



Asian Regional Workshop on Flood Mitigation Initiative

PWRI Side-Event

2nd APHW 2004, Singapore, July 5-8, 2004



Final Report

Organized by: Public Works Research Institute

**Supported by: UNESCO International Hydrological Programme/
World Water Assessment Programme Secretariat**

Venue: International Convention Centre, Suntec City, Singapore

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1- Background and Objectives

The Asian Workshop on Flood Risk Mitigation Initiative was organized by Public Works Research Institute (PWRI) in collaboration with UNESCO-IHP and the World Water Assessment Programme (WWAP) Secretariat in aim to strength regional cooperation in building shared vision for actions and strategies to cope with the increasing vulnerability of people and property to floods disasters. The workshop is foreseen as a platform to systematize the active contribution of the Asian region to the ongoing international programmes and initiatives in mitigating water hazards and related risks. The results of the workshop will be used as an input to the World Water Assessment Programme (WWAP) and drafting of the 2nd edition of the World Water Development Report (WWDR) to which PWRI contributes as a member of the Expert Group on Managing Risks set up by UN System. Other ongoing initiatives are the International Flood Initiative/programme of UNESCO and WMO and the International Centre for Water Hazard and Risk Management under the auspices of UNESCO to be established inside PWRI in autumn 2005.

2- Workshop Agenda

The Asian Workshop on Flood Risk Mitigation Initiative was held as a special side-event session at the 2nd APHW on 8 July 2004, from 09:00 to 13:30, Suntec International Convention Centre, Suntec City, Singapore. The theme of the workshop was “Concept of Policy Effectiveness for Flood Risk Mitigation.” At the workshop experts from UNESCO and Asian countries were invited to present their experience and views in defining and formulating adequate management strategies to solve the raising vulnerability of people and property to flood disasters (see workshop agenda in Annex 1). The workshop was attended by more than 40 participants and considered by many observers as one of the most peopled sessions during the 2nd APHW Conference held from 5 to 8 July 2004 (see complete list of participants in Annex 2).

3- Welcome Address and Keynote Lectures

3. 1- Welcome address

Chairperson Junichi Yoshitani, PWRI

The workshop was chaired by Mr. Yoshitani, PWRI, who warmly welcomed all participants to the PWRI side-event and introduced the aim of the workshop as to create a joint effort programme to systematize the contribution of the Asian region in promoting global initiatives for flood risk mitigation. The Japanese Government have taken the initiative to establish an international centre for water hazard and risk management under the auspices of UNESCO, and it is believed that the success of the centre to achieve its noble goals can only be realized by ensuring strong cooperation and coordination with all relevant institutions worldwide with a particular emphasis on Asian and Pacific region. Asian countries, located in the heart of the monsoon region, witness every year severe water disasters and their diverse social and economical impacts have created new challenges for all of us. This workshop is a good opportunity to discuss and identify the concept of new strategies for sustainable policies in mitigating the vulnerability of people and properties to floods disasters. Invited speakers are appealed to present their assessment of the contemporary achievements in flood mitigation and concurrent historical trends and changes in flood risk and vulnerability in their countries. The know-how from the workshop will be a beneficial input to (1) support the activities of the International Centre for Water Hazard and Risk Management (UNESCO-CHARM) under the auspices of UNESCO to be established at PWRI, Japan; (2) promote the Asian region contributions to the International Flood Initiative/Programme of UNESCO and WMO; and (3) draft the “Managing Risk” Chapter of the WWDR 2 of UN-WWAP.

