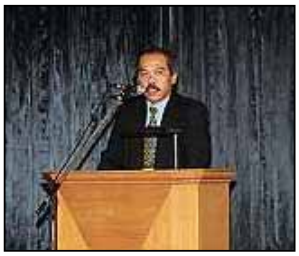
Regional Knowledge Partner (RKP), Interregional Knowledge Partner (IRKP), Development Cooperation Agency (DCA)

Classification		Country/Region		Organization
Member	RKP	Southeast Asia	M	Global Water Partnership (GWP) SEA RWP
		South Asia	M	Global Water Partnership (GWP) SAS RWP
		South Asia	M	South Asia Network of River Basin Organization (SASNET-RBO)
		South Asia	M	The Capacity Building Network for Integrated Water Resources Management South Asia (CapNet SA)
		Bangladesh	M	Institute of Water Modeling (IWM)
		Indonesia	M	Indonesia Water Partnership (InaWP)
		Indonesia	M	The Foundation on Water Affairs ADHI EKA
		Indonesia	M	Faculty of Engineering, Brawijaya University
		Indonesia	M	Research Centre for Water Resources (RCWR)
		Indonesia	M	Center for Environment & Civil Engineering Research
		Indonesia	M	Post Graduate Study on Water Resources Management Faculty of Engineering Gadjah Muda University
		Indonesia	M	SEMBRANI foundation
		Japan	M	JAWA - Japan Water Resources Association
		Japan	M	Japan River Restoration Network (JRRN)
		Japan	M	Graduate School of Management, Kyoto University
		Japan	M	Civil Engineering Research Institute for Cold Region, PWRI
		Malaysia	M	National Hydraulic Research Institute of Malaysia (NAHRIM)
		Nepal	M	International Centre for Integrated Mountain Development (ICIMOD)
		Thailand	M	Thailand Water Resources Association (TWRA)
	IRKP	Inter-region	P	Asian Development Bank Institute (ADBI)
		Inter-region	M	Asia Pacific Association of Hydrology and Water Resources (APHW)
		Inter-region	M	International Centre for Water Hazard and Risk Management (ICHARM)
		Inter-region	M	International Research and Training Center on Erosion and Sedimentation (IRTCES)
		Inter-region	M	IUCN - The World Conservation Union
		Inter-region	M	International Water Centre (IWC)
		Inter-region	M	International Water Management Institute (IWMI)
		Inter-region	M	The World Wildlife Fund International (WWF International)
	DCA	Inter-region	P	Asian Development Bank (ADB)

About the NARBO members' list (Detail), please refer to BASELINE

(6) Chairperson, Vice-Chairperson and Secretariat

1) Chairperson



Former Chairperson: Dr. Basuki Hadimuljono
(February 24, 2004 - February 22, 2008)
(Inspector General, Ministry of Public Works, Indonesia)

Chairperson: Dr. Mochammad Amron
(February 22, 2008 -)
(First Advisor to Minister of Public Works, Indonesia)

2) Vice-Chairperson

Vice Chairperson: Mr. K. W. Ivan de Silva
(October 31, 2006 -)
(Director General, Mahaweli Authority of Sri Lanka)

3) Secretariat

a) Secretary General

Former Secretary General: Mr. Yasutaka Hamada
(October 1, 2006 – September 30, 2008)
(Executive Director, Japan Water Agency)

Acting Secretary General: Mr. Masaru Kubota
(October 1, 2008 –)
(Executive Director, Japan Water Agency)

b) Vice Secretary General

Mr. Michio Oota
(April 1, 2007 -)
(Director, International Affairs Division, JWA)
Mr. Wouter Lincklaen Arriens
(February 24, 2004 -)
(Lead Water Resources Specialist, ADB)
Mr. Toru Tatara
(February 24, 2004 – October 24, 2008)
(Special Advisor to the Dean, ADBI)

c) Secretariat

NARBO Secretariat consists of JWA, ADB and ADBI. The headquarters of the secretariat is in JWA.

2. Record of activities in 2008

A. Advocacy, Raising Awareness, and Exchange of Information and Good Practices on IWRM

I. Table of activities

Year	Month	Name of Activity	Outline of Activity	Action Plan
2008	January	NARBO Newsletter	12th Issue	A.a.2
	February	The 4th Thematic Workshop on Sustainable Management for Water Resources Infrastructures	- Held in Bangkok, Thailand on 4-7, February - Hosted by DWR, MONRE, Thailand - Attended by 14 delegates from 6 countries	B.a.2
		The 3rd General Meeting of NARBO	- Held in Solo/Surakarta, Indonesia on 20-22 February - Hosted by Bengawan Solo River Basin Organization - Attended by approx. 100 delegates from 17 countries	A.a.6
	April	The 1st Technical Advisory Committee	- Held in Singapore on 4-5 April - Hosted by NARBO Secretariat - Attended by 20 Delegates from 13 organizations	A.a.7
		NARBO Newsletter	13th Issue	A.a.2
	May	Twinning Program, JWA – Sri Lanka	- 3 staffs were delegated from JWA to MASL on 10-30 May	B.b.2
	August	NARBO Newsletter	14th Issue	A.a.2
		Stockholm World Water Forum	- Steering Committee of IWRM Guidelines at river basin level on ** August, hosted by UNESCO-IHP	
	October	The 2nd Thematic Workshop on Water-Related Disaster and Its Management in Asian Countries	- Held in Manila on 7-10 October - Hosted by LLDA -Attended by 16 Delegates from 7 countries	B.a.2
		Regional Meeting on Hydro-informatics and Developing Knowledge Hub Networks	- Held in Zhengzhou, China on 15-17 October - Hosted by YRCC - Attended by approx.40 Delegates from 20 countries	A.a.7

	November	IWRM Seminar	- Held in Saitama, Japan on 13 November - Organized by UNESCO, Ministry of Land, Infrastructure, Transport and Tourism (MLIT, Japan) and Japan Water Agency - Attended by approx. 160 people including resource persons	A.a.5
		Twinning Program, JWA – Viet Nam NARBO	- 3 staffs were delegated from Viet Nam NARBO to JWA from ** to **	B.b.2
	December	Regional Workshop on Developing Partnership for Water and Climate Change Adaptation	- Held in Putrajaya, Malaysia on 1 - 5 December - Hosted by NAHRIM - Attended by 50 Delegates from 20 countries	B.b.1
		NARBO Newsletter	15th Issue	A.a.2
2009	January	LOI between ADB and JWA	- Signed on 11 Jan at ADB HQ -Acknowledgement by Chairman and Vice-Chairman	
	February	The Study Meeting on Water-Related Disaster and Its Management in Asian Counties	- Held in Hoi An, Viet Nam on 17 - 21 February - Hosted by JWA - Attended by 5 Delegates from 5 countries	
		The 5th IWRM Training	- Held in Hoi An, Viet Nam on 18 - 25 February - Hosted by VGTB River basin Committee - Attended by 24 Delegates from 6 countries	B.a.1
	March	The 5th World Water Forum	- The Launching Ceremony "IWRM Guidelines at River Basin Level" held on March 16 - Open Workshop "IWRM Guidelines at River Basin Level" held on March 20 - JWA convened session 3.2.1	
		NARBO Newsletter	16th Issue	A.a.2

II. Website

1) Hit count

The website is managed by the headquarters of the Secretariat (Japan Water Agency).

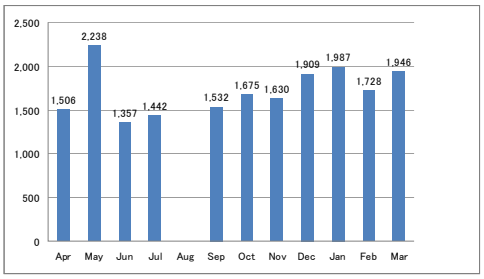
From the viewpoint of the recognition that website is the important tool for sharing and exchange of information among members, it is needless to say that members' contribution is crucial. **Average hit count per month has been increased up to approximately 1699 in 2008**, although it was only 477 in 2004.

2) Database

When you visit the database in the website, it is necessary to input Password.

By visiting this database, you can get information on details of NARBO activities, materials of our workshops and trainings, members' information, guideline for implementation of NARBO training, etc.

This page is opened to only NARBO members, so please access and utilize this database!



Timeline of hit count on Narbo HP

(The hit count in August 2008 is unknown because of the replacement of the web server.)

NARBO HP top page

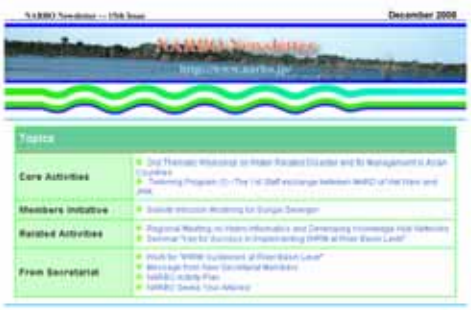
III. Newsletter

Newsletter is recognized as another useful vehicle for NARBO activities along with website, and Headquaters of the Secretariat (Japan Water Agency) is in charge of newsletter. In the same manner, members' positive involvement regarding information gathering is essential. JWA has issued the 12th, 13th, 14th, 15th and 16th issue in January, April, August, December 2008 and March 2009, respectively.

All newsletters were posted on NARBO website to make it possible for all members to see easily and sent to the contact person at each member organizations by e-mail.

The 13th issue

The 14th issue



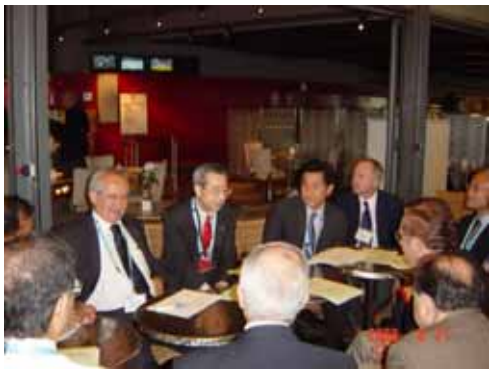
The 15th issue

The 16th issue

IV. Distinguished Activities -IWRM Guidelines at River Basin Level-

The IWRM Guidelines at River Basin Level was launched at the 5th World Water Forum in Istanbul,Turkey March, 2009. The purpose of the guideline is to raise awareness and to facilitate practical implementation of IWRM at river basin. This project was conducted by UNESCO United Nations Educational Scientific and Cultural Organization (UNESCO), Ministry of Land, Infrastructure, Transport and Tourism and JWA. And NARBO and ADB also cooperated with this project.

This project was reported at the 3rd General Meeting and incorporated into the Action Plan 2008-2009. Chairperson and Vice Secretary General of NARBO was included a Steering Committee member and contributed to the steering committee and former Executive Vice President of JWA took a role as Co-chair of the committee. Thanks to their efforts, the Guidelines were launched.



You can download it on UNESCO's webpage and you can reach it through NARBO's webpage (http://www.narbo.jp/).

As brochure of this guideline said, this set of Guidelines is a 'Living Document'. So if you have found a Key for Success', please provide feedback so that your work can be included in future updates.

On the process of formulating this guideline, several steering committee meetings were held as follows;.

1st	August 22, 2008 at Stockholm, Sweden
2nd	November 14, 2008 at Saitama, Japan
3rd	January 11 at Bangkok, Thailand

Together with the Steering committee, an open session which regards to the guidelines was held. And an open workshop was held at the 5th World Water Forum in Istanbul as discussed in detail below.

1) World Water Week in Stockholm

Date; 16-20 August, 2009
Venue; Stockholm, Sweden

Dr. Mochmmad Amron, the Chairperson of NARBO made a presentation.
The session "River Basin Approach of IWRM; Integrated River Basin Management (IRBM) Toward the 5th World Water Forum" was organized by UNESCO and MLIT, Japan on 21st August in the 2008 World Water Week in Stockholm. He talked about Integrated Water Resources Management (IWRM) from the viewpoint of Asia, titled "Political will and institution for River Basin Management" and contributed to the session.

Mr. Shinsuke Ota, former executive vice president of JWA also made a presentation."Sustatinable IWRM" and this ?? the way for the guidelines.

The 1st steering committee for the guideline was held during this period, and direction and roll were discussed.

2) IWRM Seminar "Key for Success in Implementing IWRM at River Basin Level"

Date: 11th November 2008
Venue: Saitama Culture Center, Saitama, Japan
Participants: approx. 160 people including resource persons
Organized by: UNESCO, MLIT,Japan and JWA

Seminar "Key for Success in implementing IWRM at River Basin Level" was held as a pre-event of 2nd Steering Committee of the guidelines and open to the public." Dr. Mochammad Amron, Chairperson of NARBO, a member of the Steering Committee, made a presentation on Challenges of Brantas River Basin in the seminar.

In the morning, before starting the seminar, steering committee members visited the Tone Canal Control Station to enhance the understanding of the actual event of IWRM and received same explanation from the key persons of this project.

Then the seminar was started with an opening remark by Mr. Shuhei Kazusa, Director-General, Water Resources Department, Land and Water Bureau, MLIT, and he started stating with an introduction of the process the Steering Committee and mentioned necessity to formulate the Guidelines.

Mr. William Cosgrove, Former Vice-president of the World Bank, made a keynote speech.

Part 1 of the seminar focused on "From the viewpoint of overall basin and each sector." It means that it is essential for practical IWRM to overview whole basin and to be acquainted with the mind of each sector. Also speech on river administration was delivered by MLIT as a good example of viewing and administrating whole river basin.

The theme of Part 2 of the seminar was "Overview & Challenge of IWRM." Mr. Shahbaz Khan made a presentation titled "Importance of River Basin Approach for True Stakeholder Participation in Water Management." Three case studies were presented by guest speakers from abroad. Challenges of Brantas River Basin (Indonesia), Murray-Darling River Basin (Australia) and La Plata River Basin were presented by Mr. Mochammad Amron, Mr. Tony Jakeman and Mr. Victor Pochat respectively.

At the final stage of Part 2 of the seminar, Mr. Shinsuke Ota, Executive Vice President of JWA, gave us some explanations for an overall structural design of the Guidelines, and the user-friendly tools such as extraction of key for success and pentagram. Besides, there was an encouraging and optimistic comment on the Guidelines from Mr. Wouter T Linklaen Arriens, Lead Water Resources Specialist, ADB.

Eventually, the seminar was summed up by Mr. Toshiki Aoyama, President of JWA, and ended successfully after the scheduled closing time.

Then the 2nd Steering Committee was held at JWA-HQ in Saitama and some draft paper was shown to the members and confirmed to conduct the mission to collect the good examples around the world.

Based on this, concerned staffs were dispatched to several RBOs to collect good examples of IWRM and summarized as case studies in part 2 of the guideline.

IWRM Guidelines at River Basin Level launched

UNESCO launched IWRM Guidelines at River Basin Level at the 5th World Water Forum in Istanbul, 16 March, 2009.

The Launching Ceremony "IWRM Guidelines at River Basin Level" took place on March 16, 2009 at Ayvansaray Hall, Stülüce Congress and Cultural Center, Istanbul, Turkey, as a side event of the 5th World Water Forum. It was convened by UNESCO and MLIT, Japan. HIH the Crowne Prince of Japan, Honorary President of United Nations Secretary General's Advisory Board on Water and Sanitation (UNSGAB) attended the launching ceremony and was handed over of the Guidelines by Mr. Koïchiro Matsuura, Director-General of UNESCO.

UNESCO led this project and NARBO has cooperated together with some other organizations such as MLIT and JWA. Dr. Mochammad Amron, Chairperson of NARBO, and Mr.Wouter Lincklaen Arriens, Vice Secretariat General of NARBO, participated in the project as Steering Committee Members of the Guidelines. In addition, Mr. Shinsuke Ota, former Executive Vice President of JWA took a role as Co-chair of the committee.

The Guidelines provide with necessary information to help practitioners implement IWRM under their own circumstances. They consist of the fundamental concepts of IWRM as well as perspectives of various stakeholders with regard to water issues, key for success for overcoming problems, and good examples where such keys for success were applied.

Mr. Shinsuke Ota made a presentation about introduction of the Guidelines. He mentioned in his presentation that NARBO has already started using these materials in NARBO's 5th IWRM training held in Hoi An, Viet Nam, 18-25 Feburary, 2009.

An Open Workshop was also held at the 5th World Water Forum, 20 March, 2009 and further improvement of the Guidelines was discussed.

V. NARBO Promotion

1) Letter of Intent for collaboration to improve water security in river basins and to continue and expand NARBO signed between ADB and JWA

Letter of Intent (LOI) was signed on 12th of January 2009 by ADB President Haruhiko Kuroda and JWA President Mr. Toshiki Aoyama for collaboration to improve water security in river basins and to continue and expand NARBO.

In recent years, the need to improve water security in river basins has become an increasingly pressing issue, and we need to adapt water resource management to climate change impacts and improve risk management.

Thus further capacity building is needed in NARBO member countries and other partners and stakeholders.

Consequently, the concept of water security has been acknowledged since the 1st Asia-Pacific Water Summit held in 2007 in Japan.

So they felt the need to have continuous collaboration in support of NARBO and intended to promote more projects in some key result areas such as Capacity development, Regional knowledge hub, Asia-Pacific Water Summit and Ministers for Water initiative by signing LOI.

2) The NARBO Patron

Since its establishment in 2004, NARBO has started exerting considerable influence on water professionals in the region to introduce IWRM in river basins. However, to catalyze the necessary investments and practical result in IWRM programs and projects, much more advocacy and support are needed, involving the highest political levels in countries of the region, and also from the general public. Based on these backgrounds, NARBO secretariat thought that attracting a NARBO Patron is expected to make a major difference in promoting further attention and support to IWRM implementation through NARBO activities.

Therefore, we decided to have the NARBO Patron and amended NARBO charter at the 3rd General Meeting in February 2008.

As a result of a minute consideration,

NARBO secretariat concluded that Her Royal Highness Maha Chakri Sirindhorn is the best qualified for the post of NARBO Patron, because her father, His Majesty King Bhumibol Adulyadej has contributed to the improvement of water resources management in Thailand for dozens of years.

And Thailand is the associated country where the initial ideas of creating a regional network of river basin organizations (RBOs) for IWRM were discussed in Chaing Mai in 2002. After that NARBO was officially established in 2004.

NARBO secretariat started negotiation with her private office through Ministry of Natural Resources and Environment (MONRE), government of Thailand. Based on the result of it, we issued a letter of request for her acceding to the NARBO Patron to her private office through Ministry of Foreign Affairs, government of Japan, the embassy of Japan in Thailand.

We'd like to continue negotiation with her private office with support of MONRE. And after the approval, we'd like to have an opportunity to introduce her as the NARBO Patron.

3) The Regional Meeting on Hydro-informatics and Developing Knowledge Hub Networks

Meeting dates:
15th – 17th October, 2008
Venue: Zhengzhou, People's Republic of China
Host: The Yellow River Conservancy Commission (YRCC)

The ceremony of the Center for Hydro-informatics in River Basin (CHIRB) which is one of the Knowledge Hub of the Asia-Pacific Water Forum (APWF) was held at the YRCC main office in Zhengzhou, China.

The meeting had two parallel sessions. Track 1 was an information sharing session on Hydro-informatics and Integrated Water Resources Management and Track 2 was a workshop to support the development of hub business plans and hub networks, and to explore participation of candidate hubs.

Then we visited the Hydraulic Laboratory of the YRCC, the Yellow River Water Allocation and Remote Control Center and so on for study and saw how YRCC manages the Yellow river.

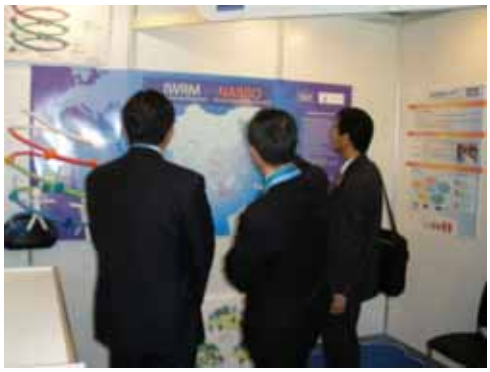
At this meeting, NARBO secretariats explored and promoted the collaboration between NARBO and APWF's Knowledge hub by exchanging information and by new affiliations of hub members to NARBO.

Futhermore, we had a NARBO secretariat meeting to prepare for our next workshop and training there.

NARBO secretariat attended several meetings of APWF's Knowledge hub to cooperate with their activities and to generate the synergy between NARBO and APWF.

4) The 5th World Water Forum

NARBO members acitively participated in the 5th World Water Forum in Istanbul. Dr. Mochammad Amron, the chairperson of NARBO attended a lot of events at the Forum such as IWRM Guidelines at River Basin Level Launching Ceremony and session 3.1.2 "How can stakeholder be involved in basin management and Transboundary water cooperation?". Conveners invited him to the session as the chairperson of NARBO. He made a presentation on stakeholder involvement in Indonesia.



Other members also contributed to the events at the Forum. K-water and JWA held an exhibition at the World Water Expo from 16-22 March, 2009 in the venue of the Forum. NARBO member organizations visited their booths and exchanged information about their activities and so on.

Besides the launch event of IWRM Guidelines, JWA held an exhibition at the World Water Expo. The theme of this exhibition was 'IWRM - NARBO'.

And JWA became a convener with DSI of the session 3.2.1 “Ensuring Adequate Water Resources Development and Management (Quantity and Quality) for Sustainable Development”.

At the JWA booth at World Water Expo, they displayed posters regarding NARBO member map, NARBO activities and Introduction of IWRM Guidelines at River Basin Level. They also distributed NARBO leaflet and NARBO Annual Report at their exhibition booth. Hundreds of visitors were so interested in NARBO that they took NARBO Annual Report CDs. This proved the uniqueness of NARBO and its activities.

VI. The 3rd General Meeting

(1)Summary

The 3rd General Meeting (GM) was held from February 20th to 22nd for three days at Solo / Surakarta, Indonesia with about 100 participants from 17 countries attended and ended successfully. The host organization was Bengawan Solo River Basin Organization, and organizing committee consists of Jasa Tirta I public corporation (PJT I), Research Center for Water Resources, Indonesia NARBO Secretariat. Various kinds of practical activities would be organized in accordance with the action plan 2008-2009 that was endorsed on this event.

During the study visit on 20th February of the first day, participants are divided into 2 groups; one group visited Wonogiri Reservoir and Colo Weir in Bengawan Solo Basin and the other had a dialogue with water users and stakeholders in the Basin.

On February 21 of the second day, three workshops were held after the opening program. Parallel Workshop 1 - Measuring the Performance of RBOs and River Basins - and Workshop 2 - Managing Assets and Risks - were held in the morning and Workshop 3 - Exploring New Challenges in IWRM - was held in the afternoon. More than fifteen papers presented in the three sessions and active discussion was had by participants.

In the morning on February 22nd of the third day, the secretariat reported the activities in the last two years after the opening program. In the afternoon, new nine member organizations were introduced to participants. After that, the action plan for the coming two years (2008-2009) and the Charter revision were proposed and approved with minor alteration. Finally, new NARBO constitutional body was selected.

(2) Study Visit (Day 1)

On the first day, participants familiarized themselves with the implementation of IWRM issues in the host Bengawan Solo River Basin[1] for which two study visits in the basin were organized to study two specific issues, one on sedimentation, and the other on institutional aspects of integrating IWRM into planning and implementation.

Address by the Chairperson (then)

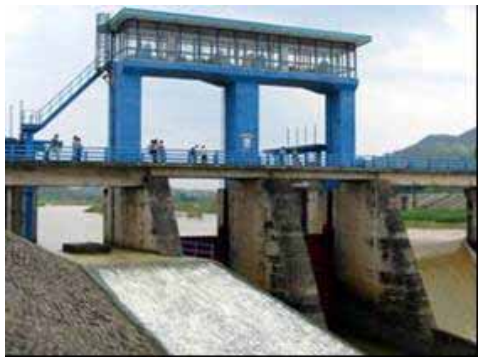
[1] Located in central and eastern Java, the basin has a total catchment area of 20,125 km^2. The Bengawan Solo River, the largest in Java, has a length of about 600 km.

1) Managing Water Sedimentation

The first group visited the Wonogiri Multipurpose Dam, whose reservoir are used for irrigation, hydropower generation and flood control; but whose effective reservoir capacity has decreased to nearly 60% of the original due to severe sedimentation caused by poor land use zoning, intensive farming, poor farming practices, and highly erosive and steep-sloped uplands. To cope with the sedimentation problem, the government has: (i) constructed two check dams on the Keduwang River close to the dam to mitigate sediment inflow into the reservoir, (ii) dredged sediments of about 250,000 m^3 in front of the intake structure to allow stable and continuous water supply, and (iii) provided a permanent dredging system to allow sustained maintenance dredging of sediment deposited in front of the intake. Fundamental permanent countermeasures are however needed in order to recover the reservoir's storage capacity; and the government has proposed the following: (i) structural measures to cope with the sediment and garbage inflow from the Keduang River and other tributaries, as well as with the sediment deposits at and around the intake structure; and (ii) watershed conservation projects.

Dredging at Wonogiri Reservoir

Discussion at Wonogiri Reservoir



Colo Weir

2) Facilitating IWRM in Planning and Implementation

The second group visited a rural area (Gemawang Village) and discussed community and public participation in river basin planning and management with stakeholders, including an NGO the Association for Social and Economic Studies and Development. The study visit demonstrated the importance of stakeholder participation and bottom-up approaches; and the critical role of local community initiatives for resolving IWRM challenges in local areas in the river basin. An extensive background document helped to inform participants about the RBO's work on stakeholder participation in the basin under the Comprehensive Development and Management Plan (CDMP) Study of the Bengawan Solo River Basin.

Dialogue with the stakeholders

(3) Workshop (Day2)

On the second day, participants exchanged experiences and learned from three workshops on IWRM: (i) Measuring the Performance of RBOs and River Basins[2], (ii) Managing Assets and Risks, and (iii) Exploring New Challenges in IWRM.

Keynote presentation by Prof. Yoshida

[2] This workshop was a follow-up to the NARBO Performance Benchmarking of RBOs with Peer Review Process held from 2005 to 2007. NARBO launched its performance benchmarking service in August 2005, whereby 4 RBOs piloted the service from the 11 RBOs who initially signified interest. For reference, the 11 RBOs that announced their interest in 2005 included the Jasa Tirta 1 and 2 Public Corporations in Indonesia, as well as the Balai PSDA for the Jragung-Tuntang and the Jeneberang RBO. In Korea, K-Water for the Geum river basin. In the Philippines, the Laguna Lake Development Authority. In Sri Lanka, the Mahaweli Authority. In Thailand, the Bang Pakong and Ping river RBOs, and in Viet Nam, the Red and Dong Nai river RBOs.

1) Workshop 1: Measuring the Performance of RBOs and River Basins

NARBO's performance benchmarking and peer review service for RBOs is a key part of NARBO's work to introduce IWRM in river basins and to develop capacity of RBOs. It starts with clarifying the RBO's vision and mission, then looks at key performance dimensions and targets for each. Positive results provide good encouragement for RBO leaders and staff, as well as valuable lessons learned. Results below expectation can trigger good guidance from comparison by peers, identify areas where performance improvement is needed, and provide justification for additional resources. The workshop explored the results of piloting the service in several river basins in the region, and explored how the service could be rolled out and further fine-tuned. The workshop also explored a new methodology for measuring the status of IWRM in river basins, based on two initial pilots.

Towards a New Paradigm for Doing Better. In the opening remarks, the participants were reminded that while each RBO is different across the region, they face many common issues, challenges, and can share solution strategies. Performance benchmarking and peer review is replacing the earlier paradigm for performance assessments by external experts. Often, these proved to be expensive exercises, and in many cases the reports would end up on the shelf due to lack of ownership by the organization being reviewed. The new paradigm for performance improvement involves self-assessment followed by peer review, with the RBO taking the driver's seat during the review and in subsequent work to improve performance.

Scene of Workshop 1

Lessons from the Pilots. The four pilot cases of RBO self-assessment and peer review provided valuable unanimously positive feedback on the benefits of the exercise. The assessment tool was found to be useful across RBO types and stages of development. The importance of a clear and shared vision of the RBO's purpose, and a commitment to performance management, came out strongly. A clear understanding of the RBO's IWRM functions is also needed to set relevant and meaningful targets; and this should be supported with commitment of the RBO's top executive and management team. The self-assessment and peer review teams should of course be technically-qualified and dedicated, and the experience from the pilots showed that the exercise can be professionally rewarding to the teams. The balanced-scorecard framework proved to be a satisfactory performance assessment tool, and the peer review process provided credibility and improved evaluation and performance

targets. The performance benchmarking indicators were helpful and will be further adjusted as NARBO members gain further experience in using the service.

Basin Performance Benchmarking. The presentation on a new and complementary methodology for basin performance indicators was well-received. The methodology has been developed in collaboration with the University of Tokyo and ADB, and saw initial piloting in the Citarum river basin in Indonesia and Laguna Lake in the Philippines. The participants welcomed the discussion of the first pilots which focused on the use of three basin status indicators: (i) water utilization (recreational water quality and raw water quantity); (ii) disaster vulnerability (flood vulnerability and chemical spills); and (iii) environmental management (environmental water quality and biodiversity). Further work will be undertaken, and discussion explored a possible expansion to include indicators for health and livelihoods.

Workshop Recommendations. The workshop participants endorsed the results of the pilots and recommended to expand the RBO performance benchmarking and peer review service to more basins, taking into account feedback from the pilot phase. They also recommended to expand the pilot testing of the new basin performance benchmarking methodology. Several knowledge partners joined the workshop, and opportunities for collaboration with partner organizations will also be explored in the further piloting and implementation of NARBO's benchmarking work.

Presentation in Workshop 1

Panel Discussion in Workshop 1

2) Workshop 2: Managing Assets and Risks

The second workshop discussed the development and sustainable management of water resources infrastructures. Two collaborating agencies were also introduced: International Research and Training Center on Erosion and Sedimentation (IRTCES); and International Centre for Water Hazard and Risk Management (ICHARM).

Report on Thematic Workshop on Sustainable Management for Water Resources Infrastructure, various cities, June 2007-February 2008. A series of workshops were held in Hanoi, Dhaka, Kandy and Bangkok from June 2007-February 2008 which demonstrated the importance (i) to deepen the understanding of water, land and other natural resources; (ii) to strengthen cooperation with related organizations; and (iii) to minimize friction among stakeholders caused by increased diversified water demand and social needs. The workshops also identified perceived roles of government and RBOs towards sustainable management of water resources infrastructure.

Community-based (flood hazard) early warning systems are considered 'people-centered' when they empower individuals and communities to act in sufficient time and in an appropriate manner so as to reduce the possibility of personal injury, loss of life, damage to property and environment, and loss of livelihood. They can provide the community and disaster mitigation committee with advance information on the flood risks that can be readily translated to disaster prevention and preparedness response actions against loss of lives, injuries, and economic losses.

Dam Asset Management Project: Sustainable Reservoir Sediment Management. For sustainable reservoir management, it is important to have sound analysis of facilities and proper maintenance planning. A key factor for long term use of reservoirs is to address sedimentation problems; and solutions should include technical, economical and environmental countermeasures within the context of integrated river basin management.

Presentation in Workshop 2

Panel Discussion in Workshop 2

3) Workshop 3: Exploring New Challenges in IWRM

The third workshop comprised four sessions: (i) addressing issues and challenges in water rights and water allocation, (ii) facilitating IWRM with civil society and private sector participation, (iii) restoring the health of rivers, and (iv) sharing IWRM experience from other regions. The last two included presentations to introduce the Asian River Restoration Network (ARRN) and the International Network of Basin Organizations (INBO), and their respective mandate and activities.

Addressing Issues and Challenges in Water Rights and Water Allocation. The implementation of water-use rights can be effective to introduce IWRM in river basins. However, the process of introduction and country-wide implementation of a licensing system for water use rights may well take as long as 20 years to complete. Making clear arrangements for practical solutions in the transition phase is therefore an important and urgent task, and these arrangements need to be flexible enough to respond to changing needs in water management. These are some of the lessons learned from NARBO's workshop series of water rights.

This workshop session provided a better understanding of the principles and application of water use rights and water allocation, and stimulated in-depth discussion on the challenges, practical solutions and lessons in the implementation of water rights. To introduce the topic, ADB presented a technical paper on 'Water Rights and Water Allocation – Issues and Challenges for the Region', which informed the discussion. The paper also drew on the results of the five earlier NARBO workshops on the topic.

The importance of the water rights for governments, water users and stakeholders in the region is clearly growing. Panelists and participants discussed that since water shortages are expected to increase further, demand management was important, supported by better public awareness and a change in mindset among water users to conserve water and to accept explicit allocation systems introduced by government. Enforcement of provisions of relevant laws on allocation will need to be taken more seriously, including penalties where needed. Updated and reliable data will also help improve compliance in implementation. The process of introducing explicit water allocation systems to support water-use rights needs to be transparent and equitable. Much can be gained from sharing information and experience among RBOs and countries, while keeping in mind that solutions always need to be adapted to suit local conditions.

Facilitating IWRM with civil society and private sector participation. Workshop participants learned from recent experience in Indonesia, where important institutional changes in water resources management at the national and provincial levels are driven by decentralization, which pose new challenges for coordination, consultation and legislative reform. To implement its

water resources law, Indonesian organizations are putting more emphasis on public consultations and a “bottom-up” planning approach involving civil society and private sector participation.

Restoring river fronts and international cooperation. The workshop participants benefited from the presentations by ARRN and INBO. The impressive examples of restoring river fronts in cities in Japan, South Korea and the People’s Republic of China served to inspire NARBO members to pursue similar activities in their river basins.

Scene of Workshop room

Presentation by International Network of Basin Organizations (INBO)

(4) General Meeting (Day 3)

Report on Accomplishments 2006-2007. A comprehensive report of NARBO activities for the period 2006-2007 was presented, and accepted by the members. A feedback survey among NARBO members showed full satisfaction with NARBO activities records. Suggestions to improve NARBO work focused on information-sharing and revamping NARBO's IWRM training program, amongst others.

Work Plan 2008-2009. The work plan for 2008-2009 was proposed by the Secretariat and approved by the General Meeting after a fruitful discussion. NARBO will continue the following activities: (i) information sharing and exchange via the internet, (ii) IWRM training program, (iii) thematic workshop, (iv) performance benchmarking of RBOs with peer review process, and (v) staff exchange programs. Some new programs will be launched as guided by the recommendations made at the 1st Asia-Pacific Water Summit in December 2007 in Japan. These include a project on charting progress and facilitating investment for IWRM (conducted by ADB), the preparation of IWRM guidelines at river basin level (conducted by UNESCO and supported by JWA), and collaborative activities among regional water knowledge hubs under the auspices of the Asia-Pacific Water Forum and facilitated by ADB. It was also agreed that the Secretariat will convene a NARBO Technical Advisory Committee to help in revamping the IWRM training program.

New Members. Nine organizations from six countries (Pakistan, Thailand, Japan, Malaysia, Australia, and PRC) were welcomed as new NARBO members, as follows: (i) Indus River System Authority of Pakistan; (ii) Bang Pakong Prachinburi and Tonlesab River Basin Committee of Thailand; (iii) Japan Water Resources Association; (iv) Graduate School of Management, Kyoto University of Japan; (v) Japan River Restoration Network; (vi) National Hydraulic Research Institute of Malaysia; (vii) International Water Centre of Australia; (viii) International Centre for Water Hazard and Risk Management of Japan; and (ix) International Research and Training Center on Erosion and Sedimentation of People's Republic of China. The total number of NARBO member organizations has become now 65.

NARBO Charter Revision. The General Meeting also approved minor revisions to the charter to enable NARBO to appoint a patron to promote its work, as well as senior advisers, to which NARBO can appoint former NARBO chairpersons.

Constitutional Body 2008-2009. The General Meeting approved the following constitutional body for NARBO for 2008-2009:

N A R B O Position	Name
Chairperson (New)	Dr. M. Amron, Ministry of Public Works, Indonesia
Vice Chairperson (Continued)	Mr. Ivan De Silva, Mahaweli Authority of Sri Lanka
Secretary General (Continued)	Mr. Yasutaka Hamada, Japan Water Agency
Vice Secretary Generals (Continued)	Mr. Michio Ota, Japan Water Agency Mr. Wouter Lincklaen Arriens, Asian Development Bank Mr. Toru Tatara, Asian Development Bank Institute
Senior Advisor (New)	Dr. Basuki Hadimoeljono, Ministry of Public Works, Indonesia

Address by the former Chairperson

Address by the Vice-Chairperson

Report by the Secretary General

Address by the new Chairperson

For the detailed program, please refer to BASELINE

B. Capacity Building in River Basin Organizations (RBOs)

I. The 1st Technical Advisory Committee

Dates: 4th – 5th April, 2008

Venue: Water Hub,PUB Singapore

Participants:

14 delegates from 6 countries

NARBO established the NARBO Technical Committee (TAC) at the 3rd NARBO General Meeting to ensure the level of the quality and credibility of its IWRM Training Program as a prestigious regional flagship program.

TAC will advise NARBO's leadership and secretariat in the design of its IWRM Training Program and make specific recommendations on the objectives, target participants, qualifications of applicants, requirements for certification, and guidelines for organization of the program, including venue, host organizations, program scope and detailed content, assignments and ratings, resource speakers, finance, and frequency.

In this meeting, the Director General of the National Hydraulic Research Institute of Malaysia (NAHRIM) was invited to chair the meeting and some presentations about experience in IWRM Program were given by committee members. And we had a discussion about NARBO IWRM Training Program on the design, management and implementation of the course program for certification of NARBO IWRM professionals.

Plenty of useful recommendations to improve NARBO's IWRM Training were given to the secretariats by the committee members.

Based on their recommendations, NARBO secretariats had a discussion about the contents, the date and venue of the training.

Thanks to their valuable advices, NARBO could conduct the 5th IWRM Training in February 2009 at Hoi An Viet Nam quite successfully as is described on the following page.

II. The 5th IWRM Training

1) Introduction

IWRM Training was conducted as a major part of NARBO activities based on the NARBO Action Plan 2008-2009 and hosted by the Vu Gia – Thu Bon (VGTB) river basin committee which is included in Department of Natural Resources and Environment (DONRE) of Quang Nam Province and Da Nang City.

The goal of this training is to develop capacity of NARBO member staff in understanding and implementing IWRM in their respective river basins by (1) lectures of IWRM concepts and case studies; (2) group work of IWRM; and (3) sharing country challenges and strategies. This training consisted of class sessions (6 days) and study visit (2day) and the theme of this training was "Keys for Success (KfS) with IWRM" which was named after the IWRM Guidelines which was made by UNESCO, with support by NARBO.

The characteristic of this training was different from previous ones which NARBO had conducted for the last 5 years. NARBO established the TAC and made the main framework of this training based on TAC's advices. And we had many opportunities to discuss among the participants and made them think by using the case studies and the lecture materials. And time we asked the International Water Center (IWC) which is one of the NARBO's knowledge partner to lead this training based on their experiences on trainings and they handled the training competently and provided strong leadership.

Based on these backgrounds, NARBO secretariat had the preparation meeting at Hoi An, Viet Nam in advance with host organization and IWC.

2) Highlight of the Training

Training dates:
18th – 25th February, 2009
Venue: Hoi An, Viet Nam
Host : The Vu Gia – Thu Bon (VGTB) river basin committee
Participants :
24 delegates from 6 countries

We had about 20 lectures which consisted of the concept of IWRM, "IWRM Guidelines", Biodiversity and Case studies at the VGTB river Basins and several workshop sessions to find and make the KfS at the VGTB River Basin.

And more, we had poster session and presentations of KfS at each river basin by participants.

At workshop session, participants were divided into 5 groups and discussed to find out the issues and recommendation for solution. At the end of this training, the representatives of each group presented their analysis and recommendations about the KfS in the VGTB river basin. They commonly recommended the needs of the institutional and regal framework, the master plan of the VGTB river basin, monitoring, introduction of the latest technology, capacity building and funding. Especially, as a practical recommendation, they paid attention to "Benefit Sharing" which was recently introduced at the VGTB river basin. "Benefit Sharing" is a framework to compensate the people who have lived

around the reservoir of hydro-power in a long time.

3) Study Visit

As study visit, we went to the upper stream area and the down stream area of the VGTB River Basin and saw what is happening and how they confront the issues. Then we found the KfS which solve the issues such as the necessity of coordination mechanism by seeing the polluted water caused by gold mining.

4) Conclusion

Through this training, the participants confirmed the concept of IWRM and learned the technique to implement IWRM at each dimension. Especially, acknowledging the importance of stakeholder's participation is useful for all participants. By obtaining above knowledge, participants could recognize by themselves what was needed for their river basins.

And by exchanging the information which was introduced by participants' presentation, they noticed that they had similar issues such as water allocation and lack of coordination mechanism on promoting IWRM. The unity among the participants is useful and important for them to cope with promotion of IWRM.

III. Thematic Workshop on Sustainable Management for Water Resources Infrastructures

Workshop dates:
4th – 7th February, 2008
Venue: Bangkok, Thailand
Host :Department of Water Resource (DWR), Ministry of Natural Resources and Environment (MoNRE)
Participants :
14 delegates from 6 countries

The thematic workshop on Sustainable Management for Water Resources Infrastructures was held in 4-part series and completed successfully.

A thematic workshop was highlighted as one of the important activities in the action plan (2006-2007) approved at the 2nd NARBO General Meeting. Japan Water Agency (JWA) will lead "the workshop on sustainable management of Water Resources Infrastructures" based on the action plan called "the workshop on facility management".

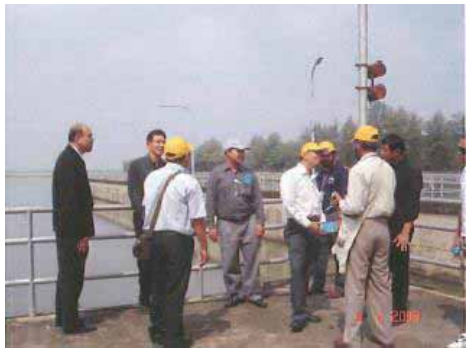
Session

The sustainable management becomes a very important perspective to practice water resources management and it has been worked on by various methods in each country. In this respect, NARBO respects each country's implemented water resources management.

Therefore, we would like to take this opportunity to discuss a concrete measure for how NARBO members' country has endeavored to improve the management of water resources infrastructure by sharing experience and major issues in each country. This workshop consisted of field visits and discussions.

The outcome of this workshop was summarized into a report and distributed to the participants at the 3rd General Meeting in Solo / Surakarta, Indonesia.

NARBO Secretariat would like to support their activities of implementation of the outcome of this series workshop continuously.



Field Visit

IV. Thematic Workshop on Water-Related Disaster and Its Management in Asian Countries

1) Introduction

Conducting thematic workshops was considered at The 3rd NARBO General Meeting in Indonesia in February 2008 as one of the important activities of NARBO. Based on the updated NARBO Action Plan of 2008-2009, NARBO carried out a series of workshops on the theme of Water-Related Disaster and its Management in Asian Countries, which has been continued since 2007.

In November 2007, the 1st workshop was carried out at Yogyakarta, Indonesia, and the characteristics and the issues on water-related disaster management were identified.

The main objective of the 2nd workshop is to analyze the issues on water-related disaster management again and to investigate and evaluate the strategies and solutions to address the issues by using the framework of the HFA.

And at the 2nd workshop, we focused on the Hyogo Framework for Action 2005-2015 (HFA) which governments around the world had committed to take action to reduce disaster risk, and have adopted a guideline to reduce vulnerabilities to natural hazards. Because the HFA offers five areas of priorities for action, guiding principles and practical means for achieving resilience against disasters for vulnerable communities in the context of sustainable development , it is useful for making the action plans.

2) Highlight of the 2nd Workshop

Workshop dates:
7th – 10th October, 2008
Venue: Manila, the Philippines
Host : Laguna Lake Development Authority (LLDA)
Participants :
16 delegates from 7 countries

This workshop consisted of special lectures, presentations by the participants and the related discussions, study visit to Pampanga River Basin, and Group Work.

Among the special lectures are; the Role of RBO at Water-Related Disaster Management in the river basin by ADB, the Integrated Flood Risk Management by ICHARM and the Water-Related Disaster Management in Japan by JWA.