3. 2- First Keynote Lecture,

Mr. Yoshiyuki Imamura, UNESCO Paris

At his keynote lecture, UNESCO-IHP representative Mr. Imamura, stressed the importance of consolidating our efforts to produce proposals and initiate sustainable actions for mitigating flood damages and supporting vulnerable people and societies to flood. Undoubtedly, the current global initiatives, specifically the international centre for water hazard and risk management (CHARM), the international flood initiative (IFI) and the world water assessment programme (WWAP), are ideal opportunities to achieve our goal. The scale and number of water related disasters has more than doubled since 1996 but the world population is not fully aware of the scale of the problem. From 1992 to 2001, developing countries accounted for 20% of the total number of disasters with approximately 13 times more people die per reported disaster than in developed countries and 35% of this figure occurs in Asia. Such evolvment has initiated global momentum for new initiatives since the 2nd world water forum were managing risk and launching of the WWAP has marked the road. These actions were endorsed by the WSSD declaration to develop programmes for mitigating

the effects of extreme water-related events (such as flood and drought). In contribution to this growing international consciousness UNESCO has launched its 4th phase of the Plan for International Hydrological Programme (2002-2007) under the themes of “**Water Interaction: Systems at risk and Social Challenges**”. Other initiative is the resolution 14 to establish the “**Joint UNESCO/WMO Programme on Floods**” to which national IHP committees and other intergovernmental initiatives such as UNISDR as well as non-governmental organization such as IAHS are invited to collaborate. During the 3rd world water forum held in Japan in March 2003, commitments were put forward to establish an international centre for water hazard and risk management to carry out specialized research, training, and information networking. This includes among others the contribution to the WWAP and the International flood initiative of UNESCO/WMO. It is expected that this regional workshop of experts will play a valuable role to gather cases and experiences to be used as input proposals to IFI and WWAP and to be the “Asian Voice to the World” through active participation to CHARM.

3. 3- Second Keynote Lecture,

Bahnu Neupanne, UNESCO WWAP Secretariat, Paris

At his key lecture Dr. Neupanne stressed on the international expectation from UN System to endorse the mechanism of sustainable actions in defining solutions for the critical water problems worldwide. This include among many others, to create the knowledge base, build capacity of the countries and develop indicators to assess effectiveness of policies and monitor progress against target goals. The future challenge of the 2nd World Water Development Report (WWDR2) will continue its “People-oriented focus” with more emphasis to build policy agenda for countries to adopt with an oriented focus on water governance. WWDR2 will also aim to set stage as a truly UN system-wide monitoring mechanism for the “Water Decade 2005-2015”. High importance is given to countries through the presentation of case studies that shall pinpoint the critical problems and assess the coping capacities. Case studies will serve as a knowledge base to observe the effectiveness of different approaches to management and test WWAP indicators for measuring progress toward national and international goals such as MDGs. A number of reports on disaster reduction have been recently published and highlight was put upon the ISDR framework for better governance as well as flood mitigation among others. The chapter on Managing Risks, lead by ISDR/WMO and supported by PWRI, will deals with the institutional aspect of risk management and aims at the identification and understanding of risk, strategies to deal with risk, and emerging negative trends (e.g. climate change, population growth, environmental degradation) among other topics to which PWRI will also take part. The Asian experience in dealing with water related hazard will undoubtedly add strength to this international effort.

3.4- Concept Description,

Dr. Takeo Onishi, PWRI

The concept description of policy effectiveness for water-related risk mitigation as seen from the viewpoint of sustainable policies was presented by Dr. Onishi. In his presentation he stressed on the importance to have a more structural thinking and understanding of flood issues. To measure our progress and the effectiveness of our actions we are undoubtedly in need to more useful indicators for policy makers. Many factors are affecting policy decision and despite the huge efforts for mitigating water related disasters the international figure shows that all our systems are still susceptible to damage and that artificial systems (i.e. structural measure) have not completely eliminated the damage potentials. Therefore to ensure sustainability it is very important to find the ideal strategy and policies to balance between the increasing damage potential and required action for the future. We hope that this workshop will help in understanding the reasons behind this lack of reliability and put sustainable action forward.

4- Country Presentations

4.1- Mekong River Basin and international perspective

PECH Sokhem, former Director of Technical Support Division, Mekong River Commission; Researcher, Japan Science and Technology Agency CREST “Sustainable Water Policy Scenarios”

Over 70 million people are living in the Mekong River Basin (MRB) with an annual growth of 2%. In Mekong Region, they say “human person is born, lives and dies with waters.” Floods in the MRB are recurrent events bringing both positive and negative impacts. The Mekong floods have been on the international agenda for more than half a century (UNECAFE (presently UNESCAP) since 1949 and the Mekong Committee since 1957). But flooding issues are far from being adequately addressed at both national and regional levels. Recurring of flood disasters of higher magnitude and frequency as observed in the Mekong Basin during the last decade are serious impediment for the national and international efforts for poverty alleviation and socio-economic development in the region. For instance the 2000 extreme flood in the lower Mekong Basin (Thailand, Laos, Cambodia and Viet Nam) claimed the life of more than 800 people and the “direct economic damage” was assessed at more than US\$400 million. In each of the recent years, between 1 and 8 million people were affected by floods, forced to evacuate, lost their crops and livestock and/or they were prevented from going to work or to school. To assess real damage and losses is challenging since countries have different approach, capacities and data quality. In fact, the reported flood damages cover only the most direct economic loss, such as, human casualty, loss to means of production, agricultural crop, infrastructure and houses. The damage assessment tends to omit other indirect losses, such as recovery cost, cost for replacing damaged means of production and infrastructures, business interruption, cleaning costs, and evacuation costs etc. It

does not also include other side effect of floods, such as emotional stress and illness and death due to exposure to unsanitary living conditions, water-borne disease and unsafe drinking water during flood events.

In MRB, the flood patterns vary moving downstream through Laos, Thailand, Cambodia and Viet Nam. The four major flood prone areas in Laos are located along the Mekong mainstream near large tributaries. In Thailand, the principal flood prone areas of the lower Mekong basin include low-lying areas along the Mekong River and its tributaries. The Cambodian floodplain and Viet Nam delta form a highly fertile and productive agricultural plane with very flat surface and low elevations. In MRB, the causes of flood are diverse and these include among others, upstream to downstream discharge, heavy and prolonged rainfall, tropical depressions and typhoons, heavy local rain, land use changes and dam abrupt release. Flooding in the delta is also influenced by tidal effects from the South China Sea, combined with high discharge from the Mekong River and flood-plains obstruction in the delta itself. Further complexity and flood vulnerability of the delta is added by the busy networks of natural and man-made dikes and channels, flood and sea water control systems, and roads among others. In the Central highlands of Viet Nam, steep mountain slopes and insufficient storage capacity for rains during the wet season and typhoons often result in flash flooding. Despite the recent improvements in flood mitigation the trend of flood damages in term of human casualty and economical losses is still severe in many countries of the Mekong river. Therefore a well balanced solution between those reducing socio-economic flood damages and those enhancing capacity to cope with flood must be thought.

Conclusions

- The magnitude of floods in the Lower Mekong Basin is increasing as a result of human intervention and as the results of external factors such as climate change.
- Flood in the Mekong River Basin brings both benefits and damages. The environmental benefits of flooding are considerable. Nevertheless, these benefits must be weighed up against various costs. Although flood cannot be controlled fully, its negative impacts can be prevented and minimized by defining an integrated, holistic and well balanced approach to flood management.
- It is acknowledged that appropriate flood management and mitigation strategy as applied in the Mekong floodplains and delta (Cambodia and Viet Nam) may not be so in the middle reach (such as for Thailand and Laos). Nonetheless, more focus on a regional collaboration should be thought in order to define appropriate solutions.
- Appropriate approach should be a balance between those options that aims to reduce the flood damages (balance between structural and non-structural measures) and those that aims to enhance the capacity of the country and individuals to cope with flooding.
- All four countries in the lower Mekong basin have different levels of social, political and economic development that affect their level of vulnerability to flood. Flood vulnerability is understood as an interaction between the nature and magnitude of floods, the floodplain

characteristics, and other fundamental socio-economic and policy flood preparedness capacities (such as capacity of the population at risks to prepare for flood, to cope with flood, to respond to flood, and to recover from flood and its aftermath and so on.)