Then the participants were divided into 2 groups; one is a group of RBOs and the other is a party of Government Organizations. The participants discussed the common challenges by each group based on the materials (the preliminary assignments) to formulate better action plans. The result of the discussion was shared by presenting in the plenary session.

3) Study Visit

To learn water-related disaster and its management in Pampanga River Basin near Manila, participants visited some places such as the buried town by lahars (volcanic mudflows) caused by the eruption of Mt. Pinatubo, the mega dyke constructed by JICA project to keep the

downstream residential area away from the Lahar, terminal telemetry station along Pampanga River and Operations Center of the Flood Forecasting Branch managed by Philippine Atmospheric, Geophysical, Astronomical and Seismology Administration (PAGASA).

We learned the concrete measures to cope with water-related disaster and could feel the enthusiasm to recover from disaster.

4) Conclusion

Through this workshop, the participants could acknowledge that the importance of the necessity of creating their own, feasible and effective action plans by themselves. And we learned the importance of the disaster management including the disaster forecast, the hazard map and the community-based point of view and the necessity of the maintenance of facilities and the legal framework for sustainable maintenance of facilities by study visit.

Based on these results, the participants discuss and revise their draft action plan at their organization and will explain the result of it at the next workshop.

V. Regional Workshop on Developing Partnership for Water and Climate Change Adaptation

1) Introduction

This workshop was held as a part of NARBO activities based on the NARBO Action Plan 2008-2009.

The objectives of this workshop are (1) to understand the impact of climate change on water resources management in river basins and cities; (2) to exchange information and experiences on current and planned projections and adaptation initiatives in the Asia-Pacific region; and (3) to develop partnerships and action plans for the climate change projection, impact assessment and adaptation.

This workshop, which consisted of class sessions (4 days) and study visit (1day), focused on the application at the river basin level, with partnerships and action plans expected to boost collaboration in impact assessments, adaptation strategies and capacity development.

2) Highlight of the Workshop

Workshop dates:
1st – 5th December, 2008
Venue: Putrajaya, Malaysia
Host: National Hydraulic Research Institute of Malaysia (NAHRIM)
Participants:
45 delegates from 16 countries

Several distinguished lectures about the measures and activities of Climate Change Adaptation were delivered by lecturers from Ministry of Land, Infrastructure, Transport and Tourism, government of Japan, JICA and the University of Tokyo. The participants also delivered many presentations about the activities of Climate Change Adaptation in each country.

Followed by the special lectures, presentations by the participants and study visit, the participants were divided into 6 groups (Climate Change projections, South Asia, Indonesia, Philippine, Mekong river region and Malaysia). In each group, members of group introduced the impacts and the adaptation strategies on climate change in each region. For common indicative matters are, 1) adaptation to flood, 2) reinforcement of the hydrological day-to day management and 3) raising awareness of decision makers and public about Climate Change.

On the last day of this workshop, based on the previous discussion we had discussion to create project proposal for each organization. And NAHRIM made some presentations about its products and services as Regional Knowledge Hub of Water and Climate Change. Team Japan, Center of River Basin Organizations and Management (CRBOM) in Indonesia and ADB also made other presentations which summarize the regional workshop.

3) Study Visit

At study visit, we learned the example of sustainable water-use and mitigation plan for climate change by seeing the projects at the Sungai Selangor River. Also we learned the importance of knowing the rain prediction around the

river basin for creating the adaptation plan, because the prediction of rainfall by climate change is based on the adaptation plan.

4) Conclusion

Through this workshop, the participants noticed that they were facing similar situation as other Asian countries. And they learned what they should do for Climate Change and how to predict climate change through a “down-scaling model”. But they also learned that it is difficult to predict climate in the future, so they recognized they needed more study and observation for climate. In this point, we think it was successful in introduction of the concept of climate change adaptation by conducting this workshop.

VI. Study Meeting on Water-Related Disaster and Its Management in Asian Countries

Study Meeting dates:
16th – 21st February 2009
Venue: Hoi An, Viet Nam
Participants:
5 delegates from 5 countries

The study meeting on Water-Related Disaster and Its Management in Asian Countries was held jointly with IWRM training in 2009 in Viet Nam as a follow-up workshop to prepare an interim report on the theme. Participants from Indonesia, Philippines, Sri Lanka, Thailand and Vietnam worked hard on their interim reports. Their contents were primary action plans of each participating country. It is desirable if their primary action plans would be further reviewed and enhanced on the next stage.

The Result of this meeting, primary action plans were summarized by NARBO secretariat and disseminated at the 5th World Water Forum.

VII. Twining Program

1) What is Twining Program?

Agreements on Twining Program were concluded between Japan Water Agency (JWA) and Indonesian NARBO, Viet Nam NARBO and Sri Lanka NARBO. The personnel exchange program under Twining Program is a part of NARBO activities to share knowledge and information among NARBO member organizations and enhance their capacity to implement IWRM (Integrated Water River Management).

Based on the agreement, personnel to/from JWA and Indonesia NARBO had been dispatched annually. First personnel were exchanged in 2005.

It is convincing that this personnel exchange program benefits both of the NARBO members. Any of NARBO members is highly welcomed to join this program.

2) Brief Report of Activities in 2008

Mahaweri Authority of Sri Lanka (MASL) accepted four JWA staffs in May for around two weeks, and JWA accepted three staffs from Ministry of Agriculture and Rural Development, Viet Nam in November for around three weeks.

>Sri Lanka

A survey on water resources management was conducted by JWA, and practical knowledge of water resources management was exchanged between MASL and JWA, at Head Quarter, Dam management offices and irrigation system management offices. Based on them, it was succeeded that consensus building among related organizations about support by JICA expert for capacity development with MASL as a collaboration project.

>Viet Nam

This program consisted of field visits, sharing information and lectures.

JWA arranged field visits to JWA's facilities which are Gunma Canal Comprehensive Redevelopment, Operation and Maintenance Office, Lake Biwa Comprehensive Operation and Maintenance Office, Hiyoshi Dam and Hitokura Dam.

Lectures were arranged in the field of environment, compensation, canal engineering, public relation and the IWRM Guideline.

JWA staffs and Vietnamese staffs exchanged Q&As about the operation and the management of water resources facilities between them.

There were two presentation sessions; the first session was the explaination of their operation and management of water resources facilities and the second session summarized what they had learned during the program.

4. NARBO members' information (Summary)

Organizations are arranged in alphabetical order of the abbreviation.

If you want to read more, please see NARBO website.

[URL: http://www.narbo.jp/data/02_ar.htm]

(1)Jasa Tirta I Public Corporation (PJT I)

Date of preparation: 20/03/2008

Name of the editor: Tjoek W. Subijanto, Harianto, Harry M. Sungguh

1. About the organization

(1) Name of the organization and postal address of the office

Jasa Tirta I Public Corporation (PJT I),

Jalan Surabaya 2A Malang, East Java, Indonesia 65115

(2) The representative of the organization

Mr. Tjoek Walujo Subijanto, President Director

(3) Purposes and roles of your organization

a) Historical background of the organization

The history of PJT I can not be separated from Brantas River basin development which commenced in 1961. The development is conducted on series of master plans that involves stage-wise planning in accordance to the national development requirements. These master plans are summarized below:

- Master Plan I was prepared in 1961, emphasizes on flood control by developing dams at the upper reaches and river improvements to increase flood relief capacity.
- Master Plan II was prepared in 1973 after most objectives of the first master plan were achieved. This master plan was founded in accordance to the government policy on flood sustainability, by emphasizing on irrigation development.
- Master Plan III was prepared in 1985 after irrigation schemes were developed in the basin and as result of the irrigation development, agricultural intensification was made possible. The third master plan emphasizes on water supply for domestic and industrial uses, as more urban area is evident in the basin.
- Master Plan IV was prepared in 1998, to emphasize on effective water resources conservation and management.

Development in the basin resulted into 8 reservoirs (Sengguruh, Sutami, Lahor, Wlingi, Lodoyo, Selorejo, Bening and Wonorejo), four river improvement schemes, three barrages, and three rubber dams. Total investment in water resources infrastructure is priced Rp 7.63 trillion based on the year 2003 price level (US$ 0.097 billion, Yen 78.8 billion, Rp. 258.9 billion).

After construction period in Brantas River basin, it is necessary to maintain function of the completed infrastructures in order to ensure maximum benefit to achieve the designated technical life span and to achieve sustainable development. Adequate operation and maintenance activities are necessary to be conducted by a permanent institution, with professional staff and adequate budget. Further, it is necessary to maintain the function of the water resources infrastructures to ensure optimum benefit at their planned lifetime. Adequate operation and maintenance (O&M) activities are necessary to be performed; however, these activities encountered specific problems as follows:

1) Institution

   Until 1990, the Brantas River basin has no permanent institution that could perform O&M activities in a conceptual and sustainable manner. Brantas River Basin Development Project (BRBDP) is a temporal institution whose duty is only to carry out the construction and not the O&M. Since there are many sectors in utilization of water resources in the basin, and in the other hand, the water availability is much influenced by climate and human activities, this condition will lead to conflict among uses and users. Then it is required a neutral institution to manage water resources in the basin to meet the various needs.

2) Funding

   BRBDP who had then to carry out the O&M, encountered problems in obtaining fund for these activities due to the limited National Government Budget.

3) Water Resources Degradation

   Lack of O&M budget resulted in degradation of the water resources infrastructures, and less coordination among related agencies complicated the water resources management. This scheme posed risk of water resources degradation, which in the long run shall harm economic development of the basin. Whereas water degradation is evident, sustainable resources are at risk.

   To cope with the above problem, PJT I was established in 1990, having working area in the Brantas River basin consist of its main river and 39 tributaries. Based on Presidential Decree No. 129 of 2000, Bengawan Solo

River basin consists of its main river and 24 tributaries was added as *PJT I* working area.

b) Purposes and roles of the organization

The purpose and objective of PJT I are to conduct public utilization on water resources in sufficient and high quality manner for fulfilling public needs, and carry out specific tasks given by the Government in performing river basin management and to join national economic development by participating on national development program especially in water resources management sector.

Main tasks of PJT I based on Ministry of Public Works Regulation No. 56/PRT/1991 on General Policy of PJT I Management (Article 6) are as follows:

- Perform operation and maintenance of the water resources infrastructures;
- Economic dealings in water utilization;
- River basin management including water resources conservation, development and utilization, and;
- Rehabilitation of the water resources infrastructures.

In the framework of performing the main task to perform operation and maintenance of the water resources infrastructures, in the field of operation, PJT I has a vital role in the activities as follows: licensing for water resources utilization, water allocation, flood control, and pollution monitoring. In performing these activities, PJT I coordinates and cooperates with related institutions, particularly with Local Government in the operational matters.

(4) Outline of the organization

1) Number of staff

Number of staff as of December 2008 is 632.

2) Amount of the annual budget in 2008

- O & M cost for 2008 = Rp 67,518,700,000.00
- Water Resources Conservation cost for 2008 = Rp 2,762,210,000.00

(Data from Prognosa 2008 (unaudited), the officially finance report is being audited by authorized auditor)

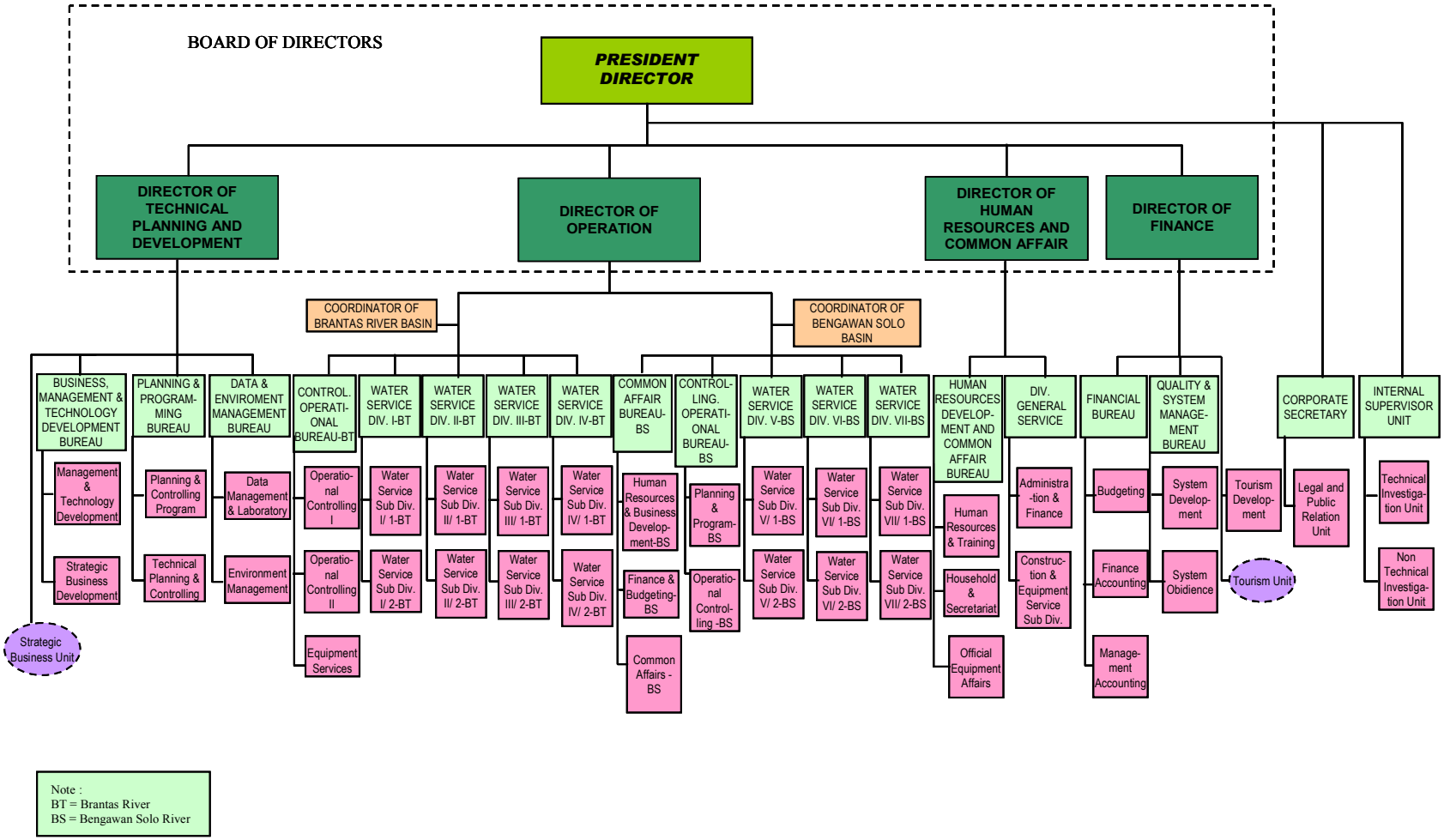
3) Organizational chart

See the attachment

4) Ongoing projects

-

ORGANIZATION STRUCTURE OF JASA TIRTA I PUBLIC CORPORATION



(5) Main events in 2008

- Organize RBO Performance benchmarking RETA-6351 INO Catalyzing Performance Benchmarking of River Basin Organization in Indonesia, July - November 2008.
- Organize Southeast Asia 5-days Training on Effective IWRM Implementation in River Basin for River Basin Organization, Malang, Indonesia, 23-28 November 2008.
- Sign MoU with Ebro River Basin Institute, Spain, 12 September 2008.

2. About NARBO activity

(1) The contact person and organization's web-site

1) The name, position, phone & fax number, e-mail address of the contact person
   Mr. Harry M. Sungguh, phone: +62 341 551971, email: blb@jasatirta1.go.id
   Mr. Fahmi Hidayat, phone: +62 341 551971, email: hidayat.f@gmail.com
   Ms. Astria Nugrahany, phone: +62 341 551971, email: birolitbang@telkom.net
2) The organization's website URL (English and local language respectively)
   http://www.jasatirta1.go.id

(2) Activities your organization implemented in 2008 as the member

- Regional Workshop on Developing Partnerships for Water and Climate Change Adaption, Selangor, Malaysia, 1-5 December 2008.

(3) Resolutions and expectations for NARBO activities in 2009

1) Your organization's resolutions
   PJT I will involve and participate actively in implementing NARBO activities in 2009 in order to reach 1) the goal of NARBO i.e. to help achieve IWRM in river basins throughout Asia, and 2) the objective of NARBO i.e. to strengthen the capacity and effectiveness of RBOs in promoting IWRM and improving water governance, through training and the exchange of information and experience among RBOs and their associated water sector agencies and knowledge partner organizations in Asia and to advise on the establishment of RBOs in Asia.
2) Expectations of NARBO activities
   Exchange and sharing of information, good practices and lessons learned for IWRM among the NARBO members, training workshop, staff exchange, etc. should be continued and advanced.

3. Questions to RBO members

(1) Areas which your organization has improved the performance in 2008

Operation and maintenance of water resources infrastructures can be conducted better than previous years

(2) The way in which your organization was able to do so

- We provide more budgets for O&M activities. The budget is mainly provided

by the commercial users as well as of the revenue from non water resources services.

- We have good cooperation with other agencies such as Balai Besar Wilayah Sungai Brantas and Bengawan Solo (Public Utility type RBOs in the basins) in performing O&M works.

(3) In what way NARBO has helped your organization

Through NARBO, activities such as training, twining program etc, we can exchange and sharing information, good practices and lesson learned for IWRM and also conducting workshop and staff exchange.

(2)Jasa Tirta II Public Corporation

Date of preparation : 31/03/2009

Name of the editor : Ir. Djendam Gurusinga, Dipl. HE

About the Organization

1. Name of the Organization

Jasa Tirta II Public Corporation in English or Perusahaan Umum (Perum) Jasa Tirta II in local Bahasa Indonesia or PJT2 in short.

2. Purposes and roles of your organization

Historical background of the organization

In 1956 Ir. H. Djuanda, the Prime Minister of Indonesia declared the commencement of Jatiluhur Multipurpose Project. The main aim of the project was to enhance the rice production to achieve self-supporting national staple food. The project comprised of two major activities, namely, construction of a dam across Citarum River to create a reservoir with impounding capacity of $3.0 \times 10^9 m^3$ including the hydroelectric power plant with the install capacity of 150 MW, and develop technically irrigation system over 240,000 ha of paddy field in the north plain of West Java Province. The project finished in 1967, since then the dam, the reservoir and the power plant were named Ir. H. Djuanda.

The benefits reveal upon the completion of the project, among other: (1) flood occurs during rainy season that inundated 20,000 ha of fertile land in the North plain could be minimized, (2) farmers have the opportunity to cultivate paddy with technically irrigated system over an area of 240,000 ha, two crops per year, (3) raw water supply for domestics, municipalities and industries especially for Jakarta the Capital City of Indonesia, (4) hydropower plant with the installed capacity of 150 MW, (5) fresh water

as well as brackish water fisheries development in coastal area, and (6) beautiful scenery surrounding the reservoir for tourism and water sport.

After the construction project finished in 1967, the Government of Indonesia (GOI) through the Ministry of Industry established the Jatiluhur State-own with the Government Regulation No. 8/1967 dated 24 July 1967. This company was intended to optimize the Jatiluhur Hydro-electric Power Plant (HEPP) generation. As a corporation, the Jatiluhur State-own Company was aimed to gain profit. Thus the operation of reservoir was designed to obtain the maximum revenue from the Jatiluhur HEPP production. In the meantime, the water resources infrastructures for irrigation and other purposes that completed in 1968 was handled by three institutions, those are : West Java Public Works for Purwakarta Region (under West Java Provioncial Government), Jatiluhur Irrigation Project (under Ministry of Public Works), and Jatiluhur Tertiary Irrigation Project (under Ministry of Home Affairs).

In 1969 the Jatiluhur Irrigation Board was established to coordinate and optimize the reservoir operation for multipurpose, consisted of those four related institutions, (1) Jatiluhur State Own Company, (2) West Java Public Works for Purwakarta Region (under West Java Provioncial Government), (3) Jatiluhur Irrigation Project (under Ministry of Public Works), and (4) Jatiluhur Tertiary Irrigation Project (under Ministry of Home Affairs). The reservoir operation then operated firstly to meet the downstream requirements,i.e. irrigation, domestic, municipal, and industry, not only to maximize the Jatiluhur HEPP production. In 1970 those four institutions were merged became the Jatiluhur Public Authority (POJ) based on Government Regulation (GR) No. 20/1970. After the POJ establishment in the Jatiluhur Irrigation Board was not longer existed.

The POJ has tasks and responsibilities to maintain sustainability of water resources in the basin and extends operation and maintenance of water resources infrastructures and the hydroelectric power plant. The entity also collected the contribution from the beneficiaries of water services for running the operation and maintenance of the system. In the year 1999 the name of the entity was changed to Jasa Tirta II Public Corporation (PJT 2) with the tasks and responsibilities remain the same.

The summary of the historical development of the PJT II is shown in **Table 1**.

Table 1 Historical Development of the PJT II

Name of the organization	Period / Legal	Tasks
Jatiluhur Multipurpose Project	**Construction Period** (1956 -1967)	To construct and develop the Jatiluhur dam, its reservoir and hydroelectric power generation including the irrigation infrastructures downstream of the dam
▪ Jatiluhur State-own Company	**Operation and Maintenance Period** (1967-1970)	To manage the Jatiluhur dam and its reservoir especially the hydroelectric power generation
▪ Jatiluhur Tertiary Irrigation Project ▪ Jatiluhur Irrigation Project. ▪ West Java Public Works	(1967-1970)	To manage the Jatiluhur irrigation area and other water resources infrastructures downstream of the dam after the completion of the Jatiluhur Multipurpose Project.
Jatiluhur Authority Public Corporation	**Operation and Maintenance Period** Based on GR: □ No. 20/1970, May 23rd 1970 □ No. 35/1980, October 13rd 1980 □ No. 42/1990, August 23rd 1990	Incorporates the company purposes for profit making besides the social tasks of managing the water resources supply system downstream of the dam.
Jasa Tirta II Public Corporation	**Operation and Maintenance Period** Based on GR: □ No. 94/1999, October 13th 1999	Managing water resources in the Citarum river basin based on the integrated water resources management principles.

Purposes and Roles of the Organization

Based on the GR No. 94 in the year of 1999, the PJT II has tasks and responsibilities at the Citarum river basin on:

1. Operation and maintenance of the water resources infrastructures and hydroelectric power plant,
2. To carry on business on water resources and hydroelectric power generation,
3. To conduct the river basin management, i.e., conservation, development, and utilization of the water resources,
4. To do the rehabilitation on the hydroelectric power plant.

Number of Staff

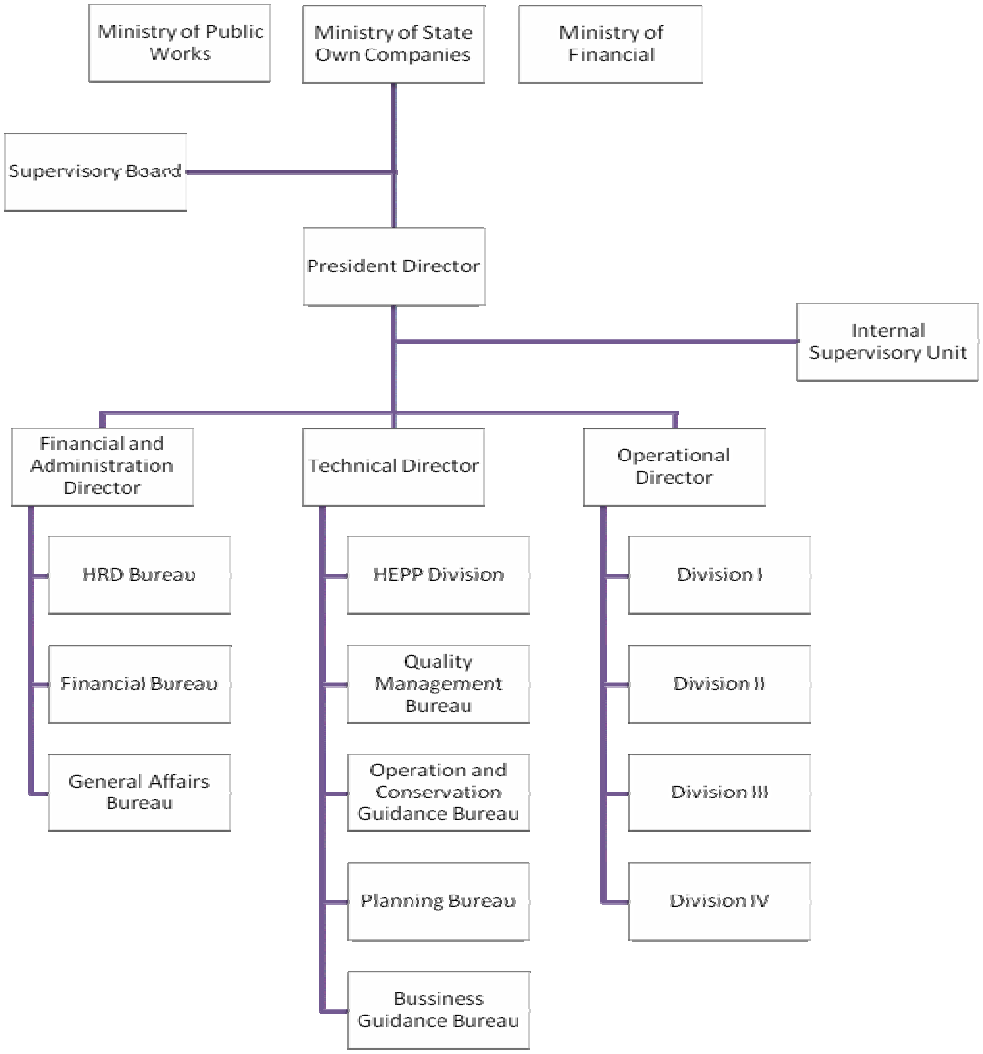
The number of staffs as 31st of December 2008 was 1.406 employees, which classified by education as presented in the following table:

Education Level Description		Number of Staffs
1	Post Graduate (master degree)	44
2	Undergraduate (bachelor degree)	140
3	Higher Education School	124
4	Senior High School	524
5	Junior High School	456
6	Elementary School	118
	Total	**1.406**

Amount of the annual budget in 2008

Total annual budget of PJT 2 in 2008 was IDR 282,107.99 million equal to USD 25,646,180.91.

Organizational chart



Ongoing project

Most activities done by PJT 2 in the Citarum River Basin are routine and operational project, such as:

a. Rehabilitation of the water resources infrastructures (rising canal embankment, intake gate for irrigation area, canal, etc),
b. Installation of flow meter for industrial intakes,
c. Rehabilitation of Hydro-Electric Power Plants Unit 6 (30 MVA),
d. Modernisation of Hydro-electric Power Plant especially Programmable Logic Control (PLC) / automatic system
e. Decision Support System (DSS) for water quality management project.
f. PLC Unit 1 pump for water supply to Jakarta.
g. Public water supply development for 3 sub-district
h. Improvement of GIS based water resources information system.
i. Pilot and demonstration activities on water saving agriculture collaboration with Department of Agriculture,
j. Community based on Citarum lower flood plan management.

Main events in 2008

a. Rehabilitation of Hydro-electric Power Plant especially improvement and changing of transformer.
b. Improvement of water quality monitoring for the water quality conducting to water pollutant.
c. Improvement of automatic water level and rainfall telemetry system.
d. Capacity Development Project for River Basin Organizations in Water Resources Management and Technology
e. Re-Stocking of fish in Jatiluhur reservoir.
f. Re-Greening of Ubrug saddle dam and Djuanda dam green belt.
g. Re-arrangement and zoning the fish culture in Jatiluhur reservoir.

About NARBO Activity

1. Activities your organization implemented in 2008 as the member

a. As participant on the 3rd General Meeting of NARBO, 20 - 22 February, 2008 in Solo, Indonesia.
b. As participant on the 2nd Thematic Workshop on Water-Related Disaster and Its Management in Asian Countries, 7 – 8 October, 2008 in Manila, Philippine.
c. As participant on the Regional Meeting on Hydro-Informatics and Developing Knowledge Hub Networks, 15 – 17 October, 2008 in Zhengzhou, People's Republic of China.

2. The contact person and organization's website

2.1 The name of the contact person and contact number (including e-mail address)

Name : Herman Idrus, CES

Position : Head of Planning, Research and Development Bureau

Phone number : +62 216828

Mobile phone : +62 811 837 964

E-mail address : planning@jasatirta2.co.id / herman_idroes@yahoo.com

2.1.1. Organization's web-site URL (English and local language)

Website : www.jasatirta2.co.id

URL : http:/jasatirta2.co.id

3. Resolutions and expectations for NARBO activities in 2008

3.1 Your Organization's resolutions

Human resource is one the importance assets to be maintained and highly contributes to the implementation of IWRM. Strengthening the capacity and effectiveness through regular training both of external and internal are helping to achieve the goal of NARBO.

3.2 Expectations of NARBO activities

To promote the close relationship among the NARBO members more capacity building for the young engineer of NARBO members is expected, such as by establishing Young Scientist Program or similar program that combines between practical exercises and lesson learned from existing institutions on water quality management, wastewater treatment plant operation, multiple reservoirs operation, and attending exhibitions to get acquainted with industries. To create closer relationship among the participants can be done by group exercises and making individual presentations.

4 About the NARBO web-site (http://www.narbo.jp)

4.1 Whether you can access to the NARBO web-site.

Yes

4.2 Whether you can access to the ADB's web-site (http://www. adb.org/) and the ADBI's web-site (http://www. adbi.org/)

Yes

4.3 Who can accesses NARBO web-site usually?

Everybody in the Head Office of PJT II around 300 employees.

4.4 How often do you access to the NARBO web-site on the average?

Once a week or whenever it is necessary, especially if there is activity related to NARBO

4.5 What content are you interested in most and what information do you want to get from the NARBO web-site?

The Capacity Building Activities and Twinning Program.

4.6 What do you think we need to do to get more hits to the NARBO web-site?

Put link of the NARBO web-site into websites of river basin organizations, or vice versa.

4.7 What do you think we need to do to stimulate information exchange among members through the NARBO web-site?

Embrace more young participants from the NARBO members which are more familiar to the information technology.

(3) Japan Water Agency (JWA), Incorporated Administrative Agency

1. About the organization

(1) The representative of the organization

Mr. Toshiki AOYAMA, President

(2) Number of staff

1,579 (As of 2008)

(3) Amount of the annual budget in 2008

260 bil. JPY (2.6 bil. USD)

(4) Main events in 2008

1) Construction works (excavation) of Oyama Dam body has started.

2. About NARBO activities

(1) The organization's web-site URL

English: http://www.water.go.jp/honsya/honsya/english/top.html

Japanese: http://www.water.go.jp/

(2) Activities the organization implemented in 2008 as the member

Japan Water Agency has played a key roll in NARBO activities as the main secretariat together with ADB and ADBI and as the member organization.

- As the main secretariat
  - Administration of the website with frequent update and improvement of contents.
  - Issue of newsletter (No.12 to No.16 in March)
  - Issue of NARBO annual report 2007 in July.
  - Thematic Workshop on "Water Allocation and Water Rights"
    (The 4th in late January in Japan and follow-up in late May in Philippines)
  - Thematic Workshop on "Sustainable Management for Water Resources Infrastructures"
    (The 1st-3rd in middle June, late October and middle December in Viet Nam, Bangladesh and Sri Lanka respectively)
  - Thematic Workshop on "Water-Related Disaster and Its Management in Asian Countries"
    (The 1st in late November in Indonesia)
  - Attending the 3rd Southeast Asia Water Forum in late October in Malaysia and having some presentations together with the Vice-Chairperson
  - Holding NARBO symposium on "Catalyzing IWRM Investment in Asia-Pacific Region" as an open event of The 1st Asia Pacific Water Summit held in early December in

Japan

- As the member organization
  - Submitting Member's annual report 2008 in March
  - Accepting staff through Twinning Program between JWA and Vietnam NARBO

(3) Resolutions and expectations for NARBO activities in 2009

1) The organization's resolutions

Japan Water Agency will continue to play a key roll in NARBO activities as the main secretariat together with ADB and ADBI and as the member organization.

2) Expectations of NARBO activities

We secretariat really expect members' cooperation in NARBO activities.

(4)Mahaweli Authority of Sri Lanka

NETWORK OF ASIAN RIVER BASIN ORGANIZATIONS (NARBO)

Annual Report 2008 - Mahaweli Authority of Sri Lanka (MASL)

Date of preparation: **18th** March 2009
Name of the editor**: Sudharma Elakanda**
Project Director, DSWRPP /MASL

1. About the organization

(1) Name of the organization and postal address of the office

Mahaweli Authority of Sri Lanka

(2) The representative of the organization

Eng H P S Somasiri, Acting Director General of MASL

(3) Purposes and roles of your organization

a) Historical background of the organization

The Mahaweli Ganga Development Progrmme, the largest integrated rural development multi-purpose programme ever undertaken in Sri Lanka, was based on water resources of Mahaweli and allied six river basins. Main objectives were to increase agricultural production, hydro-power generation, employment opportunities, and settlement of landless poor and flood control. The programme originally planed for the implementation over a 35-year period was brought to acceleration in 1979,with incorporation of Mahaweli Authority.

The total Mahaweli Project Area covers 39 percent of the whole island, 55 percent of the Dry Zone, and encompasses 60 percent of the irrigable land area of Sri Lanka.

The Project is to provide Irrigation water for agriculture and water for domestic use, generate hydro-power for the whole range of agro-based industry in the Mahaweli areas

and elsewhere, provide effective flood control and most importantly open up new land for agriculture development.

The project comprises five Major Dams; Kotmale, Victoria, Randenigala–Rantambe, Maduru Oya and Moragahakanda which is being constructed now..

b) <u>Purposes and roles of the organization</u>

The primary task of MASL has been and remains "the improvement of human life in the Mahaweli impacted areas".

(4) <u>Outline of the organization</u>

1) Number of staff - ***4670 Nos.***

2) Amount of the annual budget in 2008 – ***US $ 49 million***

3) Organizational chart

Attached (Attachment 1)

4) Ongoing projects

As follows:

- ***<u>Moragahakanda & Kaluganga Development Project</u>***

Moragahakanda & Kaluganga Development Project is the largest reservoir project to be taken up for development under the Mahaweli River Development Programme. A full feasibility study of the Moragahakanda Project combined with the Kaluganga Development Project was completed in 2004 by the Lahmeyer International, in association with the Central Engineering Consultancy Bureau (CECB) of Sri Lanka, United Consulting Group (KUWAIT) and Chuo Kaihatsu Corporation, Japan. The project area is located in the Central and North Central Provinces in Sri Lanka. The investment cost of the project is US $ 425 million. The Economic Internal Rate of Return (EIRR) is 22%.Kuwait has already provided US$ 37 million for the detailed designs of the project and JICA, SFD are now committed to co-finance the project.

- ***<u>Dam Safety & Water Resources Planning Project (DSWRPP)</u>***

The Dam Safety & Water Resources Planning Project (DSWRPP) is to be implemented by the Ministry of Agricultural Development and Agrarian Services (MADAS) of the Government of Sri Lanka with the financial assistance from the International Development Association

(IDA) of World Bank. The project cost is US$71.66 million will be implemented within 4 years period from mid 2008. Seven stake holder agencies namely MASL, ID, CEB, NASDB, MD, WRB & DMC are involved with the implementation of the project.

The Major Components of the Project are as follows:

1. *Dam Safety and Operational Efficiency Improvement*
2. *Upgrading & Moderenizing of Hydro-meteorological Information System (HMIS)*
3. *Technical Assistance for Multi-sectoral Water Resources Planning:*
4. *Institutional Development and Capacity Building*

Improve the development and management of water resources within the country, reduce water-induced hazards to public, and enhance effectiveness of water related investments are the objectives of the Project.

- ***Mahaweli System B – Maduru Oya Right Bank Development Project***

Since the commencement of the project formulation of the Mahaweli Ganga Development Programme various agencies under taken survey of the irrigation potential of the Mahaweli System B – Maduruoya Right Bank Project and found that the project is economically and technically feasible and several funding agencies pledged their support for the development efforts. But, the terrorist activities prevented the commencement of development activities until recently.

Now Eastern Province of the country has totally liberated and Government focused on all development work in the province.

Development of the East of Sri Lanka in every possible sphere is the main objective. Resettlement and development are vital components of this mission. The GOSL, set up a special programme named "Negenahira Navodaya' to achieve this task under the Ministry of Nation Building. All the government organizations concerned were assigned to carryout specific functions. In this respect MASL was assigned to implement the development of the Zone 6 of Mahaweli System B, Maduru Oya Right Bank, immediately, in order to commence cultivation in the new lands under medium size commercial farms through funding by the private sector investors. The investors are to be provided with a 20 ha. Farm-Plot with an access to water for cultivation and a motor enable access to the farm plot. Until, the completion of the construction and commissioning of the necessary downstream irrigation infrastructure, prospective farmers can utilize ground water as well as stream flow as water for cultivation and livestock development. At present there is a demand from the investors for land for commercial production of crops, livestock etc. to cater the needs of the local and export markets. The Proposed project would attract the private sector to develop the area as a production

base. The participation of the Private Sector in the development process will reduce the financial burden on the GOSL.

Present development scenario for immediate development needs of Zone 6 of Mahaweli System B-RB will comprise following specific objectives.

- ***Economic development through commercial farming with the participation of private sector investors.***
- ***Utilization of available arable land and water resources.***

Following are the identified project activities

- ***Preparation of blocking out plans of 20 ha. lots (250 Nos.) for commercial farming***
- ***Erection of 2 Nos. Bailey bridges***
- ***Construction of access roads of 60 kn.***
- ***Staking out of commercial farm lots***
- ***Selection of Investors for commercial farming***
- ***Alienation of commercial farms***
- ***Monitoring and follow up***

Mahaweli System B Consolidation Project

With Rs 400 million GOSL funds MASL has undertook design and implementation of remedial work of rehabilitation of Left bank Irrigation System and work is now going on successfully.

(5) Main events in 2008

- ***Dam Safety & Water Resources Planning Project was officially launched 14th August 2008, with the participation of His Excellency President of Democratic Socialist Republic of Sri Lanka.***
- ***Organized and Conducted Technical Workshop on "Project Launching of Dam Safety & Water Resources Planning Project" 15-16 August 2008.***

2. About NARBO activity

(1) The contact person and organization's web-site

1) The name, position, phone & fax number, e-mail address of the contact person

Sudharma Elakanda, phone: 0094-11-2675315 , fax: 0094-112691163
e-mail: elamrrp@sltnet.lk
Dam Safety & Water Resources Planning Project. (DSWRPP)

2) The organization's website URL (English and local language respectively)

http://www.mahaweli.gov.lk

(2) Activities your organization implemented in 2008 as the member

- ***Attended and actively contributed for the 3rd General Meeting of NARBO, 18th – 22nd February 2008, Solo, Indonesia.***
- ***Attended for the Review Workshop on Water Related Disasters in Asia, 6th -10th October 2008, Philippine.***
- ***Attended for the Workshop on Developing Partnership for Water & climate Change Adaptation, 1st – 5th December 2008, Selangar, Malaysia***
- ***Four members team from JWA attended to Twining program in Sri Lanka for 3 weeks period and studied Sri Lankan Water sector thoroughly and submitted a report.***

(3) Resolutions and expectations for NARBO activities in 2008

1) Your organization's resolutions

No

2) Expectations of NARBO activities

Sharing experience among member countries through Training Programmes, Twining Arrangements, Thematic Workshops, Peer Review of RBO etc., also willing to organization Training Programmes in Sri Lanka too.

3. Questions to RBO members

(1) Areas which your organization has improved the performance in 2008

How climate change create impacts on Mahaweli Project and on Food Production Program of Sri Lanka. Understood need of aware more public on this matter and keep all alert on this issue.

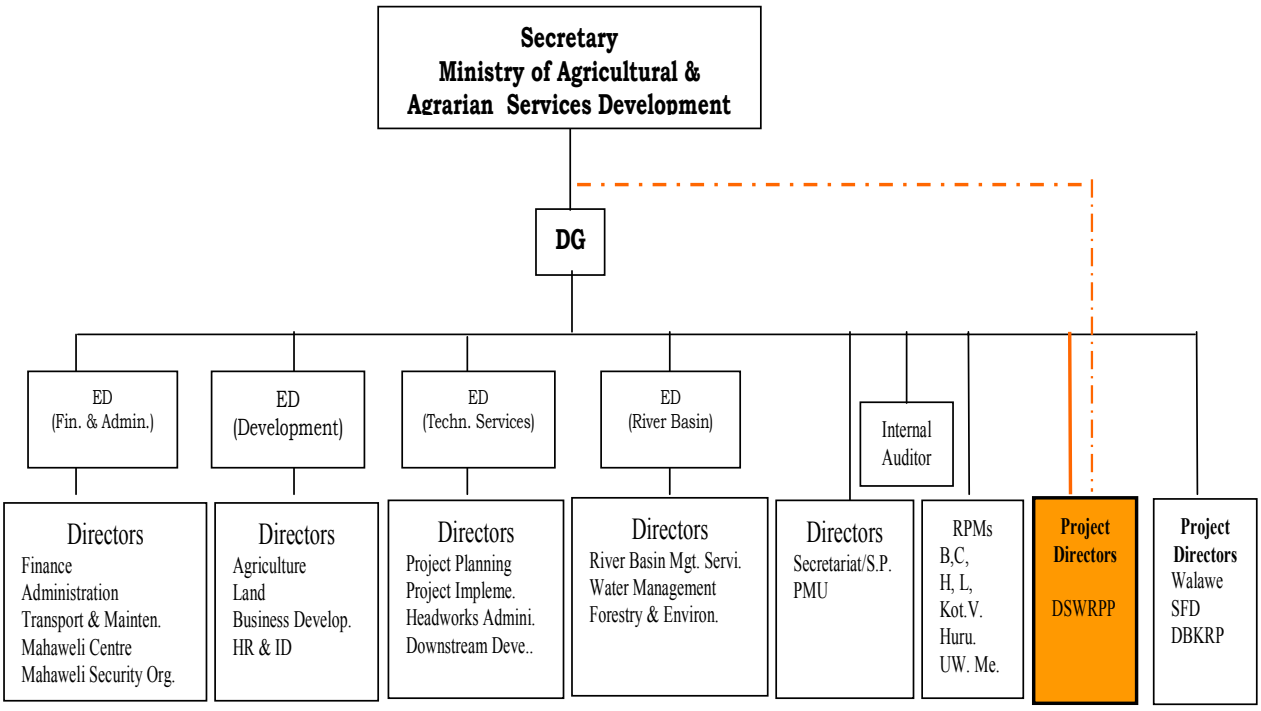
(2) The way in which your organization was able to do so

After having exposed to some of the NARBO program and internal discussions made us to initiate such actions.

(3) In what way NARBO has helped your organization

Sri Lankan NARBO should encourage more & more members to join NARBO and make them exposed to such programs so that they could disseminate the massage effectively.

Attachment 1



(5)Mekong River Commission

Date of preparation: March 17th, 2009
Name of the editor: Michael Lowry

1. About the organization

(1) Name of the organization and postal address of the office

Mekong River Commission
PO Box 6101, 184 Fa Ngoum Road, Ban Sithane Neua,
Vientiane, Lao PDR

(2) The representative of the organization

Mr. Jeremy Bird, Chief Executive Officer, MRC Secretariat

(3) Purposes and roles of your organization

a) Historical background of the organization

The Mekong River Commission (MRC) was formed on 5 April 1995 by an agreement between the governments of Cambodia, Lao PDR, Thailand and Viet Nam. The four countries signed The Agreement on Cooperation for the Sustainable Development of the Mekong River Basin and agreed on joint management of their shared water resources and development of the economic potential of the river. The MRC has a foundation of over 50 years of knowledge and experience in the region starting from 1957, when it began life as the UN-founded Mekong Committee. China and Myanmar are also Dialogue Partners of the MRC.

b) Purposes and roles of the organization

The MRC is an international river basin organization that provides the institutional framework to promote regional cooperation in order to implement the 1995 Agreement. The MRC is owned by and serves its Member States by supporting decisions and promoting action on sustainable development and poverty alleviation as a contribution to the UN Millennium Development Goals. The MRC supports the Mekong Programme and a Regional Cooperation Programme for the Sustainable Development of Water and Related Resources in the Mekong Basin. The overall goal of the MRC is to support its Member Countries for:

“More Effective Use of the Mekong’s Water and Related Resources to Alleviate Poverty While Protecting the Environment”

The 2006-2010 Strategic Plan sets forth the following four goals:

- Goal 1: To promote and support coordinated, sustainable, and pro-poor development;
- Goal 2: To enhance effective regional cooperation;
- Goal 3: To strengthen basin-wide environmental monitoring and impact assessment;
- Goal 4: To strengthen the Integrated Water Resources Management capacity and knowledge base of the MRC bodies, National Mekong Committees, line agencies, and other stakeholders.