- The flood losses in Thailand increased due to the more devastating nature of flash flood (i.e., usually associated with land and mudslide), the higher standard of living and higher value of assets at risks (as compared to Cambodia, Laos and Viet Nam), and the absence of adequate warning system and management (i.e., existing warning systems were not heeded by the villagers).
- In Viet Nam, the 2002 relatively low flood losses show that the change in the national perception and policy in flood preparedness and response in the Mekong Delta “from big losses to small losses, from flood control to flood advantage exploitation” seems to have paid off. The Viet Nam case proves that in addition to structural measures, the institutional support and social response are crucial for implementing sound flood management and flood preparedness and response.
- Flood management is about managing flood risks (i.e., risk of institutional and structural failure to a flood of particular magnitude). In improving our knowledge about the past flooding mechanism (i.e., flood causes, flood losses, and past return period) additional clarification and attention must be paid that the future will be to some extent different, since climate change issues are likely to change both rainfall patterns and intensities, as well as runoff in the Mekong River Basin. Furthermore, precise consequences in terms of water availability and species loss are yet to be clarified.
- Given the inherent uncertainty of decisions, the appropriate management approach should be an adaptive one, and placing stronger emphasis in the development of decision-support tools for decision-makers.

4.2- China, Effectiveness of “returning polders to build townships” and “relocating people to build townships” after the 1998 flood: experiences and lessons

Dr. Cheng Xiaotao, Department of Water Hazard Research, IWHR, China

In China the intensity of flood damages is increasing and alternative solution is becoming emerging issue for the country. In the 1998 floods, over 2,000 polders broke in the lower and middle reaches of the Yangtze River, including 479 polders with an area above 66.7ha each, and 189,000ha of arable land was inundated. From 1998 to 2003 a large scale movement of demolishing polders to release floods, returning arable lands to lakes and relocating people to build townships have been carried out in four provinces along the Yangtze River as key measures for post-flood reconstruction.

Around the Dongting and Poyang lakes and the Yangtze River, such measures involved 1,461 polders, 2.42 million people in 620,000 households, returning 2,900 km² land back to lakes and river and increasing flood storage capacity up to 13 billion m³. A specific survey has been carried

out around the Poyang Lake during May 10-30, 2004 to assess effectiveness and clear-up the resulting issues of such measures. The survey revealed some primary issues that have emerged from the process of returning polders to lakes and relocating people to townships. These include lack of necessary security facilities in the polders that have been returned to the lake; maintenance of dikes around the polders has been weakened; the shortage of drainage capacity of the polders is serious; the impacts on transportation are obvious; and compensation mechanics has not been established.

Conclusions

- In China, with more population and less livable land development in the lands with high risk of flooding is unavoidable to cope with the huge pressures of water and land resources, and demands of food supplies.
- After the large scale movement of demolishing polders to release floods, returning arable lands to lakes and relocating people to build townships, the current policies should be adjusted in time to solve the present issues for the sustainable development.

4.3- Korea, Policy effectiveness for natural disaster management in Korea

Dr. Kim Sung, SWWR, Korea Institute on construction technology

The cause and magnitude of floods in Korea are acknowledged to take new dimensions since early 1980s. In addition to the rise of temperature the rainfall intensity (especially higher intensity events) has increased significantly. The national figure shows that the human casualties and total inundated area have been decreasing continuously following the development of structural measures. However, the total damages to buildings, agriculture land, and to infrastructures have increased significantly since the 80s and reached its extreme values during the last six year period. Flood mitigation budget accounts for only 0.07% of GNP (compared to an increase from 0.4% to 1.4% for highway infrastructures). Therefore, Korea needs more effective flood budget management for damage mitigation and recovery, thus the needs to define sustainable strategies to increase budget allocation for flood mitigation.

Conclusions:

- In Korea, despite the escalating driving forces such as climate change, population increase and urbanization, the inundated area and human losses by flood have been significantly decreased as result of adopted strategies for flood risk mitigation
- However, the economic losses due to catastrophic storms have increased explosively since late 1980's.
- In Korea, new policies for effective flood risk mitigation are underway, such as increase of budget, comprehensive river basin management, establishing an independent agency and national R&D program.

4.4- Sri Lanka: Flood Risk and Vulnerability in Sri Lanka: Issues and Trends

K.A.U.S. Imbulana, Director Water resources development, ministry of agriculture Livestock, Lands and Irrigation, Sri Lanka

The annual risk of flood and landslide damages is increasing in Sri Lanka due to several natural and social factors such as encroachment of flood plain and removal of forest cover. The historical trend of rainfall, especially in the mountainous regions, is increasing in intensity and becoming short in duration while the flood water storage capacity is not increasing. Due to social and economic reasons, there is an increasing trend of rainfed paddy areas going out of production, which contributes to the decrease of flood retention capacity in the wet zone. A number of structural measures (such as flood control reservoirs, dykes, etc.) and non-structural measures (such as few early warning systems and rising public awareness) are undertaken. However, improvement of the current efforts is needed to counterbalance the factors that increase the flood risk. The recent floods (e.g. May 2003) provided us with several experiences and lessons for future flood management strategies. There were adverse impacts that are not readily measurable, such as mental depression and danger from accidents during floods. There were constraints for effective management including inadequate early warning systems; Lack of boats and other equipment, inadequacy of preparedness, inadequate control of gem mining, deforestation, encroachment of flood-prone and landslide prone areas, lack of experience and skills, and poverty dimension. While the topography makes downstream flat areas of a river basin more vulnerable to floods, the upstream reaches (i.e., with steeper slopes) experience also heavy damages, because of the very short lag-time of flood warning. There is a clear case for improving the capacity in the agencies as well as the general public to manage the floods.

Conclusions

- Some emerging factors could increase the flood risk and vulnerability.
- However, positive trends are observed in awareness creation and community participation, institutional development and in addressing poverty dimension.
- Institutional arrangements: steps are taken to improve the situation.
- International assistance, communication, capacity building, early warning and structural solutions etc. are all needed for effective flood risk reduction.
- The rain-fed paddy land and exiting agriculture in Sri Lanka is a result of urbanization rather than population explosion. The increase of population in Sri Lanka is fairly well under control. But urbanization results from inequitable development between rural and urban areas among many other reasons. Similarly, though there are regulations to control deforestation, encroachment of vulnerable areas etc., they are not implemented properly due to political interference, poverty and other social reasons.

4.5- Thailand, Flood and Flood Risk Mitigation in Thailand

Dr. Suwit Thanopanuwat, Senior Expert, Royal Irrigation Department, Thailand

Under the climate and topography of Thailand, flooding is a natural phenomenon that occurs every year. Types of floods can be categorized into floodplain flooding, flash flooding (in cities), flash flooding with landslides in mountainous areas and some storm surges. From past records, it is apparent that significant reduction in magnitude and frequency of flood in Chao Phraya floodplain occurred since 1970's following the development of storage dams. However, flood still occur periodically and flood damages are exponentially increasing. In 1995, a flood in the floodplain of the Chao Phraya River lead to a comprehensive flood mitigation study of the whole river basin. In 2000, a flash flood, caused by heavy rainfall concentrated in a small catchment east of the city, hit Hat Yai City, in the southern part Thailand. The fan shape of the catchment is one of the factors that produced a high peak in a few hours. In 2001, flash flooding and land slides during the night in a small mountain area catchment in Ban Wang Chin, northern part of Thailand, resulted in the death of hundreds of people. After investigation, it was found that the relevant geological condition, land cover, shape of the catchment, intensity of the rainfall and location of the villages are all factors which contributed to the risk. The Thai government has recently reformed the structure of its organizations, resulting in the establishment of new organizations, for example, the Ministry of Natural Resources and Environment, Department of Water Resources and the Department of Disaster Prevention (under MOI).

Conclusion:

- Activities that have been launched include flood risk mapping, flood warning systems, institutions improvement etc. However, these activities are still in a preliminary stage and additional activities are required.
- Cities located in the risk area of flash flood should be identified from the lesson of Hat Yai City.
- Villages located in the high risk area of flash flood and landslide should be specified by considering geological data with others information.