(4) Outline of the organization

1) Number of staff

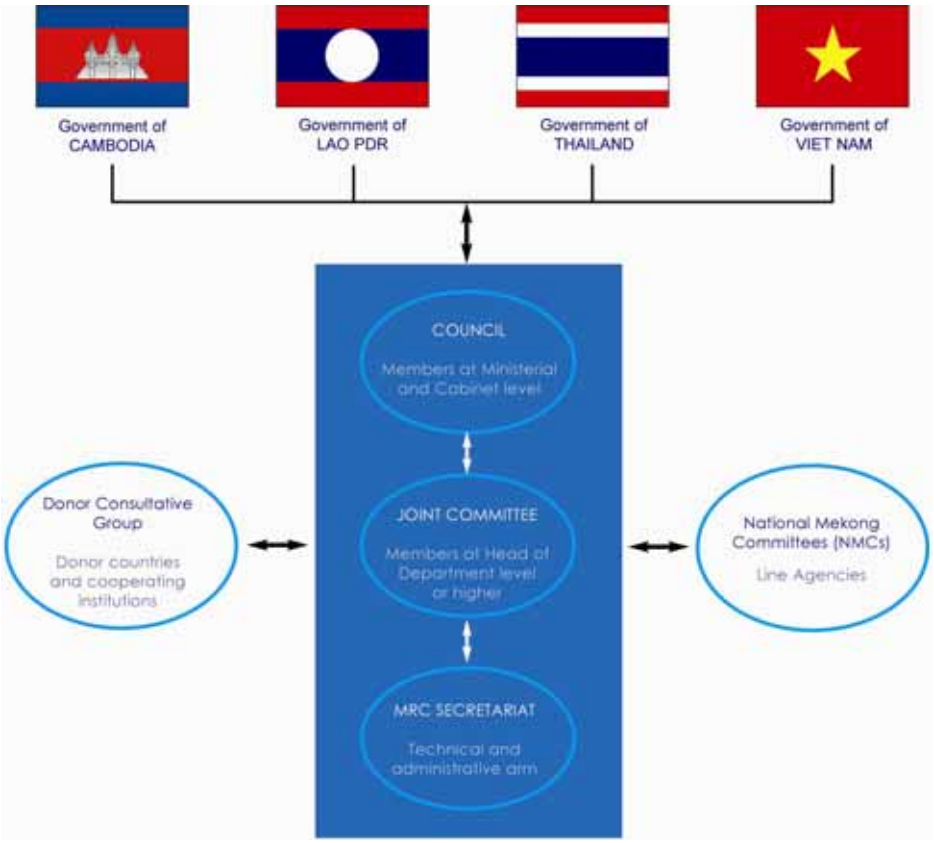
150 staffs

2) Amount of the annual budget in 2008

The total expenditure in 2008 was USD 16,393,276.

3) Organizational chart

MRC Organizational Structure

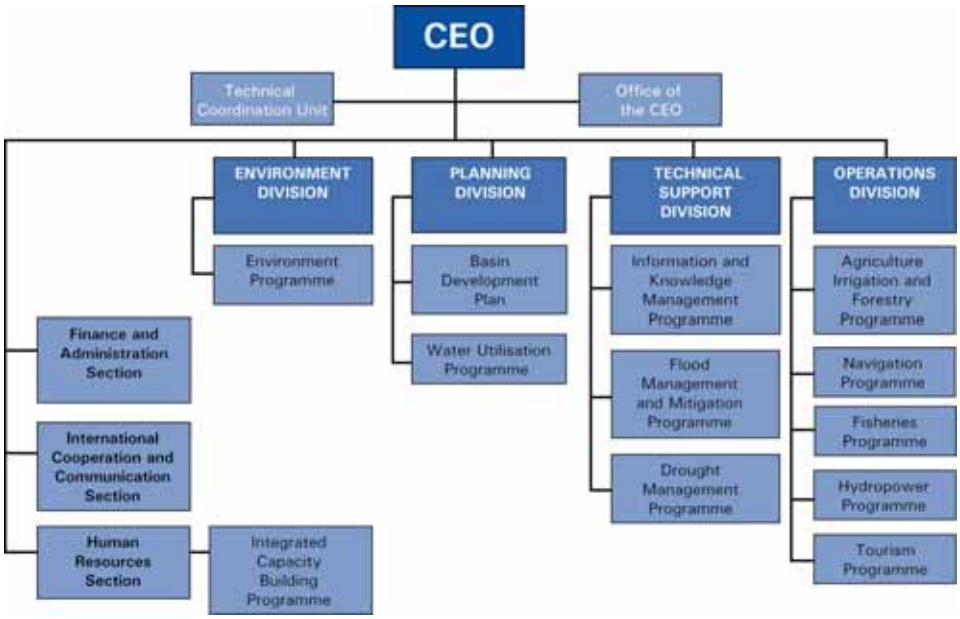


Our Dialogue Partners

China

Myanmar

MRC Secretariat Structure



4) Ongoing projects

The MRC is engaged in a Regional IWRM Support Programme, and maintains an integrated approach to its programme work. MRC programmes are structured in a way that emphasizes their complementarities and their importance as a whole. Within the programme structure the Basin Development Plan plays a pivotal role, using knowledge acquired from the programmes to build an overall perspective of development needs and 'pertinent knowledge gaps'.

Basin Development Planning

Objective: To formulate the basin-wide plan for water resources development; to identify, categorized and prioritized project, programme and investment opportunities, to assist and support countries in implementing them at basin level.

Components: Planning Capacity and Tools; Development Strategy and Investment Plan; Support to National IWRM; Project Portfolio Identification and Promotion.

Mekong Integrated Water Resource Management Project

Objective: To strengthen the regional enabling framework for the implementation of IWRM in the LMB countries; to contribute to the implementation of IWRM at the national and sub-basin levels; and to demonstrate mechanisms for the implementation of IWRM at trans-boundary project levels.

Components: Regional Component - Enabling framework for the implementation of IWRM at the interface between the basin and national levels; National Component – Implementation of IWRM at the national and sub-basin levels, Trans-boundary Component – Implementation of IWRM at the trans-boundary project level and for joint management of water infrastructure assets.

Integrated Capacity Building

Objective: To strengthen the capacity of MRC, the National Mekong Committees and the line agencies in all fields leading to more effective integrated water resources development and river basin Management.

Component: Training in Project Management; Training in Information Management and Communication; Training in Environmental Governance, Junior Riparian Professional Programme, Strengthening Core activities of MRC; Research Coordination; Gender Mainstreaming.

Information and Knowledge Management

Objective: To provide database, IT infrastructure, expertise and services to support planning and decision-making.

Components: Hydro-meteorological data collection and analysis Information gathering and integration; Database management; Mekong basin GIS; Remote Sensing simulation and Decision Support System; Data Exchange Policy and Procedures.

Environment

Objective: To strengthen the framework of trans-boundary environmental management by the four Lower Mekong Basin countries. To generate data, information and knowledge for decision-making; to balance economic development and environmental conservation that will benefit the Basin's inhabitants.

Components: Environmental Monitoring & Assessment; Environmental Decision Support; Environmental Knowledge; People and Aquatic Ecosystems; Environmental Flow Management.

Flood Management and Mitigation

Objective: To prevent, minimize or mitigate people's suffering and economic losses due to floods, while preserving environmental benefits. To maintain an accurate flood forecasting system and establish an effective warning mechanism, To act as facilitator on trans-boundary issues and to build capacity in member countries.

Components: Regional Flood Management and Mitigation Centre; Structural and flood Proofing Measures; Mediation of Trans-boundary Flood Issues; Flood Emergency Management Strengthening; Land Use Management.

Agriculture, Irrigation and Forestry

Objective: To preserve the integrity of the watersheds of the four countries through monitoring land use changes, identifying problems and management training. To implement technical surveys of irrigation practices to improve efficiency.

Components: Irrigation water use efficiency and productivity; Watershed Management, Challenge Programme on Water and Food.

Navigation

Objective: To promote freedom of navigation on the Mekong, increase social development, and international trade opportunities using the navigation potential for the river system**.**

Components: Social-economic Analysis and Regional Transport Planning; Legal Framework for Cross-border Navigation; Traffic Safely and Environmental Sustainability; Information, Promotion and Coordination; Institutional Development.

Fisheries

Objective: To manage the productive Mekong fisheries so as to sustain their high yield and economic output well into the future, to undertake research and training and to disseminate information to policy makers and planners in the four Lower Mekong countries.

Components: Assessment of Mekong Capture Fisheries; Institutional Support; Aquaculture of Indigenous Mekong Fish Species; Management of River and Reservoir Fisheries.

(5) Main events in 2008

New Initiatives:

Climate Change and Adaptation Initiative

The MRC Climate Change Initiative was launched by the Environment Programme in July 2008 for the period of 2008-2012. The first national consultation meetings were conducted in July-August 2008. A Regional Forum on Climate Change and Adaptation Initiative, involving relevant stakeholders was held on 2-3 February 2009 to discuss approaches, interfaces with other Climate Change initiatives and activities in the region and how to best explore the value added of the MRC Climate Change and Adaptation Initiative.

Initiative for Sustainable Hydropower

As a result of consistent economic growth, the Mekong Region's demand for energy is rapidly growing. This and the increasing importance of regional trade and investment flows have stimulated a new era of hydropower development in the basin, now mainly driven by regional private sector actors. Extreme fluctuations in oil and gas prices and concerns over climate change have intensified the focus on hydropower as a renewable technology. The Initiative for Sustainable Hydropower, launched in 2008, aims to improve understanding of the regional implications of hydropower projects. With particular focus on how the barrier effect of mainstream dams can be minimised or successfully mitigated.

Other Activities:

Strategic Plan 2006-2010

The Mekong River Commission (MRC) has entered to the fourth year of its Strategic Plan 2006-2010. With regard to the strategic direction and priorities for the remaining period, the MRC undertook a Mid-term Review of the Strategic Plan in July 2008. The review captured and integrated the perspectives of Member States, Development Partners, the Secretariat and other interested parties. The MRC dialogue partners, China and Myanmar, also had opportunity to provide input. The Mid-term Review had concluded that the Strategic Plan broadly provides the right direction to support the regional cooperation for sustainable development of Mekong water and related resources.

MRC Dialogue Partners

Cooperation with the two MRC dialogue partners, the People's Republic of China and the Union of Myanmar has been further strengthened through technical cooperation, the conduct of the regular annual Dialogue Meeting, the follow up meetings with MRC's focal point for P.R. China at Chinese Embassy to Bangkok, the visit of MRCS Delegation to Chinese Ministries in Beijing in October. The extension of the Agreement on the Provision of Hydrological Information of the Lancang / Mekong River in the Flood Season between the MRC and the Ministry of Water Resources, China which provides valuable data for MRC's flood forecasting system was signed on the occasion of the Thirteenth Dialogue Meeting in August 2008.

International Cooperation

The MOU and a Letter of Cooperation between the World Bank and the MRC was signed in October 2008. The Letter of Cooperation set out some cooperation principles and modalities which generally support the Mekong-Integrated Water Resources Management Project.

The MRC has also been actively involved in major international and regional events, such as the World Water Week in Stockholm. In September 2008, the MRC participated in the 13th International Water Resources Association (IWRA) Congress in Montpelier, France and the Mekong in Crisis Symposium, Gothenberg. The MRC also participated in the International Symposium on the Three Gorges Project and Water Resources Development and Project of Yangtze River, Yichang in October 2008.

2. About NARBO activity

(1) The contact person and organization's web-site

1) The name, position, phone & fax number, e-mail address of the contact person

Bérengère Prince

Officer-in-Charge
International Cooperation and Communication Section
berengere@mrcmekong.org
Tel: (856-21) 263 263 Ext 4070
Mob: (856-20) 782 2385

2) The organization's website URL (English and local language respectively)
www.mrcmekong.org

(2) Resolutions and expectations for NARBO activities in 2008

The MRC has taken part in NARBO's dinner meeting at the 5th World Water Forum in Istanbul.

1) Your organization's resolutions

The MRC will continue to share experience with NARBO.

2) Expectations of NARBO activities

That NARBO continues to promote international cooperation based on IWRM principles.

3. Questions to RBO members

(1) Areas which your organization has improved the performance in 2008.

Commissioning and implementation of an Independent Organizational Review.

(2) The way in which your organization was able to do so

The implementation of the Independent Organizational Review recommendations is a process for enhancing the organizational efficiency and capacity at the MRC Secretariat. Acknowledging the importance of this process, several meetings were organized in 2008, namely, the Task Force on the Organizational Structure of the MRCS and the Subcommittee on the Permanent Location of the MRCS to support the decision of the MRC Joint Committee as well as the MRC Council on the implementation of recommendations. This process is also accompanied by the Joint Contact Group meetings, bringing together MRC Member Countries and Development Partners. Against this background, the MRC has progressively addressed 20 out of 38 recommendations

(3) In what way NARBO has helped your organization

Through global and Asian promotion of Cooperation on trans-boundary water resources and IWRM

(6) Department of Water Resources , Ministry of Natural Resources and Environment

Date of preparation: 31 /03 /2009
Name of the editor: Mr.Panu Arunrat

1. About the organization

(1) Name of the organization and postal address of the office

Department of Water Resources, Ministry of Natural Resources and Environment
180/3 Rama VI Rd, Soi 34, Phayathai , Bangkok , 10400 ,THAILAND

(2) The representative of the organization

Representative: Dr.Siripong Hungspreug
Director General, Department of Water Resources

(3) Purposes and roles of your organization

a) Historical background of the organization

Because of the awareness of various water problems all over the world as well as in compliance with the Office of Prime Minister's regulation on Water Resources Management (B.E. 2532) , The National Water Resources Committee (NWRC) was appointed for solving national water resources related problems. At the end of 2002, the bureaucratic reform was implemented. The Department of Water Resources was established as a core governmental agency for solving Thailand water resources management.

b) Purposes and roles of the organization

The Department proposes policies, plans and measures for management, development, conservation, rehabilitation, supervision, direction, coordination, monitoring and solving problems relating to water resources. Its responsibilities include technical development, setting of standards, and technology transfer pertaining to water resources at the national and basin levels.

(4) Outline of the organization

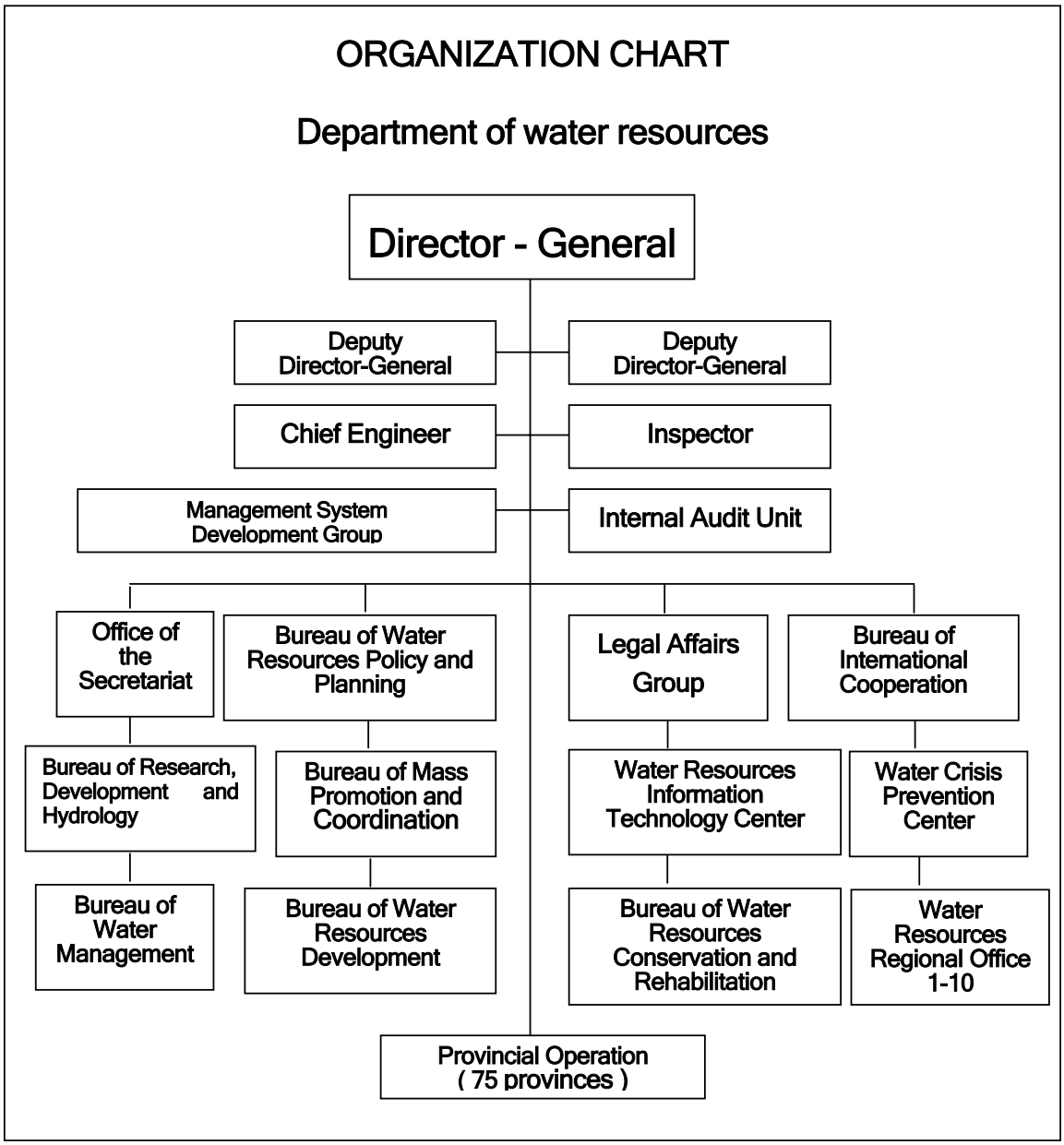
1) Number of staff

2,712 persons

2) Amount of the annual budget in 2008

3,321.487 Million Bath

3) Organizational chart



4) Ongoing projects

-

(5) Main events in 2008

Expo Zaragoza 2008

Thailand attended the Expo Zaragoza 2008 at Zaragoza, Kingdom of Spain during 14th June – 14th September 2008. The Cabinet has approved in principle and assigned the Department of Water Resources as the core responsible agency to handle the exhibition under the theme "Water and Sustainable Development". This is to celebrate His Majesty the King "The Father of Water Resources Management" on the auspicious occasion of His Majesty 80th Birthday Anniversary 5th December 2007. This exposition also aims to disseminate the good image of Thailand to the world population on the way of Thai life, culture, tradition and innovation of Thailand in sustainable water resources management.

Development of Surveillance, Forecasting and Early Warning Systems

The Department of Water Resources under the Ministry of Natural Resources and Environment has been approved by the Cabinet to install the early warning system in the flood and landslide risk areas at the mountainous slope villages all over the country covering 2,300 villages. The priority for installation is considered by risky level. In the fiscal year 2008, implementation 134 stations, and the total stations for implementation cover risky areas until year 2008 are 591 stations.

Solution for Water Shortage for Domestic use and Consumption

As the Cabinet's Resolution on 28th June 2005 approved in principle of Project of Problem Solution for Water Shortage for Domestic and Consumption, the Department of Water Resources, Ministry of Natural Resources and Environment, was assigned to implement the Project. This project aims to provide clean water for villages without water supply system or villages with existing ones but unable to produce sufficient water or not in properly function and this project implemented for village water supply system that supply sufficient water in every villages all over the country, 3,225 unit, in 2008 completely.

Water Allocation

The Department of Water Resources has implemented the Bang Pakong Dialogue since 2003 with support from ADB's RETA. This project aims to development and practice of integrated water resources management by participatory approach. In 2008, the Department of Water Resources has implemented the project titled "Water Allocation in the Bang Pakong-Prachin Buri River Basin" immediately after completion of the Bang Pakong Dialogue. Water allocation model is used for consideration of basin committees

for water management in basin and the project will be completed in 2009.

2. About NARBO activity

(1) The contact person and organization's web-site

1) The name, position, phone & fax number, e-mail address of the contact person

Contract person: Ms. Sukontha Aekaraj
Director, Foreign Relation Branch, Department of Water Resources,
Ministry of Natural Resources and Environment
e – mail: sukontha_a@dwr.mail.go.th , s.aekaraj@gmail.com , saekraj@hotmail.com
Tel : +66 22986604 ,+66 92058061 (Mobile) Fax : +66 22986604

2) The organization's web-site URL (English and local language respectively)

www.dwr.go.th

(2) Activities your organization implemented in 2008 as the member

- Arrangement of the 4th thematic workshop on Sustainable Management for Water Resources Infrastructures on 4 – 7 February 2008, Bangkok, Thailand.
- Participation in the 2nd Thematic Workshop on Water-Related – Related Disaster and its management in Asian Countries 7 – 10 October 2008, Manila, Philippines.
- Attending NARBO 3rd General Meeting on 19 – 23 February 2008, Solo, Indonesia.

(3) Resolutions and expectations for NARBO activities in 2008

1. Your organization's resolutions

Department of Water Resources has promoted water allocation system at the river basin level. In one of NARBO's thematic workshop on "Water Allocation" the representative Thailand proposed an implementation of water allocation in the Bang Pakong river basin to be a pilot case and this was and has been continuously implemented throughout 2008 and 2009.

2. Expectation of NARBO activities.

At the river basin in order to promote IWRM, planning for an investment in water infrastructure in a participatory approach is a very important step to achieve a well planned water resources development. This area is recommended to be a future plan for NARBO activities.

(7)General Office for River Basin Organization
Department of Water Resources (DWR)
Ministry of Agriculture and Rural Development (MARD)

Date of preparation: 20/4/2009
Name of the editor: Doan Thi Tuyet Nga

1. About the organization

(1) Name of the organization and postal address of the office

General Office for River Basin Organization
Department of Water Resources (DWR)
Ministry of Agriculture and Rural Development (MARD)
N^0 2, Ngoc Ha str., Ba Dinh dist., Ha Noi city, Vietnam.

(2) The representative of the organization

Mr. Vu Van Thang – General Director of Department of Water Resources – Ministry of Agriculture and Rural Development

(3) Purposes and roles of your organization

a) Historical background of the organization

As defined by the decision by the Minister of MARD on functions, tasks, powers and organizational arrangements, the Department Water Resources has following functions:

+ The Water Resources Department is an agency under the control of MARD - Vietnam, performing the function of state management over the water resources profession in the whole nation.
+ The Department has its legal entity, own seal, operational funds and its account is opened in accordance with the legal regulations. The Department is located in the capital city of Hanoi.

b) Purposes and roles of the organization

- As defined by the decision by the Minister of MARD on functions, tasks, powers and organizational arrangements, the Department Water Resources has following functions:
- + The Water Resources Department is an agency under the control of MARD - Vietnam, performing the function of state management over the water resources profession in the whole nation.
- + The Department has its legal entity, own seal, operational funds and its account is opened in accordance with the legal regulations. The Department is located in the capital city of Hanoi.Develop plans for synthesized exploitation of water resources facilities;

- Development plans, train in the formulation of investment project, preside the appraisal and implement investment in projects on repairing and upgrading water resources facilities in compliance with assignments of Minister;
- Develop operation processes of inter-provincial water resources facilities and steers the safe operation of water resources facilities;
- Take pare in the planning, plans, projects on developing dike facilities and facilities for flood and storm control and prevention.
- Steer the prevention, control and management of drought, inundation, salty water invasion.

(4) Outline of the organization

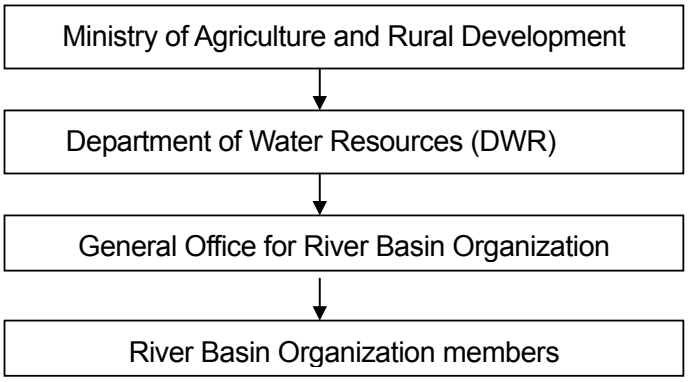
1) Number of staff:

18 members

2) Amount of the annual budget in 2008:

500.000.000 VND

3) Organizational chart



4) Ongoing projects

-

(5) Main events in 2008

- Together with General office for river basin planning management promote bilateral co-operation between NARBO and river basin organizations of Vietnam. In 2008, Department of water resources introduced and proposed Vu Gia - Thu Bon river basin planning management Board, Ca river basin management Council, Cau, Day Sub-river basin planning management Board to NARBO as its official members.
- To enhance capacity building for staffs doing river basin management work, in 2008, Department of water resources has organized mission to China to visit and work at Hoang river basin management Board, to get to know water fee policy at Ministry of

water resources. Members of this mission are delegated from whole river basin management Boards and member of Hong – Thaibinh river basin planning management Board took part in. It can be said that, this is one of promised events for future bilateral cooperation between Vietnam and China in the field of river basin management.

- Coordinating with Japan water agency to enhance experiences exchange, training for staffs of both countries.

2. About NARBO activity

(1) The contact person and organization's web-site

1) The name, position, phone & fax number, e-mail address of the contact person

Mrs. Doan Thi Tuyet Nga
Chief of Science, Technology and Environment division – DWR – MARD.
Tel: 84-4-37335707
Fax: 84-4-37335702
Email: rbovn.tl@mard.gov.vn, ngadt.tl@mard.gov.vn

2) The organization's website URL (English and local language respectively)

Website: www.mard.gov.vn/thuyloi

(2) Activities your organization implemented in 2008 as the member

- Coordinating with Committee of river basin management to enhance information exchange, propaganda for activities of river basin management to people and concerned agencies as well as enhancing international cooperation in river basin management in Vietnam.
- Coordinating with line agencies in MARD to set up project: "plan for preventing and controlling natural disaster, responding and mitigating negative impacts of climate change.
- Coordinating with appropriate authorities to organize workshop on impacts of climate change on water resources of 07 big river basins in Vietnam.
- Coordinating with appropriate authorities to organize workshop on impacts of climate change on inundation of some big cities in central area of Vietnam.
- Taking part in national consulting workshop on water quality of Vietnam Mekong River Commission.
- Joining and coordinating with international organizations such as ADB, AFD, WB, JICA… to deploy research projects about impacts of climate change on hydraulic structure systems.
- Coordinating with Units in Department of water resources to build water law.
- Researching solutions for water supply for Islands.

(3) Resolutions and expectations for NARBO activities in 2008

1) Your organization's resolutions

- Coordinating closely with Ministries, Agencies, provincial Department of Agriculture and Rural development to execute functions and Tasks on river basin management.
- Coordinating with Department of Agriculture and Rural development of provinces to set up water resources planning projects, water supply and rural environmental sanitation planning, detail flood control planning for rivers…
- Organizing some field trips to provinces to know about present situation of water use development of regions in river basins, from whence setting up solutions and implementing integrated water resources planning and management in the future.
- Coordinating with line agencies in MARD, concerned Ministries and Agencies in flood and storm control and disaster mitigation.
- Disseminating and propagandizing information on Website of Department of water resources and other means of communications. Publishing reports about activities as well as documents, decrees which are related to water resources management.
- Coordinating with river and sub-river basin planning and management Boards aim at setting up solutions to implement integrated water resources planning management of Basins.
- Maintaining relations and taking part in all activities of Asian river basin organizations network positively.

2) Expectations of NARBO activities

- Often providing information about activities of Asian river basin organizations network.
- Arranging field trips to countries which their river basin management is at high level in order to study, exchange experiences.
- Supporting and helping organization's members in training staffs.

3. Questions to RBO members

(1) Areas which your organization has improved the performance in 2008

Climate change impacts negative on water resources and other areas. It's complicated issue to need having a lot detail investigation programs.

(2) The way in which your organization was able to do so

To strengthen more cooperative information exchange between NARBO countries.

(3) In what way NARBO has helped your organization

Vietnam GO of NARBO is coordinating with line agencies in MARD to set up project: "plan for preventing and controlling natural disaster, responding and mitigating negative impacts of climate change.

(8)Global Water Partnership Southeast Asia (GWP-SEA)
Gedung Utama Lama Lantai 3 – Ditjen SDA, Dep.PU

Date of preparation: / /2009
Name of the editor: Djoko Sasongko

1. About the organization

(1) Name of the organization and postal address of the office

Global Water Partnership Southeast Asia (GWP-SEA)
Gedung Utama Lama Lantai 3 – Ditjen SDA, Dep.PU
Jalan Pattimura No. 20 , Kebayoran Baru Jakarta 11210

(2) The representative of the organization

Mr.Siswoko Sastrodihardjo
Chair of GWP-SEA

(3) Purposes and roles of your organization

a) Historical background of the organization

The formation of a Southeast Asia Technical Advisory Committee (SEATAC) comprising initially of 8 selected experts from Indonesia, Malaysia, Philippines, Thailand, and Vietnam was seen as a first step towards the process of formation of a regional water partnership. Cambodia and the Lao People's Democratic Republic joined in 2000 and Myanmar joined in 2003.

The GWP-SEA regional water partnership was established in the year 2004 to take over SEATAC's role in the region.

b) Purposes and roles of the organization

The mission of GWP- SEA is to encourage, support, facilitate member countries in achieving sustainable water for all through the Integrated Water Resources Management (IWRM) approach.

The objective of GWP-SEA is to promote the principles of integrated water resources management and to that end:

a) Identify critical needs of the region and riparian countries and stimulate Partners to meet the needs within their available human and financial resources;
b) Support action at regional, national, local or river-basin level that will lead to the adoption and implementation of the principles of integrated water resources management;
c) Help match needs to available resources;
d) Strengthen mechanisms for sharing information and experience.

(4) Outline of the organization

1) Number of staff

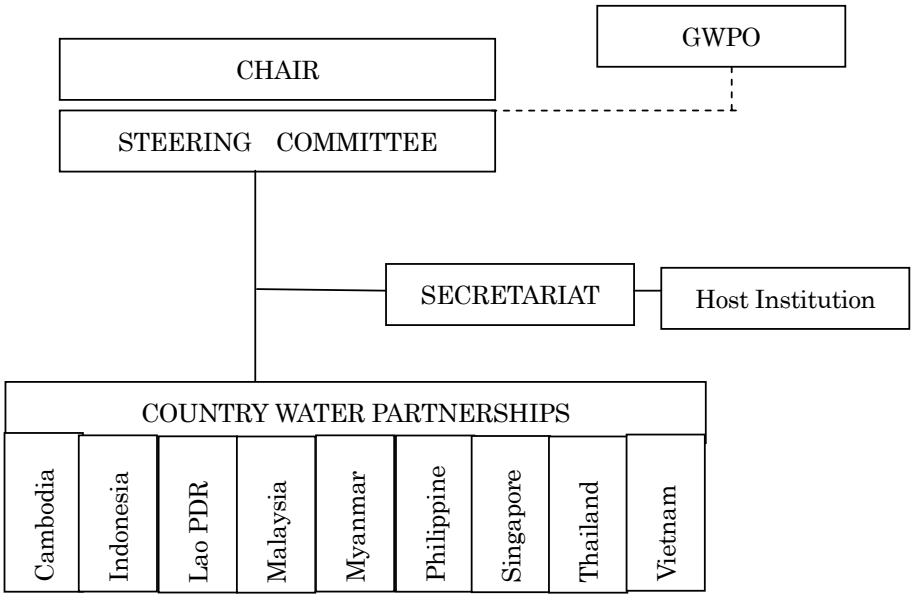
The organization is basically a loose network :

- Part-time activists at SEA and Country Steering Committee and Executive boards
- No permanent staff at all levels
- Two full time staff at SEA Regional Water Partnership
- Almost no full time staff at Country Water Partnership, but in a few countries

2) Amount of the annual budget in 2008

USD 477,000

3) Organizational chart



4) Ongoing projects

2009 activities based on annual Work Plan mostly comprising of workshops, meetings and trainings at regional and country levels

(5) Main events in 2008

2009 activities based on annual Work Plan mostly comprising of workshops, meetings and trainings at regional and country levels

2. About NARBO activity

(1) The contact person and organization's web-site

1) The name, position, phone & fax number, e-mail address of the contact person

Djoko Sasongko

GWP-SEA Program Coordinator

Phone and Fax . +62 21 739 6792 , E-mail : djoko@gwpsea.org, dsas@cbn.net.id

2) The organization's website URL (English and local language respectively)

http://www. gwpsea.org

(2) Activities your organization implemented in 2008 as the member

- Implemented workshops, seminars and trainings on IWRM at national level.
- Supported RBO formation and development
- Developed IWRM ToolBox.

(3) Resolutions and expectations for NARBO activities in 2008

1) Your organization's resolutions

GWP-SEA will continuously undertake its core activities to implement efforts to promote IWRM at regional, national, local and river basin level.

2) Expectations of NARBO activities

It is expected that NARBO will cooperate in workshops, seminars and training on IWRM implementation at river basin level organized by GWP-SEA.

One important event is Workshop on River Basin Organization and Management which will be organized by GWP-SEA in cooperation with DGWR of Indonesia , in Jogyakarta, Indonesia from 18 – 19 June 2009 where NARBO is expected to sponsor participants from SEA countries.

3. Questions to RBO members

(1) Areas which your organization has improved the performance in 2008

Generate better understanding and commitments from government organizations to develop enabling environment for IWRM and to reform IWRM institutions

(2) The way in which your organization was able to do so

Organized IWRM workshops and trainings.

(3) In what way NARBO has helped your organization

Not yet in 2008

(9) Asian Development Bank Institute (ADBI)

1. About the organization

(1) The representative of the organization

Dr. Masahiro Kawai, Dean, ADB

(2) Number of staff

As of March 2009, 45 people work with the Dean at ADBI. There are also some on- and off-site consultants.

(3) Amount of the annual budget in 2008

The approved budget for 2008 was $14.8 million.

(4) Main events in 2008

The Institute carried out numerous events relating to research and capacity building and training activities. With regard to the events, please see the Institute's website.[http://www.adbi.org/].

2. About NARBO activities

(1) The organization's web-site URL

[http://www.adbi.org/] (English)

(2) Activities the organization implemented in 2008 as the member

- Placement of JWA staff

In order to promote the NARBO activities and research to propose future action plans for NARBO, ADBI accepted the placement of a staff from Japan Water Agency (JWA), Michitaro Nakai. He has served at ADBI as NARBO Associate since May 2005. Then Tadashige Kawasaki started working at ADBI since April 2008 as a successor of Mr. Nakai. The NARBO Associate contributes not only to the research activities on water resources management in the Asia-monsoon region but also to the capacity building activities such as NARBO Thematic Workshop on Water-Related Disaster Management and preparation for the 5th IWRM Training.

(3) Resolutions and expectations for NARBO activities in 2009

1) The organization's resolutions

Following the activities of 2008, the Institute will continue to perform the role of secretariat with NARBO aggressively, especially in IWRM Training.

2) Expectations of NARBO activities

The Institute expects more interactive activities for sharing information and experiences among NARBO member countries, which will promote regional cooperation and improve governance in the relevant area.

(10)International Research and Training Center on Erosion & Sedimentation (IRTCES)

Date of preparation: 22 / March /2009

Name of the editor: Zhang Yanjing

1. About the organization

(1) Name of the organization and postal address of the office

International Research and Training Center on Erosion & Sedimentation (IRTCES)

P.O. Box 366, 20 Chegongzhuang West Rd.Beijing, 100048, China

(2) The representative of the organization

Dr. Prof. Hu Chunhong , Secretary General

(3) Purposes and roles of your organization

a) Historical background of the organization

The International Research and Training Center on Erosion and Sedimentation (IRTCES) was jointly set up on July 21, 1984, in Beijing according to the agreement of the Government of China and UNESCO, which was renewed in November 2005. The Ministry of Water Resources is the governmental executive agency. Since its founding, IRTCES has devoted itself to research and training to solve scientific and engineering problems related to erosion and sedimentation.

b) Purposes and roles of the organization

Functions of IRTCES are as follows:

- ✧ To promote the scientific research, training and information exchange on erosion and sedimentation, and related fields ;
- ✧ To coordinate the cooperative research activities and to provide facilities for laboratory and field work for the experts;
- ✧ To organize international and regional training courses, symposia or workshops, study tours and lecturing activities; serve as the Secretariat for the International Symposium on River Sedimentation;
- ✧ To serve as secretariat of WASER & UNESCO-ISI technical secretariat;
- ✧ To undertake and organize domestic research projects on sediment related problems, and publish the “International Journal of Sediment Research”, monographs and circulars etc. in English.

(4) Outline of the organization

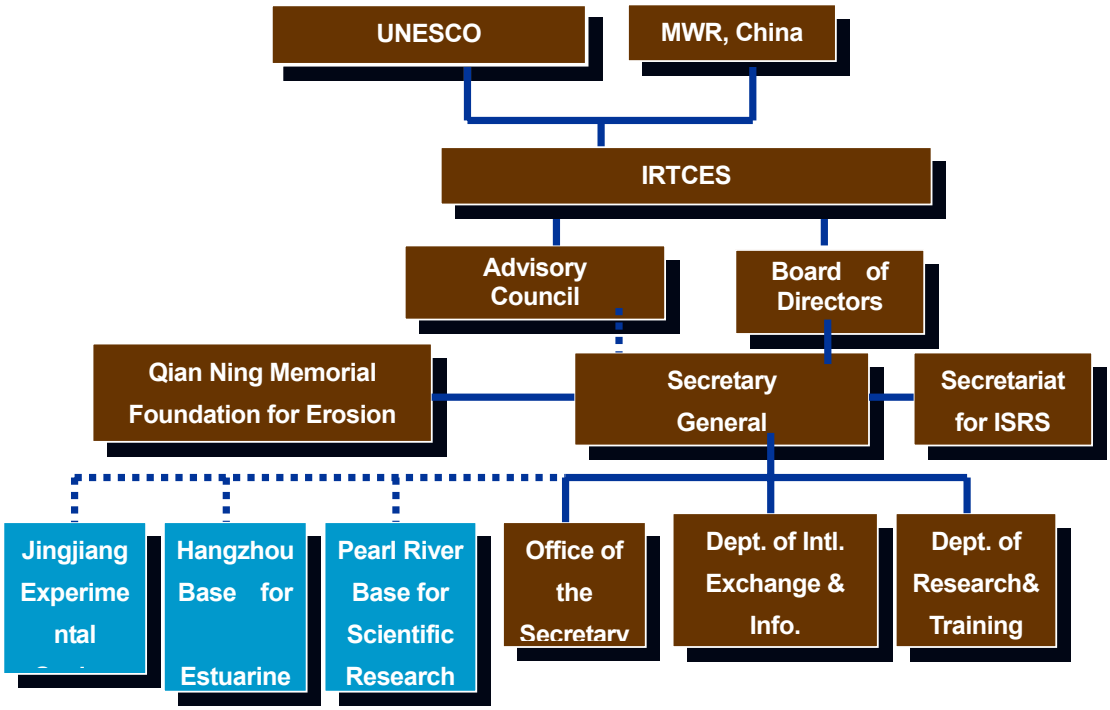
1) Number of staff

15 staff

2) Amount of the annual budget in 2008

US$300,000

3) Organizational chart



4) Ongoing projects

- **Conferences**
  - ✓ Serving as the permanent secretariat for International Conference on Estuaries and Coasts, IRTCES is helping to organize the 3rd ICES to be held in Sept.2009 in Sendai, Japan.
  - ✓ Serving as the permanent secretariat for the International Symposium on River Sedimentation, IRTCES is helping to organize 11th ISRS to be held in Sept.2010 in South Africa.
- **Scientific researches**
  - ✓ Variation Mechanism of River Channel Pattern below Large-Scale Hydro Project.
  - ✓ Optimal Allocation of Water and Sediment in Rivers and Regulation Measures of Maintaining River Health.
  - ✓ Theories on Allocation of Water and Sediment Resources.
  - ✓ Ecological Hydrology Regulation on Ecological Safety in Areas of Dry River Valley after Operation of Western Route of South-to-North Water Transfer Project.

- ✓ Organizing and Supervising Research Works on Key Sediment Problems on Three Gorge Project.

➢ **Update and Maintenance of the IRTCES's Web**

(5) Main events in 2008

➢ **Organizing International and Domestic Conferences**

- ✓ The 6th International Sediment Initiative Steering Committee Meeting and Workshop were successfully held in Beijing on November 5-7, 2008.
- ✓ 3rd US-China Workshop on Advanced Computational Modeling in Hydro science and Engineering was successfully held on May 13-16, 2008, at Honolulu Hawaii, USA. in cooperation with the National Center for Computational Hydro science and Engineering.
- ✓ Serving as permanent secretariat for International Conference on Estuaries and Coasts, IRTCES is helping to organize the 3rd ICES to be held in Sept.2009 in Sendai, Japan.
- ✓ Serving as the permanent secretariat for the International Symposium on River Sedimentation，IRTCES is helping to organize 11th ISRS to be held in Sept.2010 in South Africa.
- ✓ Assisting organizing High-level International Forum on Water Resources and Hydropower held on Oct.17-18.2008, Beijing, China.
- ✓ Assisting organizing 7th National conference on Basic Theory on Sediment Movement held on Oct.28-30, 2008 in Xi'an, China. The Award of Qian Ning Prize for Erosion and Sedimentation Technology was issued during the conference. The Prize was set up by IRTCES.

➢ **International exchange**

- ✓ A representative from IRTCES participated in the 2nd Regional Meeting of the Asia-Pacific Water Forum's Network of Regional Water Knowledge Hubs was held on April 2-4, 2008, Singapore.
- ✓ On April 24, 2008, a group of Chinese delegation let by Prof. HU Chunhong, Secretary General and Deputy Director of IRTCES, visited University of Padova in Italy for academic communication on invitation of Prof. Giampaolo Di Silvio.

- ✓ Representatives from IRTCES participated in International Workshop - Erosion, Transport and Deposition of Sediments in Berne, Switzerland, April 28-30.
- ✓ A Seminar on Impact of Climate Change on Water Resources was organized in the Ministry of Water Resources of China (MWR) by the Chinese National Committee for IHP on May 26, 2008. The representatives from MWR, UNESCO, Bureau of Hydrology MWR, Chinese National Committee for IHP, International Research and Training Center on Erosion and Sedimentation (IRTCES), Yellow River Conservancy Commission (YRCC), Institute of Geography CAS, Tsinghua University, Beijing Normal University and Changjiang Water Resources Commission participated in the seminar.

➢ **Training Course**

- ✓ IRTCES organized Advanced Training Course on River Regulation and Flood and Disaster Mitigation, on Sept.21-29, at Three Gorge University, including classroom lectures and a field tour to the Three Gorge Project.

➢ **Scientific Researches**

- ✓ Construction of Global River Sediment Information Database. The project consists of two parts: Construction of Database, Research work on Global Water and Sediment Variation in Rivers and Impacts of Hydro Projects on River Health.
- ✓ Technology of Integrated Regulation for Sediment Disasters in Irrigation Areas of Yellow-Huai-Hai Plains.
- ✓ Variation Mechanism of River Channel Pattern Below Large-Scale Hydro Project.
- ✓ Optimal Allocation of Water and Sediment in Rivers and Regulation Measures of Maintaining River Health.
- ✓ Theories on Allocation of Water and Sediment Resources.
- ✓ Ecological Hydrology Regulation on Ecological Safety in Areas of Dry River Valley after Operation of Western Route of South-to-North Water Transfer Project.
- ✓ Organizing and Supervising Research Works on Key Sediment Problems on Three Gorge Project.

➢ **Information Exchanges**

- ✓ Editing and Publishing China River Sediment Gazette (2007).

- ✓ Editing and Publishing “International Journal of Sediment Research”, the Journal became Source of SCI in 2008.
- ✓ Update and Maintenance of the IRTCES’s Web
- ✓ IRTCES is in charge of three webs:
  - ① http://www.irtces.org/ “International Network on Erosion and Sedimentation” “国际泥沙信息网”;
  - ② http://www.waser.cn/ “World Association for Sedimentation and Erosion Research” “世界泥沙学会”;
  - ③ http://www.irtces.org/isi/ “International Sediment Initiative” “国际泥沙项目”.

2. About NARBO activity

(1) The contact person and organization’s web-site

1) The name, position, phone & fax number, e-mail address of the contact person

Zhang Yanjing, Prof. Senior Engineer,
Tel: 8610-68786409，mobile: 86-13801130762
Fax: 8610-68411174，
Email address: zhangyj@iwhr.com, z.yanjing@yahoo.com

2) The organization’s web-site URL (English and local language respectively)

http://www.irtces.org/ International Network on Erosion and Sedimentation
国际泥沙信息网

(2) Activities your organization implemented in 2008 as the member

- ✓ Participating in the 3rd general meeting of NARBO in Solo/ Surakarta, Indonesia on Feb.20-22, 2008, IRTCES became a member of NARBO.
- ✓ Participating in the 1st Meeting of Regional Water Knowledge Hub and Workshop on River Basin Management, 15-17 October 2008 Zhengzhou, China.

(3) Resolutions and expectations for NARBO activities in 2009

1) Your organization’s resolutions

As an Inter-Regional Knowledge Partner (IRKR) member of NARBO, we are going to participate in following activities and make our contributions to NARBO.

- ✓ Exchanging case study and research results related with IWRM
- ✓ Participating in 4th general meeting of NARBO
- ✓ Participating in construction of Knowledge Networking

2) Expectations of NARBO activities

It is hoped that cooperation and exchanges among NARBO members could be strengthened, knowledge, experience, information and database can be shared.

(11) ADB

3. About the organization

(1) Name and address of the organization

Asian Development Bank (ADB)	
Postal Address	Street Address
P.O. Box 789 0980 Manila, Philippines	6 ADB Avenue, Mandaluyong City 1550, Philippines
Telephone No.: + 632 632 4444 (connecting all Depts./Offices)	

(2) Organization's representative to NARBO

Wouter T. Lincklaen Arriens
Lead Professional (Water Resources Management)
Sustainable Infrastructure Division (RSID)
Regional and Sustainable Development Department (RSDD)
Asian Development Bank
and
NARBO Vice Secretary General
Tel (632) 632-6754
Fax (632) 636-2444
Email: wlincklaenarriens@adb.org

(3) Background of Organization

Historical background. The ADB was conceived amid the postwar rehabilitation and reconstruction of the early 1960s - the vision was of a financial institution that would be Asian in character and foster economic growth and cooperation in the region. The Philippines capital of Manila was chosen to host the new institution, which opened its doors on 19 December 1966 with 31 members. Through the years, ADB's work and assistance levels have expanded alongside its membership as the region has undergone far-reaching changes. From 31 members at its establishment, ADB has grown to 67 members – of which 48 are from within the Asia and Pacific region, and 19 outside. See http://www.adb.org/About/history.asp

Purpose and role. ADB is an international development finance institution. ADB's vision is an Asia and Pacific region free of poverty. Its mission is to help its developing member countries substantially reduce poverty and improve the quality of life of their people. Despite the region's many successes, it remains home to two thirds of the world's poor: 1.8 billion people who live on less than $2 a day, with 903 million struggling on less than $1.25 a day. ADB is committed to reducing poverty through

inclusive economic growth, environmentally sustainable growth, and regional integration. See http://www.adb.org/About/default.asp
Number of staff. ADB's staff numbers around 2,000, coming from around 67 member countries, including 48 from the region.

Amount of the annual budget in 2008. In 2008, ADB approved loans worth $10.5 billion for 86 projects, most of which went to the public sector. Technical assistance, which is used to prepare and implement projects and support advisory and regional activities, amounted to $274.5 million. Grant-financed projects totaled $811.4 million. See http://www.adb.org/About/operations.asp.

Projects. ADB works in partnership with governments and public and private enterprises in its developing member countries on projects and programs that will contribute to economic and social development, based on the country's needs and priorities. ADB extends loans and TAs to its DMCs for a broad range of development projects and programs. See http://www.adb.org/Projects/ .

Organizational Structure. The highest decision making tier at ADB is its Board of Governors, to which each of ADB's 67 members nominate one Governor and an Alternate Governor to represent them. The Board of Governors meets formally once a year at an Annual Meeting held in a member country. he Governors' day to day responsibilities are largely delegated to the 12-person Board of Directors, which performs its duties full time at ADB's HQ in Manila. The ADB President, under the Board's direction, conducts the business of ADB. The President is elected by the Board of Governors for a term of five years and may be reelected. See http://www.adb.org/About/management-staffing.asp for details. View full organizational chart at http://www.adb.org/About/ADB_Organization_Chart.pdf.

4. About NARBO Activity

(1) The contact person and organization's web-site

Lead Professional (Water Resources Management)
Sustainable Infrastructure Division (RSID)
Regional and Sustainable Development Department (RSDD)
Asian Development Bank
and
NARBO Vice Secretary General
Tel (632) 632-6754
Fax (632) 636-2444
Email: wlincklaenarriens@adb.org
http://www.adb.org/water

(2) NARBO activities your organization implemented/supported in 2008

ADB, as member of the NARBO Secretariat together with Japan Water Agency and ADB Institute,

has played a key role in NARBO activities. In 2008, ADB continued its support to the network to improve water governance and to help achieve IWRM in river basins throughout Asia. ADB provided expertise through exchange of information and experiences, and technical advice.

Performance Benchmarking of River Basin Organizations and River Basins. ADB recognizes the vital leading and facilitating roles that RBOs play in managing river basins, and the need for performance improvement so that RBOs can better meet increasing challenges in the water sector. NARBO's performance benchmarking service for RBOs, launched in September 2005 after a one-year participatory design process, is expected to enable RBOs to track its progress, to enable comparisons with the performance of other organizations; and to improve the efficiency and effectiveness of their service delivery. The pilot performance benchmarking and peer reviews were completed for Jasa Tirta 2 in Indonesia, Laguna Lake Development Authority in Philippines, Red RBO in Viet Nam, and Mahaweli Authority of Sri Lanka. A fifth pilot was completed for Balai Besar Citarum in Indonesia during the 1st quarter of 2008. ADB also supported the development of a complementary methodology for basin performance indicators, in collaboration with the University of Tokyo. ADB supported the pilot implementation of the basin performance indicators in the Citarum river basin in Indonesia and the Laguna Lake in the Philippines. The first two pilots focused on three basin status indicators: (i) water utilization (recreational water quality and raw water quantity); (ii) disaster vulnerability (flood vulnerability and chemical spills); and (iii) environmental management (environmental water quality and biodiversity).

Publication: Water Rights and Water Allocation – Issues and Challenges for Asia. The topic of water rights is of great interest to NARBO members as it helps to introduce IWRM in river basins. Water rights emerged as the top-ranked topic in a survey of training needs carried out among NARBO members. In response, NARBO initiated a series of four workshops on the theme of water allocation and water rights starting December 2005, in partnership with NARBO member organizations from Indonesia, Lao PDR, the Philippines, Thailand, Viet Nam and subsequently Sri Lanka. ADB supported the sequence of workshops held in Hanoi, Manila, and Bangkok; including the fourth held in Saitama, Japan in January 2007, and a culminating workshop on water rights held at ADB's Headquarters in May 2007. These workshops served as foundation in crafting a knowledge product on water rights: Water Rights and Water Allocation – Issues and Challenges for Asia which is expected to assist RBOs in introducing or implementing effective and efficient water rights system.

Workshop on Water-Related Disaster and its Management in Asian Countries. Natural disasters (e.g. floods, droughts, landslides, volcanic eruptions, earthquakes, tsunami, typhoons, hurricanes, cyclones and other extreme weather phenomena) have hit monsoon Asia in recent years, inflicting losses to human lives and to the economies of countries of NARBO member organizations. NARBO decided to carry out a series of workshops on the theme of water-related disaster management, whose goals are (i) to evaluate the issues, challenges, and strategies; and (ii) to develop capacity of key organizations for water-related disaster management by providing basic concepts and principles, sharing country experiences, and formulating an action plan. ADB supported two workshops on

water-related disaster (i) 1st workshop held in Indonesia from 25-28 November 2007, and (ii) 2nd workshop held in Manila from 6-10 October 2008.

3rd General Meeting of NARBO, Solo, Indonesia, 20-22 February 2008. ADB supported the general meeting which was participated by 93 water professionals from 19 countries and 52 organizations, including river basin organizations, government agencies, academic institutions, regional knowledge partners, and multilateral financing institutions. On the first day, participants familiarized themselves with the implementation of IWRM issues in the host Bengawan Solo River Basin for which two study visits in the basin were organized to study two specific issues, one on sedimentation, and the other on institutional aspects of integrating IWRM into planning and implementation. On the second day, participants exchanged experiences and learned from three workshops on IWRM: (i) Measuring the Performance of RBOs and River Basins (ii) Managing Assets and Risks, and (iii) Exploring New Challenges in IWRM. On the 3rd day, the NARBO General Meeting was held, which charted directions for NARBO for the next two years.

NARBO Technical Advisory Committee. NARBO is keen to improve the quality and credibility of its annual training program on IWRM to the level of a prestigious regional flagship program. At NARBO's 3rd General Meeting in Indonesia last February 2008, NARBO agreed to establish the Technical Advisory Committee (TAC) which will review and advise NARBO's leadership and secretariat in revamping the training program, based on experience gained by NARBO over the past four years and taking into account approaches and experiences by other training providers. ADB helped in establishing the NARBO TAC; and supported the conduct of the 1st NARBO TAC Meeting in Singapore last 5 April 2008, back-to-back with the meeting of the regional water knowledge hubs.

Regional Workshop on Developing Partnerships for Water and Climate Change Adaptation, Selangor, Malaysia, 1-5 December 2008. ADB supported this workshop which helped to increase understanding of impact of climate change on water management; developed partnerships for better results in climate change projections, impact assessments, and adaptation strategies; and helped clients formulate projects for 2009 with support of the regional knowledge hub NAHRIM and its partners

NARBO Secretariat Meetings. ADB participated in NARBO Secretariat meetings with either JWA and/or ADBI on several occasions in 2008, which discussed measures to improve planned activities of NARBO.

Promoting NARBO in Regional Events. ADB participated in regional events on water which provided the opportunity to promote NARBO and its activities.

(3) Resolutions and expectations for NARBO activities

ADB will continue to play a key role in NARBO, providing financial support, guidance and direction to its activities (including training program, thematic workshop, performance benchmarking of RBOs,

newsletter, web site, etc.) as provided for in the NARBO Action Plan. ADB expects NARBO to significantly improve its activities in the coming years, with increased cooperation from member organizations.

Baselines

BASELINE 1

NARBO Charter

February 2004

(Revised February 2006)

(Revised February 2008)

Introduction

The world community has recognized the importance of managing water resources in a more integrated manner. Over the past decades, a series of regional and global water conferences, including the World Water Forums in 1997, 2000, and 2003, have underlined the need to adopt and operationalize the approach of integrated water resources management (IWRM), which is defined by the Global Water Partnership as "*a process to improve the planning, conservation, development, and management of water, forest, land, and aquatic resources in a river basin context, to maximize economic benefits and social welfare in an equitable manner without compromising the sustainability of vital environmental systems*."

By focusing on the management of water and related resources in a river basin context, it is implied that IWRM will be undertaken at basin level with the involvement of stakeholders at the basin level. The water conference in Dublin in 1992 referred to the need to manage water resources *at the lowest appropriate level*. This has become one of the basic principles underpinning the IWRM approach, and it has led to increased recognition that river basin organizations (RBOs) can realize IWRM at the basin level. Since Dublin, the world community has also recognized the importance of promoting gender and development work as part of the IWRM approach to ensure that women participate in water management at all levels.

Many forms of RBOs have been established in recent decades, and countries have developed various governance approaches for RBOs, for example, river basin commissions in the People's Republic of China, river basin parliaments in France, river basin committees in Australia, river basin authorities in the United States and Sri Lanka, a lake basin development authority in the Philippines, water resources public corporations in Japan and Indonesia, inter-state RBOs like the river basin tribunals in India and the Murray-Darling Basin Commission in Australia, and international RBOs in the Mekong basin, the Syr and Amu Darya basins, and in the Tumen basin.

Some RBOs were established decades ago and have ceased to exist, while many new RBOs have been established recently. Some RBOs have a large

technical capacity, employing thousands of staff, while others may employ just a handful, like the newly established river basin committees in Southeast Asia. While there are many differences between these RBOs, they share a common mission, which is to operationalize IWRM in their respective river basins.

A network to assist RBOs in Asia in their work of introducing and operationalizing the IWRM approach does not yet exist. Consequently, RBOs lack opportunities for exchanging information and experience on their operations, and access for their staff to training and capacity building that draws on the technical and non-technical experience in managing water resources in Asia.

The need for partnerships for action to achieve IWRM was recognized at the 3rd World Water Forum held in Kyoto, Osaka, and Shiga, in the Lake Biwa and Yodo River Basin, Japan, in March 2003, where it was noted that several developed and developing countries in Asia have already established RBOs to implement IWRM. The 3rd World Water Forum highlighted the need to support these RBOs through knowledge sharing and capacity building, especially in developing countries.

The 3rd World Water Forum also emphasized the contributions that IWRM can make to improve the water security of the poor, by incorporating the needs of the poor explicitly in water policies and management practices at all levels.

Recognizing the need for networking and capacity building in the implementation of IWRM, the Water Resources Development Public Corporation of Japan (recently reconstituted as the Japan Water Agency), the Asian Development Bank, and the Asian Development Bank Institute decided at the 3rd World Water Forum in March 2003 in Kyoto, Japan, to collaborate in launching a Network of Asian River Basin Organizations (NARBO), and a letter of intent was signed at the Forum on 21 March 2003.

Note: This Charter is intended to guide NARBO in its start-up phase, during which membership by RBOs and partner organizations will be promoted and initial activities started to meet immediate needs of RBOs for training and exchange of information and experience. It is expected that the Charter will be reviewed and revised by the NARBO General Meeting when membership has

grown, a program of activities is agreed and under implementation, and membership fees can be introduced.

Section 1. Denomination and Working Language

(1) This new initiative is entitled the Network of Asian River Basin Organizations (hereafter NARBO).

(2) The language to be used is English.

Section 2. Goal and Objective

The goal of NARBO will be to help achieve IWRM in river basins throughout Asia.

NARBO's objective will be to strengthen the capacity and effectiveness of RBOs in promoting IWRM and improving water governance, through training and the exchange of information and experience among RBOs and their associated water sector agencies and knowledge partner organizations in Asia and to advise on the establishment of RBOs in Asia.

Section 3. Activities

To promote IWRM in Asia, the focus of NARBO's activities will be as follows:

(1) Activities for the whole of NARBO

The activities joined by all members of NARBO will be as follows:

(a) Advocacy and raising awareness for IWRM among RBOs, water sector apex bodies, and leading water sector agencies in the region, mainly through regional workshops.

(b) Sharing of information, good practices, and lessons learned for IWRM among the participating organizations, mainly by operating

databases and a website for IWRM exchanging information, and by sending a newsletter by email as well as posting on the web site and holding (sub) regional workshops.

(2) Activities for regional areas of NARBO

RBOs, national and federal governmental organizations with expertise in IWRM, regional and interregional knowledge partner organizations for IWRM, and bilateral and multilateral development cooperation agencies, will be requested to support RBOs in Asia in the following types of activities.

(a) Supporting NARBO members to improve water governance, including the enabling policy, institutional, and legal framework for IWRM, and the formulation of the action plans.

(b) Building capacity of RBOs in implementing IWRM, mainly through staff exchange and training among participating organizations.

(c) Supporting RBOs with technical advice in regard to the planning, conservation, development, and the proper and efficient operation and maintenance of water resources facilities, to improve IWRM.

(d) Fostering regional cooperation for improved management of water resources in transboundary river basins.

(3) The scope of IWRM activities to be supported by NARBO will be approved by the NARBO General Meeting.

(4) NARBO's activities will initially focus on the monsoonal areas of Asia.

Section 4. Organizations

Article4.1. Membership

(1) Membership will be open to the following types of organizations.

(a) RBOs, defined as organizations that have been officially recognized by the government of their country as having a mandate to promote and implement IWRM at the river basin level.

(b) National and federal/ provincial / local governmental organizations in charge of water administration in the countries which implement or are interested in promoting and implementing IWRM at the level of river basins. This includes water sector apex bodies and leading water agencies.

(c) Regional knowledge partner organizations with expertise in promoting and supporting IWRM, such as international RBOs and research and training organizations.

(d) Inter-regional knowledge partner organizations with expertise in promoting and supporting IWRM.

(e) Bilateral and multilateral development cooperation agencies promoting and supporting activities related to IWRM at the level of river basins.

(2) Among these, the organizations under (1.a) are considered as RBO members and (1.b to 1.e) are considered as partner members. Partner members will participate in NARBO as promoters and supporters of IWRM and RBOs, and as knowledge partners to RBOs.

(3) If other organizations wish to join NARBO, it needs to be recommended by an existing NARBO member or government agency concerned, notified to the Secretary General (see “Article 4.4.”) and approved in the NARBO General Meeting (see “Article 4.2.”).

Note: (1.c) and (1.d) include regional and inter-regional nongovernment organizations (NGOs) with expertise in promoting and supporting IWRM. For participation of national NGOs, (3) will apply. Participation as an observer in NARBO General Meetings is also possible (See “Article 4.2 (2)”).

(4) Application for membership in NARBO

(a) An application to join NARBO should be submitted to the Secretary General with a recommendation from a NARBO member or the government.

(b) The Secretary General evaluates the application and confers with the Chairperson and the Vice-Chairperson with his/her comments.

(c) The Chairperson makes the final decision.

(d) The Secretary General notifies the result to the applicant organization.

(e) When the applicant receives the approval, the applicant organization becomes the member.

(f) The new member is introduced to the NARBO members.

(5) Withdrawal from NARBO

(a) The following are grounds for a member to cease to be a NARBO member:

(i) The member applies for withdrawal from NARBO membership;

(ii) The member organization is abolished; and

(iii) The member organization undertakes activities contradictory to the principles of NARBO.

(b) When a member matches to one of these grounds, the Secretary General evaluates the ground and confers with the Chairperson and the Vice-Chairperson with his/her comments.

(c) The Chairperson makes the final decision.

(d) The Secretary General notifies the result to that organization.

(6) Member's obligation

(a) Members will participate in NARBO activities of their interest with commitment to use their own resources and to work effectively in partnership with other organizations that are collaborating in the network. Members will support the objectives of NARBO and will comply with its rules and regulations.

(b) RBO members are obliged to submit an annual report to the Secretary General once a year with in 3(three) months after their yearly fiscal year, in which their plan, scope of action, major activities, and issues are summarized. The report will be submitted in English.

(c) The NARBO members are required to pay an annual membership fee. The amount and schedule of payment will be approved by NARBO General Meeting.

Note: For the time being, no membership fees are being considered.

Article4.2. NARBO General Meeting

(1) Venue and Date

(a) The NARBO General Meeting is held, in principle, every two years.

(b) In principle, the General Meeting is held in the Chairperson's country, except as otherwise determined by the Chairperson. The dates are proposed jointly by the Chairperson and the Secretary General.

(c) An extraordinary NARBO General Meeting can be convened at the request of the Chairperson, Vice-Chairperson, Secretary General or NARBO Secretariat before the next General Meeting, if there is a specific reason or if there are important issues to be solved urgently.

ii) The decision of the venue and date is the same as the decision for a General Meeting.

(d) The venue, date and agenda of General Meeting shall be distributed with an appropriate advance notice.

(2) Participation

Members, technical advisory committee members, and observers may attend the NARBO General Meeting. Observers need endorsement from the NARBO Secretariat and the local organizing committee hosting the NARBO General Meeting.

(3) Agenda of the NARBO General Meeting

(a) Two year action report and future action program of NARBO

(b) Reports by members on matters related to activities of NARBO

(c) Selection and replacement of Chairperson, Vice-Chairperson, Secretary General and Vice-Secretary Generals

(d) Approval and revision of the Charter

(4) Approval

The approval of the NARBO General Meeting is based on consensus between the attending members.

Article4.3. Chairperson and Vice-Chairperson

(1) Nomination and Selection of the Chairperson and the Vice-Chairperson

(a) The Chairperson and the Vice-Chairperson are nominated by the Secretariat and selected by the NARBO General Meeting.

(b) In case the Chairperson is or becomes unable to perform his / her function as Chairperson, the Vice-Chairperson will exercise the

function and responsibility of the Chairperson until a Chairperson is selected at the next NARBO General Meeting.

(c) The Chairperson will be deemed to be unable to perform his/her function as Chairperson if (i) The Chairperson declares that he/she is unable to perform his/her function as Chairperson; or (ii) The Secretariat recognizes that the Chairperson is unable to perform his/her function as Chairperson.

(d) In case the Vice-Chairperson is or becomes unable to perform his/her function as Vice-Chairperson, an Acting Vice-Chairperson is nominated by the Secretariat and appointed by the Chairperson for a period extending until a Vice-Chairperson is selected at the next NARBO General Meeting.

(e) The Vice-Chairperson will be deemed to be unable to perform his/her function as Vice-Chairperson if (i) The Vice-Chairperson declares that he/she is unable to perform his/her function as Vice-Chairperson; or (ii) The Secretariat recognizes that the Vice-Chairperson is unable to perform his/her function as Vice-Chairperson.

(2) Responsibility of Chairperson

The Chairperson leads the NARBO General Meeting and guides NARBO activities until the next General Meeting.

(3) Responsibility of Vice-Chairperson

(a) Assist the Chairperson

(b) Substitutes for the Chairperson when he/she is not available

(4) NARBO Senior Adviser

(a)Secretary General may invite the Chairperson to become NARBO Senior Adviser at the completion of Chairpersons term. A NARBO

Senior Adviser is expected to advise the Chairperson and Secretariat in promoting and enhancing NARBO activities.

(b) A NARBO Senior Advisor is expected to serve for a period of 2 years, with possible extension.

Article4.4. Secretariat

(1) Responsibilities of the NARBO Secretariat

(a) Initiatives and Activities of NARBO

(i) Collection of relevant information and coordination with related organizations, including participation in relevant meetings

(ii) Preparation of the documents needed for and writing reports of the NARBO General Meeting

(iii) Preparation of two-year action report and action program

(iv) Operation and management of the NARBO web site and other communication facilities

(v) Advice on the enabling policy, institutions and efficient operation to improve IWRM and on the establishment and capacity building of RBOs in implementing IWRM (subject to available resources of NARBO to provide advice through cost-effective means)

(vi) Organization of other NARBO initiatives and activities

(b) Logistics Service for NARBO

(i) Contacts and coordinates the members

(ii) Handles the administration, including registration of members, accounting, document preparation etc.

(2) Composition and Location of the NARBO Secretariat

(a) The NARBO Secretariat is composed of the Japan Water Agency (JWA), the Asian Development Bank Institute (ADBI), both in Japan, and the Asian Development Bank (ADB), in Philippines.

(b) The Headquarters of the Secretariat is located in JWA and its branches are located in ADBI and ADB. Secretariat staff are nominated by the Secretary General in consultation with JWA, ADBI and ADB.

(c) Any organization in the NARBO Secretariat may resign its function at any time without condition.

(3) Nomination and approval of the Secretary General and the Vice-Secretary Generals.

(a) The Secretary General and the Vice-Secretary Generals are nominated by the Secretariat and approved at the NARBO General Meeting.

(b) In case the Secretary General or any Vice-Secretary Generals is or becomes unable to perform his/her function, an Acting Secretary General or an Acting Vice-Secretary General, as the case may be, is nominated by the Secretariat and appointed by the Chairperson for a period extending until the Secretary General or the Vice-Secretary General is selected at the next NARBO General Meeting.

(c) The Secretary General or a Vice-Secretary General will be deemed to be unable to perform his/her function if (i) he/she declares that he/she is unable to perform his/her function as the Secretary General or the Vice-Secretary General; or (ii) The Secretariat recognizes that the Secretary General or such Vice-Secretary General is unable to perform his/her function as

the Secretary General or the Vice-Secretary General.

(4) Responsibilities of the Secretary General

(a) Initiates and manages NARBO's initiatives and activities.

(b) Convenes the NARBO Meeting and sets its agenda in consultation with the Chairperson

(c) Supervises the Secretariat's work

(5) Responsibilities of the Vice-Secretary Generals

(a) Supports the Secretary General

(b) Substitutes for the Secretary General when necessary

Article 4.5. NARBO Patron

The Chairperson may invite a person of high public stature and influence to take on the role of NARBO Patron. A NARBO Patron is expected to represent and promote NARBO and its objectives and activities in the region and world, specifically to leaders, policy makers, media, and the general public. The patron may also be requested to advise NARBO on its work.

Article 4.6. Technical Advisory Committee

(1) A Technical Advisory Committee may be convened by the Secretary General. The Committee will be composed of individuals and organizations who can advise and support NARBO in its activities. Its task is to extend the financial and the technical support for the implementation of regional activities of NARBO.

(2) The statute of the committee will be approved by the NARBO General Meeting.

Section 5. Resources

(1) Financial and human resources to support NARBO activities will be provided from the following sources:

(2) The Members of NARBO will voluntarily provide resources in cash and kind to support NARBO activities in which they are interested to participate.

(3) Costs (personnel and traveling expenses) of the NARBO Secretariat will be provided by JWA, ADB, and ADBI who will mobilize financial resources for this purpose. Travel expenses for the Chairperson and Vice-Chairperson will be provided by JWA for travel approved by JWA.

(4) NARBO activities will be financed by JWA, ADBI, ADB, bilateral and multilateral agencies to be identified, and NARBO Members, on a parallel co-financing basis.

(5) ADB may be requested by the NARBO General Meeting to convene a NARBO Financial Support Group of interested bilateral and multilateral organizations to help support NARBO activities.

BASELINE 2

Action Plan -2008~2009-

Network of Asian River Basin Organizations (NARBO)

ACTION PLAN 2008-2009

Key Result Areas:

A. Advocacy, Raising Awareness, and Exchange of Information and Good Practices on Integrated Water Resources Management (IWRM)
B. Capacity Building in River Basin Organizations (RBOs)
C. Network Support

As of February 27

A. Advocacy, Raising Awareness, and Exchange of Information and Good Practices on IWRM				
Activity	**Remarks**	**Implementation Plan**	**Lead Agency**	**Note**
Activities led by the NARBO Secretariat (JWA, ADBI, ADB): **1. NARBO Website (http://www.narbo.jp)** • Provide information, news and reminders on NARBO activities • Provide information on introducing IWRM in river basins in Asia, including publications, case studies, articles on important IWRM topics • Link to NARBO member websites, e-newsletters, online databases, and other related sites	Managed by JWA in collaboration with ADB and ADBI and with input from NARBO members	• Continue regular updates • Introduce on-line forum to enhance information and knowledge sharing	JWA	Members are encouraged to provide stories, cases, articles, and links
2. NARBO e-Newsletter Share good practices, lessons learned, IWRM–related activities, etc.	Prepared quarterly by JWA and distributed through e-mail and the website	Prepare stories and materials on priority topics of interest to NARBO members	JWA	Members are encouraged to send in contributions

3. Guidelines and Online data base Provide guidelines and other useful reference materials on IWRM practices, cases, lessons learned, champions, standards and manuals, annual reports, topics of interest	Managed by JWA, ADBI, and ADB through website and CDs	Formulate guidelines and continue collecting and updating information from members and partners	ADBI, JWA, Knowledge Hub	Members are encouraged to provide materials
4. NARBO Annual Report Summarize NARBO's activities and results annually	Prepared by JWA with inputs from members, and distributed through hardcopies and the website	Distribute annual report in May of following year	JWA	Members to submit their annual reports no later than end March
5. NARBO Promotion • Increase governments, public, and media interest in NARBO activities and increase NARBO membership • Disseminate key messages on introducing IWRM in river basins and RBO work • Promote NARBO's objectives and activities	Managed by JWA and ADB	• Promote NARBO work through media, country visits, regional events, and knowledge networks • Invite RBOs in development projects to join NARBO • Invite knowledge partner organizations to join NARBO • Encourage national NARBO networks in countries with many RBOs	JWA, ADB, Chair, NARBO Indonesia	Members are encouraged to contribute to the promotion and dissemination work, and to increase NARBO membership. NARBO Indonesia to pilot country RBO network.
6. NARBO General Meeting Organize every two years, including study visit in host river basin, IWRM workshops, and general meeting	Managed by JWA, ADBI, and ADB in collaboration with the host RBO	Organize the 4th NARBO General Meeting in the 1st quarter of 2010	Chair, Vice-Chair, NARBO Secretariat	Members are encouraged to participate and share their knowledge
7. Knowledge Networking Facilitate and support regional water knowledge hubs under the Asia-Pacific	Managed by ADB and JWA	• Support the new regional knowledge hub on river basin	ADB, JWA, Knowledge	ADB and JICA TA projects to

Water Forum		organizations and management in Indonesia in developing knowledge products and services for government and RBO clients in the region • Pilot a Roadmap Advisory Service to help RBOs prepare long-term IWRM investment programs • Chart and analyze regional progress of introducing IWRM in river basins • Collaborate with the other APWF regional water knowledge hubs on IWRM in river basins • Enhance dissemination of IWRM experience in basins within Indonesia through new dissemination unit (by JICA)	Hub , JICA	support the knowledge hub are expected to start in 2nd quarter of 2008. Other donors to be encouraged to provide complementary assistance. Involve ICHARM, K-Water, YRCC, NAHRIM, IRTCES and other hubs in collaboration.
Activities led by NARBO Member Organizations: **1. NARBO members' websites** Develop and maintain websites with useful information and knowledge products on introducing IWRM in their respective river basins	Managed by member RBOs	Develop, maintain, and update the website on a regular basis	Members	Members to develop and maintain modern websites
2. NARBO members' Annual Report Prepare annual report with overview of RBO's objectives, targets, activities, lessons learned, and performance improvements in introducing IWRM in their respective river basins	Prepared by NARBO members annually, and sent to NARBO Secretariat at JWA no later than March of the following year	Prepare annual report and send to NARBO Secretariat	Members	Members are encouraged to invest in useful annual reports

B. Capacity Building in River Basin Organizations (RBOs)				
Activity	**Remarks**	**Implementation Plan**	**Lead Agency**	**Note**
Activities led by the NARBO Secretariat: **1. IWRM Training Program** Develop the capacity of NARBO member staff in understanding and implementing IWRM in their respective river basins	• Managed by NARBO Secretariat • Conducted once or twice a year	• NARBO Technical Advisory Committee to guide an overhaul of the program design • Redesigned program to be conducted in 4th quarter 2008	JWA, ADB, ADBI, Technical Advisory Committee, Knowledge Hub	Members to facilitate their staff to apply and contribute registration fee
2. Workshops • Organize IWRM workshops on topics of interest during the NARBO general meeting • Organize thematic workshop series, based on demand, to deepen understanding on priority topics	Lessons learned from thematic workshops on water rights, facility management and disaster management will be used in designing the subsequent workshop series	• Conduct 4th workshop on Sustainable management for Water Resources Infrastructure in 1st qtr 2008 • Conduct 2nd workshop on disaster management by 2nd qtr 2008, and others tbd • Conduct workshop on Climate Change Adaptation by NARBO Indonesia and Regional Water Knowledge Hub	JWA, ADB, ADBI, NARBO Indonesia, Knowledge Hub	Members to attend and contribute knowledge on issues and solution strategies
3. Performance Benchmarking supported by peer reviews • Provide a demand-based performance benchmarking service for RBOs to assess and improve their performance • Introduce a river basin performance benchmarking methodology	Managed by ADB and IWMI, with IWMI providing training and certification service for peer reviewers, facilitation of peer reviews, and support for pilot-testing of basin benchmarking methodology, in collaboration with the Knowledge Hub	• Expand implementation of RBO performance benchmarking based on experience gained in pilot phase, to **X** RBOs • Conduct pilot test of river basin performance benchmarking in **X** river basins	ADB, IWMI, Knowledge Hub	Number of participating RBOs and basins to be determined during 3rd NARBO GM
4. Advisory visits to RBOs • Visit RBOs to learn from their	Where possible linked to RBO	Continue and enhance benefits	JWA, ADB,	Knowledge Hub to

experience in implementing IWRM, and promote knowledge generation and sharing	exchange visits initiated by members	from such visits, with feedback received during 3rd NARBO General Meeting	ADBI, Chair, Knowledge Hub	join visits for piloting Roadmap Advisory Service for RBOs
5. Scholarship Programs Explore opportunities for member RBO staff to join existing scholarship programs for IWRM courses	By JWA, ADBI, ADB and knowledge partner members	Share information on IWRM courses and existing scholarship programs, through NARBO website	JWA, ADB, ADBI	Including online distance learning programs
Activities led by NARBO Member Organizations: **1. Regional Water Knowledge Hubs under APWF** Provide demand-based knowledge and capacity development services that meet NARBO member clients needs	By concerned APWF regional water knowledge hubs, each of which will develop a network of clients and partners on their topic (knowledge domain)	Member RBOs to explore developing client and partner relationships with relevant APWF hubs for specific services they need	Members, APWF Knowledge Hubs	Use development project budgets to pay for services provided by the hubs
2. Twinning Programs Organize mutually beneficial programs for knowledge sharing and capacity development, involving exchange visits, staff exchange, and joint projects	Initiated, arranged and financed by RBO members themselves	Explore further programs based on member interest, and learning lessons from existing programs between RBOs from Indonesia and JWA and K-Water	Members	NARBO Secretariat can facilitate initial contacts
3. ISO certification Explore opportunities to gain ISO certification for good performance in achieving standards of excellence	Members to exchange information and experience	ISO certified member RBOs in Indonesia (PJT 1 and 2) can provide information to other members	Members, PJT 1, 2	NARBO Secretariat can post information on the website

4. Transboundary Water Management Explore opportunities to foster transboundary water resources management (within and between countries) through information sharing and exchange of experience	To be conducted by interested member RBOs and riparian authorities who jointly agree to explore such collaboration	Contribute good practice cases as inputs for regional study on charting progress in IWRM in river basins in the region	Members, Knowledge Hub	The Mekong River Commission Secretariat has been approached as candidate APWF regional knowledge hub for this topic

C. Network Support				
Activity	**Remarks**	**Implementation Plan**	**Lead Agency**	**Note**
1. Technical Advisory Committee Provide guidance to ensure quality of NARBO's IWRM Training Program, and on strategic direction of NARBO's activities	Guidelines for the TAC to be finalized in 2008	TAC to be established in 2nd quarter of 2008 to guide the overhaul of NARBO's IWRM Training Program	ADB, ADBI, JWA, Chair	Heads of regional water knowledge hubs to be involved
2. Charting Progress and Facilitating Investment for IWRM Catalyze further investments in IWRM and demonstrate good practices in introducing IWRM in river basins across the region	Regional TA project formulated by ADB to help member RBOs	Implement TA project through regional water knowledge hub in Indonesia over period 2008-2010	ADB, Knowledge Hub	Update to be provided to 3rd NARBO General Meeting
3. Collaboration with International Networks Collaborate with GWP, INBO, CapNet, If-net, Aguajaring, and others as needed.	JWA, ADBI, and ADB to manage	Coordinate activities as needed	JWA, ADBI, ADB	Share IWRM experience

BASELINE 3

NARBO Members' List

List of NARBO Member and Organizations Interested in becoming member

March 17, 2009

Category	Member	(Interested)
River Basin Organization (RBO)	**24**	**4**
Government Organization (GOV)	**17**	**4**
Regional Knowledge Partner (RKP)	**19**	**1**
Inter-Regional Knowledge Partner (IRKP)	**8**	**0**
Development Cooperation Agency (DCA)	**1**	**0**
Total	**69**	**9**

Classification		Country/Region	Organization	Representative/Signatory	Position
Member	RBO	Indonesia	Jasa Tirta I Public Corporation (PJT I)	Mr. Tjoek Walujo Subijanto	President Director
		Indonesia	Jasa Tirta II Public Corporation (PJT II)	Mr. Djendam Gurusinga, Dipl.HE	President Director
		Indonesia	Bengawan Solo Basin Water National Management Unit	Mr. Imam Agus Nugroho	Head
		Indonesia	Pompengan Jeneberang Basin Water National Management Unit	Mr. Bambang Sigit Suryono	Head
		Indonesia	Jragung-Tuntang Basin Water Resources Management Unit	Mr. Tri Widodo D.	Head
		Indonesia	Pekalan Sampean Basin Water Resources Management Unit	Mr. Wahjoe Pribowo	Head of PSAWS
		Indonesia	Ciujung-Ciliman Basin Water Resources Management Unit	Mr.Winarjono	Head of DPU
		Indonesia	Sermo Water Resources Management Unit	Mr. Purwoko	Head
		Indonesia	Citarum Basin Water Resources Management Unit	Mr. Rustam Suharman	
		Japan	Japan Water Agency (JWA)	Mr. Toshiki Aoyama	President
		Korea	Korea Water Resources Corporation (K water)	Dr. Ko Ich Hwan	Director, Hydrosystem Engineering Center

		Laos	Nam Ngum River Basin Development Sector Project	Mr. Thatheva Saphangthong	Coordinator, Integrated Watershed Maangement Unit
		Malaysia	Selangor Water Management Authority (SWMA)	Mr. Azizah Binti Yusof	Acting Director
		Pakistan	Indus River System Authority (IRSA)	Mr. Fida Hussain	Senior Engineer
		Philippines	Laguna Lake Development Authority (LLDA)	Ms. Dolora Nepomuceno	Assistant General Manager
		Sri Lanka	Mahaweli Authority of Sri Lanka (MASL)	Mr. K. W. Ivan de Silva	Director General
		Thailand	Bang Pakong River Basin Committee (BPRBC)	Mr. Pathai Punturothai	Director, Division of Coordination and Management
		Viet Nam	Cuu Long & Dong Nai River Basin Organization	Mr. Nguyen Xuan Hien	Chief of Office
		Viet Nam	Red River Basin Organization (RRBO)	Dr. To Trung Nghia	Chief of Office
		Viet Nam	Day River Basin Subcommittee	Dr. Nguyen Van Tinh	Deputy Director of WRD, MARD
		Viet Nam	Cau River Basin Planning Subcommittee	Mr. Dinh Khac Tinh	Vice Chairman
		Viet Nam	Vu Gia Thubon River Basin Organization	Mr. Huynh Van Thang	Chief of GORBO's Secretariat Board
		Viet Nam	Ca River Basin Management Council	Mr. Nguyen Dinh Chi	Chairman
		Southeast Asia	Mekong River Commission Secretariat (MRC)	Mr. Jeremy Bird	Chief Executive Officer

Classification		Country/Region	Organization	Representative/Signatory	Position
Member	GOV	Bangladesh	Bangladesh Water Development Board (BWDB)	Mr. H. S. Mozaddad Faruque	Director General
		Bangladesh	Local Government Engineering Department (LEGD)	Mr. Md. Shahidul Hasan	Chief Engineer
		Cambodia	Ministry of Water Resources and Meteorology (MOWRAM)	Dr. Theng Tara	Director, Department of Water Resources Management and Conservation
		Cambodia	Department of Hydrology and River Works (DHRW)	Mr. Long Saravuth	Deputy Director

		Indonesia	Directorate General of Water Resources (DGWR)	Mr. Imam Anshori	Director of Water Resources Management
		Indonesia	Water Resources Development, West Nusa Tenggara Province	Mr. Djalal	Chief
		Japan	Water Resources Department, Land and Water Bureau, Ministry of Land, Infrastructure, Transport and Tourism	Mr. Kunihiro Moriyasu	Deputy Director
		Laos	Water Resources Department (Former WRCC, LaoPDR)	Mr. Phonechaleun Nonthaxay	Director General
		Malaysia	Department of Irrigation and Drainage (DID Malaysia)	Mr. Ahmad Husaini bin Sulaiman	Director General
		Philippines	National Water Resources Board (NWRB)	Mr. Ramon Alikpala	Executive Director
		Philippines	Department of Environment and Natural Resources (DENR)	Ms. Analiza Rebuelta Teh	Assistant Secretary, Foreign Assisted & Special Project Office
		Sri Lanka	National Water Resources Authority (NWRA)	Mr. Ananda. H. Jayaweera	Director
		Thailand	Department of Water Resources, Ministry of Natural Resources and Environment (DWR, MoNRE)	Mr.Adisak Thongkaimook	Director General
		Viet Nam	Department of Water Resources Management, MoNRE	Mr. Nguyen Thai Lai	Director General
		Viet Nam	General Office for RBOs in Viet Nam (GO-RBO)	Dr. Vu Van Thang	General Director, WRD
		Viet Nam	Southern Institute for Water Resources Planning (SIWRP)	Mr. Nguyen Ngoc Anh	Chief of Office
		Viet Nam	Department of Natural Resources and Environment of Dong Nai Province	Mr. Phan Van Het	Vice Director

Classification		Country/Region	Organization	Representative/Signatory	Position
Member	RKP	Southeast Asia	Global Water Partnership (GWP) SEA RWP	Mr. Siswoko Sastrodihardjo	Chairperson
		South Asia	Global Water Partnership (GWP) SAS RWP	Mr. Suresh Prabhu	Regional Chairperson
		South Asia	South Asia Network of River Basin Organization (SASNET-RBO)	Mr. Don Clement Sudharma Elakanda	Network Coordinator SASNET-RBO
		South Asia	The Capacity Building Network for Integrated Water Resources Management South Asia (CapNet SA)	Dr. Jasveen Jairath	Regional Coordinator
		Bangladesh	Institute of Water Modeling (IWM)	Mr. Emaduddin Ahmad	Exective Director
		Indonesia	Indonesia Water Partnership (InaWP)	Mr. Achmadi Partowijoto	Member of Trustee
		Indonesia	Foundation on Water Affairs ADHI EKA	Mr. Kusdaryono Sutosuromo	Chairman of the Executive Board
		Indonesia	Faculty of Engineering, Brawijaya University	Dr. Agus Suharyanto	Vice Dean for Academic Affaires
		Indonesia	Research Centre for Water Resources (RCWR)	Dr. Arie Setiadi Moerwanto	Director
		Indonesia	Center for Environment & Civil Engineering Research	Dr. Indreswari Guritno	Head of the Water Resources & coastal engineering science group
		Indonesia	Post Graduate Study on Water Resources Management Faculty of Engineering Gadjah Muda University	Dr. Budi Wignyosukarto	Senior Lecturer
		Indonesia	SEMBRANI foundation	Mr. Mardjono Notodiharjono	Chairman
		Japan	JAWA - Japan Water Resources Association	Dr. Toru Kondo	President Director
		Japan	Japan River Restoration Network (JRRN)	Dr. Nobuyuki TAMAI	Chairperson
		Japan	Graduate School of Management, Kyoto University	Dr. Kazuo YOSHIDA	Dean
		Japan	Civil Engineering Research Institute for Cold Region, PWRI	Mr.HIroshi TSUNEMATSU	Acting Chief Executive Officer
		Malaysia	National Hydraulic Research Institute of Malaysia (NAHRIM)	Mr. Ahmad Jamaluddin	Acting Director General
		#REF!	#REF!	#REF!	#REF!
		Thailand	Thailand Water Resources Association (TWRA)	Dr. Apichart Anukularmphai	President
	IRKP	Inter-region	Asian Development Bank Institute (ADBI)	Dr. Masahiro Kawai	Dean