4.6- Japan: Policy effectiveness indicators for flood risk mitigation, Japan case study

Dr. Tarek Merabtene, Specialist Researcher, PWRI, Japan

In Japan the comprehensive river works improvement have prepared the ground for high economical growth within the floodplains. However population explosion, increase of urbanized areas and concentration of valuable assets within the prone area has disabled future implementation of conventional measures resulting in continuous economical losses and increasing vulnerability to flood. To cope with the new challenges the government of Japan has put forward plans for comprehensive flood control measures combining structural and non structural measures at the unit river basin. Despite the success of current efforts in reducing human casualties and total inundated

area the economic losses due to flood are still prevailing. Therefore, understanding the causes of current increase in vulnerability and putting forward constructive indicators to assess adopted policies is an important step for planning sustainable strategies. An example on how policy aggregation analysis can be formulated to develop sound indicators to assess the increasing vulnerability to flood and build future policies was presented. The analysis is based on clear understanding of the past trends of all contributing causes to flood, the real and potential effects, and the existing responses.

Conclusion:

- Because of lack of appropriate land use management, river basins have rapidly developed, and high assets property has concentrated in the flood prone areas. Further investment on flood control was required to protect the developed urban areas.
- Japan's experience of comprehensive flood control measures may give guidance to other countries, in case that only the measures on rivers (i.e., structural) do not function well to alleviate flood damages.
- There is a need for robust assessment indicators, practical tools and methodology that is easily understandable by policy makers (who are mostly non water professionals) and that enables the assessment of progress in policies to achieve risk reduction.
- To secure sustainable strategy it is important to ensure basin-wide integrated management by looking into the different relevant factors (indicators) and the degree of their influence in the response of the system to the adopted policies.
- Inclusion of all indicators explicable of the risk target to be reduced is a very difficult exercise, but it is believed that carefully analysis of relevant and measurable indicators can be an effective way forward to develop a policy assessment and decision tool.

5- Workshop Recommendations

At the end of the session the following common consensus has been put forward:

- Flood risk mitigation is a common and important challenge.
- Economical loss due to flood is increasing despite the huge advancement in structural and non-structural measures.
- There are adverse impacts that are not readily measurable, such as mental depression, loss of hope and livelihood and danger from accidents during floods.
- Increasing vulnerability driven by population explosion and urbanization is witnessed in many countries in our region. Though there are regulations to control deforestation, encroachment of vulnerable areas etc., they are not implemented properly due to political interference, poverty and other social reasons.
- In number of countries, one main reason for flooding is the large deforestation especially in the hilly areas. This leads to washing of top soil during rains, siltation in the rivers in the plains and eventual flooding.
- While the topography makes downstream flat areas of a river basin more vulnerable to floods, the upstream reaches may experience heavier damages because of the very short lag-time of flood warning.
- The scientific assessment of such increasing vulnerability is not yet developed.
- Effective policies and sustainable strategies to reduce flood risk are not formulated.

The following actions and recommendations were proposed:

- Policies for flood risk mitigation should be formulated based on scientific assessment and interaction with all stakeholders and policy makers, including well-balanced investment to promote structural and non-structural measures.
- There is a need to acquire more reliable data of flood damage.
- Past flood risk increasing mechanism should be understood and analyzed
- In improving our knowledge about the past flooding mechanism (i.e., flood causes, flood losses, and past return period) additional clarification and attention must be paid to the influence of climate change and climate variability.
- Effective strategies to combat deforestation need to be developed and implemented.
- There is a need for robust assessment indicators, practical tools and methodology that is easily understandable by policy makers (who are mostly non water professionals) and that enables the assessment of progress in policies to achieve risk reduction.
- Given the inherent uncertainty of decisions, the appropriate management approach should be an adaptive one, and placing stronger emphasis in the development of decision-support tools to measure policy effectiveness and support decision-makers.