		Inter-region	Asia Pacific Association of Hydrology and Water Resources (APHW)	Dr. Katsumi MUSHIAKE	Secretary General
		Inter-region	International Centre for Water Hazard and Risk Management (ICHARM)	Dr. Kuniyoshi TAKEUCHI	Director
		Inter-region	International Research and Training Center on Erosion and Sedimentation (IRTCES)	Dr. Prof. Hu Chunhong	Secretary General
		Inter-region	IUCN - The World Conservation Union	Dr. John Dore	Leader, Asia Water & wetlands Program
		Inter-region	International Water Centre (IWC)	Mr. Mark Pascoe	Chief Executive Officer
		Inter-region	International Water Management Institute (IWMI)	Mr. Andrew Noble	Head IWMI-SEA
		Inter-region	The World Wildlife Fund International (WWF International)	Dr. Isabella Louis	Director, Asia Pacific Region
	DCA	Inter-region	Asian Development Bank (ADB)	Mr. Jan P. M. van Heeswijk	Director General

Classification		Country/Region	Organization	Representative	Position
Interested	RBO	Indonesia	Balai Besar Wilayah Sungai Brantas	Ir. Sugianto, M. Eng	Head
		Indonesia	Balai Besar Wilayah Sungai Mesuji Sekampung	Ir. Hartanto, Dipl. HE	Head
		Pakistan	Water and Power Development Authority	Mr. M Mushtaq Chaudhry	General Manager (P&D)
		Thailand	Ping River Basin Committee	Ms. Supaporn Thongpook	President & Coordinator
	GOV	Bangladesh	Joint River Commision	Mr. Mir Sajjad Hossain	Director
		China	Haihe River Water Resources Commission, Ministry of Water Resources	Mr. Liu Chang Zhong	Senior Engineer
		China	Taihu Basin Authority, Ministry of Water Resources	Mr. Gong Zheng	Engineer
		China	Yellow River Conservancy Commission (YRCC), Ministry of Water Resources	Ms. Sun Feng	Director, Division of International Cooperation
	RKP	Japan	Ritsumeikan Asia Pacific University	Dr. Fransisco P. Fellizar, Jr	Associate Professor

Programs&Newsletter

PROGRAM 1

The Third General Meeting
Network of Asian River Basin Organizations (NARBO)

Time	Activity/Agenda	Acting Person	Venue	Remarks
Tuesday, Feb 19	**Arrival and Registration**			
	Participants arrive in Surakarta			
13:30 – 16:00	Secretariat Meeting (venue to be determined)			NARBO staff only
18.45 – 21.30	**Welcome Dinner**		Graha Tirta	
18:45 – 19:00	Participants transported from Sunan Hotel to Graha Tirta, Surakarta			By bus and coach
19.00 – 19.10	Welcome remarks from the **Jasa Tirta I President Director**	Ir. Tjoek Walujo Soebijanto, CES		
19.10 – 19.30	Introduction remarks from the **Regent of Wonogiri**	Drs. Begug Purnomosidi, MM		
19.30 – 20.30	Dinner (traditional music and dances accompanying: gambyong and gamelan)			
20:30 – 21:30	**Presentation & introduction to the study visit itinerary**			
20:30 – 21.00	Group 1: Managing Water Allocation and Sedimentation by **Jasa Tirta I Public Corportation**	Ir. Erwin Budoyo, M.Eng		
21.00 – 21.30	Group 2: Facilitating IWRM in Planning and Implementation by **Development Agency of Bengawan Solo**	Ir. Imam Agus Nugroho, Dip.HE		
21:30	Participants transported back to Sunan Hotel			
Wednesday Feb 20	**Study Visit**			
07:45 – 08:00	Preparation for departure			
08:00 – 09:00	Travel to Wonogiri			By bus and coach
09:00 – 10:00	Meeting with the Wonogiri Regency Administration			
	Group 1: Sedimentation Problem & Water Allocation within the Bengawan Solo R.B.			
10:00 – 10:15	Travel to confluence of Keduang River & Wonogiri Dam	Accompanied by Ir. Aunur Rofiq, CES		
10:15 – 12:00	Site visit & dialogue	Hosted by Ir Erwin Budoyo, M.Eng & Ir. Harianto	Wonogiri Dam Office	PJT I & water user association
12:30 – 13:00	Lunch break			
13:00 – 14:00	Travel to Colo Weir			By bus and coach

Time	Activity/Agenda	Acting Person	Venue	Remarks
14:00 – 14:30	Site visit at Colo Weir		Colo Weir	Explanation on site
14:30 – 15:30	Travel back to the hotel			
	Group 2: Public Participation and Bottom-Up Approaches in Water Resources Planning			
10:00 – 10:45	Travel to Gemawang Village	Accompanied by Ir. Rochadi Masyhadi, Dip.HE		By bus and coach
10:45 – 12:00	Site visit at Gemawang & dialogue with stakeholders involved in the PCM process	Hosted by Ir. Tri Rohadi, Dip.HE	Gemawang Village Office	Ir. Edhie Subagio, Dip.HE & Ir. Suwartono, Dip.WR
12:00 – 12:30	Lunch break			
12:30 – 14:00	Continue dialogue with stakeholders			
14:00 – 15:00	Travel back to the hotel			
Thursday 21 Feb	**Opening Program & IWRM Workshops**			
08:00 – 09:00	**Opening Program**		Ball Room III	
08:00 – 08:10	Opening remarks by the **NARBO Chairperson**	Dr. Ir. M. Basuki Hadimoeljono, M.Sc.		
08:10 – 08:40	Keynote presentation 1 by **Tokyo University**	Dr. Tsuneaki Yoshida		
08:40 – 09:00	Official address by the **HE Minister of Public Works**	Representative of Mr. Djoko Kirmanto, Dip.HE		
09:00 – 09:15	Coffee Break			
09.15-12.00 **Parallel Session**	**Workshop 1: Measuring the Performance of RBOs and River Basins**	Chaired: Mr. Wouter Lincklaen Arriens Facilitator: Mr. Ian Makin	Ball Room II	
	Opening remarks	Mr. Wouter Lincklaen Arriens		
	Lessons learned from the 4 pilot RBO peer reviews	Dr. Arlene Inocencio		
	Exploring ways to benchmark river basin performance	Mr. Christopher Morris		
	Facilitated discussion further development and applications	Panelists: K.W. Ivan de Silva (MASL, Sri Lanka), Tjoek Walujo Subijanto (PJT I, Indonesia), Edgardo Manda (LLDA, Philippines), Djendam Gurusinga (PJT II, Indonesia), H. Hutagalung Waldemar (PJT II, Indonesia), Sukontha Aekaraj (MONRE-Thailand), Dr. Salmah Zakaria (NAHRIM, Malaysia), Jan Yap (Consultant, World Bank, Indonesia) Dr. Arlene Inocencio (IWMI)		
	Summary and Way Forward	Mr. Wouter Lincklaen Arriens		

Time	Activity/Agenda	Acting Person	Venue	Remarks
09.15-12.00 **Parallel Session**	**Workshop 2: Managing Assets and Risks** – chaired by JWA	Chaired by Mr. Miichio Oota, Facilitated by Mr. Bambang Hargono	Ball Room III	
	Keynote: by Kyoto University, Japan	Dr. Kiyoshi Kobayashi		
	Issues and solutions related to the sustainable management of water resources infrastructure in NARBO member organizations – by JWA (Japan)	Mr. Masahiro Sugiura		
	Outline of International Center for Water Hazard and Risk Management (ICHARM) activities – by ICHARM (Japan)	Mr. Akira Terakawa		
	Outline of International Research and Training Center on Erosion and Sedimentation (IRTCES) activities – by IRTCES (China)	Ms. Zhang Yanjing		
	Community based (flood hazard) early warning system – by Jasa Tirta I Public Corporation (Indonesia)	Mr. Widyo Parwanto		
	Study on the asset management of dams focused on the reservoir sediment management – by JWA and Kyoto University (Japan)	Mr. Hiroyuki Nakajima & Dr. Tetsuya Sumi		
12:00 – 13:00	Lunch Break		Rice Crispy	
13:00 – 17:00 **Plenary Session**	**Workshop 3: Exploring New Challenges in IWRM**	Chaired: Dr. M. Basuki Hadimoeljono Facilitator: Dr. M. Amron	Ball Room III	
13:00 – 14:30	Addressing issues and challenges in water rights and water allocation/review of thematic workshop on water allocation and water rights – led by Asian Development Bank (ADB) with ADB Institute and JWA	Mr. Wouter Lincklaen Arriens		
14:30 – 15:00	Facilitating IWRM with civil society and private sector participation – by Bengawan Solo River Basin Development Agency (Indonesia)	Mr. Tri Rochadi		
15:00 – 15:15	Coffee break			
15:15 – 16:00	Restoring the health of rivers – by Asian River Restoration Network (ARRN)	Mr. Akira Wada & Mr Masafumi Ito		
16:00 – 16:25	Sharing IWRM experience from other regions – by International Network of River Basin Organizations (INBO)	Dr. Jean F. Donzier		
16:25 – 17:30	Discussion			
19:30 – 21:30	**Side event –** NARBO Indonesia Meeting		Kono Room	
Friday 22 Feb	**Third General Meeting**		Ball Room III	
07:30 – 08:00	Registration			
08:00 – 09:00	**Opening Program**			
08:00 – 08:15	Opening address – by **NARBO Chairperson**	Dr. Ir. M. Basuki Hadimoeljono, M.Sc.		
08:15 – 08.30	Remarks on Japan's support for IWRM in Asia – by **Director General of Water Resources, Ministry of Land, Infrastructure and Transportation (MLIT) Japan**	Mr. Shuhei Kazusa		
08:30 – 09:00	Keynote presentation on water and climate change – by **Director General, National Hydraulic Research**	Dr. Ir. Salmah Zakaria		

Time	Activity/Agenda	Acting Person	Venue	Remarks
	Institute of Malaysia (NAHRIM) and head of Asia Pacific Water Forum's candidate regional knowledge hub on climate change			
09:00 – 12:00	**Report on NARBO Activity 2006-2007**	Chaired by the Chairperson NARBO (Mr. M. Basuki Hadimoeljono), Vice-CP (Mr. Ivan da Silva), Secretary General (Mr. Yasutaka Hamada)		
09:00 – 09:05	Introduction by **ADBI**	Mr. Michitaro Nakai		
09:05 – 09:10	Overview – by **NARBO Secretary General**	Mr. Yasutaka Hamada		
09:10 – 09:25	Newsletter and Website – by JWA (Japan)	Mr. Akira Nishimura		
09:25 – 09:35	IWRM Training Programs – by Mahaweli Authority (Srilanka)	Mr. Elakanda Sudaharma		
09:35 – 09:50	Twinning Program – by Jasa Tirta II Public Corporation (Indonesia)	Mr. Djendam Gurusinga		
09:50 – 10:20	Coffee Break			
10:20 – 10:35	K-Water's collaboration activity in Citarum River Basin (including proposed K-Water training workshop in Taejon) – by K-Water (South Korea)	Dr. Ick Hwan Ko		
10:35 – 10:45	Thematic Workshop – by JWA and ADBI	Mr. Michitaro Nakai		
10:45 – 10:55	NARBO performance benchmark peer review – by ADB HQ	Mr. Ian Makin		
10:55 – 11:05	NARBO at the Asia Pacific Water Summit – by JWA (Japan)	Mr. Michio Oota		
11:05 – 11.10	NARBO Promotion Activity – by JWA	Mr. Shinobu Ifuji		
11:10 – 11.25	NARBO and Regional Water Knowledge Hubs – by ADB HQ	Mr. Wouter Lincklaen Arriens		
11:25 – 11:30	Report on NARBO Survey	Mr. Michitaro Nakai		
11:30 – 12:00	Plenary Discussion	NARBO Secretariat		
12:00 – 13:00	Lunch Break		Rice Crispy	
13:00 – 13:05	Introduction	Mr. Michitaro Nakai	Ball Room III	
13:05 – 13:30	**Introduction of New NARBO Members** Recognition, introduction and approval – by NARBO Secretariat	Mr. Wouter Lincklaen Arriens		
13:30 – 13:35	Overall Review on NARBO's Program 2008-2009	Mr. Yasutaka Hamada		
13:35 – 13:45	Briefing on Workplan 2008-2009	Mr. Michitaro Nakai		
13:45 – 15:20	**Briefing on New Programs (2008-2009)**			
13:45 – 13:55	Charting Progress and Facilitating Investment for IWRM (10 minutes)	Mr. Wouter Lincklaen Arriens		
13:55 – 14:05	Preparation of Guidelines for IWRM at River Basin Level (10 minutes)	Mr. Michio Oota		
14:05 – 14:15	Asian Regional Knowledge Hub on RBO Management (10 minutes)	Mr. Ari Setiadi, Ministry of Public Works (Indonesia)		
14:15 – 14:25	NARBO IWRM Training & Technical Advisory	NARBO Secretariat		

Time	Activity/Agenda	Acting Person	Venue	Remarks
	Committee (TAC) (10 minutes)			
14:25 – 14:35	Thematic Workshop on adaptation for Climate Change (10 minintes)	Indonesia NARBO		
14:35 – 15:20	Plenary Discussion (45 minutes)	NARBO Secretariat		
15:20 – 15:35	Coffee Break			
15:35 – 15:55	**NARBO Charter Revision** – by NARBO Secretariat	Chaired by: Vice-Secretary General NARBO (Mr. Michio Oota) & Mr. Wouter Lincklaen Arriens		
15:55 – 16:10	**NARBO Constitutional Body 2008-2009** Nomination and selection – by NARBO Secretariat			
16:10 – 16:20	Acceptance remarks – by incoming NARBO Chair, Vice-Chair, and Secretary General			
16:20 – 16:45	Wrap up session, plenary discussion with comments and commitments by NARBO members – led by **ADB Headquarters**	Chaired by Mr. Wouter Lincklaen Arriens		
16:45 – 16:55	Closing remarks 1 - by **NARBO Vice Chairperson**	Mr. Ivan da Silva (Srilanka)		
16:55 – 17:05	Closing remarks 2 – by **Directorate General of Water Resources, Ministry of Public Works, Indonesia**	Represented by Mr. M. Amron		
17:05 – 17.10	Photo session			
19:00 – 21:30	**Farewell Dinner**		Ball Room III	
Saturday 23 Feb	**Check out and Departure**			

Program 2: NARBO Workshop
"4th Thematic Workshop on Sustainable Management for Water Resources Infrastructures"

4th - 7th February 2008, Bangkok-Thailand

Date	I		II	III	IV
Monday, 4th February 2008 (Day 1)	**8.30 Registration of Participants** **9.00 Opening Remarks (DWR)** **9:10 Introduction of Participants** **9.20 Opening Speech (JWA)** **9.30 Introduction of 4th Thematic workshop (JWA)** **9.40 Schedule of 4th Thematic workshop**	**9:50-10:00 Tea Break**	**Report Session (1) , Action Plan** **10:00-11:00 BWDB (Bangladesh)** **11:00-12:00 IWM (Bangladesh)** **Facilitated by JWA**	**12:00-13:00 Lunch** **Report Session (2), Action Plan** **13:00- 14:00 PJT-I (Indonesia)** **14:00-15:00 MASL(Sri Lanka)** **Facilitated by BWDB/IWM**	**15:00-15:20 Tea Break** **Report Session (3) , Action Plan** **15:20- 16:20 DWR (Thailand)** **16:20-17:20 MARD&GORBO (Vietnam)** **Facilitated by PJT-I**
Resource persons	**DWR, JWA, OC**		**BWDB, IWM**	**PJT-I, MASL**	**DWR, MARD&GORBO**
Tuesday, 5th February 2008 (Day 2)	**Presetation Session** **Briefing of Field visit(OC)** **8:30-8:50 Briefing of Field Visit by OC** **8:50-9:40 Presenation "(Tentative) Sustainable Management for Water Resources Infrastructures of Japan" MLIT (Japan)** **Facilitated by JWA**	**9:40-10:00 Tea Break**	**Discussion Session 1** **10:00-11:30 Problem solution on "legal and/or institutional frame work" and "Organization" of participants country.** **Facilitated by MASL**	**11:30-13:00Lunch** **Discussion Session 2** **13:00-14:30 Problem solution on "Technical aspects for infrastructure management" of participant's country** **Facilitated by DWR**	**14:30-15:00 Tea Break** **Discussion Session 3** **14:30-16:00 Problem solution on "Social/Custum obstacles and restriction concerning implementation of Water resources management" and "Others" of Participant's Country** **Facilitated by MARD&GORBO** **16:00-16:30 Arrangement of Outcome by participants**
Resource persons	**MLIT**		**All participants**	**All participants**	**All participants**
Record			**OC of Thailand**	**OC of Thailand**	**OC of Thailand**
Wednesday, 6th February 2008 (Day 3)	**Site Visit (in Kachanaburi)**				
Resource persons	**OC of Thailand**				
Thursday, 7th February 2008 (Day 4)	**Site Visit (in Kanchanaburi)**	**Closing session**	**Movement**		
		***Closing Remarks(DWR)** ***Secretariat Announcement (JWA)**	**Go to Bangkok/ Departure of participant**		
Friday, 8th February 2008	Departure of Participants				

Program3: **1st Meeting of the NARBO Technical Advisory Committee**

I. Background

The Network of Asian River Basin Organizations (NARBO) was established in February 2004 to promote integrated water resources management (IWRM) in Asia Monsoon region at river basin level. As of February 2008, NARBO has 65 member organizations. During these four years since the establishment of NARBO, the network has organized some events including the NARBO IWRM Training to strengthen the capacity and effectiveness of river basin organizations (RBOs) in promoting IWRM and improving water governance.

At present, NARBO seeks expert advice to ensure that the quality and credibility of its annual IWRM Training Program will be at the level of a prestigious regional flagship program that will attract numerous participants who desire to join and successfully complete the program to benefit their work, and who are willing to share in the cost by paying a registration fee of $200 or more per person. NARBO can also benefit from periodic advice on the strategic direction of its activities to ensure optimal benefits to its members and a high standing among the water development community in the region. For this purpose, NARBO agreed at the 3rd NARBO General Meeting in Solo, Indonesia, to establish the Technical Advisory Committee (TAC).

The 1st TAC meeting is planned on 5 April 2008, back-to-back with a meeting of regional water knowledge hubs.

II. Date and Venue

Date: Saturday, 5 April 2008
Venue: Singapore WaterHub
80 Toh Guan Road East, Singapore, 608575
Tel: +65-68852555
Fax: +65-68852526
(http://www.pub.gov.sg/waterhub/Vtour/Contact_Us.htm)

III. Participants

Representatives from the following organizations will be invited to attend the 1st TAC meeting:

- International Centre for Water Hazard and Risk Management (Japan)
- K-Water (Korea)
- International Water Management Institute (Sri Lanka)
- National Hydraulic Research Institute of Malaysia
- Ministry of Public Works, Indonesia
- Yellow River Conservation Committee (Peoples' Republic of China)
- International Water Centre (Australia)
- World Wide Fund for Nature, People's Republic of China Programme
- International Union for Conservation of Nature, Bangladesh Country Office
- UNESCO-IHE Institute for Water Education (The Netherlands)
- Lee Kuan Yew School of Public Policy, National University of Singapore

- NARBO Chairperson
- NARBO Vice Chairperson
- NARBO Senior Advisers
- NARBO Secretariat

IV. Provisional Program

Time	Activity
Friday, 4 April	Welcome Dinner with Introduction by NARBO Chair and Secretariat
Saturday, 5 April	
08:30 - 08:45	Registration
08:45 - 09:00	Opening and Selection of TAC Chairperson
09:00 - 10:00	**Learning from Experience in IWRM Training:** Presentations from WWF, IUCN, and UNESCO-IHE (15 minutes each, followed by 5 minutes discussion)
10:00 - 10:20	Coffee Break
10:20 - 11:40	Presentations (cont'd) from IWMI, K-Water, International Water Center, and Aguajaring/CapNet
11:40 - 12:00	Plenary Discussion
12:00 - 13:00	Lunch
13:00 - 15:30	Discussion on Revamping the NARBO IWRM Training Program - Objectives, target participants, qualifications of applicants, requirements for certification, guidelines for organization of the program, venue, host organizations, program scope and detailed content, assignments and ratings, program director and trainers, financing, and frequency
15:30 - 15:45	Synthesis and Next Steps by ADB's Wouter Lincklaen Arriens
15:45 - 16:00	Closing Remarks by NARBO TAC Chairperson and NARBO Vice Chairperson

V. Contact Persons

Michitaro Nakai (Mr.)
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NARBO 2nd Thematic Workshop - Water-Related Disaster and Its Management in Asian Countries
Program 4:

Date	Sessions 08:00-8:50 I	08:50-9:40 II	09:40-10:00	10:00-10:50 III	10:50-11:40 IV	11:40-13:00	13:00-13:50 V	13:50-14:40 VI	14:40-15:00	15:00-15:50 VII	15:50-16:40 VIII
Day 0 **6 October 2008** **Resource Person or Moderator**	**Participants arrival** Mr. Roque Delas Alas / Ms. Aida Samiano							**[14:30-17:00]** **Secretariat Meeting** Host Secretariat & NARBO Secretariat Only		**[17:00-18:00]** **Introductions of participants** **Orientation on the program & field trip** Host Secretariat & NARBO Secretariat	**[18:00-20:00]** **Welcome Reception (dinner)**
Day 1 **7 October 2008**	**Opening Session** GM Edgardo C. Manda, LLDA; Mr. Wouter L. Arriens, ADB; Mr. Michio Ota, JWA; Highlights of 1st Workshop, NARBO Secretariat	**Special Lecture and discussion (1)** - Man made disaster management - Laguna de Bay Region, Philippines	**Break**	**Special Lecture and discussion (2)** - Pampanga River Basin and Allied Projects	**Special Lecture and discussion (3)** - The Role of the RBO as a Facilitator of Water-Related Disaster Management in the Rive Basin	**Lunch**	**Presentation & Discussion (1)** Presentation and discussion to share experience among member countries on disaster management - Bangladesh	**Presentation and discussion (2)** Presentation and discussion to share experience among member countries on disaster management - Indonesia	**Break**	**Presentation and discussion (3)** Presentation and discussion to share experience among member countries on disaster management - Malaysia	**Group Work (1)** Brief explanation of this work and grouping
Resource Person or Moderator	Mr. Alicia E. Bongco Philippines, Host Secretariat	GM Edgardo C. Manda, LLDA, Philippines		Engr. Arlette Guzman, DPWH, San Fernando/ Ms. Mariton Bornas, Philvocs	Dr. Neil Britton ADB		Delegate fromVietnam (& NARBO Secretariat)	Delegate from Thailand (& NARBO Secretariat)		Delegate from Sri Lanka (& NARBO Secretariat)	NARBO Secretariat & ICHARM
Day 2 **8 October 2008**	**Special Lecture and discussion (4)** - Integrated Flood Risk Management for Urbanized River Basins in Japan	**Special Lecture and discussion (5)** - Crisis Management in Japan Water Agency	**Break**	**Presentation and discussion (4)** Presentation and discussion to share experience among member countries on disaster management - Philippines	**Presentation and discussion (5)** Presentation and discussion to share experience among member countries on disaster management - Sri Lanka	**Lunch**	**Presentation and discussion (6)** Presentation and discussion to share experience among member countries on disaster management -Thailand	**Presentation and discussion (7)** Presentation and discussion to share experience among member countries on disaster management - Vietnam	**Break**	**Providing Other Topic & Group Work (2)** - Presentation of Study Visit - Further discussion on Disaster Risk Managemant by category	
Resource Person or Moderator	Mr. Akira Terakawa, ICHARM, Japan	Mr. Michio Ota, Mr. Akira Nishimura Japan Water Agency		Delegate from Malaysia (& NARBO Secretariat)	Delegate from Philippines (& NARBO Secretariat)		Delegate from Indonesia (& NARBO Secretariat)	Delegate from Bangladesh (& NARBO Secretariat)		NARBO Secretariat, ICHARM & Host Secretariat	
Day 3 **9 Oct 2008** **Resource Persons**	**Study Visit** - Pampanga River Guides and resource persons from Study Visit Organization Team, Philippines Secretariat and local institutions										
Day 4 **10 October 2008**	**Group Work (3)** Further discussion on Disaster Risk Managemant by category (continued.)		**Break**	**Group Work (4)** Further discussion on Disaster Risk Managemant by category (continued.)		**Lunch**	**Group Work (5)** Presentations on the result of Group Work		**Break**	**Concluding Session & Closing Ceremony** -Presentation of assignment for the next (last) workshop -Presentation of certificates	
Resource Person or Moderator	Host Secretariat, ICHARM & NARBO Secretariat			Host Secretariat, ICHARM & NARBO Secretariat			Host Secretariat, ICHARM & NARBO Secretariat			NARBO Secretariat & Host Secretariat	
11 Oct 2008 **Resource Person or Moderator**	Mr. Roque Delas Alas / Ms. Aida Samiano										

Updated: 23 September 2008

Program 5 : Regional Meeting on Hydro-informatics and Developing Knowledge Hub Networks

15-17 October 2008, Zhengzhou, People's Republic of China
Hosted by the Yellow River Conservancy Commission

Tentative Program

Wednesday 15 October

09:00 – 12:00 Plenary opening session with presentations by:

- Vice-Minister Hu Siyi, Ministry of Water Resources, China
- Li Guoying, Commissioner of the Yellow River Conservancy Commission
- Speakers from the Network of Asian River Basin Organizations (NARBO), Asian Development Bank, and UNESCO-IHE Institute for Water Education

12:00 – 12:30 Launch of the Center for Hydro-informatics in River Basins (CHIRB) at the Yellow River Conservancy Commission as Regional Water Knowledge Hub on Decision Support Systems for River Basin Management

12:30 – 14:30 Lunch break

14:30 – 18:00 *Track 1 for IWRM Project Managers*:
Presentations and discussion of experience in the application of hydro-informatics to introduce integrated water resources management (IWRM) in the Yellow River Basin (for water allocation, flood management, pollution control, and climate change)

Track 2 for Knowledge Hub Managers:
Facilitated meeting on improving hub business plans, developing the hub networks, and presentation and review of business plans by candidate regional water knowledge hubs

Thursday 16 October

09:00 – 12:30 *Track 1 for IWRM Project Managers*:
Presentations and discussion of experience in the application of hydro-informatics to introduce integrated water resources management (IWRM) in Asian Rivers (introducing applications in selected river basins in Asian countries)

Track 2 for Knowledge Hub Managers:
Continuation of first-day meeting

12:30 – 14:30 Lunch break

14:30 – 17:00 *Track 1 for IWRM Project Managers*:
Brief presentations by CHIRB partners on their experience and services to the knowledge network on hydro-informatics in river basins, followed by discussion on meeting client needs and expectations by CHIRB, its partners and the network on applying hydro-informatics in river basins

Track 2 for Knowledge Hub Managers:
Final session

Friday 17 October

- *Study visit* to the 3 Yellow Rivers (natural, physical, and digital), including the flood management center, water allocation and remote control center, erosion management center, hydraulic laboratory, hydrological station, diversion gates, and standardized embankments (linkages will also be explored with the topics of urban water management, water quality management, and adaptation to climate change), and the Xiaolangdi multipurpose dam project on the Yellow River.

Targeted Participants

- APWF *KnowledgeHubs* managers and staff, candidate hubs, member organizations of NARBO, government project directors and senior staff of projects introducing IWRM in river basins in Asia, APWF lead organizations and secretariat, development partners in the region, and civil society, including academe, from People's Republic of China and other countries in the region, and others to be discussed.

Meeting Secretariat

- **Yellow River Conservancy Commission**

  For meeting program and arrangements:
  Mr. SUN Yangbo
  Deputy Director, International Cooperation Division
  Department of International Cooperation, Science and Technology
  Tel: +86 371 6602 8261
  Fax: +86 371 6594 5906
  Email: sunyangbo@yahoo.com

For invitation letters, visa support, and logistic arrangements:
Ms. DONG Wu
Project Officer, Department of International Cooperation, Science and Technology
Tel: +86 371 6602 4734
Fax: +86 371 6594 5906
Email: wina_dong@hotmail.com

- **Asian Development Bank**

For meeting program and coordination with knowledge hubs:
Mr. Wouter LINCKLAEN ARRIENS
Lead Water Resources Specialist
Regional and Sustainable Development Department
Tel: +63 2 632 6754
Fax: +63 2 636 2198
Email: wlincklaenarriens@adb.org

For supplementary invitation letters to ADB-supported participants:
Mr. Dennis Von CUSTODIO
Basin Water Coordinator (Consultant)
Regional and Sustainable Development Department
Tel: +63 2 632 6970
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Program 6: Regional Workshop on Developing Partnerships for Water and Climate Change Adaptation

Hotel Equatorial Bangi-Putrajaya, Selangor, Malaysia, 1st – 5th December 2008

Day	1-DEC	Day	2-DEC	3-DEC	4-DEC	5-DEC
Theme	OPENING PROGRAM AND HUB LAUNCH	**Theme**	CURRENT STATUS IN THE REGION	STUDY VISIT	DEVELOPING STRATEGIES AND PARTNERSHIPS	DEVELOPING ACTION PLANS FOR 2009 WITH THE KNOWLEDGE HUB
8:30 - 9:00	Registration	8:30 - 9:00	Recap of previous day	Climate Change Adaptation in the Selangor River Basin *Hosted by the RBO of the Selangor River Basin* Briefings On-site discussions regarding water supply, agriculture, aquaculture, environment, salinity intrusion, agro-tourism, and flood risk management	Recap of previous day	Recap of previous day
09:00 – 9:30	Opening Remarks by NARBO Representatives: NARBO Vice-Chair Director General of the Japan Water Agency	09:00 – 9:30	Water and Climate Change Adaptation in Australia		Briefing by Chief Facilitator on Workshop Process	Briefing by Chief Facilitator on Workshop Process
9:30 - 10:00	Presentation by FAO on Climate Change Impacts on Agriculture	9:30 - 10:00	Climate Change Adaptation for Water Resources Management in the Brantas River Basin, Indonesia		Parallel workshop sessions on 3 important topics: 1. Projections 2. Impact Assessments 3. Adaptation Strategies	Parallel workshop sessions on action plans for the 3 topics: 1. Projections 2. Impact Assessments 3. Adaptation Strategies
10:00 - 10:15	Tea break	10:00 - 10:30	Climate Change Adaptation in Laguna Lake, Philippines		Workshop sessions include brief country and basin case study presentations under each respective topic, from Bangladesh, Laos, Nepal, Pakistan, Indonesia, Sri Lanka, and others	Parallel workshop sessions for Action Plans in 2009

Day	1-DEC	Day	2-DEC	3-DEC	4-DEC	5-DEC
10:15 – 11:45	Opening and Knowledge Hub Launch Ceremony Keynote Presentation by ADB on Partnerships for Water and Climate Change Adaptation	10:30 – 10:45	Tea break		Tea break	Tea break
11:45 – 12:15	Team Japan: Japan's Policy for Climate Change Adaptation in the Water Sector	10:45 – 11:15	Climate Change Adaptation Experience by the Asia-Pacific Typhoon Committee		Workshop tasks for the day (morning and afternoon): 1. Present case studies 2. Compile client needs 3. Recognize strategies 4. Develop partnerships	Parallel workshop sessions compile expectations for products and services to be delivered by the regional knowledge hub NAHRIM and its partners
12:15 – 12:45	Water and Climate Change Experience in India (tbc)	11:15 – 11:45	Climate Change Adaptation in the Yom River, Thailand		Workshop Sessions (continued)	Parallel workshop sessions on expectations from the hub (continued)
12:45 - 14:00	Lunch	11:45 – 12:15	Presentation by ESCAP on Eco-efficient Water Infrastructure in Climate Change Adaptation		Workshop Sessions (continued)	Parallel workshop sessions on expectations from the hub (continued)
Theme	CURRENT STATUS AND ONGOING INITIATIVES	12:15 – 12:45	Water and Climate Change Adaptation in Viet Nam		Workshop Sessions (continued)	Parallel workshop sessions on expectations from the hub (continued)
14:00 – 14:30	Team Japan: JICA Support for Climate Change Adaptation in Developing Countries	12:45 - 14:00	Lunch		Lunch	Lunch

Day	1-DEC	Day	2-DEC	3-DEC	4-DEC	5-DEC
14:30- 15:00	ICIMOD Support for Climate Change Adaptation in Mountainous Areas	**Theme**	CURRENT STATUS IN THE REGION		WORKSHOP SESSIONS	CONCLUDING SESSIONS
15:00 – 15:30	Climate Change Adaptation in the Chu and Talas River Basins, Central Asia	14:00 – 14:30	Team Japan: University of Tokyo Support for Simulation of Climate Change Impact on Water Resources		Presentation on Dynamic Downscaling for Climate Change Projections	Regional Knowledge Hub NAHRIM presents partners, products and services
15:30 – 15:45	Tea break	14:30- 15:00	Team Japan: ICHARM Support for Simulation of Climate Adaptation in Flood Management		Workshop Sessions	Regional Knowledge Hub NAHRIM presents partners, products and services
15:45 – 16:15	Water and Climate Change Projections and Impact Assessments in China	15:00 – 15:30	Team Japan: JWA Support for Water and Climate Change Adaptation		Workshop Sessions	Plenary discussion on developing NAHRIM's knowledge network of clients and partners
16:15 – 16:45	Water and Climate Change Adaptation Strategies in China	15:30 – 15:45	Tea break		Tea break	Tea Break
16:45– 17:15	Plenary Discussion	15:45 – 16:15	Water and Climate Change Adaptation in Thailand: Projections and Adaptation Plan (tbc)		Workshop Sessions	Plenary discussion on developing NAHRIM's knowledge network of clients and partners
Day	**1-DEC**	16:15 – 16:45	Water and Climate Change Projections and Adaptation in Malaysia		Reporting to Plenary and Facilitated Discussion	Wrap-up Session on Strategies, Partnerships and Actions in 2009
Theme	OPENING PROGRAM AND HUB LAUNCH	16:45– 17:15	Plenary Discussion		Reporting to Plenary and Facilitated Discussion	Closing reflections by participants and organizers

Program 7 & 8:

Whole Program (5th IWRM Training & Study Meeting on IWRM including Water-Related Disaster)

Date	Training on IWRM			Study Meeting on Water-Related Disaster			Staff from JWA	
	Morning	Afternoon	Evening	Morning	Afternoon	Evening	**Ota**	**Nishimura**
Mon 16 Feb				Arrival	Arrival	Arrival	Arrival	Arrival
Tue 17 Feb	Participants Arrival	Participants Arrival	Participants Arrival	**Work** Reinforce Action Plan	**Discussion & Work** Discuss Action Plan & Interim Report	**Discussion & Work** Discuss Action Plan & Interim Report	Discussion & Work	Discussion & Work
Wed 18 Feb	**Opening Ceremony** Introductions of the training Overview of IWRM	**Lecture on IWRM** IWRM Guidelines Overview of VGTB Basin and RBO Activities	Welcome Dinner	Same as the Training	Same as the Training	Same as the Training	Secretariat	Secretariat
Thu19 Feb	**Lecture(Topics on VGTB Basin)** Environment, Coastal Issues, **Flooding,** Biodiversity and Urban Water Supply	**Lecture(Topics on VGTB Basin)** Investment programs, Agriculture, Social and economic issues, Hydro power schemes	Participant Poster Session	Same as the Training	Same as the Training **(Occational Time)** **Discussion & Work** Follow-up work on Feb 17	**Discussion & Work** Follow-up work on Feb 17	Secretariat / Discussion & Work	Secretariat / Discussion & Work
Fri 20 Feb	**Study Visit (Upper Catchment)**	**Study Visit (Upper Catchment)**	Day 1 Study Visit De-Briefing	Same as the Training	Same as the Training	**Discussion & Work** Follow-up work on Feb 17	Secretariat / Discussion & Work	Secretariat / Discussion & Work
Sat 21 Feb	**Study Visit (Lower Catchment)**	**Study Visit (Lower Catchment)**	De-Brief on Day 2	Same as the Training	Same as the Training	**Discussion & Work** Follow-up work on Feb 17	Secretariat / Discussion & Work	Secretariat / Discussion & Work
Sun 22 Feb	REST DAY	REST DAY	De-Brief on whole Study Visit	Departure	Departure	Departure	**Secretariat**	Secretariat & Departure
Mon 23 Feb	**Group work**	**Participant presentations and Lecture** Keys for Success for IWRM Lessons from Japan	Pre-dinner event				**Secretariat**	
Tue 24 Feb	**Participant Presentations** Keys for Success for IWRM	**Lecture and Discussion** Monitoring, Evaluation, Reporting and Improvement in IWRM	Individual Time to prepare final individual				**Secretariat**	
Wed 25 Feb	**Individual Presentations**	**Individual Presentations** **Workshop evaluation**	Farewell Dinner and presentation of certificates				**Secretariat**	
Thu 26 Feb	Participants Depart	Participants Depart					**Secretariat & Departure**	

VGTB= Vu Gia - Thu Bon River

The NARBO Newsletter
(Network of Asian River Basin Organizations)
http://www.narbo.jp/

Activities (TWINNING PROGRAM)

THE NARBO TWINNING PROGRAM - 2007

Mulianingsih*

The Lucky of Me

Traveling is one of my favorite activities. I have visited some European and Asian countries before and for the next holiday destination I have called some travel agents at the beginning of July 2007 to get information about Japan. I was very excited when, a few days later, I got an assignment to leave for Japan for the personnel exchangram between Japan WaterAgc
Jasa Tirta (T, Indonesian NARBO). Certainly, I felt very lucky. It would be a grat “holiday” for me: free of charge 30 days stay in Japan!!!

I arrived at Narita airport on 7th august 2007 at around 9 o’clock a.m. Along with my two colleagues and one digital camera, I started my adventure. A big billboard of Yokoso Japan (means Welcome to Japan) was the first picture I took in the airport.

On the same day in the International Affairs Division of JWA Hearter Office, we were explainedoutdule of our activities and presented to the office’s members. The warm acceptance they showed to us made me feel like at home.

The Activities

• Site visits

Out of seven river basins exist in Japan we were scheduled to visit four of them, namely Tone, Kiso, Yodo and Yoshino river basins. There are many objects to see in those areas, but due to limited time, JWA had arranged the following places to visit:

- Gunma Canal Redevelopment, Operation and Maintenance Office (Tone River System):
  Visits to canal facilities, officefcilities and Land ImprovementDistrict Office
- Numata Dam Operation and Maintenance Office (Tone River System):
  Visits to Yagisawa Dam, Naramata Dam and the Information Center of Tokyo Electric Power Company
- Research Center:
  Visit to some hydraulic models and other research facilities
- Tokuyama Dam Construction Office (Kiso River System):
  Vis*it to dam site: explanatio*n on first filling of reservoir
- Nagaragawa Estuary Barrage Operation and Maintenance Office (Kiso River System):
  Visit to the barrage site.
- Lake Biwa Operation and Maintenance Office (Yodo River System):
  Lake Biwa by boat and visit to water quality monitoring station, Seta Weir, Lake Biwa Museum and drainage facilities (sluice gates and pumping station)
- Kagawa Canal Redevelopment, Operation and Maintenance Office

Thick plantation at Naramata Reservoir Area

Information exchange between JWA and PJT

*) Hydrologist / Reservoir Operation Specialist, Jasa Tirta I Public Corporation

Topics of this issue

drainage facilities (sluice gates and pumping station)

- Kagawa Canal Redevelopment, Operation and Maintenance Office (Yoshino River System):

Visits to embankment site, canal intake site, canal rehabilitation, regulation ponds, environment protection facilities and Kagawa Canal Museum.

• Experience/ information sharing

The experience/ information sharing is conducted in the form of formal presentation (by both sides: JWA and PJT) as well as informal discussion that took place not only in a meeting room but also in the car or train that brought us from one place to another. The discussions moved from the most serious issues such as the modern IWRM in Japan, water rights, environment protection

Asakusa Temple

etc. to the simplest ones e.g. about the food we eat and other things happen in our daily life.

• Other activities

We never stop strolling except when the night came, even on Saturdays and Sundays. It was like there would be no tomorrow. The three of us had the same mission: we had to use time effectively to visit as many places as we could during our stay in Japan. We visited museums, shopping centers, public parks, temples or just walking along small streets with Japanese style houses. Souvenirs hunting were the most taking time's activity (we never been egoists: we always think about giving something to our family, colleagues and friends ……..)

What Impressed Me?

Followings are things that leave special impression on me after my 30 days roaming around Japan:

• Green forest and blue water

The beautiful scene of clean water and green trees could be seen not only on the upper areas but also at the lower part of the river basins. Naramata Dam, Yagisawa Dam, Tokuyama Dam and Nagaragawa Estuary Barrage are the examples.Those places show me how nature preservation is particularly considered in the water resources development in Japan.

The clear water of Tokuyama Dam

• Modern facilities

Most of the project sites/ offices that we visited are equipped with modern facilities (e.g. high technology monitoring and communication system/ data processor). Those facilities make it possible to do the operation and maintenance job more practically, simpler, with less effort and less staff needed.

• Good coordination between interrelated organization

Japan's (JWA's) river basin management system provides examples of the importance of good coordination between all of the related parties in the whole country (central and local government, JWA, water users). In each river system in Japan there are some different facilities (dams, water intakes, and monitoring stations) which are managed by different organizations.

With smooth coordination between those organizations and with the same mission: put **goodness for everyone** on the highest priority, the river water could be managed/ controlled (in floods, droughts as well as in normal condition) easily and effectively.

• Public relation tools

PR goals are provision of information to build mutual understanding to attract positive cooperation to support overall company's activities.

Among the PR tools that are used in Japan/ JWA, there is one that I found interesting: the use of paper fan to convey information, suggestion etc to the public: low cost and usable (especially in hot weather).

• High working-spirit of the JWAs members (9.00 a.m. - 12.00 p.m. working hours !!!!!!)

Last Words

Now I'm back to my country, to my house, to my job in PJT I. I'm happy, of course, that I meet again with my family, my colleagues and my friends, but there is one thing that I'd like to tell you all: I have one more happiness because in my age I still have the chance to see another world. Thanks to PJT I and JWA. Thanks to Anton and Nugroho for being a good company. Thanks to Anton and Nugroho for being a good company.

Activities (Thematic Workshop)

FIRST THEMATIC WORKSHOP IN ASIAN COUNTRIES ON WATER-RELATED DISASTER & ITS MANAGEMENT 25-29 November 2007

Alicia E. Bongco*

Natural disasters such as floods, droughts, landslides, volcanic eruptions, earthquakes, tsunami, typhoons, hurricanes, cyclones and other extreme weather phenomena have hit Asia in recent years. These disasters have inflicted catastrophic losses to human lives and to the economies of countries of NARBO member organizations.

The NARBO General Meeting in Indonesia last February 2006 has considered the conduct of thematic workshops as one of the important activities of NARBO. Based on the updated NARBO Action Plan of 2006-2007, NARBO carried-out the first of the series of three workshops on the theme **"Water-Related Disaster and Its Management in Asian Countries."**

The 1st thematic workshop on the aforesaid topic was held from 26 to 29 November**,** 2007 in Yogyakarta, Indonesia and participated in by 8 countries (Indonesia, Lao PDR, Malaysia, Pakistan, Philippines, Sri Lanka, Thailand and Vietnam). The goal of the workshop is to develop capacity of key organizations for water-related disaster management by (i) providing basic concepts and principles; (ii) sharing country challenges and strategies; and (iii) formulating an action plan. The River Basin of Yogyakarta, ADB, ADBI, and JWA hosted the event.

On the opening day, Dr. Neil Britton, Senior Disaster Risk Management Specialist of the ADB gave a special presentation titled "Sharing ADB's Experience in Disaster Management" while Mr. Hiroyoshi Tanaka, Water Resource Specialist discussed the Man-made Disasters in Japan. The field visits to Mt. Merapi and the famous temples devastated by volcanic eruptions were organized by the Host RBO headed by Mr. Bambang Hargono. Presentations were made in the 3rd and 4th days of the workshop.

Every participant presented a country/river basin situation on water-related disasters that happened for the last 10 years. At the end of every presentation, there were active discussions and some clarifications. There were also exchanges of experiences on how disasters are managed in the respective countries of the participants. It was worth mentioning that the participants had active discussions even beyond or outside of the classroom, which was an indication of the eagerness of each one to learn from each others experiences. Added attraction to the participants were the presentation of some actual footages of the disaster as they happened that were showed by the tri-media particularly, the television.

Current situation and issues related to environmental management, land use planning, inter-organization factors, community-based management including dam maintenance and capacity building concerns were the common concerns identified by the participants for this 1st workshop.

The workshop also included a guided field visit to the important places in Yogyakarta which was affected by major disasters. The participants were informed that the Indonesian Department of Culture and Tourism and the UNESCO and selected international experts in the field of conservation and structural engineering provide technical recommendation for the restoration works and established global partnership for the post-earthquake rehabilitation and cultural heritage. The places are as follows:

+ *Mt. Merapi - (Gunung Merapi)* - The participants visited the mountain and the Gendol Sabo Dam project which is now being implemented inorder (a) to protect and secure the inhabitants from the

Mt.Merapi -(Gunung Merapi)-

Kasongan Handycraft Center in Bantur

Session in the workshop

*) Laguna Lake Development Authority, Philippines

threat of lahar/debris flow; (b) to repair and rehabilitate the irrigation facilities damaged by lahar/debris flow; and (c) to conduct investigation, planning, design and execution of volcanic debris control facilities.

+ *Sambisari Temple* - The host organizer showed to the participants this temple which was built sometime during the end of the 9th century. Additional information provided to the participants was that the farmers in 1966, discovered the temples hidden and buried by volcanic ash and dust, 6 meters below the surface of the surrounding land. The temple, now considered one of the UNESCO World Heritage is undergoing rehabilitation to restore its original state.

+ *Kedulan Temple* - This superstructure was so amazing. The Hindu temple was discovered buried beneath deposits of mud that had flowed down the southern slopes of Mount Merapi due to volcanic activity. The work of art and crafting of the restoration of the images of goddesses on the outfacing walls of the perimeter that surrounds the central shrine is astonishing and extraordinary.

+ *Prambanam Temple* - This is the most famous and magnificent of Central Java's temples or more precisely, complex of temples. The participants witnessed the on-going rehabilitation of the temple / cultural heritage which was severely damaged.

+ *Borobudor Temple* - a majestic temple and considered one of the

Prambanan Temple

seven wonders of the world and serves as an awe-inspiring testament to the hard work, determination, and faith of its eighth and ninth century creators. It is a representation of the Buddhist concept of the universe and life of Buddha. The monument overlooks a green valley encircled by a ring of mountains.

+ *Kasongan Handycraft Centre in Bantul* - The participants also had discussion with some of the farmers and small-scale businessmen producing ceramics at the Bantul District. They shared the experiences encountered when Mt. Merapi erupted and how it impacted their livelihood, destroyed their houses and damaged the irrigation canals while the participants actively interacted with them and also exchanged some views.

The workshop clearly manifested the great cooperation of the participants in sharing their experiences on water-related disasters in each country. The first workshop identified the current situation and obstacles faced in dealing with the disaster. It is envisioned that in the 2nd workshop the sound practices and risk assessment approaches are presented and a case study of what a good (flood) risk program for the community will be developed for the 3rd workshop.

Finally, in behalf of the participants, we would like to express our appreciation to the hospitality of Serayu-Opa River Basin Office of Yogyakarta lead by Mr. Bambang Hargono and his staff members, Mr. Budi S Wignyosukarto, JWA, NARBO and ADB for support to all the participants and other concerned organizations for their support, hard work and successful conduct of the workshop.

Participants in the 1st thematic workshop

From the secretariat

The 3rd Southeast Asia Water Forum

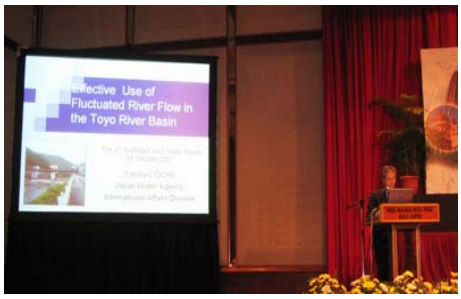
Akira Nishimura*

1.Introduction

Date: October 22-26, 2007
Venue: Putra World Trade Center (Kuala Lumpur, Malaysia)
Website: http://3rdseawf.water.gov.my/

Session chaired by Mr. Ivan de Silva

The 3rd Southeast Asia Water Forum held in Kuala Lumpur, Malaysia was successfully completed. The Organizing Committee of the Forum mainly consisted of Department of Irrigation and Drainage (DID) that is a NARBO member and Malaysia Water Partnership (MyWP).



NARBO secretariat staff (Mr. Ochii)'s presentation

2. Contribution by NARBO

NARBO secretariat invited Mr. Ivan de Silva, who is the Vice-Chairperson of NARBO as well as Director General of Mahaweli Authority of Sri Lanka, to the Forum. He chaired a session held on October 24 whose title is "Water Resources and River Basin Management Issues", and had a presentation whose subject is "Present State and Future Prospects of NARBO". Some NARBO secretariat staff also had presentations in the session.

*) NARBO secretariat (Japan Water Agency)

NARBO Website -Access log since June 2006 - December 2007-

Summary
Regarding the NARBO website, JWA was suggested at the previous NARBO secretariat meeting on June 2007, gathering statistics and determining which pages or topics on the website are popular.
The following shows some trends of visitors on NARBO website that was analyzed by a statistical processing based on daily logs (raw data).
The Figure 1 shows a change of access count to the top page of NARBO website. Recently over 1,400 visitors usually access to our website but monthly fluctuation is large.

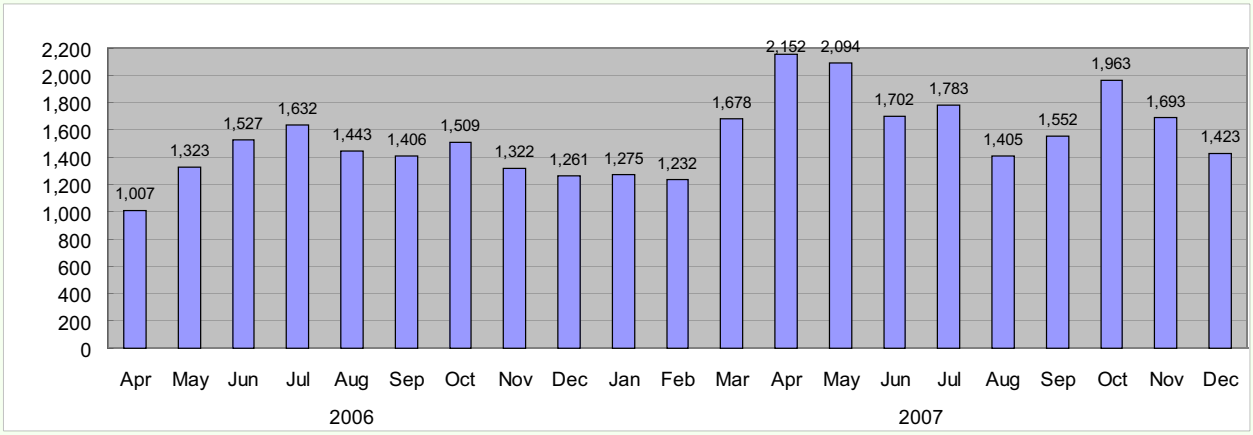


Figure 1. NARBO Website Top page Access

Procedure of Data Processing

1) There is a daily log on record which includes a domain name of visitor and the information of individual web page.
2) All of the existing web pages are classified into tentative 13 categories such as the Figure 2.
3) The daily log is converted into monthly statistic data in accordance with above 13 categories.
4) Especially, the category “Focus” is divided into 6 topics to investigate the trend in more detail.

Results

The Figure 3 shows a trend of popularity among the 13 categories. The most accessed category is the “Focus”, and the “Event” follows it next.
The Figure 4 shows a trend of popularity especially on the category “Focus”. The category of “Picture” and “Twinning Program” are very popular stably among the category “Focus”.

Please kindly give us your recommendation or opinion as regards this matter or article.

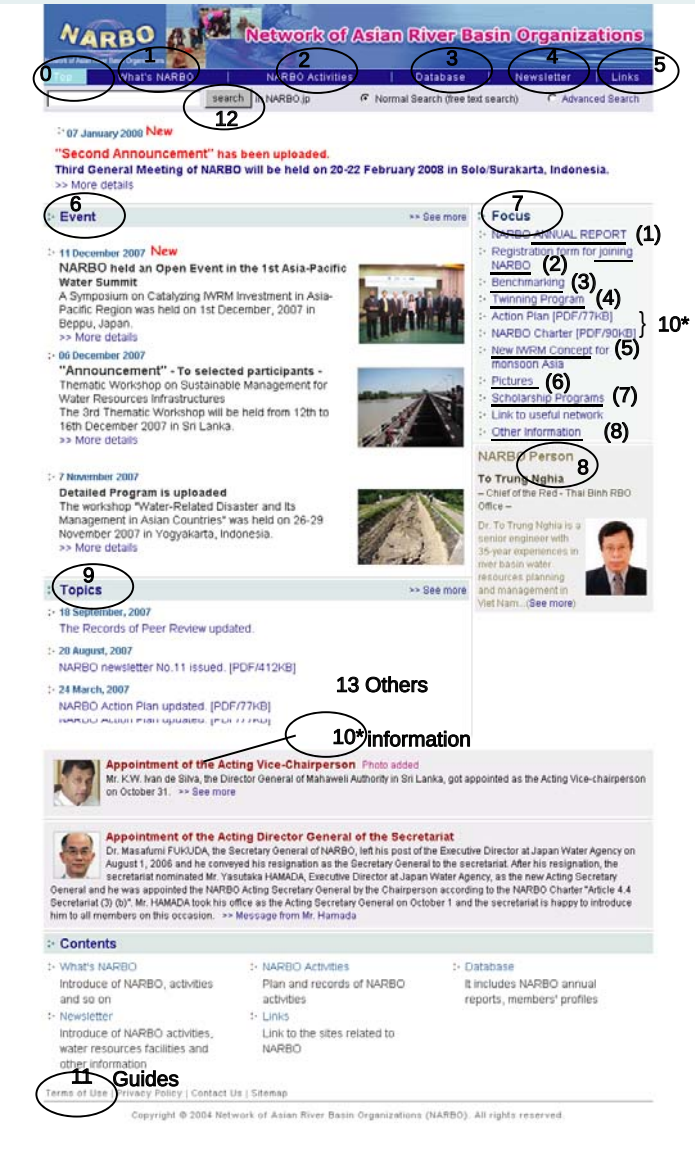


Figure 2. NARBO Web Page Category

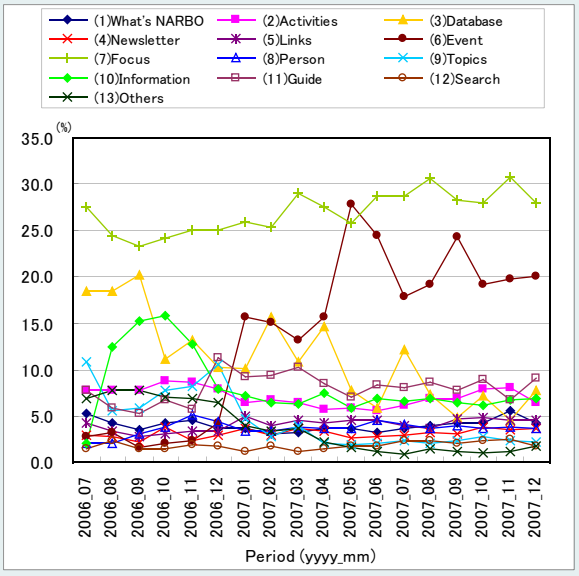


Figure 3. Website view trend categorized into 13

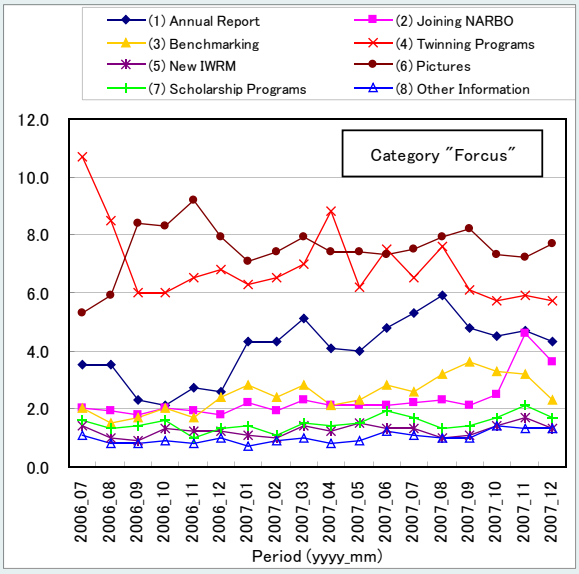


Figure 4. Website view trend on the category “Focus”

NARBO Newsletter
(Network of Asian River Basin Organizations)
http://www.narbo.jp/

Activities (GENERAL MEETING)

Report on 3rd General Meeting of NARBO

Michio Ota*

1. Date and Venue

Date: February 20-22, 2008
Venue: The Sunan Hotel Solo (Solo/SurakCentral Java Province, Indonesia)

2. Host Organization

(i) Jasa Tirta I Public Corporation; (ii) Research Center for Water Re so urces; and (iii) Indonesia NARBO Secretariat

3. Number of the Participants

Approx. one hundred people from present NARBO members and related organizations participated.

4. Program

The 1st day (February 20): Study Visit

Participants are divided into 2 groups. One group visited a reservoir and a weir in Bengawan Solo Basin and the other had a dialogue with water users and stakeholders in the Basin (see the next page for programs or potographs).

Participants

5. Main issues discussed in the General Meeting

(1) NARBO Work Plan 2008-2009

•IWRM Training, Thematic Workshop, Performance Bench-marking Activities and Twinning Program should be continued with improvement and information of the activities should be shared among members through the website and newsletter.

•New activities on IWRM will be launched on the basis of the result of Asia Pacific Water Summit.

*) Vice-Secretary General of NARBO, Japan Water Agency

Topics of this issue

Program

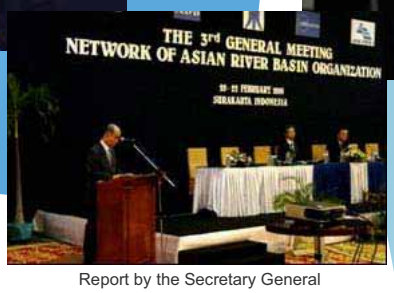
● **The 2nd day (February 21): Workshop on Integrated Water Resources Management (IWRM)**

8:00	**Opening Program** • Welcome Remarks (NARBO Chairperson) • Keynote presentation on Japan's Experiences in Water Resources Management (Prof. Tsuneaki Yoshida, University of Tokyo, Japan) • Official Address (Representative of the Minister of Public Works, Indonesia)	
9:30 12:20	**Workshop 1**: **Measuring the Performance of RBOs and River Basins** (led by ADB, IWMI) Panelist: PJT II(Indonesia), MASL(Sri Lanka), LLDA(Philippines), RRBO(Viet Nam), MONRE(Thailand), PJT I(Indonesia), NAHRIM(Malaysia), World Bank	**Workshop 2: Managing Assets and Risks** (led by JWA) Panelist: Kyoto University(Japan), ICHARM(Japan), IRTCES(China), PJT I(Indonesia)
13:10 17:00	**Workshop 3: Exploring New Challenges in IWRM** (1) Water rights and water allocation (ADB) Panelist: ADBI, PJT II(Indonesia), NWRB(Philippines), MASL(Sri Lanka), MONRE(Thailand), YRCC(China), DoWR(Orissa Sate, India) (2) Facilitating IWRM with civil society and private sector participation (Indonesian NARBO) (3) Restoring the health of rivers (ARRN) (4) Sharing IWRM experience from other regions (INBO)	

● **The 3rd day (February 22): General Meeting**

8:00 12:00	(1) Opening Program ・ Opening address (NARBO Chairperson) ・ Remarks on Japan's Support for IWRM in Asia (Mr. Shuhei Kazusa, Director General of Department of Water Resources, MLIT, Japan) ・ Keynote presentation on water and climate change (Dr. Salmah Zakaria, Director General, NAHRIM, Malaysia) (2) Report and Plenary Discussion on NARBO activity 2006 - 2007
13:10 17:10	(1) Introduction of New NARBO Members (2) Briefing and Plenary Discussion on NARBO Work Plan 2008 - 2009 (3) NARBO Charter Revision (4) NARBO Constitutional Body 2008 - 2009 (5) Wrap-up Session and Plenary Discussion (6) Closing remarks (1)NARBO Vice-Chairperson, 2)Representative of Directorate General of Water Resourc s, Ministry of Public Works, Indonesia)

Address by the Chairperson



Report by the Secretary General

Address by the Vice-Chairperson

Address by Chairperson-designate


Wonogiri Reservoir


Colo Weir


Dialogue with the Stakeholders

(2) NARBO Charter Revision

•It was decided that Secretary General may invite the Chairperson to become NARBO Senior Adviser at the completion of Chairpersons term. The senior adviser can advise the new Chairperson and Secretariat in promoting and enhancing NARBO activities.

•It was decided that the Chairperson may invite a Patron who is expected to represent and promote NARBO and its objectives and activities in the region and world, specifically to leaders, policy makers, media, and the general public.

(3) NARBO Constitutional Body 2008-2009

Chairperson: Dr. Moch Amron (new, Advisor, Ministry of Public Works, Indonesia)
Vice-Chairperson: Mr. K.W. Ivan de Silva (continued, Director General, Mahaweli Authority of Sri Lanka)
Secretary General: Mr. Yasutaka Hamada (continued, Executive Director, Japan Water Agency)

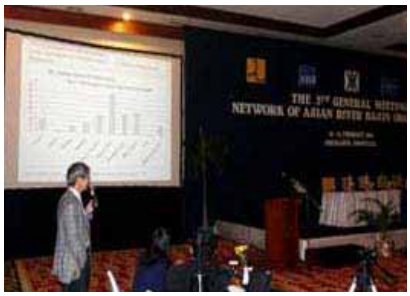
Dr. M. Basuki Hadimuljono, who has completed the term of 4 years (2 periods), has become NARBO Senior Advisor and continues to assist its activities.

(4) The situation of NARBO members

New members joined in the last 2 years are the following 9 organizations:

•Indus River System Authority (Pakistan, RBO)
•Bang Pakong Prachinburi and Tonlesab River Basin Committee (Thailand, RBO)
•Japan Water Resources Association (Japan, RKP)
•Graduate School of Management, Kyoto University (Japan, RKP)
•Japan River Restoration Network (Japan, RKP)
•National Hydraulic Research Institute of Malaysia (Malaysia, RKP)
•International WaterCentre (Australia, IRKP)
•The International Centre for Water Hazard and Risk Management (Japan, IRKP)
•The International Research and Training Center on Erosion and Sedimentation (China, IRKP)
•Following nine organizations joined NORBO in the last two years, and the total number of NARBO member becomes 65 now (RBO: 22, GOV: 17, RKP: 17, IRKP: 8, DCA: 1).

Note: (I)RKP (Inter-)Regional Knowledge Partner
DCA Development Cooperation Agency


Keynote Presentation by Prof. Yoshida

Panel Discussion in the Workshop


Workshop Room

Activities (NARBO SYMPOSIUM)

NARBO Symposium on Catalyzing IWRM investment in Asia-Pacific Region

Michitaro Nakai*

Introduction

"NARBO Symposium on Catalyzing IWRM investment in Asia-Pacific Region," held on 1 Dec. (Beppu City Social Welfare Center, Beppu City, Oita Prefecture) as the Open Event for the 1st Asia-Pacific Water Summit (1st APWS, 3-4 Dec., Beppu City, Oita Prefecture), was successfully completed. This symposium, attended by more than 100 audiences from 11 countries, was organized by Japan Water Agency, Asian Development Bank (ADB) and ADB Institute as NARBO Secretariat, in collaboration with the Ministry of Land, Infrastructure and Transport (MLIT) and the Infrastructure Development Institute of Japan.

Summary of the Symposium

Opening remarks were delivered by 2 persons; one is Dr. Basuki Hadimuljono, NARBO Chairperson, and the other is Mr. Shuhei Kazusa, Director General, Water Resources Department, Land and Water Bureau, MLIT. Followed by 2 persons delivered keynote speeches as follows;

●"Japan's Experiences in Water Resources Management and Some Implications to NARBO Members" (Keynote 1), by **Dr. Tsuneaki Yoshida**, Professor, University of Tokyo, and

●"Financing IWRM in River Basins - Challenges and Opportunities," (Keynote 2), by **Wouter Arriens**, Lead Water Specialist, ADB.

After that, panel discussion session was held, led by Dr. Tsuneaki Yoshida. In the session, 5 presentation on the situation on the problems of water resources in each country by the following speakers;

●**Mr. Md. Abdul Hye**, Executive Engineer and Chief Staff Officer (CSO), Bangladesh Water Development Board (Presentation 1),

●**Mr. Tjoek W Subijanto**, President Director of Jasa Tirta I Public Corporation, Indonesia (Presentation 2),

●**Mr. Jorge Marlang Estioko**, Chief Water resources development Officer, the National Water Resources Board, the Philippines (Presentation 3),

●**Ms. Doan Thi Tuyet Nga**, Deputy Chief of Vietnam RBO General Office's Secretariat Board, Vietnam (Presentation 4),

●**Dr. Takeyoshi Sadahiro,** Professor and council for International Affairs Division of Japan Water Agency (Presentation 5),

Presenters

Finally, plenary discussion was held, and after that, we adopted the Recommendation on the direction for the future NARBO activity on the basis of the discussion by the audiences.

Distribution to the attendants of the APWS

The adapted recommendation was also distributed for the high-level attendants of the 1st APWS. It is expected to contribute to make NARBO's presence and activities known for more people.

Session in the Workshop

*)NARBO Secretariat (Japan Water Agency)

New Member of NARBO Secretariat

Greetings and messages from new members at JWA NARBO Secretariat welcomed since this April.

Ai Isayama
Civil Engineer, Chief Editor of NARBO Newsletter

I have joined the NARBO secretariat and International Affairs Division of Japan Water Agency since April 2008. International job is my first experience, and I would like to enjoy this job and do my best.

I joined NARBO secretariat from April 2008 as an administrator. It's a pleasure for me to support the activity of NARBO. To all of the NARBO members, thank you in advance.

Junko Mizuhara
Administrator

Comparative Analysis (SEA LEVEL RISE)

SUMMARY:The Impact of Sea Level Rise on Developing Countries:

Dr. To Van Truong*

The World Bank has recently released a paper on the impact of sea level rise on 84 coastal developing countries with the aim of encouraging immediate planning for adaptation. Scientific evidence for sea level rise due to climate change is now overwhelming and continued growth of greenhouse gas emissions and associated global warming could result in sea level rise of 1 to 3 m in this century. As a worse case scenario, the unexpected rapid breakup of the Greenland and West Antarctic ice sheets might produce a 5 m rise in sea level.

Climate change will have many negative effects, including greater frequency of heat waves, increased intensity of storms, floods and droughts, rising sea levels, a more rapid spread of disease and loss of biodiversity. Sea level rise poses a particular threat to countries with heavy concentrations of population and economic activity in coastal regions.

The three primary contributing factors to sea level rise have been cited as ocean thermal expansion, glacial melt from Greenland and Antarctica (plus a smaller contribution from other ice sheets), and change in terrestrial storage. Until recently, ocean thermal expansion was expected to be the dominating factor, with a predicted 0-1 m rise during the 21st century. However, new data on rates of deglaciation in Greenland and Antarctica suggest greater significance for glacial melt anrevision of the upper-bound estimate for sea level rise this century.

The World Bank assessed the consequences of continued sea level rise for 84 developing countries across 5 regions using 6 indicators: land, population, gross domestic product, urban extent, agricultural extent and wetlands, based on existing populations, socio-economic conditions and patterns of landuse. The impacts were calculated for sea level rise scenarios ranging from 1 to 5 m.

It was found that hundreds of millions of people in the developing world are likely to be displaced by sea level rise within this century. The impacts from sea level rise are not uniformly distributed across the regions and countries of the developing world. East Asia, the Middle East and North Africa would experience the largest impacts from sea level rise. The impacts are particularly severe in a limited number of countries, including The Bahamas, Vietnam and Egypt, where the consequences are potentially catastrophic.

Vietnam would be seriously impacted by sea level rise, mostly in the Mekong and Red River Deltas. Large percentages of Vietnam's population and economic activity are located in these two river deltas. 10.8% of Vietnam's population would be impacted by a 1 m sea level rise and 35% with a 5 m rise. The impacts on Vietnam's GDP and urban extent closely follow the impact on its population. Most of Vietnam's wetlands would also be impacted by sea level rise.
For precautionary planning purposes, the World Bank paper recommends that sea level rise in the range of 1-3 m should be regarded as realistic. To date, however, there is little evidence that the international community has seriously considered the implications for population location and infrastructure planning in many developing countries.

Vietnam is experiencing considerable population growth and socio-economic development, particularly in the Mekong and Red River Delta regions. The consequences of sea level rise could be even more catastrophic on the Vietnamese people, economy and environment than predicted by the World Bank. It is, therefore, extremely important for Vietnam to begin taking action immediately.

In developing an action plan, it is important to assess the impacts of sea level rise on future populations, socio-economic conditions and patterns of landuse, rather than the current data used by the World Bank. Given the enormity of the problems facing Vietnam and the scarcity of available resources, it is important to allocate attention according to degree of threat. This requires a thorough risk assessment and identification of the most affected areas. It is important to look at prevention. Careful planning of future developments and avoidance of areas likely to be most affected may in fact, prevent problems in the future.

Further, it is necessary to begin planning for adaptation. Under the provision of the United Nations Framework Convention on Climate Change (UNFCCC), the National Adaptation Programmes of Action (NAPAs) are intended to facilitate the identification of priority activities, including adaptation to sea level rise. Vietnam needs to develop a comprehensive NAPA so that plans are in place to deal with the impacts of sea level rise. This includes planning for relocation of the affected population and identifying alternative sources of food and income if agricultural lands are lost.

*)RBO Cuu Long Office, Southern Institute for Water Resources Planning & Manegement (SIWRP),Viet Nam

From the secretariat

NARBO Secretariat Meeting in Singapore

Akira Nishimura*

1. Date: April 4, 2008
2. Venue: Singapore WaterHub
80 Toh Guan Road East, Singapore, 608575
3. Participants
Asian Development Bank (ADB): Mr. Wouter Lincklaen Arriens (Vice-Secretary General), Mr. Dennis Von Custodio
Japan Water Agency (JWA): Dr. Takeyoshi Sadahiro, Mr. Michio Ota (Vice-Secretary General), Mr. Michitaro Nakai, Mr. Akira Nishimura
Asian Development Bank institute (ADBI): Mr. Tadashige Kawasaki
Indonesian NARBO: Dr. Mochammad Amron (Chairperson), Mr. Eddy Djajadiredja, Mr. Tjoek Subijanto


NARBO Secretariat Meeting

4. Proceedings

(1) NARBO Activities in 2008

JWA suggested this year's schedule of NARBO activities and got approval. Especially, the Secretariat shared information on the following items:

1) The secretariat continues encouraging the Member Organizations to provide articles of Newsletter and to submit their annual reports.
2) As NARBO Promotion, the secretariat will consider participation in Singapore International Water Week (SIWW) on June 23-27.
3) As for IWRM Guidelines at Basin Level, the river basin management varies from basin to basin, so it is necessary for the contents of the Guideline to be considered sufficiently.
4) The way to implement questionnaire for IWRM Guidelines at Basin Level will be done on NARBO website, if possible, and the result will be introduced at World Water Week in Stockholm on August 17-23.
5) On the second day of the Week or "Asia Water Day" (August 18), NARBO will chair a session in cooperation with IWMI.
6) The Thematic workshop on Water-Related Disaster and Its Management in Asian Countries will be held in Philippines this summer.
7) As for The Thematic Workshop on Climate Change Adaptation, Indonesian NARBO will organize the contents in cooperation with National Hydraulic Research Institute of Malaysia (NAHRIM) and implement this autumn.
8) NARBO Performance Benchmarking Service
- will expand the performance benchmarking and peer review of RBOs
- will implement performance benchmarking of river basins
- will coordinate with IWMI on its role for the next phase activities and will collaborate with other organizations for synergy in approach.

9) As for Charting Progress and Facilitating Investment for IWRM, ADB is awaiting approval for funding by the Japanese government.

(2) Review of NARBO activities by Members' Feedback Survey

This survey was undertaken in preparation to the 3rd General Meeting of NARBO. Although the number of survey respondents was rather low, the respondents are generally satisfied with NARBO activities. On the other hand, the results also reflect that there is scope to improve NARBO activities. NARBO will improve them under the members' ownership.

*) NARBO secretariat (Japan Water Agency)

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NARBO Newsletter — 14th Issue August 2008

Topics

Activities

Launch of the Twinning Program between MASL and JWA in April 2008

Masahiro SUGIURA*

Between Sri Lanka NARBO and Japan Water Agency (JWA), MOU and Agreement were conducted as a third case of Twinning Program on April 2008. Then, exchange of personnel on Twinning Program between Mahaweli Authority of Sri Lanka (MASL) and JWA was also agreed and signed. The Program aims at sharing information to solve problems as well as to contribute toward the best IWRM. Continuing to strive forward together and maintain and create a better relationship for the future, too.


Facility maintenance by MASL staff


Maintenance plan in Engineer's room

Dr. Sadahiro, Mr. Tanaka, Mr. Oshima, and Mr. Sugiura were dispatched to Sri Lanka from early May 2008 to late May 2008. We exchanged practical knowledge for water resources management at Head Quarter of MASL in Colombo mostly, but we also exchanged knowledge at some local offices of MASL.

We had visited many offices of water resources management in the Mahaweli River and Walawe guided by MASL staff. It seemed that MASL had been doing their water resources management well in spite of their severe budget condition and some difficult problems. Staff seemed to have good skill to maintain and repair

facilities and they know facilities condition well. Also documentation was well managed based on their rules.


Small Reservoir in Walawe area


Exchange of practical knowledge at Victoria Dam

For example, we were impressed with seeing a check list and maintenance plan of facilities on the wall of Engineer's room. Then they are managing a stock of the spare parts in storehouse well. What's an especially interesting is that they make many opportunities to hear real voice by inhabitants and stakeholders anyway ("Public Day"** system is one of those instances).

We thought that MASL would be able to take an active role in the monsoon Asia Area thorough dissemination of water resources management skill to other NARBO members.


Spare parts in storehouse

At the end of Twinning Program, we reported our activities to MASL and also presentation on Dam safety management based on the JWA experience. Hoping to continue this program, we returned to Japan with fruitful experience and good friend ship with MASL. Finally, we would like to express our sincere thanks to MASL staff.

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*) Senior Engineer, Japan Water Agency
**) The official Offices accept proposal or petition from any inhabitants to improve their living conditions.

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1st Meeting of the NARBO Technical Advisory Committee, Singapore, 5 April 2008

Dennis Von Custodio *

I. Background

The Network of Asian River Basin Organizations (NARBO) is keen to improve the quality and credibility of its annual training program on integrated water resources management (IWRM) to the level of a prestigious regional flagship program. At NARBO's 3rd General Meeting in Indonesia last February 2008, NARBO agreed to establish the Technical Advisory Committee (TAC) who will review and advise NARBO's leadership and secretariat in revamping the training program, based on experience gained by NARBO over the past four years and taking into account approaches and experiences by other training providers.

NARBO held its 1st TAC Meeting in Singapore WaterHub (http://www.pub.gov.sg/waterhub/Vtour/Contact_Us.htm) last 5 April 2008, back-to-back with the meeting of the regional water knowledge hubs. Selected experts from the regional water knowledge hubs meeting were invited to join the NARBO leadership and secretariat team. The Director General of the National Hydraulic Research Institute of Malaysia (NAHRIM) was invited to chair the meeting.

II. Findings and Recommendations

At the outset, the meeting recognized the need for capacity development in RBOs and water resources agencies in the region to implement IWRM in river basins. The meeting demonstrated (i) a keen interest to advise NARBO in improving the quality and credibility of its training program on IWRM; and (ii) the availability of valuable experiences and approaches in conducting IWRM training courses which can be useful references for NARBO.

The experts had productive discussions with the NARBO leadership and secretariat on ways in which NARBO could improve its IWRM training course, starting with the 5th course scheduled for November 2008. Specifically, the recommendations from the experts were for NARBO to

i. explore opportunities to complement face-to-face training courses with available on-line training programs, recognizing that the latter can be a convenient, efficient, practical and cost-effective means of learning;
ii. continue targeting NARBO's international face-to-face training course, including course modules on effective presentation and facilitation skills, to mid-level management professionals in RBOs;
iii. add short executive training opportunities for RBO executives;
iv. focus course content on developing and implementing inter-disciplinary solutions to IWRM challenges, with the help of case studies, team work, and role plays, and support by qualified faculty/resource persons;
v. strengthen course content on water governance;
vi. invite resource speakers with excellent communication skills and inter-disciplinary experience;
vii. maintain registration fees at $200 per person per course to stimulate partial cost recovery, recognizing that such fees could be sponsored from a variety of sources on the initiative of the participants;
viii. consider promoting and marketing its training program using the following strategies:
    - identify an influential patron or champion who will promote the program;
    - tap the services of media;
    - improve the quality of packaging the program; and
    - advertise in relevant websites through web links.
ix. consider follow-up activities for training participants.

Towards a broader framework of IWRM certification of water professionals and RBO practitioners

The experts recommended that NARBO take a broader view to support the development of certified programs of continuous learning for staff working in RBOs, from entry level to senior management, and beyond that for regional experts. In promoting continuous and certified learning paths, the experts suggested that NARBO might target four levels of certification of IWRM proficiency and competence: (i) basic entry (IWRM advocate); (ii) middle management (IWRM facilitator); (iii) senior RBO management (IWRM leader); and (iv) regional IWRM adviser (IWRM master or counselor).

The basic entry level would be targeted broadly to junior RBO staff as well as to those doing research work or interested in a particular IWRM element. NARBO could provide access to books, manuals, guidelines, links to relevant websites, online training courses, and other reference materials on IWRM. Such assistance would be available to all NARBO members for free, and NARBO might consider charging a fee to non-members.

The middle-management level would be targeted mainly to senior mid-career water professionals to enhance their expertise in water resources management for improved inputs to decision-making. NARBO assistance through training courses would be targeted to member organizations only, and participants would be charged a registration fee to help finance the costs.

The senior RBO management and regional IWRM adviser levels would be targeted to RBO leaders, for whom NARBO would provide more advanced and specialized training courses; and would charge a registration fee.

To help professionals in progressively attaining these four levels of proficiency, the experts recommended that NARBO consider to develop a credit-based process of accreditation involving both formal training (face-to-face and on-line) as well as supervised on-the-job learning opportunities, thereby offering professionals the flexibility to design their own personal development plan for IWRM proficiency. Certification could also be earned through participation in workshops, or through heavy involvement and valuable contribution to NARBO

activities.

Next Steps

The recommendations by the experts will allow NARBO's secretariat team to formulate a proposal for revamping the IWRM training course and to explore NARBO activities to help realize this broader program of continuous learning for IWRM practitioners in the region. A discussion paper will be jointly prepared by JWA, ADB and ADBI staff.

Annex I List of Participants

Dr. Mochamad Amron, Ministry of Public Works, Indonesia; and NARBO Chairperson (Indonesia)
Ivan de Silva, Mahaweli Authority of Sri Lanka; and NARBO Vice-Chairperson (Sri Lanka)
Wouter Lincklaen Arriens, Asian Development Bank; and NARBO Vice Secretary-General (The Netherlands)
Michio Ota, Japan Water Agency; and NARBO Vice Secretary-General (Japan)
Dr. Takeyoshi Sadahiro, Japan Water Agency (Japan)
Akira Terakawa, International Centre for Water Hazard and Risk Management (Japan)
Dr. Salmah Zakaria, National Hydraulic Research Institute of Malaysia
Sun Yangbo, Yellow River Conservation Committee (Peoples' Republic of China)
Mark Pascoe, International Water Centre (Australia)
Carel Keuls, UNESCO-IHE Institute for Water Education (The Netherlands)
Dr. Ed Araral, Lee Kuan Yew School of Public Policy (Singapore)
Wu Xun, Lee Kuan Yew School of Public Policy (Singapore)
Eddy Djajadiredja, Ministry of Public Works (Indonesia)
Fahmi Hidayat, Perum Jasa Tirta I (Indonesia)
Dr. Ick Hwan Ko, K-Water (Korea) - gave a presentation during the welcome dinner on 4 April (Republic of Korea)
Dr. Jeongkon Kim, K-Water (Korea) - gave a presentation during the welcome dinner on 4 April (Republic of Korea)
Dennis Von Custodio, Asian Development Bank (Philippines)
Michitaro Nakai, Japan Water Agency (Japan)
Akira Nishimura, Japan Water Agency (Japan)
Kawasaki Tadashige, ADB Institute (Japan)

*) Asian Development Bank Water Operations Advisor

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Members Initiative

FLOOD CONTROL AND PLANNING MECHANISMS

Dr. To Van Truong*

A number of different methods are available for flood planning and control. These methods can be grouped into three broad areas, namely: Structural Methods, Non-Structural Methods, and Investigative Works. Selection of the appropriate method for a particular situation depends on site specific conditions and constraints, amongst many other factors. Indeed, a meaningful knowledge of the nature, history and geography of the regional flood regime is therefore basic to effective flood mitigation and management. This document provides a general overview of some of the methods available for flood control of planning, citing some specific examples from the Mekong Delta in Viet Nam.

Structural Methods

The following are some structural methods for controlling floods:

Dams, which form a barrier across flowing water that obstructs, directs or slows down the flow, often creating a reservoir, lake or impoundments. Whilst these structures are quite costly and are often associated with negative social and environmental implications, they are quite effective in mitigating

floods. A cheaper and more environmentally friendly alternative to conventional dams are rubber dams, which comprise a rubber bag resting upon a concrete floor on a river bed. The bag is then inflated with either water or air to create a barrier. Such structures are to be utilized at Traφ Su and Tha La in the Long Xuyen Quadrangular Region of the Mekong Delta in Viet Nam.

Overflow Spillways, often located on lower reaches of rivers to divert floodwaters. The river is widened at certain points and allowed to overflow, thereby reducing stress on the main river channel.

Dike systems, which are artificial earthen walls built along the edge of a body of water to mitigate floodwaters. They are used extensively in the Mekong Delta and are positioned either upstream (to control floodwaters and reduce their impact on downstream areas) or close to the ocean to reduce tidal components of flood events, which can be significant. For example, there is a dike line located just south of the Vinh Te canal near the Viet Nam - Cambodia border in the Long Xuyen Quadrangular Region, forming a deep inundation area and protecting downstream areas from excessive overland flow. Also in the same Region, a dike system has been implemented near the coastline of the West Sea to prevent high tide waters from raising upstream river levels, which would compound flood effects. A similar system is to be utilized in the Southern Nguyen Van Tiep canal area in the Plain of Reeds. Because rice production is highly important, priority is given to building embankments in the lowest areas, in order to retain the early flood to secure the second rice crop. There is also great pressure from farmers in these low lands to build fully protected areas to enable production of a third annual crop during the flooding period.

Canals. These are artificial channels that can be used to divert floodwaters, thereby acting as floodways. Canals are used quite extensively in the Mekong Delta to help divert overland flow through controlled areas. In the Plain of Reeds, there are plans to enlarge the canal system discharging floodwaters to the Tien River, and also the Bo Bo and T Canals between the 2 Vaico Rivers. Closer to the coastline in the Plain of Reeds, there are also plans to enlarge 21 main vertical canals in the Southern Nguyen Van Tiep area, which would help distribute floodwaters to the ocean, limiting overland flow. Similarly in the Long Xuyen Quadrangular area of the Mekong Delta, there are plans to enlarge 18 main canals for draining floodwaters to the West Sea. At the West Sea coastline, there are also plans to dig 20 canals to assist in floodwater discharge.

Sluice Control. A sluice is a water channel that is controlled at its head by a gate. Operation of these gates can help control the level of floodwaters from downstream or tidal influences from downstream. For example, sluices are operated in coastal areas of the Mekong Delta to help prevent salinity intrusion, but are also beneficial for controlling the high tide component of floods. Flood protection sluices are also positioned in upstream areas of the Mekong Delta, for example along the Bassac River and Vinh Te Canal near the Viet Nam - Cambodia border.

Road Strengthening. The major flood event in 2000 was a starting point for reinforcement of the road network. The national roads have been raised to a cope with water levels equal to those experienced in the 2000 flood. Rural road still suffer flooding but improvements to the weakest sections are being carried out. The road network also constitutes an embankment network protecting the low lands against flood.

Some other structural measures are being examined as they require heavy investments and may have questionable long term impacts. For example, KOICA (from South Korea) have proposed to construct a 45km long, 40m wide canal with dikes from Sarai to Thanh Hung through the Plain Of Reeds in Viet Nam. However, great care would need to be taken in such a project, since digging such a large canal requires plenty of agricultural land. Compensation and resettlement factors are potential socioeconomic issues that would need to be addressed. Further, a huge volume of flood water drainage to the southern part of Tien Giang would cause inundation in orchard areas.

Non-Structural Methods

The following are some non-structural methods for controlling floods:

Building and Development Controls (Flood Proofing). This can often be a highly beneficial activity, aimed at minimizing property damage due to floods. In the Mekong Delta, the issue of housing located in risk areas is being tackled. Some new settlement areas have been built for these families and some are still in progress or planned. Families living in risk areas are being encouraged and supported to move to safer places.

Shifting and Changing crop pattern and schedule. Land use planning can significantly improve flood control, particularly in agricultural areas such as the Mekong Delta. Because rice production is highly important, priority is given to building embankments in the lowest areas, in order to retain the early flood to secure the second rice crop. There is also great pressure from farmers in these low lands to build fully protected areas to enable production of a third annual crop during the flooding period. Such activities can significantly alter flood patterns and should be managed carefully. There is also an increasing shift towards aqua culture production, which may reduce rice cultivation areas and increase demand for saline waters. This would alter some of the structural control measures outlined above, such as sluice and embankment control near the coastline.

Education and Awareness Programmers. Educating local residents and authorities on the nature of flooding and flood control measures is often very important, particularly in high density areas such as the Mekong Delta (over 800 inhabitants/km2 in some districts). This includes transfer of information on important structural flood control measures, such as sluice gate operation, and also advice on land use patterns, such as crop schedules and embankment building. It is important to recognize any education program as a two-way process, since local residents often have valuable information and ideas to help improve flood control.

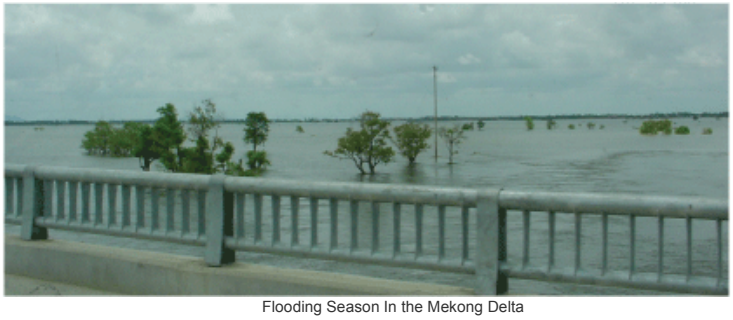
Emergency Relief. Despite the various flood control measures that can be implemented, it is inevitable that serious floods will continue to occur, placing people's lives and property at risk. It is therefore important that emergency response strategies are in place for such situations. In the Mekong Delta, some measures on dealing with emergencies have already been implemented or are under implementation.

Investigative Works

Detailed investigative works are a critical aspect of any comprehensive flood management process. This may include some of the following activities:

Numerical Modeling. Hydrological models are commonly used to simulate flood events on a large scale, and many such studies have been conducted for areas such as the Mekong Delta. Popular models include MIKE-11, SOBEK and RMA2 to name a few. Hydraulic modeling can also be utilized to more accurately simulate flows in channels and through man-made structures.

Flood Forecasting and Warning. The Flood Forecasting and River Monitoring System in the Mekong River Commission (MRC) has over the years been improved to provide timely and accurate river forecasts to its member countries in order to reduce the vulnerability of floods in the Lower Mekong Basin. During the dry season (November-May), seven-day river monitoring and low flow forecasts are conducted and updated weekly on the internet while five-day flood forecasts at 21 key stations along the Mekong mainstream during flood season (June-October) are updated on a daily basis. The MRC Forecasting System consists of three main components; data collection and transmission, forecast operation, and forecast dissemination. A variety of forecasting tools is applied for forecasting water levels and discharges: The Stream flow Synthesis and Reservoir Regulation model for the upper part of the basin, multiple regression models for the lower reach of the delta with over bank flow, an Artificial Neural Network model for both, upper and lower reaches, and MIKE-11 for flood mapping in Mekong Delta. Forecast products including water level forecast bulletin are published on the MRC website and disseminated to the National Mekong Committees, concerned line agencies, National Disaster



Flooding Season In the Mekong Delta

Management Committee and other interested parties by e-mail. This mechanism is important in flood planning, in the short, medium and long term, and methods to improve this are constantly being

evaluated.