- There is a need for integrated, holistic and balanced approach to flood management. Thus, further work to identify well balanced solutions between those reducing socio-economic flood damages and those enhancing capacity to cope with flood is required.
- Research on flood risk management must be enhanced in order to ensure sustainable policy decisions for flood management.
- In addition to structural measures, institutional support and social response are crucial in implementing flood management, preparedness and response. Studies should be undertaken to monitor and assess the level of 'flood-preparedness' of communities, especially in frequently affected and/or vulnerable areas, and to suggest measures for raising the 'preparedness level' of the communities.
- Current policies should be adjusted to include post-flood measures as integrated solution in flood management to ensure sustainable development.
- There is a need to define sustainable strategies for more effective budget allocation intended for flood mitigation and recovery.
- There is a clear need for improving capacity building in professional agencies as well as the general public to manage flood effectively.
- There is a need to establish a clearing house and network for sharing data, experience and knowledge. The UNESCO-PWRI Centre was proposed to play roles in this process.

Annex 1: Workshop Programme Agenda

Asian Regional Workshop on Flood Risk Mitigation Initiative

A Regional discussion for UN World Water Assessment Programme (WWAP), International Flood Initiative of UNESCO and WMO and International Centre for Water Hazard and Risk Management UNESCO-CHARM

Date & Time: July 8, 2004, from 9:00 to 13:00 hours

Venue: Room No. 320, Suntec International Convention and Exhibition Centre

Organized by: Public Works Research Institute, Japan

Theme: Concept of Policy Effectiveness for Flood Risk Mitigation

At the opportunity of the 2nd APHW Conference, to be held on 5-8 July 2004, Singapore, The Secretariat for Preparatory Activities of UNESCO-PWRI Centre for Water Hazards and Risk Management at Public Works Research Institute, Japan, in coordination with the UN WWAP Secretariat in, Paris, is pleased to announce the organization of the Asian Regional Meeting on Flood Risk Mitigation Initiative to be held on 8 July 2004.

The objective of the Workshop is to create a joint effort program to systematize the contribution of Asian region in promoting global initiatives for flood risk mitigation. The aim of the discussion is to identify the concept of strategic and sustainable policies and means to measure progress toward flood risk and vulnerability mitigation goals. Country representatives are appealed to present an in-depth assessment of the contemporary achievements and concurrent historical change in flood risk and vulnerability. The know-how from the workshop will be promoted as input to (1) support the activities of the International Centre for Water Hazard and Risk Management (UNESCO-CHARM) under the auspices of UNESCO to be established at PWRI, Japan,; (2) enhance the Asian region contributions to the International Flood Initiative; and (3) the drafting of the "Managing Risk" Chapter of the WWDR 2 of UN WWAP.

Organizer & Sponsor	Public Works Research Institute (PWRI) and WWAP Secretariat
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Time	Presentation Title (tentative)	Presenter
09:00 – 09:15	Welcome Address	Chair J. Yoshitani, PWRI, Japan
09:15 – 09:30	Invited speaker: The International Centre for Water Hazard and Risk Management UNESCO-CHARM and International Flood Initiative (IFI) of UNESCO&WMO	Yoshiyuki Imamura UNESCO/ UNESCO-IHP, Paris
09:30 – 09:45	Keynote speech: World Water Assessment Programme Phase 2 and WWDR 2 nd Edition	Bhanu Neupanne WWAP Secretariat, UNESCO, Paris
09:45 – 10:00	Concept description	Takeo Onishi PWRI, Japan
10:00 – 10:15	Presentation 1: Mekong River an international river basin perspective	Pech Sokhem MRC
10:15 – 10:30	Coffee Break	
10:30 – 10:45	Presentation 2: Effectiveness of “returning polders to build townships” and “relocating people to build townships” after the 1998 flood: experiences and lessons	Cheng Xiaotao
10:45 – 11:00	Presentation 3: Policy effectiveness for natural disaster management in Korea	Kim Sung
11:00 – 11:15	Presentation 4: Flood Risk and Vulnerability in Sri Lanka: Issues and Trends	K.A.U.S. Imbulana
11:15 – 11:30	Presentation 5: Flood and Flood Risk Mitigation in Thailand	Suwit Thanopanuwat
11:30 – 11:45	Presentation 6: Policy effectiveness indicators for flood risk mitigation: Japan case study.	Tarek Merabtene
11:45 – 12:45	Open discussion	Chairperson
12:45 – 13:00	Closing of the Workshop	Chairperson