*)RBO Cuu Long Office, Southern Institute for Water Resources Planning & Management (SIWRP),Viet Nam

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ENHANCING COOPERATION BETWEEN MEKONG RIVER COMMISSION MEMBER COUNTRIES IN ADDRESSING TRANS-BOUNDARY FLOOD AND RELATED ISSUES

HUYNH MINH NGOC, NICOLAAS BAKKER*

ABSTRACT

In the aftermath of the devastating floods of 2000, the Mekong River Commission developed a strategy and program to deal with the threat of future flood disasters in the Mekong River Basin. Its Strategy on Flood Management and Mitigation outlined the role the MRC could play in the management of flood risk in the Lower Basin and led to the formulation of a Flood Management and Mitigation Program, which was established in 2004.

In addition to establishing and enhancing the flood database, plus tools and capacity for better management and mitigation of flood problems in an integrated manner, the FMMP, through its Component 3(FMMP-C3), also contributes to the goal of enhancing effective regional cooperation. This component follows the objective 'to identify potential trans-boundary issues for negotiation, mediation and conflict prevention; and develop mediation and conflict management capacity' as set in the MRC Strategic Plan for 2006-2010.

The FMMP-C3 aims to strengthen cooperation and enhance capacity to address differences and disputes in trans-boundary flood issues by developing and achieving the following products and targets:

Common understanding and agreement on trans-boundary flood issues in the basin;

Information and reference documents related to international, regional and national 'best' practices, instruments and case studies for use in capacity building and reference in case of differences and disputes related to implementation of the Mekong Agreement;

Development and implementation of a comprehensive capacity building for the National Mekong Committees, national line agencies and MRC Secretariat staff in the field of conflict management and addressing differences and disputes related to trans-boundary flooding and related issues;

Establishment of a toolbox for facilitating and supporting the process of addressing differences and disputes. This will include administrative tools (e.g. manuals, guidelines and procedures), technical tools (numeric and/or physical models, assessment frameworks), and knowledge and information ('best' practices, cases studies, literature and instruments) .

The component will run for a period of three years from 2007-2009, with significant financial support from the Government of the Netherlands.

INTRODUCTION

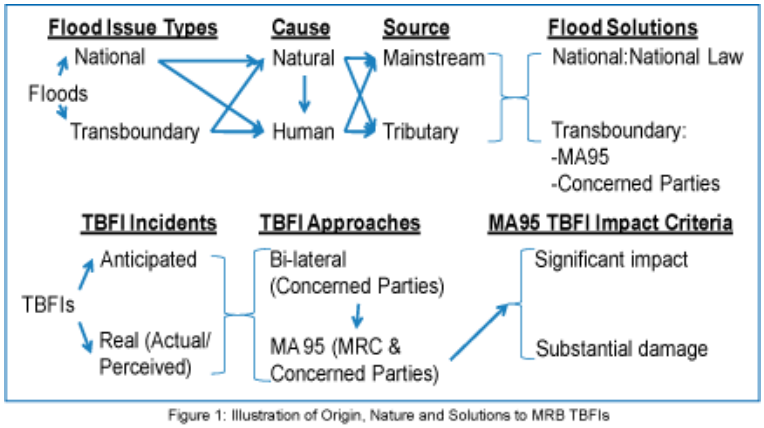

Figure 1: Illustration of Origin, Nature and Solutions to MRB TBFIs

Two of the most common trans- boundary issues that can lead to problems in international river basins are the twin menace of droughts and floods. Both can be caused by nature, including climatic changes, and/or by human induced developments or expansion of activities. In many cases an attempt by one riparian state to mitigate the harshness of nature in droughts or floods exacerbates the problems and causes harm for others

within its own boundaries and in the other riparian countries.

In recent years, the Mekong River Commission has made significant progress in developing a number of mechanisms to promote cooperation and prevent conflict among its Member States, at the same time helping them to achieve timely and amicable agreement on a range of trans-boundary issues. Coupled with its conflict prevention obligation through cooperation and mitigation of adverse impacts, the MRC's founding document, the 1995 Mekong Agreement on the Cooperation for the Sustainable Development of the Mekong River Basin, provides for a develop mediation and conflict management capacity'

In addition to establishing and enhancing a flood database, plus tools and capacity for better management and mitigation of flood problems in an integrated manner, the FMMP, through its Component 3 (FMMP-C3), also contributes to the goal of enhancing effective regional cooperation. This component follows the objective 'to identify potential trans-boundary issues for negotiation, mediation and conflict prevention; and develop mediation and conflict management capacity' as set in the MRC Strategic Plan for 2006-2010.

TRANSBOUNDARY FLOOD ISSUES IN THE MEKONG RIVER BASIN

A common understanding on the issues and possible options for addressing trans-boundary flood issues is an important basis for exploration of any problems that may arise. The MRC Member States, with assistance and facilitation from the FMMP, have jointly identified trans-boundary flood issues (TBFIs) through a bottom-up and participatory approach. The identification of TBFIs aims to build common understanding among the Member Countries regarding transboundary flood issues in the Mekong River Basin, as well as ways through which the countries address these.

By 'transboundary' it is understood that something that happens in one country has positive or negative impacts in one or more other countries. These trans-boundary impacts are 'inter-jurisdictional'. In the case of river basins with two or more riparian states, the trans-boundary/cross-border dimension gives rise to the upstream/downstream (consecutive) or left bank/right bank (concurrent) legal relationship, depending upon the location of the national boundaries/borders.

TBFIs include both those of natural origin and those caused or aggravated human activities and/or interventions. Natural TBFIs may be identified, avoided and/or mitigated through cooperation before and after an occurrence; while floods caused or made aggravated through human activities/interventions may pose a contentious issue, difference or dispute, that needs addressing and resolving. Figure 1 was developed to illustrate the origins, nature and solutions associated with TBFIs.

Focus was given to man-made flood impacts, as these potentially cause differences and disputes between parties concerned. For this reason the MRC Member States, during the exercise to identify TBFIs, adopted the following working definition:

"Any existing or potential substantial adverse impact on the natural, economic or social environment within an area of a Riparian State resulting from a change of the water conditions during the occurrence of floods and/or during the flood season of the Mekong River system caused by a human activity, originating wholly or in part from within one or more areas of one or more other Riparian States."

The following six groups of TBFIs have been identified and agreed between the Member States (Figure 2):

In the course of TBFI identification, the member countries emphasized that technological and knowledge-related constraints appear to be most important, followed by policy, governance and institutional constraints to effectively addressing and resolving transboundary flood issues, differences and disputes (TBIDDs). The countries suggested a strategic approach for addressing transboundary flood issues:

To build on existing bilateral mechanisms supported or facilitated by the MRC Secretariat in general and Component 3 in particular;

To share experiences and lessons learnt from bilateral mechanisms, expanding them to the multilateral and regional level where appropriate; and

To strengthen multilateral mechanisms such as the Mekong Dialogue Partnership with China and Myanmar by providing suitable tools and services from the MRC Secretariat (relating to Upper Mekong Basin developments and global concerns associated with climate change).

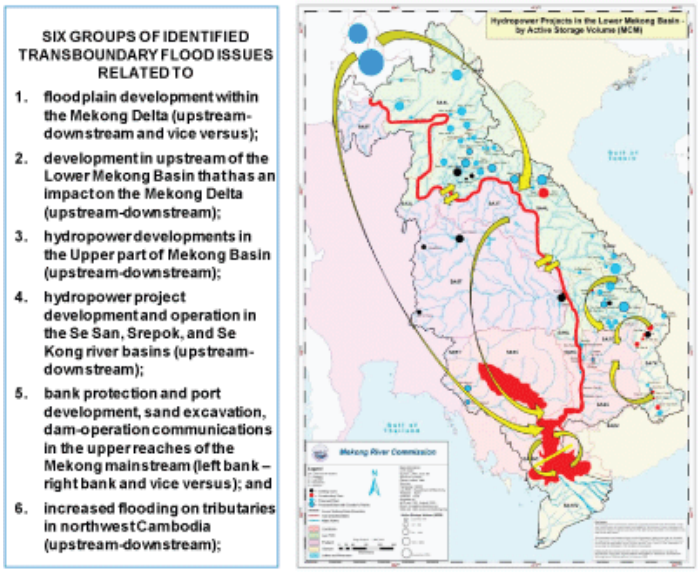

Figure 2: Six groups of regional TBFIs

MANDATE AND ROLES OF THE MRC AND MRCS AND OPTIONS FOR THE MRC MEMBER COUNTRIES IN ADDRESSING TRANSBOUNDARY FLOOD ISSUES, DIFFERENCES AND DISPUTES

Trans-boundary issues are defined as issues between two or more sovereign nations, each with its rights, interests, responsibilities and obligations, due to their status under international law. Similar impacts occur within a nation, where national laws, policies and practices are employed.

International law and the UN Charter provide a reference framework for addressing shared water resources and the rights and obligations of sovereign nations (transboundary issues). Their sources include treaties between nations; conventions proposed by the UN and regional bodies and approved/adopted and ratified by the requisite number of the respective constituency; and widely accepted international practices, often articulated in judicial decisions such as by the International Court of Justice. General international law and practice has and can be reliably applied to address contentious issues, conflict avoidance and dispute resolution through various approaches or mechanisms amongst the states of an international river basin or international watercourse, especially where a water treaty has not already been entered into by all or some of the states, or on matters not covered by the treaty.

The four MRC Member States have, in addition to general international law and practice, the 1995 Mekong Agreement, which provides a legal framework for cooperation in the development and management of the water and related resources of the Mekong River Basin. This can be used to address and resolve differences and disputes that might arise between members of the MRC.

The 1995 Agreement provides the MRC Council and Joint Committee (JC) with a clear mandate to address differences and disputes. It is likewise clear that the MRC Secretariat (MRCS) has no direct mandate or role for directly engaging in dispute resolution through negotiation, conciliation, mediation or arbitration unless it is specifically granted such authority by the Joint Committee. Figure 3 gives a brief framework on how the1995 Agreement addresses TBIDDs.

The four MRC Member Countries have two distinct options for addressing incidents perceived or understood to have been caused by the actions of another member country/ies and which to have caused a significant adverse impact or substantial damage. It or they can either pursue the matter under the provisions of the 1995 Agreement, or pursue the matter on a bi-lateral basis involving the concerned parties. The latter would be addressed on a government to government basis through the respective ministries of foreign affairs. The former would be pursued under the provisions of the 1995 Agreement. A combination of the two options may be applied as well.

COMPONENT 3 OF FMMP IN ENHANCING COOPERATION AND STRENGTHENING CAPACITY IN ADDRESSING TBFIs

The MRCS has an important role in supporting the Council, JC and the Member Countries by gathering, assessing, and analyzing data and information and by preparing report in a routine manner. It may also be specifically requested by the JC to conduct other forms of analyses, set up meetings, field trips, or to provide potential independent experts or organizations to assist in addressing development or conflict issues. Certainly the role of the MRCS is important in facilitating the enhancement of cooperation and avoidance or mitigation of

incidents that may give rise to differences and disputes.

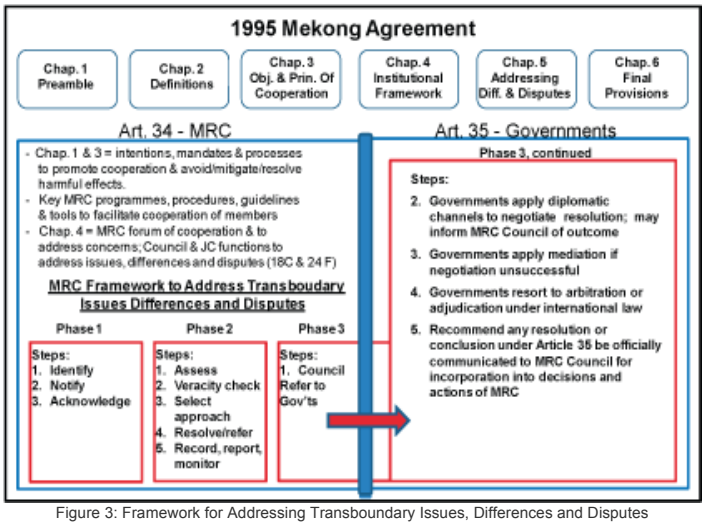

Figure 3: Framework for Addressing Transboundary Issues, Differences and Disputes

In the process of identifying the TBFIs, the member countries grouped the main constraints to better addressing issues, differences and disputes in three areas:

Knowledge-related constraints limit access to reliable information on structural development plans including standard design criteria and policies. Better access to and operation of appropriate tools would help to improve understanding of causes and effects.

Policy, governance and institutional constraints refer to differences in administrative, institutional and policy frameworks in the four Member Countries.

Inadequate financial and economic resources are another important constraint. In the Lao PDR, for example, joint studies of bank erosion require considerable funding for which budget allocation is insufficient.

The support required from MRC to the member countries is presented in two groups: Technical and administrative support.

Technical support would focus on:

Information and knowledge generation and exchange to improve factual evidence of causes, effects and impacts. This includes science-based clarification and awareness raising, information exchange, joint fact-finding missions and studies, and harmonization of policies and regulations.

Development and application of tools to reduce complexity so that causes and effects become sufficiently clear to allow effective response strategies to be identified. The suitability of tools would be demonstrated and tested within specific pilot areas and projects.

Capacity building in impact assessment to provide a framework and develop analytical capacity for interested and value-based discussions on trade-offs between beneficial and non-beneficial impacts. The underlying assumption here is trust and confidence among the parties involved.

Administrative support is needed to:

Ensure adequate stakeholder participation with senior technical and administrative representatives of line agencies, including national and provincial levels if required.

To develop and agree on processes and procedures which provide sufficient scope for factual and information-based discussions that result in agreed strategies and actions; and

Ensure progress, continuity and sustained interest in the process through awareness raising, conflict prevention, management and funding.

From the above findings, Component 3 of the FMMP was developed to strengthen cooperation and enhance the capacity of the MRC to address differences and disputes in trans-boundary flood issues. Member States suggested that Component 3 ought to include three outputs:

Information generation
Awareness raising and knowledge and skills building; and
Toolbox development

Output 1 "Information Generation" will be implemented firstly with activities on identification of trans-boundary flood issues from national and regional perspectives. The common understanding and agreement on the regionally concerned transboundary flood issues in the Mekong River Basin provide the background information and basis for all other activities of Component 3. A proper understanding of the trans-boundary flood issues will be facilitated by making available documentation, such as applicable 'best' practices, instruments and case studies relating to all suitable options for addressing differences and disputes in transboundary issues and natural resources management. Information generation will be documented and distributed to the Council and JC members, MRCS, the National Mekong Committees, relevant national line agencies and, where appropriate, to a wider audience, including resource managers, civil society organizations, regional institutes and universities . The compiled reference material will form part of the toolbox to be used by the MRC in addressing differences and disputes. The material will also serve as input for the general awareness raising, knowledge and skills building activities under Output 2.

Output 2 "Awareness Raising and Knowledge and Skills Building" will start with clarification of the MRC mandate in transboundary flood issues in addressing differences and disputes. The material developed under Output 1 will be complemented by more specific conflict management and resolution knowledge, tailored to the MRC environment. This will be used for development and implementation of activities on general awareness raising, knowledge and skills building. Implementation of pilot studies will improve the result of general awareness raising, knowledge and skills building activities and build practical knowledge, skills and mutual trust for Member States and the MRCS. Implementation of pilot studies activity will also be supported by the technical and administrative tools to be developed under Output 3.

Output 3 "Toolbox Development" aims at the development of a set of technical and administrative tools. These will be developed based on the requirements set out by relevant activities in Outputs 1 & 2. It should be noted that the establishment of the administrative tools activity strongly interacts with the implementation of pilot studies activity. The preliminary outcome of the administrative tools activity will be used as guidance for pilot studies, and lessons learnt from the pilot studies activity will help improve the established administrative tools.
A brief illustration of the Component 3 design is presented in Figure 4:

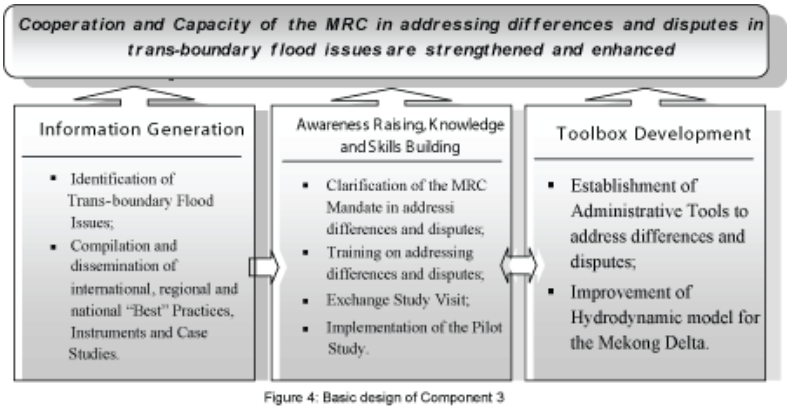

Figure 4: Basic design of Component 3

PRESENT STATUS AND FURTHER DEVELOPMENT OF COMPONENT 3

Component 3 has made good progress in 2007 and early 2008 in developing relevant MRC reference materials through the application of an intensive consultation process with Member Countries. The Component has initiated implementation of a nine-month training and capacity building program, which has the objectives of raising awareness and building knowledge and skills. The first phase of this program addresses the regional level, including the NMCs and line agencies dealing with trans-boundary issues. During Phase 1 exchange visits and training are carried out in other river basins where experience has been developed in addressing trans-boundary issues (preferably flood) issues. One of the most interesting elements of the training and capacity building program (but the most complex as well) is the implementation of one or more pilot studies. During Phase 2 of the programmer, specific focus will be placed on training and capacity building at national levels.

It is expected that the implementation of this Component will create a level playing field for participants, allowing them to work together closely and to apply a technical and practical approach. Such a joint setting will allow participants to build trust and confidence, which are conditions for the further development of the framework for addressing TBIDD. It became clear during the initial implementation period of Component 3 that each of the Member Countries is firmly committed to the scope of the component. It is therefore expected that with respect to addressing trans-boundary flood issues, Component 3 will help the Member States face the challenges of the future.

*) MRC Regional Flood Management and Mitigation Centre, Phnom Penh

Announcement

International WaterCentre Water Leader Scholarships

International Water Centre (IWC) is offering full and partial tuition scholarships for Australian citizens, permanent residents and international applicants for the Semester 1 2009 intake of the Master of Integrated Water Management Program. Applications close August 1, 2008. IWC's Masters Program aims to build capacity in water management, particularly for developing countries. The Program takes a project-centred approach, integrating coursework in water science, engineering, policy and planning, economics and community development. IWC graduates receive a degree from four of Australia's most prestigious universities: The University of Queensland, Griffith University, Monash University, and The University of Western Australia. The Program is another initiative of the IWC to improve the capacity and build the skill sets of water professionals and future leaders in water resource management in response to the water crisis, both in Australia and abroad.

For more information, visit
http://www.watercentre.org/education/masters/scholarships

Email admin@watercentre.org.

NARBO Chairperson will make a presentation at WWW2008

Dr. Ir. Moch. Amron, M. Sc, the Chairperson of NARBO will make a presentation at a session in the 2008 World Water Week in Stockholm*.
The session "River Basin Approach of IWRM; Integrated River Basin Management (IRBM) Towards the 5th World Water Forum" will be organized by UNESCO-IHP and Ministry of Land, Infrastructure, Transport and Tourism in Japan on Thursday, 21th August. He will talk about Integrated Water Resources Management (IWRM) from the viewpoint of Asia, titled "Political will and institution for River Basin Management."

* The 2008 World Water Week in Stockholm will scrutinize progress and prospects in the efforts to build a clean and healthy world. Special attention will be devoted this year to the sanitation challenge and the achievement of the Millennium Development Goal target on sanitation, where we continue to fall behind.
<<-http://www.worldwaterweek.org/worldwaterweek/purposeandscope.asp

The 2nd Thematic Workshop on Water-Related Disaster and Its Management in Asian Countries

Natural disasters (e.g. floods, droughts, landslides, volcanic eruptions, earthquakes, tsunami, typhoons, cyclones and other extreme weather phenomena) have hit monsoon Asia in recent years. These disasters have inflicted catastrophic losses to human lives and to the economies of countries which NARBO member organizations belong to.
Conducting thematic workshops has been considered at The 3rd NARBO General Meeting in Indonesia in February 2008 as one of the important activities of NARBO. Based on the updated NARBO Action Plan of 2008-2009, NARBO will carry out a series of workshops on the theme of

Thematic Workshop in Indonesia

Water-Related Disaster and Its Management in Asian Countries.

The 1st workshop was competed successfully on November 26-29, 2007 in Yogyakarta, Indonesia and the 2nd one will be held as the following statement.

Date of workshop	***October 7th –10th, 2008***
Place of workshop	***Metro Manila, Philippines***
Host Organization	***Laguna Lake Development Authority (LLDA), Philippines***

The selected participants will gather for this workshop and have lively discussions according to the following planned program.

Day 0 (October 6) Arrival at Metro Manila
Day 1 (October 7) Keynote lecture and presentation from each country representatives
Day 2 (October 8) presentation from each country representatives (Continued)
Day 3 (October 9) Site visit and related discussion
Day 4 (October 10) Group discussion and assignment for the next (last) workshop

The next (3rd; last) workshop will be held in January 2009. NARBO Secretariat expects active involvement of the participants!

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From the secretariat

NARBO SEEKS YOUR ARTICLES!

NARBO Newsletter aims to be a tool for sharing good practices, lessons learned from practice and IWRM-related activities, etc. Therefore, we highly welcome articles from you, about good practices, lessons from practice, activities relevant to IWRM. In addition, the article such as topic providing, and fresh voice, etc is also very welcomed. The articles you will contribute to NARBO Secretariat will be put in newsletters to share experience and lessons and so on.
We would appreciate it if you could inform us of your opinions, suggestions and request to NARBO newsletter and website, if any.
We are willing to enhance the information content.

Guideline for articles;
1) Article (good practice, case study, etc.): Abstract 500 words (around)
Please attach some photos and charts.
2) Column (topic providing, fresh voice, etc.): Abstract 300 words (around)

Network of Asian River Basin Organizations

Headquarters of the secretariat: International Affairs Division, Japan Water Agency (JWA)
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For comment/information/inquiry, contact narbo@water.jp Thank you for your cooperation!

NARBO Newsletter — 15th Issue December 2008

Topics	
Core Activities	2nd Thematic Workshop on Water-Related Disaster and Its Management in Asian Countries Twinning Program (1) -The 1st Staff exchange between MARD of Viet Nam and JWA
Members Initiative	Salinity Intrusion Modeling for Sungai Selangor
Related Activities	Regional Meeting on Hydro-informatics and Developing Knowledge Hub Networks Seminar "Key for Success in Implementing IWRM at River Basin Level"
From Secretariat	Work for "IWRM Guidelines at River Basin Level" Message from New Secretariat Members NARBO Activity Plan NARBO Seeks Your Articles!

Core Activities

2nd Thematic Workshop on Water-Related Disaster and Its Management in Asian Countries, Philippines, 7-10 October, 2008

Akira NISHIMURA

Conducting thematic workshops was considered at The 3rd NARBO General Meeting in Indonesia in February 2008 as one of the important activities of NARBO. Based on the updated NARBO Action Plan of 2008-2009, NARBO will carry out a series of workshops on the theme of **Water-Related Disaster and its Management in Asian Countries**, which have been continued since last year.

In addition, governments around the world have committed to take action to reduce disaster risk, and have adopted a guideline to reduce vulnerabilities to natural hazards, called **the Hyogo Framework for Action 2005-2015 (HFA)**. The HFA assists the efforts of nations and communities to become more resilient to, and cope better with the hazards that threaten their development gains. (>>See more)

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The 1st Staff exchange between MARD of Viet Nam and JWA

Masahiro SUGIURA

Between Viet Nam NARBO and Japan Water Agency (JWA), MOU and agreement were concluded on 15th March 2008. Then, the provision of exchange of personnel on Twinning Program between Ministry of Agriculture and Rural Development (MARD) of Viet Nam and JWA was also agreed and signed.

The Program aims at sharing information to solve problems as well as contributes toward an improvement of IWRM. Developing good relationship between Viet Nam NARBO and JWA is also an important objective. (>>See more)

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Members Initiative

Salinity Intrusion Modeling for Sungai Selangor

Norbaya HASHIM

ABSTRACT

Salinity intrusion into estuary of the Sungai Selangor has been carried out on a hydrodynamic numerical modeling to access the parameter that governed the amount of salt in the river. Issues such as water pollution and extraction of water from Sungai Selangor system has been said to be the cause of ?'fading fireflies.' The berembang trees on the river bank that become the fireflies?' habitat need some amount of salt for proper growth. Living at the lower reaches of Sungai Selangor, the fireflies are affected not only by the activities in their vicinity, but by activities in the entire river basin. (>>See more)

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Related Activities

Regional Meeting on Hydro-informatics and Developing Knowledge Hub Networks, China, 15-17 October, 2008

Hirohisa MIURA

NARBO Secretariat attended the Regional Meeting on Hydro-informatics and Developing Knowledge Hub Networks held in Zhengzhou, China with the representatives of many NARBO member organizations.
The purpose of this Regional Meeting was to share YRCC's experience among the participants and to demonstrate how the decision support systems can be introduced or improved in river basins. The meeting also marked the launch of the Center for Hydro-Informatics in River Basins (CHIRB) which is hosted by YRCC. (>>See more)

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Seminar "Key for Success in Implementing IWRM at River Basin Level," Japan, 11 November, 2008

koichi TAKANO

Seminar "Key for Success in implementing IWRM at River Basin Level" was held as a pre-event of 2nd Steering Committee of "Integrated Water Resources Management Guidelines at river basin level." The Guidelines here refer to the ones which the United Nations has worked on and proceeded with the formulation through UNESCO as a secretariat. Formulation of IWRM Guidelines is set as one of NARBO Action Plan activities in 2008-2009. Dr. Mochammad Amron, Chairperson of NARBO, included a Steering Committee member, made a presentation on Challenges of Brantas River Basin in the seminar. (>>See more)

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From the secretariat

Work for "IWRM Guidelines at River Basin Level"

Dr. Mochammad Amron, chairperson of NABO, nominated a member of Steering Committee (SC) for the IWRM Guidelines at River Basin Level*, has been taking part in activities in several countries.

As an SC member, Dr. Amron participated in the 1st SC held in Stockholm, Sweden in August 2008 and the 2nd SC held in Saitama, Japan in November 2008. He introduced IWRM in Brantas River Basin to the other Committee members and proposed to take the case in the Guideline. The 3rd SC will be held in Bangkok, Thailand in January 2009.

* The IWRM Guidelines at River Basin Level
UNESCO is now launching "IWRM Guidelines at River Basin Level," with a view to make them available as important relevant publication of the World Water Development Report, a flagship project of UN-Water to be launched at the 5th World Water Forum. Also, MLIT and JWA intend to contribute to the preparation of the Guideline.

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Hello! Message from New Secretariat Members

Mr. Toshiyuki
YOSHIOKA
Director of
International Affairs
Division of JWA

I was assigned as the Director of International Affairs Division of Japan Water Agency and have joined NARBO secretariat since October 2008.
I had an experience to have worked as a JICA expert to strengthen irrigators' associations in the Philippines from 2000 to 2003. I'm willing to support NARBO activities by putting my experience to good use. Thank you very much.

Mr. Hirohisa MIURA
Engineer

I have joined NARBO secretariat and become a staff member of International Affairs Division of JWA since October 2008.
It's my first time to engage in international business, and I see this as an exciting opportunity for me to work together with other colleagues and learn a number of things that are new to me.
I am looking forward to gaining diverse experience through my work, and would like to obtain as much knowledge and expertise as possible in the international field of work. Thank you.

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NARBO Activity Plan

Year	Activity Contents	Date	Venue
Feb 2009	The 3rd Thematic Workshop on Water-Related Disaster and Its Management in Asian Countries	February 2009	Kuala Lumpur, Malaysia
	The 5th IWRM Training	18-25 February 2009	Hoi An, Viet Nam
Mar 2009	NARBO will join WWF5 (The 5th World Water Forum) for NARBO Promotion	16-22 March 2009	Istanbul,Turkey

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NARBO seeks your Articles!

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Report of The 2nd Thematic Workshop on Water-Related Disaster and Its Management in Asian Countries (Philippines) (2008)

1. Background

Natural disasters (e.g. floods, droughts, landslides, volcanic eruptions, earthquakes, tsunamis, typhoons, cyclones and other extreme weather phenomena) have hit Monsoon Asia. These disasters have inflicted catastrophic losses to human lives and to the economies of countries which NARBO member organizations belong to.

Conducting thematic workshops was considered at The 3rd NARBO General Meeting in Indonesia in February 2008 as one of the important activities of NARBO. Based on the updated NARBO Action Plan of 2008-2009, NARBO will carry out a series of workshops on the theme of **Water-Related Disaster and its Management in Asian Countries**, which have been continued since last year.

In addition, governments around the world have committed to take action to reduce disaster risk, and have adopted a guideline to reduce vulnerabilities to natural hazards, called **the Hyogo Framework for Action 2005-2015 (HFA)**. The HFA assists the efforts of nations and communities to become more resilient to, and cope better with the hazards that threaten their development gains.

The HFA is the key instrument for implementing disaster risk reduction, adopted by the Member States of the United Nations. Its overarching goal is to build resilience of nations and communities to disasters, by achieving substantive reduction of disaster losses by 2015 - in lives, and in the social, economic, and environmental assets of communities and countries. The HFA offers five areas of priorities for action, guiding principles and practical means for achieving resilience against disasters for vulnerable communities in the context of sustainable development.

Group Photo

2. Outline of the Workshop

The 2nd Thematic Workshop on Water-Related Disaster and its Management in Asian Countries was held on October 7-10, 2008 in Metro Manila, the Philippines and completed successfully. This workshop was composed of special lectures, presentations by the participants and the related discussions, study visit to Pampanga River Basin, and Group Work.

(1) Lectures

The following lectures were provided during this workshop. Active discussions between lecturers and participants were followed after each lecture.

Name	Organization	Lecture Title

Mr. Edgard C. Manda	Laguna Lake Development Authority (LLDA)	Man made disaster management - Laguna de Bay Region
Ms. Ethel Manalo	Department of Public Works and Highways (DPWH), Region III	Flood management
Ms. Maria Antonia Borna	Philippine Institute of Volcanology & Seismology (PhiVolcs)	Overview of Pinatubo Lahars & related flooding in Central Luzon
Dr. Neil Britton	Asian Development Bank (ADB)	The Role of the RBO as a Facilitator of Water-Related Disaster Management in the Rive Basin
Mr. Akira Terakawa	The International Centre for Water Hazard and Risk Management (ICHARM)	Integrated Flood Risk Management for Urbanized River Basins in Japan
Mr. Michio Ota	Japan Water Agency (JWA)	Water-related Disaster Management in Japan / Japan Water Agency
Mr. Akira Nishimura	Japan Water Agency (JWA)	Coordination of water use in drought terms

(2) Presentations by the participants and the related discussions
NARBO secretariat had requested all core participants to prepare 5 kinds of materials based on the Hyogo Framework for Action 2005-2015 (HFA) and submit them to the secretariat in advance.
Every core member reported on the situation of water-related disaster and its management in each country especially in line with the prepared materials. It was shared that the climate condition and proceeding situation of disaster risk management were different from country to country.

Lecture Session

Q&A Session

(3) Study visit to Pampanga River Basin
All members who participated in this workshop had an opportunity to visit some places to learn water-related disaster and its management in Pampanga River Basin near Manila such as the buried town by lahars (volcanic mudflows) caused by the eruption of Mt. Pinatubo, the mega dyke constructed by JICA project to keep the downstream residential area away from lahar, Terminal Telemetry Station along Pampanga River and Operations Center of the Flood Forecasting Branch managed by Philippine Atmospheric, Geophysical, Astronomical and Seismology Administration (PAGASA).
Mt. Pinatubo erupted in 1991, but surprisingly it was in 1995 (4 years later) when the large lahar attacked the downstream areas around Bacolor Town. The lahar buried the town by 6-7m at the maximum, and the members were shocked to see some houses which were almost buried in the lahar. However, visiting some places and talking with the local residents in the town, we also could find that the residents have proceeded toward recovery; some have built new houses on the lahar, others have started their new lives by relocation.
Through this study visit, the participants could recognize the importance of community based disaster risk management, as seen in the proven example that repeated prior warnings against the large lahar that hit the downstream areas around Bacolor Town consequently prevented the areas from being damaged severely. That is to say, the community based disaster risk management does

affect our lives, and might have changed seriously the aftermath of this disaster to a certain extent.

Buried House by Lahar
(volcanic mudflow)

Discussion with Local People
(Bacolor Town)

Operations Center of PAGASA

(4) Group Work
The participants were divided into 2 groups; one is a group of RBOs and the other is a party of Government Organizations. The participants discussed the common challenges by each group based on the materials (the preliminary assignments) to formulate better action plans. The result of the discussion was shared by presenting in the plenary session.
The participants were requested to modify their action plans before the next (3rd) Workshop based on this work.

Group Discussion

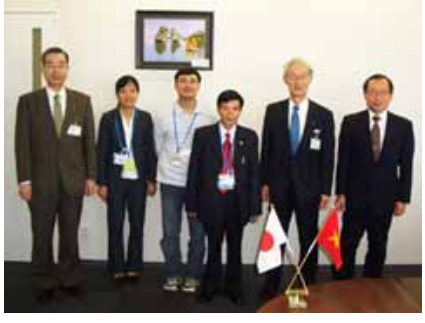
3. Acknowledgements

In appreciation of great efforts of workshop preparation by LLDA staff and active participation by all participants, without your invaluable assistance, we couldn't have completed this 2nd thematic workshop successfully. NARBO secretariat would like to express our warmest gratitude to all of you and hope that we will have closer and better mutual relationship onwards and upwards.

Twinning Program

The 1st Staff exchange between MARD of Viet Nam and JWA

Between Viet Nam NARBO and Japan Water Agency (JWA), MOU and agreement were concluded on 15th March 2008. Then, the provision of exchange of personnel on Twinning Program between Ministry of Agriculture and Rural Development (MARD) of Viet Nam and JWA was also agreed and signed.



Courtesy Call in HQ of JWA

Presentation on Water Resources Management of Viet Nam

The Program aims at sharing information to solve problems as well as contributes toward an improvement of IWRM. Developing good relationship between Viet Nam NARBO and JWA is also an important objective.

Mr. Toan, Mr. Tuan and Dr. Nga from MARD were dispatched to Japan from 17th November 2008 to 6th December 2008. They were based at the headquarters of JWA. They studied RBOs of Japan and visited two (Tone and Yodo) river basins, some O&M (for dam, canal, and lake) offices and canal construction project office.

At the end of Twinning Program, they reported results of their study at JWA. They returned to Viet Nam with fruitful experience and good friendship with JWA. We are proud of the successful launch of the first Twinning Program, and are hoping to continue encouraging this program.

Site Visit (Hitokura Dam O&M Office)

Site Visit (Gunma Canal Reconstruction Project)

>> Twinning Program TOP

Salinity Intrusion Modeling for Sungai Selangor

Norbaya HASHIM, ***Research Officer, Hydraulic Engineering Division, National Hydraulic Research Institute of Malaysia (NAHRIM)***
ABD. Jalil HASSAN, ***Senior Research Officer, Hydraulic Engineering Division, National Hydraulic Research Institute of Malaysia (NAHRIM)***

ABSTRACT

Salinity intrusion into estuary of the Sungai Selangor has been carried out on a hydrodynamic numerical modeling to access the parameter that governed the amount of salt in the river. Issues such as water pollution and extraction of water from Sungai Selangor system has been said to be the cause of 'fading fireflies'. The berembang trees on the river bank that become the fireflies' habitat need some amount of salt for proper growth. Living at the lower reaches of Sungai Selangor, the fireflies are affected not only by the activities in their vicinity, but by activities in the entire river basin. Rapid economic development in the basin and the strong demand for the water resources puts pressure on the ecosystem. This research has been carried out to investigate the effect of water extraction along Sungai Selangor towards altering the amount of salt content in the river. The hydrodynamic modeling with regards to the salt content is expected to support long term assessment that may affect the berembang trees as a result of changes in the flow from upstream because of the water abstraction activity for domestic water supply.
Keywords: Salinity intrusion; berembang trees; fireflies; hydrodynamic modeling; water extraction; estuary.

1 Introduction

Kuala Selangor has been synonymous with firefly (Pteroptyx tener) watching (see Figure 1). Just outside Kuala Selangor town is the quiet hamlet of Kampung Kuantan, site of one of the largest firefly colonies in the world. Kampung Kuantan is located 25 km from the river mouth. Tourists from near and far flock to Kampung Kuantan to take a boat trip along the Selangor River to have a closer look at what is considered to be the 'eighth' natural wonder of the world. What is special about these small insects is that they display their flashes of light synchronously while congregating in large numbers on certain trees. They particularly favour 'berembang' trees (Sonneratia caseolaris), the branches of which overhang the riverbank (Figure 2). At a glance, it would seem as if we are looking at a row of Christmas trees lighting up the night, and we cannot help but wonder how on earth such a small creature can produce such amazing light. The firefly has a close relationship with the river ecosystem at Kampung Kuantan. The ecosystem comprises the Selangor River and the different types of vegetation especially berembang trees that glow on its bank. Living at the lower reaches of Sungai Selangor, the fireflies are affected not only by activities in their vicinity, but by activities in the entire river basin. The berembang trees only thrive in weakly saline water and a continuous freshwater outflow is necessary to prevent the water at the firefly habitat from becoming too saline. However rapid economic development in the basin and the strong demand for the water resources puts pressure on the ecosystem. Changes in the river water quality as a result of pollution or the building of the dam and barrage further upstream may eventually have an impact on the survival of the snail and the riverside vegetation on which the fireflies depend. To ensure future sustainability of Sungai Selangor as a reliable source of water, protection of water source alone is not sufficient. An effective planning and control of the whole river basin is essential.In the long term, the survival of this 'eight' natural wonder of the world will be dependent on our ability to understand the ecology and habitat requirements of the firefly, and our determination to manage the river system. Integrated river basin management is an important new strategy and vital ingredient in achieving successful water resource management planning in the country.

Figure 1: Firefly (*Pteroptyx tener*)

Image: European Physical Society

Figure 2: Berembang Tree and its fruit

The objectives of this study are:

a. To develop a 1-Dimensional flow and salinity model for Sungai Selangor basin using unsteady flow.
b. To carry out hydrodynamic numerical modeling to access the parameter that governed the amount of salt in the river.
c. To investigate the effect of water extraction along Sungai Selangor towards altering the amount of salt content in the river.

2 Study Area

Selangor River Basin commands a catchment area of about 1960 sq. km, nearly a quarter of the total area of the State of Selangor. The Basin is located to the north of Kuala Lumpur City, bounded by Klang river basin in the south and Bernam River Basin in the north. The Selangor river rises in Titiwangsa range bordering the State of Pahang and flows in an approximately southwest direction, before discharging into the Straits of Malacca. The mainstream length is about 110 km. The Basin is reach with natural and ecological systems. The upper Basin provides a green and pristine upland with unique flora and fauna, while the downstream areas have a unique natural ecosystem wonder, i.e. internationally known firefly colony at Kg. Kuantan. The Basin in its natural state is still largely a rural catchment. Figure 3 showed the location of the study area.

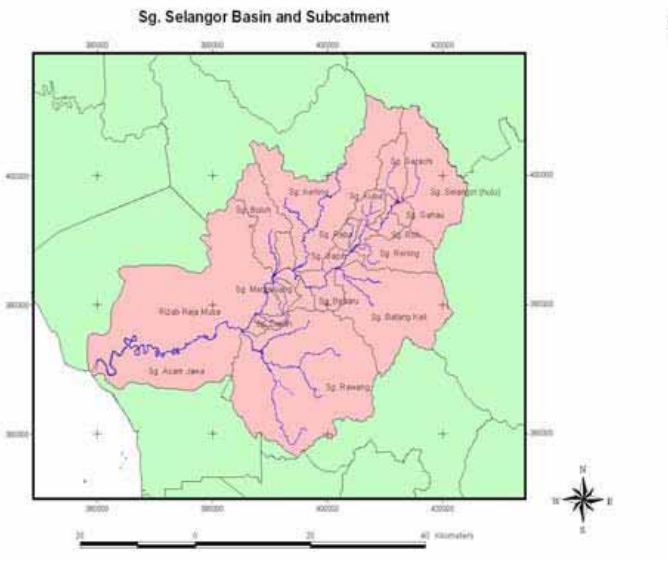


Figure 3: Location of study area

3 Methodology

This study involved field measurements, data collection and development of salinity model, which include hydraulic and salinity simulation. The salinity model shall be able to describe the present situation as well as predict future trend of salt water intrusion.
A hydrodynamic model is set up and developed in this study on the behaviour of the saline intrusion and movement in the river system. The model is calibrated by using a 1-Dimensional hydrodynamic InfoWorks RS. It deployed full St. Venant equation for shallow water which is also suitable for water quality and sediment transport modeling.
The modeling involves two phases which are developing a flow model and secondly a salinity model. The model covers from river mouth up to Rantau Panjang hydrological station. After the calibration process,

various analyses can be carried out to look at the salinity behaviour with the change of flow from upstream of the river.

3.1 Site Visit and Data Collection

Site visit was carried out a few times in order to gather information about the salinity and berembang trees. NAHRIM researchers with the help from DID Kuala Selangor staff conducted sampling of salinity at various location along the river and all location were recorded using GPS. The survey was carried out on the 23 August 2005 and 16 February 2006. It is quite fortunate that the sampling cover both low and high flow. Photo during the site visit are shown in Figure 4.

Figure 4: Photo during field work

3.2 Observation

The visual inspection indicates that the growth of the berembang trees started at about 6 km and ended at about 34 km from the river mouth. Therefore salinity sampling was carried out covering this stretch of the river.

3.3 Modeling

The hydrodynamic model is carried out to cover Sg. Selangor river system from its river mouth up to Rantau Panjang which is free from tidal effect. Total distance of the model is 57 km. The main input to the model is the flow measured at the Rantau Panjang station, tide and salinity concentration at the river mouth.

3.4 Calibration

Flow and water level calibration was carried using data taken in November 2005 and comparison was carried out with measured water level at Kg. Asahan. The flow from upstream cover both high and low flows. The most suitable Manning's coefficient 'n' value use in the calibration is 0.020. Figure 5 below shows the input data for the calibration process. Figure 6 shows the tide level at Kuala Selangor while Figure 7 shows the comparison between observed and simulated water level.

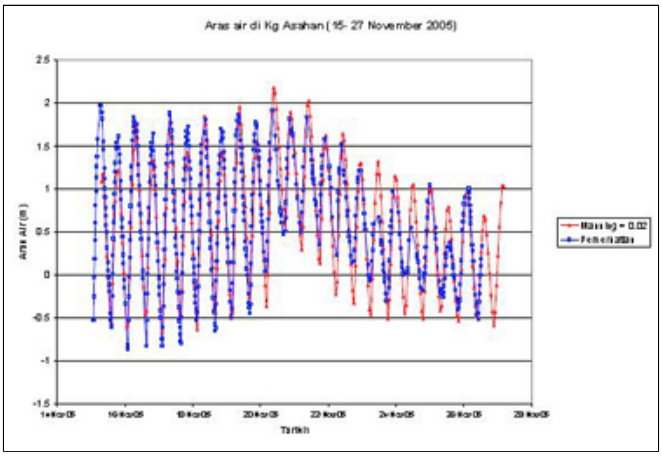


Figure 5: Inflow at Rantau Panjang Station and water level at Kg. Asahan

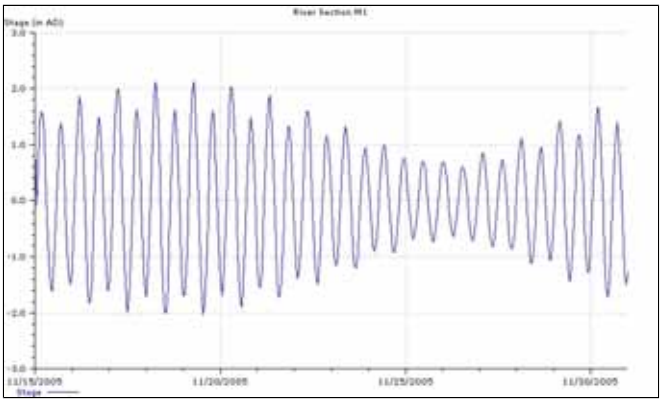


Figure 6: Tide level at Kuala Selangor

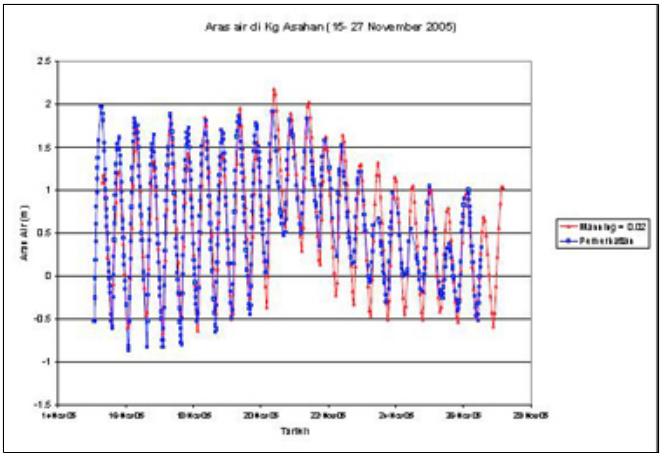


Figure 7: Comparison between observed and simulated water level

4.4 Salinity Calibration

Before the model can be use to analyse the behaviour of the salinity movement, a calibration need to be carried out. Two salinity sampling were done in August 2005 and February 2006. There are three water intakes operating at Batang Berjuntai, the SSP1, SSP2 and SSP3 which extract 950MLD, 950MLD and 800 MLD respectively. The total amount of water extracted from the river is equivalent to 30 cumecs.

The salinity calibration was carried out for the month of August 2005. This can be considering a dry month with average flow from upstream at Rantau Panjang set to 20 cumecs. Final flow after passing through the water intake is assumed at 10 cumecs. The simulated salinity results are shown in Figure 8 and Figure 9 and the comparison of results between observed and simulated salinity at Kg. Bukit Belimbing and Kg. Kuantan is shown in Table 1. Table 2 shows the salinity comparison between observed and simulated at various locations in February 2006

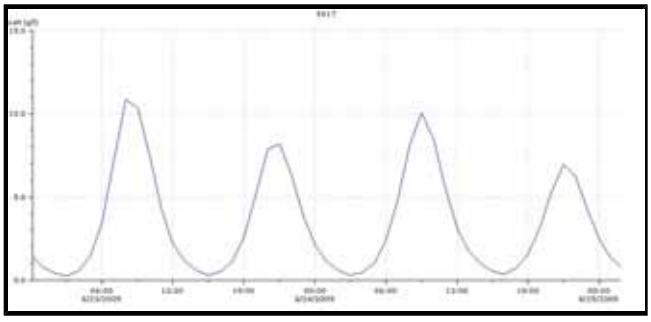


Figure 8: Salinity at Kg. Bukit Belimbing

5saltMin0.014Max1.848Simulation Plot Produced by Abd Jalil (3/15/2006 2:47:08 PM) Page 9 of 33Water Quality Sim: >selangor salinity>Water Quality Run Group>august2005>Salinity#5 (3/15/2006 2:46:24 PM)Selection List: Custom Selection

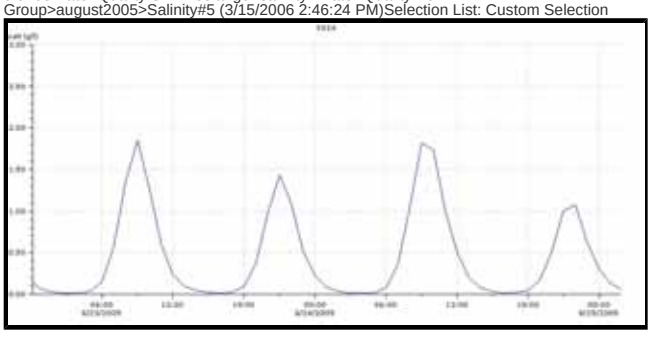


Figure 9: Salinity at Kg. Kuantan

Location	Time (hours)	Salinity (ppt) Observed	Salinity (ppt) Sim
Kg. Bukit Belimbing	9: 48 am	10	9.4
Kg. Kuantan	10:15 am	2.1	1.4

Table 1: Salinity comparison between observed and simulated in August 2005

		Salinity (ppt)	
Description	Time	Observation	Simulated
Kuala Selangor Bridge	4.20 pm	0.2	0
Bukit Belimbing	4.34 pm	0	0
Kg. Kuantan	4.45 pm	0.1	0
km 30	4.59 pm	0	0
km 33	5.09 pm	0	0
Kg. Asahan	5.15 pm	0	0
km 30	5.30 pm	0	0
Kg. Kuantan	5.39 pm	0	0
Bukit Belimbing	5.49 pm	0	0
km 14 (Kg			

Table 2: Salinity comparison between observed and simulated in February 2006

Sepakat)	5.55 pm	0.2	0.5
km 10	6.05 pm	4.7	7
km 8	6.10 pm	11.2	18
Kuala Selangor Bridge	6.30 pm	25.3	27

5 ANALYSIS

Preliminary simulation was carried out for year 2000 flow. The result is shown in Figure 10 below at Kg. Bukit Belimbing and Kg Kuantan.

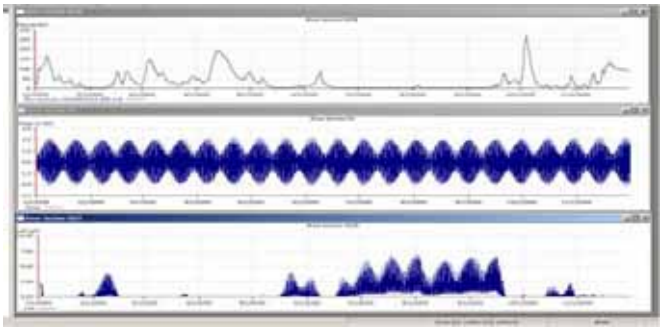


Figure 10: Top – Flow at Rantau Panjang; Middle – Tide level at river mouth; Bottom – salinity at Kg. Kuantan

The analysis shows that, salinity at Kg. Kuantan increase during low flow of the year. The salinity patterns also follow as tide reach spring tide.

One simple analysis was carried out to see the effect of water intake. The flow from upstream was reducing to 5 cumecs and comparison at various places was done. For the purpose of this paper, two scenarios were compared. From the result, it can be seen clearly that the salinity along the river increases once the flow is reduce (Fig. 11 to Fig. 14). The model was able to predict the values and extent of the salinity intrusion. It is also interesting to note that saline water does travel further upstream which was estimate to about 5km.

5saltMin1.3410.196Max13.51210.839Simulation Plot Produced by Abd Jalil (3/15/2006 3:33:25 PM) Page 2 of 38Water Quality Sim: >selangor salinity>Water Quality Run Group>august20055cumecs>Salinity#5 (3/15/2006 3:32:18 PM)Water Quality Sim: >selangor salinity>Water Quality Run Group>august2005>Salinity#5 (3/15/2006 2:46:24 PM) Selection List: Custom Selection

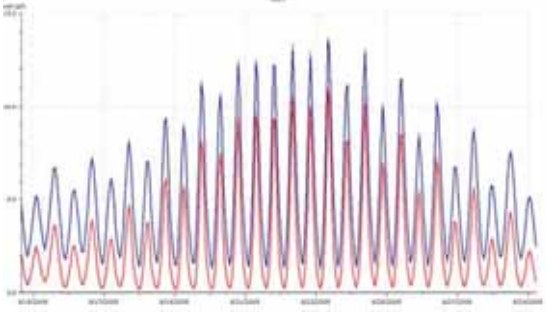


Figure 11: Comparison of salinity for different flow at kg Bkt Belimbing

Simulation Plot Produced by Abd Jalil (3/15/2006 3:33:25 PM) Page 9 of 38 Water Quality Sim: >selangor salinity>Water Quality Run Group>august20055cumecs>Salinity#5 (3/15/2006 3:32:18 PM) Water Quality Sim: >selangor salinity>Water Quality Run Group>august2005>Salinity#5 (3/15/2006 2:46:24 PM) Selection List: Custom Selection

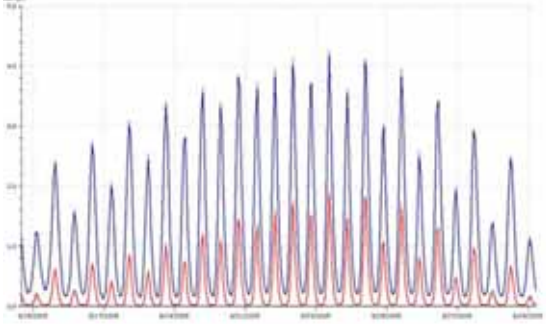


Figure 12: Comparison of salinity for different flow at Kg Kuantan

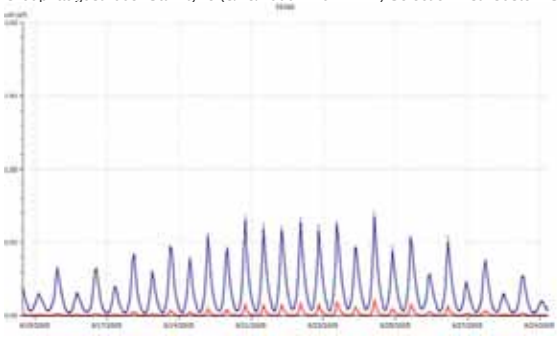


Figure 13: Comparison of salinity for different flow at Kg. Asahan

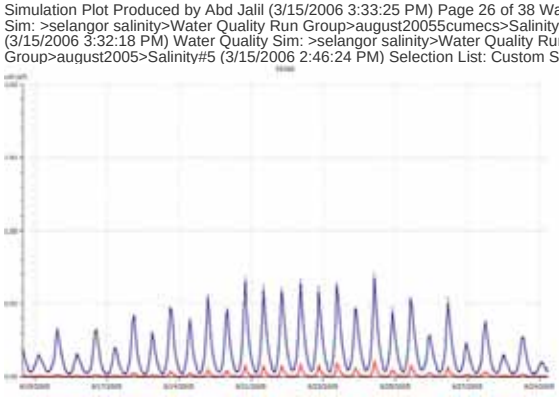


Figure 14: Comparison of salinity for different flow at km 39 from river mouth

6 CONCLUSION

This paper does not comment on the effect of salinity to the berembang tree. However the result indicates that expert in berembang tree shall be able to analyses the effect of salinity change to the tree. Therefore the hydrodynamic modeling will be useful tools in predicting the salinity change in the river which shall effect the growth of the berembang trees.

The study is still at the early stage. More data is required to enhance the modeling process. However it can be indicate that the output from the modeling will be of a great help and support to in monitoring the effect on salinity changes due to the water extraction in Sg. Selangor. The model shall also be used to predict for the long term effect on salinity to the river system.

Acknowledgments

The authors would like to thank to DID, Kuala Selangor and all River Research Centre & Water Quality & Environment Research Centre staff for their involvement in this project.

References

1. Prof. Dr. Ir. F. De Smedt (1989) Introduction to River Water Quality Modeling, VUB Press, Brussels
2. Abd. Jalil Hassan (2005) Permodelan Hidrodinamik Sungai- Pendekatan Awal Menggunakan Infoworks RS, Institut Penyelidikan Hidraulik Kebangsaan Malaysia
3. DID (2002). Master Plan Study On Flood Mitigation and River Management for Sg. Selangor River Basin, Final Report Volume I.
4. Wallingford Software Ltd (2005). InfoWorks RS, Wallingford Software, UK.
5. Tyrone Parkinson (2006). Saline Intrusion Modelling, Wallingford Software. Paper presented at NAHRIM Salinity Intrusion Sg. Selangor, Workshop.

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Regional Meeting on Hydro-informatics and Developing Knowledge Hub Networks, China, 15-17 October, 2008

Date: October 15-17, 2008
Venue: Zhengzhou City, Henan Province, People's Republic of China
Host: Yellow River Conservancy Commission (YRCC), Ministry of Water Resources

NARBO Secretariat attended the Regional Meeting on Hydro-informatics and Developing Knowledge Hub Networks held in Zhengzhou, China with the representatives of many NARBO member organizations.
The purpose of this Regional Meeting was to share YRCC's experience among the participants and to demonstrate how the decision support systems can be introduced or improved in river basins. The meeting also marked the launch of the Center for Hydro-Informatics in River Basins (CHIRB) which is hosted by YRCC.

In the Plenary Session on Day 1, Opening of Asia-Pacific Water Forum (APWF) Knowledge Hubs Regional Meeting and CHIRB Launching Ceremony kicked off. In the Opening Session, some NARBO members made opening remarks.


Plenary Session

From the afternoon of Day 1 to the evening of Day 2, the participants were divided into 2 groups and had discussions respectively.
The theme of Track 1 was "Hydro-informatics and IWRM". Some representatives of NARBO member organizations as well as those of CHIRB member organizations presented their work contents and discussed how CHIRB and its partners could improve the partnership.

In this discussion, NARBO Secretariat introduced our activities to CHIRB members to refer to CHIRB activities. CHIRB members supported our activities and adopted a part of them in their own action plan.
The theme of Track 2 was "Knowledge Hub Networking". Most of the existing hubs presented their activities and business plan as a Regional Water Knowledge Hub, and the participants improved their partnership each other.
In this session, NARBO Secretariat also introduced its activities to the hub organizations and its candidates.


Group Discussion

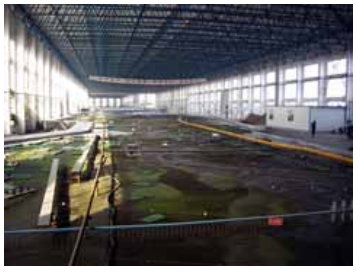

Explanation and Discussion

On Day 3 (last day), participants were invited to study visit to the Yellow River System.
The participants were introduced three kinds of Yellow River; the first one was Natural Yellow River, the second one was Digital Yellow River, and the third one was Physical Model of Yellow River. They visited all of these three kinds of Yellow River.
As the Natural Yellow River, in addition to Yellow River itself along Zhengzhou City, the participants visited standardized Embankments which have been constructed along its either bank for several hundred kilometers.

As the Digital Yellow River, the participants visited the Hydraulic Station built in 1938 and Yellow River Water Allocation and Remote Control Center where flow rates, water quality and the amount of intake are monitored in real time.
As the Physical Model of Yellow River, the participants visited the models which were reproduced to estimate the effect and impact by conducting a project in advance.
In this study visit, the participants could learn and enjoy the large-scale nature and artificial materials which this huge country China has.


Natural Yellow River


Digital Yellow River


Physical Model of Yellow River

Preliminary Report on Seminar "Key for Success in Implementing IWRM at River Basin Level"

Date: 11th November 2008
Venue: Saitama Culture Center, Saitama, Japan
Participants: approx. 160 people including resource persons
Organized by: UNESCO, Ministry of Land, Infrastructure, Transport and Tourism (MLIT, Japan) and Japan Water Agency

Seminar "Key for Success in implementing IWRM at River Basin Level" was held as a pre-event of 2nd Steering Committee of "Integrated Water Resources Management Guidelines at river basin level." The Guidelines here refer to the ones which the United Nations has worked on and proceeded with the formulation through UNESCO as a secretariat.
Formulation of IWRM Guidelines is set as one of NARBO Action Plan activities in 2008-2009. Dr. Mochammad Amron, Chairperson of NARBO, included a Steering Committee member, made a presentation on Challenges of Brantas River Basin in the seminar.

The seminar kicked off with an opening remark by Mr. Shuhei Kazusa, Director-General, Water Resources Department, Land and Water Bureau, MLIT, and he started stating with an introduction of the process the Steering Committee have had to formulate the Guidelines.
Mr. William Cosgrove, Former Vice-president of the World Bank, made a keynote speech. In his speech, he pointed out that we should look for examples including an adaptive process where we can see why and how they did work and what were the keys and successful factors. He also mentioned that IWRM would not remain static but would take evolutionary steps, and it would take time but never be brought to an end.
Part 1 of the seminar focused on "From the viewpoint of overall basin and each sector." It means that it is essential for practical IWRM to overview whole basin and to be acquainted with the mind of each sector. In this sense, Tone Canal Project was taken as a case study and panel discussion was held with experts from waterworks sector, irrigation sector, and coordinating side engaged in the project at that time. Also speech on river administration was delivered by MLIT as a good example of viewing and administrating whole river basin.
The theme of Part 2 was "Overview & Challenge of IWRM." Mr. Shahbaz Khan made a presentation titled "Importance of River Basin Approach for True Stakeholder Participation in Water Management." Three case studies were presented by guest speakers from abroad. Challenges of Brantas River Basin (Indonesia), Murray-Darling River Basin (Australia) and La Plata River Basin were presented by Mr. Mochammad Amron, Mr. Tony Jakeman and Mr. Victor Pochat respectively.

At the final stage of Part 2 of the seminar, Mr. Shinsuke Ota, Executive Vice President of JWA, gave us some explanations for an overall structural design of the Guidelines, and the user-friendly tools such as extraction of key-for success and pentagram. Besides, there was an encouraging and optimistic comment on the Guidelines from Mr. Wouter T Linklaen Arriens, Lead Water Resources Specialist, ADB.

Eventually, the seminar was summed up by Mr. Toshiki Aoyama, President of JWA, which continued working on overtime than expected, and ended successfully.

Programme

Opening Remarks

Shuhei Kazusa,
Director-General, Water Resources Department,
Land and Water Bureau, MLIT

Key Note Speech

"Key for Success in Implementing IWRM at River Basin Level"
William Cosgrove,
Former Vice-President of the World Bank,
World Water Development Report (WWDR) Content Coordinator,
World Water Assessment Programme (WWAP)

Part I: Case Study in Japan

"From the viewpoint of overall basin and each sector"
[Panel Discussion]
Breakthrough in solving "water stress" of Tokyo and its suburbs - Tone Canal Project -
Facilitator
♦ Kenzo Hiroki,
Director, Water Resources Strategy Unit, Water Resources Planning Division,
Water Resources Department, Land and Water Bureau, MLIT
Panelists
♦ Hiroshi Ugata, former Tokyo Prefecture Official
♦ Shigemaro Nishina, former Saitama Prefecture Official
♦ Tetsuya Ishii, former director of Tone Canal Control Center

[Speech on River Administration in Japan]
River Basin Management in Japan - Flood Control Measures, Water Resources Management -
Hitomi Godou
Director of River Information Office, River Bureau, MLIT

[Comment]
Tsuneaki Yoshida, Professor, University of Tokyo

Part II: Overview & Challenges of IWRM

[Presentation]
Shahbaz Khan,
Chief, Sustainable Water Resources Development and Management section, UNESCO-IHP
Importance of River Basin Approach for True Stakeholder Participation in Water Management

Mochammad Amron,
First Advisor to Minister for Development Integration,
Ministry of Public Works, Indonesia (NARBO Chairperson)
Challenge of Brantas River Basin

Tony Jakeman,
Director, Integrated Catchments Assessment and Management Centre, Australia
IRBM: The Murray-Darling Basin

Victor Pochat,
Professor, Universidad Nacional del Litoral, Argentine
Challenge of La Plata River Basin

[Wrap-Up]
Shinsuke Ota, Executive Vice President, JWA

[Comment]
Wouter T. Lincklaen Arriens
Lead Water Resources Specialist, Asian Development Bank

Closing Remarks

Toshiki Aoyama,
President, JWA

NARBO Newsletter — 16th Issue March 2009

Topics	
Core Activities	Regional Workshop on Water and Climate Change Adaptation Twinning Program (2) - Training Course Held in Japan NARBO's 5th IWRM Training: Keys for Success
Members Initiative	ADB and JWA agreed to strengthen alliance for water security in river basin
Announcement	Introduction of NARBO New Members from Viet Nam
From Secretariat	Submission deadline of Member's Annual Report 2008

Core Activities

Regional Workshop on Developing Partnerships for Water and Climate Change Adaptation (Workshop Proceedings) 1-5 December 2008 Bangi, Selangor, Malaysia

Dr. Lee Jin, Malaysia Water Partnership

S1. Background and Workshop Objectives

The Asia Pacific Water Forum (APWF) (www.apwf.org) is an independent, nonprofit, nonpartisan, and nonpolitical network formed in 2006 with a mission to promote sustainable water management by championing best practices, boosting investments, building capacity, and enhancing cooperation throughout the Asia-Pacific region.

As part of its approach to achieve its mission a number of key institutional partners of the APWF has agreed to take the lead to identify strategies and initiate actions to achieve progress under 3 Priority Themes and 5 Key Result Areas (KRAs). (>>See more)

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Twinning Program (2) - Training Course Held in Japan

Dr. Doan Thi Tuyet Nga, Department of Water Resources, MARD

We were very lucky to be selected by ***Vietnam Water Resource Department*** for a ***training course*** held in ***Japan*** in the human resource-exchange programme by NARBO Vietnam and its Japanese counterpart. Nearly one month of the training

course has led to our unexpected comparison between what Japan has done and what ***Vietnam*** has done in terms of water source management, which is undeniably different. (>>See more)

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NARBO's 5th IWRM Training: Keys for Success

Tadashige Kawasaki, ADBI

NARBO secretariat conducted the 5th IWRM Training in Hoi An, Viet Nam from 18th to 25th of February with support of the Vu Gia Thu Bon (VGTB) river basin organization, people's committee of Quang Nam province, Da Nang City, and the Department of Natural Resources and Environment. Twenty-four participants from six countries participated in this training program.
In holding this training, we consulted with the Technical Advisory Committee member about its concept, and conducted the preliminary meeting at the venue in November 2008. (>>See more)

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Members Initiative

ADB and JWA agreed to strengthen alliance for water security in river basin

Michio Ota, JWA

Mr. Haruhiko Kuroda, the President of Asian Development Bank (ADB) and Mr. Toshiki Aoyama, the President of Japan Water Agency (JWA) singed Letter of Intent (LOI) on 12 January 2009, at the ADB Headquarters in Manila, Philippines. Dr. Mochammad Amron, Chairperson of NARBO, First Advisor to Minister of Public Works, Indonesia, and Mr. K. W. Ivan de Silva, Vice Chairperson of NARBO, Director General Mahaweli Authority of Sri Lanka, witnessed the signing of the LOI, titled 'The Letter of Intent for Collaboration to Improve Water Security in River Basins through the Network of Asian River Basin Organizations (NARBO)'. (>>See more)

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Announcement

NARBO Member Organization
Map [PDF]

NARBO New RBO Members from Viet Nam

NARBO secretariat is pleased to announce (A) Ca River Basin Management Council, Vietnam and (B) Cau River Basin Planning Subcommittee, Vietnam to be new NARBO member organizations as RBOs in accordance with the NARBO Charter Article 4.1 (1)(a). (>>See more (A) (B))

NARBO Member Organization Map including new members are now available. (>>See the map)

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From the secretariat

NARBO Activity Plan

Year	Activity Contents	Date	Venue
July 2009	The 3rd Thematic Workshop on Water-Related Disaster and Its Management in Asian Countries	July 2009 (tentative)	Kuala Lumpur, Malaysia
Feb 2010	The 4th NARBO General Meeting	February 2010	TBD

Submission deadline of Member's Annual Report 2008

The final **deadline** for the submission of the NARBO member's Annual Report 2008 is March 31. Every RBO member has an obligation to submit the report according to NARBO Charter.

The Secretariat has prepared the simple form of the annual report 2008 on NARBO website. Please kindly find the format from the website and submit the annual report no later than March 31.

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Network of Asian River Basin Organizations
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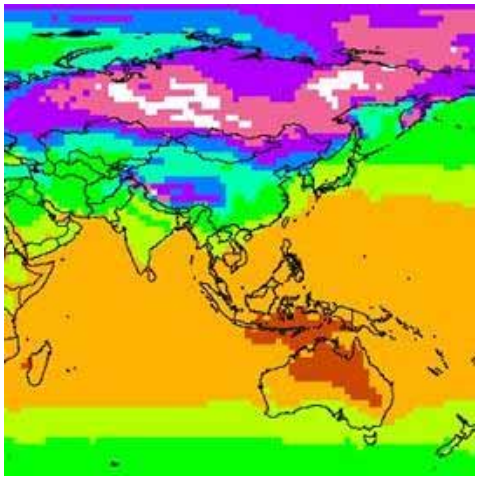
NARBO Newsletter is produced by the Narbo Secretariat to provide current information about NARBO activities to readers who are interested in IWRM issues specifically in Monsoon ASIA.
For comment/information/inquiry, please contact narbo@water.jp Thank you for your cooperation!

Regional Workshop on Developing Partnerships for Water and Climate Change Adaptation (Workshop Proceedings) 1-5 December 2008 Bangi, Selangor, Malaysia



S1. Background and Workshop Objectives

The Asia Pacific Water Forum (APWF) (www.apwf.org) is an independent, nonprofit, nonpartisan, and nonpolitical network formed in 2006 with a mission to promote sustainable water management by championing best practices, boosting investments, building capacity, and enhancing cooperation throughout the Asia-Pacific region.

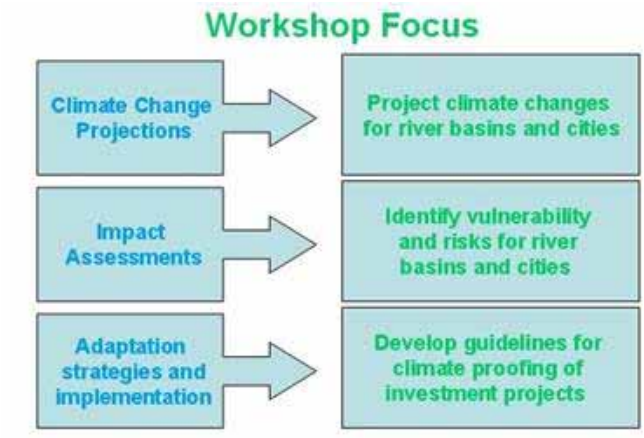
As part of its approach to achieve its mission a number of key institutional partners of the APWF has agreed to take the lead to identify strategies and initiate actions to achieve progress under 3 Priority Themes and 5 Key Result Areas (KRAs). Developing knowledge and lessons is one of the KRAs and is central to the APWF approach. Thus, the APWF *"KnowledgeHubs"* (www.apwf-knowledgehubs.net) has been initiated as one of the strategies to achieve the objectives of this KRA. The *"KnowledgeHubs"* is a network of regional water knowledge hubs that was officially launched in June 2008 in Singapore. It was established through a cooperation agreement between Singapore's Public Utilities Board (www.pub.gov.sg), UNESCO-IHE Institute for Water Education (www.unesco-ihe.org), and ADB (www.adb.org).

Each regional knowledge hub shall be a center of excellence in a particular water domain and shall be committed to improving water security in the Asia-Pacific region by (a) promoting knowledge sharing, (b) developing capacities, and (c) championing feasible solutions for priority water topics among their clients, i.e. the water-related institutions in the region. Since solutions to water problems are multidisciplinary the hubs shall also collaborate to serve their clients in the region.

The National Hydraulic Research Institute of Malaysia (NAHRIM) (www.nahrim.gov.my/wkh/) has been identified by the APWF as the "Water and Climate Change Adaptation" regional knowledge hub in Southeast Asia. The hub was officially launched on 1 December 2008 in Bangi, Malaysia. In conjunction with the launch, NAHRIM and its partners, supported by ADB, has organized a 5-day workshop for its potential clients to share knowledge, identify their climate change projection and adaptation needs and also project concept proposals that can be developed and implemented in 2009.

The objectives and focus of the workshop are as follows:

Increase understanding of the impacts of climate change on water management.
Develop partnerships for better results in climate change projections, impact assessments, and adaptation strategies.
Help ADB clients formulate projects for 2009 with support of the regional knowledge hub, NAHRIM and its partners



S2. Workshop Presentations and Outputs

A total of 33 slide presentations were made during the workshop. They were organized under the following two themes:

Climate change modeling and related studies (5 presentations)
Climate change adaptation case studies (28 presentations)

The 28 climate change adaptation case studies were further grouped under the following 6 categories:

General themes (6 cases)
Case studies from Central and East Asia (3 cases)
Case studies from South Asia (4 cases)
Case studies from Mekong Region (7 cases)
Case studies from Indonesia (3 cases)
Case studies from Philippines (5 cases)

The 33 presentations can be accessed at http://www.nahrim.gov.my/wkh/seminar.html. The Workshop Proceedings is now being prepared and they will be available from NAHRIM in April or May 2009.
The participants in the workshop were divided into 6 groups. The groups were required to discuss and identify the potential climate change issues related to their respective group themes and, to prepare a list of possible strategies to address the identified issues. They were also required to develop one or more indicative project proposals for implementation in 2009 to implement some of the strategies in their prepared list of adaptation strategies. In particular, the “Climate Change Projections Group” was required to discuss the current status and issues related to climate change modeling, the needs of the region and the strategies to address those needs. A total of 34 indicative project proposals have been proposed by the workshop participants.

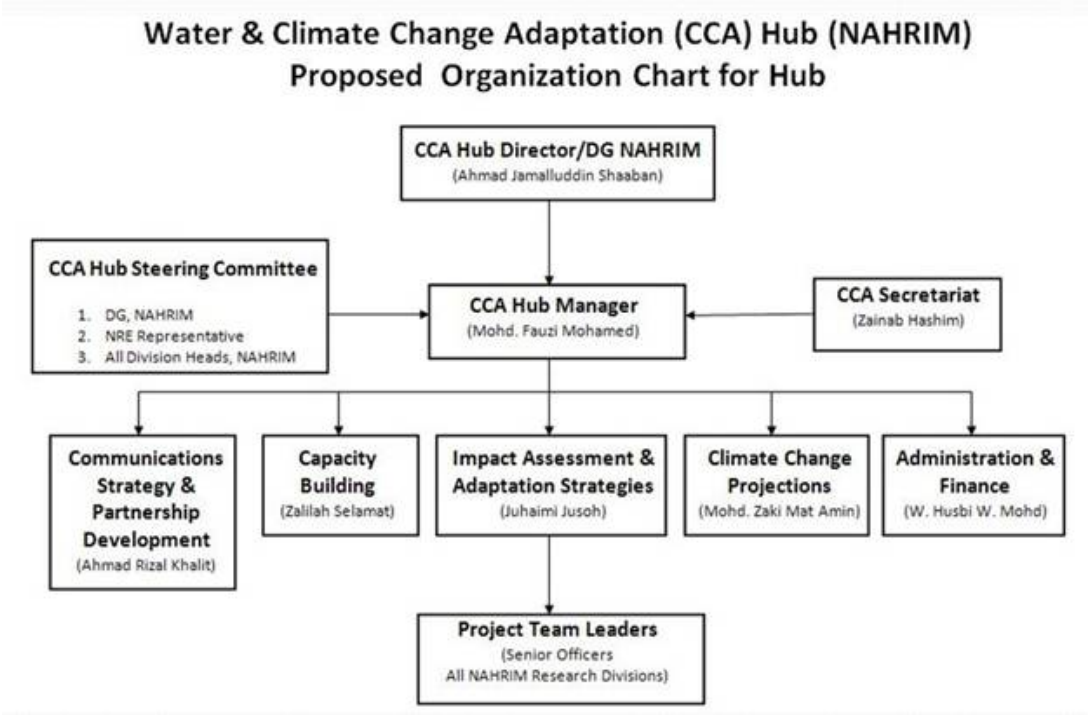
S3. The Way Forward and Plans for 2009

The workshop concluded with a plenary session where NAHRIM, as the Water and Climate Change Adaptation (WCCA) hub, highlighted its services and presented its plans to respond to the expressed needs and project proposals that have been gathered during the workshop. It also allows its workshop partners, ADB, NARBO and Team Japan, to respond to the needs expressed during the workshop. The final event in the workshop was the plenary discussion session where all workshop participants were also given an opportunity to share their learning experience during the workshop and discuss the plans for 2009 and beyond to support them in achieving the objective of adapting to climate change.
Following from the December 2008 Workshop a meeting was held at ADB’s office in Manila from 25-27 February 2009 to review the indicative project proposals from the December 2008 Workshop and to discuss the details on how NAHRIM and its partners can achieve the Hub’s objectives.
Basically, NAHRIM plans to service its clients and facilitates regional networking with its partners through 5 strategic work themes. They are:

Communications Strategy

Partnership Development
Climate Change Projections
Impact Assessment & Adaptation Strategies
Capacity Building

The figure below highlights how the Water and Climate Change Adaptation Hub, NAHRIM, is organized to serve the region. An "APWF Steering Group on Water and Climate Change" has also been formed to work with the Hub in achieving its objectives.



Organized by:

MINISTRY OF NATURAL RESOURCES AND ENVIRONMENT, MALAYSIA

NATIONAL HYDRAULIC RESEARCH INSTITUTE OF MALAYSIA

NETWORK OF ASIAN RIVER BASIN ORGANIZATIONS

Asia Pacific Water Forum (APWF)

NETWORK OF ASIAN RIVER BASIN ORGANIZATIONS

as of December 2008

Training Course Held in Japan

Dr. Doan Thi Tuyet Nga, Department of Water Resources, MARD

We were very lucky to be selected by ***Vietnam Water Resource Department*** for a ***training course*** held in ***Japan*** in the human resource-exchange programme by NARBO Vietnam and its Japanese counterpart. Nearly one month of the training course has led to our unexpected comparison between what Japan has done and what ***Vietnam*** has done in terms of water source management, which is undeniably different. What you have done is different from what we have done in Vietnam not only in the areas of investment in projects and infrastructure but only in the awareness and implementation of water works management, restoration and maintenance. Our trip was a wonderful chance for us to re-evaluate the role of ***Water Resource Department*** - an organ in charge of reservoirs and water systems in collective management of ***water resource***.

Right after our return to Vietnam from Japan, we notified our leaders about the training course and shared what we had learned in the course in Japan. It is a lucky coincidence that the leaders of Water Resource Department have been very interested in data of reservoirs for management. In the coming years, Water Resource Department will set up a centre for reservoir management, and two of the three people who have participated in the training course will be members of the group in charge of foundation of the centre. We are looking forwards to your closer cooperation with us so that we can have more opportunities of learning your experiences in the future. Our strong impression of a beautiful and peaceful Japan, kind and hardworking ***Japanese people***, flavored and delicious ***Japanese rice*** and distinct sushi will always be on our mind.

We would like to express our special thanks to leaders of JWA and leaders and staff of Foreign Affairs Department for giving us such a wonderful chance.

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NARBO's 5th IWRM Training: Keys for Success (2009) (Viet Nam)

Outline of Training Course

NARBO secretariat conducted the 5th IWRM Training in Hoi An, Viet Nam from 18th to 25th of February with support of the Vu Gia –Thu Bon (VGTB) river basin organization, people's committee of Quang Nam province, Da Nang City, and the Department of Natural Resources and Environment. Twenty-four participants from six countries participated in this training program.

In holding this training, we consulted with the Technical Advisory Committee member about its concept, and conducted the preliminary meeting at the venue in November 2008.

The training goals are

1) to enhance the understanding the concept of IWRM,

2) to support participants with practical tools to help improve their practice of IWRM and to expand network for IWRM among participants.

This time, we used the VGTB river basin as a case study. A team led by Dr. Peter Oliver of the International Water Center based in Brisbane, Australia, particularly did a magnificent job of handling the training competently, and demonstrated the strong leadership.

This training course consisted of lectures by specialists, study visits and group work. We introduced "IWRM Guidelines" to the participants and explained the concept of IWRM by showing the "Spiral Model".

Through lectures on the VGTB river basin and study visit, participants learned what's happening in the basin and how they are coping with it.

Based on the lectures and study visits, participants explored the "Key for Success" in the VGTB river basin by group-work activities, and at last they introduced the result of group-work.

We obtained the excellent presentations which correctly reflected the result of the lecture and the study visit. Judging from the collected replies of the questionnaires filled in by the participants, we seemed to be able to satisfy their expectations.

Thus far, we can say this training was successful.

NARBO secretariat will get started for the next IWRM Training soon, and try to improve the training session so that we can offer more satisfaction to participants.

Session

Study Visit

ADB and JWA agreed to strengthen alliance for water security in river basin

Mr. Haruhiko Kuroda, the President of Asian Development Bank (ADB) and Mr. Toshiki Aoyama, the President of Japan Water Agency (JWA) singed Letter of Intent (LOI) on 12 January 2009, at the ADB Headquarters in Manila, Philippines. Dr. Mochammad Amron, Chairperson of NARBO, First Advisor to Minister of Public Works, Indonesia, and Mr. K. W. Ivan de Silva, Vice Chairperson of NARBO, Director General Mahaweli Authority of Sri Lanka, witnessed the signing of the LOI, titled 'The Letter of Intent for Collaboration to Improve Water Security in River Basins through the Network of Asian River Basin Organizations (NARBO)'. This will confirm the cooperative relationship between ADB and JWA to expand the scope of NARBO activities.

In the LOI, ADB and JWA:

1. Introduce and develop Integrated Water Resources Management (IWRM)*2) in river basins in each country
2. Work and collaborate with Center for River Basin Organizations and Management (CRBOM) in Indonesia
3. JWA supports ADB investment business
4. Strengthen the interaction with leaders and decision makers though NARBO activities

▸ See LOI (Letter of Intent)

Specific and practical ADB-JWA cooperative plan will be on a case-by-case basis decided and agreed through memorandum of agreement (MOA).
NARBO showed steady growth for 5 years since its establishment in February, 2004, along with the steady increase in the number of member organizations to 67, while ADB and JWA well cooperated as NARBO secretariat. The LOI signed this time will explore expanding and strengthening the NARBO's presence and capability.

Front row, left to right: Dr. Amron, President Kuroda, President Aoyama, Mr. K. W. Ivan de Silva

Mr. Kuroda and Mr. Aoyama

NARBO

Network of Asian River Basin Organizations

NARBO Member Organizations

1	Jasa Tirta I Public Corporation (PJT I)
2	Jasa Tirta II Public Corporation (PJT II)
3	Bengawan Solo Basin Water National Management Unit
4	Pompengan Jeneberang Basin Water National Management Unit
5	Jragung-Tuntang Basin Water Management Unit
6	Pekalan Sampean Basin Water Management Unit
7	Ciujung-Ciliman Basin Water Management Unit
8	Citarum Basin Water Management Unit
9	Sermo Basin Water Management Unit
10	Japan Water Agency (JWA)
11	Korea Water Resources Corporation (K water)
12	Nam Ngum River Basin Development Sector Project
13	Selangor Water Management Authority (SWMA)
14	Indus River System Authority (IRSA)
15	Laguna Lake Development Authority (LLDA)
16	Mahaweli Authority of Sri Lanka (MASL)
17	Bang Pakong River Basin Committee (BPRBC)
18	Cuu Long & Dong Nai River Basin Organization
19	Red River Basin Organization (RRBO)
20	Day River Basin Organization
21	Vu Gia Thubon River Basin Organization
22	Ca River Basin Management Council
23	Cau River Basin Planning Subcommittee
24	Mekong River Commission Secretariat (MRC)

River Basion Organizations (RBO)

NARBO Member Organizations

25	Bangladesh Water Development Board (BWDB)
26	Local Government Engineering Department (LEGD)
27	Ministry of Water Resources and Meteorology (MOWRAM)
28	Department of Hydrology and River Works (DHRW)
29	Directorate General of Water Resources (DGWR)
30	Water Resources Development, West Nusa Tenggara Province
31	Water Resources Department, Land and Water Bureau, Ministry of Land, Infrastructure, Transport and Tourism
32	Water Resources Department (Former WRCC, LaoPDR)
33	Department of Irrigation and Drainage (DID Malaysia)
34	National Water Resources Board (NWRB)
35	Department of Environment and Natural Resources (DENR)
36	National Water Resources Authority (NWRA)
37	Department of Water Resources, Ministry of Natural Resources and Environment (DWR, MoNRE)
38	Department of Water Resources Management, Ministry of Natural Resources and Environment (MoNRE)
39	General Office for RBOs in Viet Nam (GO-RBO)
40	Southern Institute for Water Resources Planning (SIWRP)
41	Department of Natural Resources and Environment of Dong Nai Province
42	Global Water Partnership (GWP) SEA RWP
43	Global Water Partnership (GWP) SAS RWP
44	South Asia Network of River Basin Organization (SASNET-RBO)
45	The Capacity Building Network for Integrated Water Resources Management South Asia (CapNet SA)
46	Institute of Water Modeling (IWM)
47	Indonesia Water Partnership (InaWP)
48	Foundation on Water Affairs ADHI EKA
49	Faculty of Engineering, Brawijaya University
50	Research Centre for Water Resources (RCWR)
51	Center for Environment & Civil Engineering Research
52	Post Graduate Study on Water Resources Management Faculty of Engineering Gadjah Muda University
53	SEMBRANI foundation
54	JAWA - Japan Water Resources Association
55	Japan River Restoration Network (JRRN)
56	Graduate School of Management, Kyoto University
57	National Hydraulic Research Institute of Malaysia (NAHRIM)
58	Thailand Water Resources Association (TWRA)
59	Asian Development Bank Institute (ADBI)
60	Asia Pacific Association of Hydrology and Water Resources
61	International Centre for Water Hazard and Risk Management
62	International Research and Training Center on Erosion and Sedimentation (IRTCES)
63	IUCN - The World Conservation Union
64	International Water Centre (IWC)
65	International Water Management Institute (IWMI)
66	The World Wildlife Fund International (WWF International)
67	Asian Development Bank (ADB)

- Goverment Orgainzations (GOV)
- Regional Knowledge Partners (RKP)
- Inter Regional Knowledge Partners (IRKP)
- Development Cooperation Agecies (DCA)

MESSAGE FROM THE SECRETARY GENERAL

We, NARBO Secretariat, are very pleased to publish the 5th NARBO Annual Report in which activities conducted from January 2008 to March 2009 are summarized.
These activities were implemented according to the action plan that was proposed and approved in the 3rd General Meeting as of February 2008.

Thematic workshop 'Flood Disaster and the Control' (the 2nd), regional workshop 'Climate Change', Twinning Program (Sri Lanka and Vietnam), training for IWRM (the 5th), and Technical Advisory Committee (TAC) were performed properly with the cooperation of persons concerned and the members of NARBO.

Other than that, NARBO could make a huge contribution to Regional Knowledge Hub Meeting and formulation of 'IWRM guidelines at river basin level' published by UNESCO (United Nations Educational Scientific and Cultural Organization). This led to foundation and operation of Regional Knowledge Hub and NARBO interactions for this and steady initiation of ADB support program aiming at enhancement of IWRM in basins. Then, NARBO colleagues including Mr. Mochammad Amron, Chairperson and Mr. Wouter Lincklaen Arriens, Deputy Director General as steering committee members jointly contributed to formulation of the guidelines with many 'Good Examples' implemented by IWRM being contained. These fulfilling results through NARBO activities will assure further development of activities and significant contribution to IWRM promotion by the members.

In addition, to enhance and develop NARBO activities more than ever, Letter of Intent , in which further cooperative relation of Asian Development Bank and Japan Water Agency was confirmed, was signed between the both presidents in January 2009 in the presence of NARBO Chairperson and Vice-Chairperson.

As mentioned above, the year 2008 witnessed significant progress for NARBO to continue approach for establishment of IWRM in Asian countries by the members.

Activities of NARBO, a network organization, are supported by member ownership. We look forward to active participation of you all to develop further NARBO activities toward water-related problems solution in Asian monsoon regions and ideal IWRM realization.

June, 2009
Secretary General of NARBO

久保田 勝

Mr. Masaru KUBOTA