



ユネスコ国際水文学計画 (IHP)

日本ユネスコ国内委員会自然科学小委員会
IHP分科会 主査
(通称: 日本IHP国内委員会 委員長)

寶 馨 (京都大学)

ユネスコ IHP の意義

- 国際的な水教育・科学事業の総洞元(金はない！)
- いろいろな水関連の教育・科学事業の情報が集約されている
- プロジェクト探し、研究ネタ探し
- 自分のプロジェクトを国際プロジェクトに位置づける
(参加すると成果がユネスコ及び国連のネットワークを通じて発信される)
- 新たな国際課題を提案してユネスコの事業化する
- ユネスコ資料を教材として活用
- ユネスコへのインターンシップ
- 世界各地のユネスコ事務所、ユネスコセンター、ユネスコチェアと共同活動

IHPの経緯



- 国際水文の十年(1965-1974)
- International Hydrological Decade, IHD
- 世界における水文観測を充実させ、水に関する科学・教育を発展させる
- 国連教育科学文化機関(ユネスコ)の国際教育科学事業
- 我が国は、土木学会水理委員会の中に水文小委員会を設置(初代委員長:井口昌平東大教授)。
- 大学等が試験流域を設置し水文学研究を推進。
- 水文小委員会はその後、水文部会に。

IHPの経緯(2)



- IHDの後継プロジェクトとして、1975年から IHP と OHP に分かれる
- IHP = 国際水文学計画 (International Hydrological Programme)
ユネスコが科学・教育的側面を推進
- 文部科学省ユネスコ国内委員会のなかに自然科学小委員会IHP分科会を設置(これが実質、日本のIHP国内委員会)。主査は日本ユネスコ国内委員会委員が務める。
- OHP = 実用水文学計画 (Operational Hydrological Programme) 世界気象機関(WMO)が実務的側面を推進
- 気象庁、建設省河川局(現・国土交通省水管理・国土保全局)、土木研究所などがOHPを推進。
- ドイツ・オランダなどは、IHP-OHP国内委員会を作っている。
- OHPはその後、HWRP (Hydrology and Water Resources Programme) に。

IHPの経緯(3)



- IHP政府間理事会 = ユネスコ本部で2年に1回開催。
- 6つの地域(Region): I(西欧・北米)、II(東・中欧)、III(中南米)、IV(アジア・太平洋)、Va(アフリカ)、Vb(アラブ諸国)から選出された36の理事国(4年任期)で構成。
- 日本は、近年ずっと理事国。
- IHP政府間理事会 議長(竹内邦良1998-2000)、副議長(高橋裕1990-1991、寶馨2008-2010)。
- 1991年よりIHPトレーニングコース(名古屋大学)を開始
- 1993年に、東南アジア太平洋地域運営委員会(RSC, Regional Steering Committee for Southeast Asia)を設立(初代議長:高橋裕東大教授)
- 2008年にユネスコ・カテゴリーII センターとして、土木研究所に水災害・リスクマネジメント国際センターを設立

IHPの経緯(4)




- IHP政府間理事会 で中期事業計画を策定
- IHP-VII (2008-2013)-- Water Dependencies: Systems Under Stress and Societal Responses
- IHP-VIII (2014-2021)-- Water Security: Responses to Local, Regional, and Global Challenges

UNESCO's Water Family




 UNESCO HQ

 UNESCO-IHE Institute

 WWAP

 UNESCO's Regional and Cluster Offices

 Water-related Institutes and Centres

 Water-related Chairs

IHP-VII (2008-2013)

Water Dependencies:
Systems Under Stress
and Societal Responses

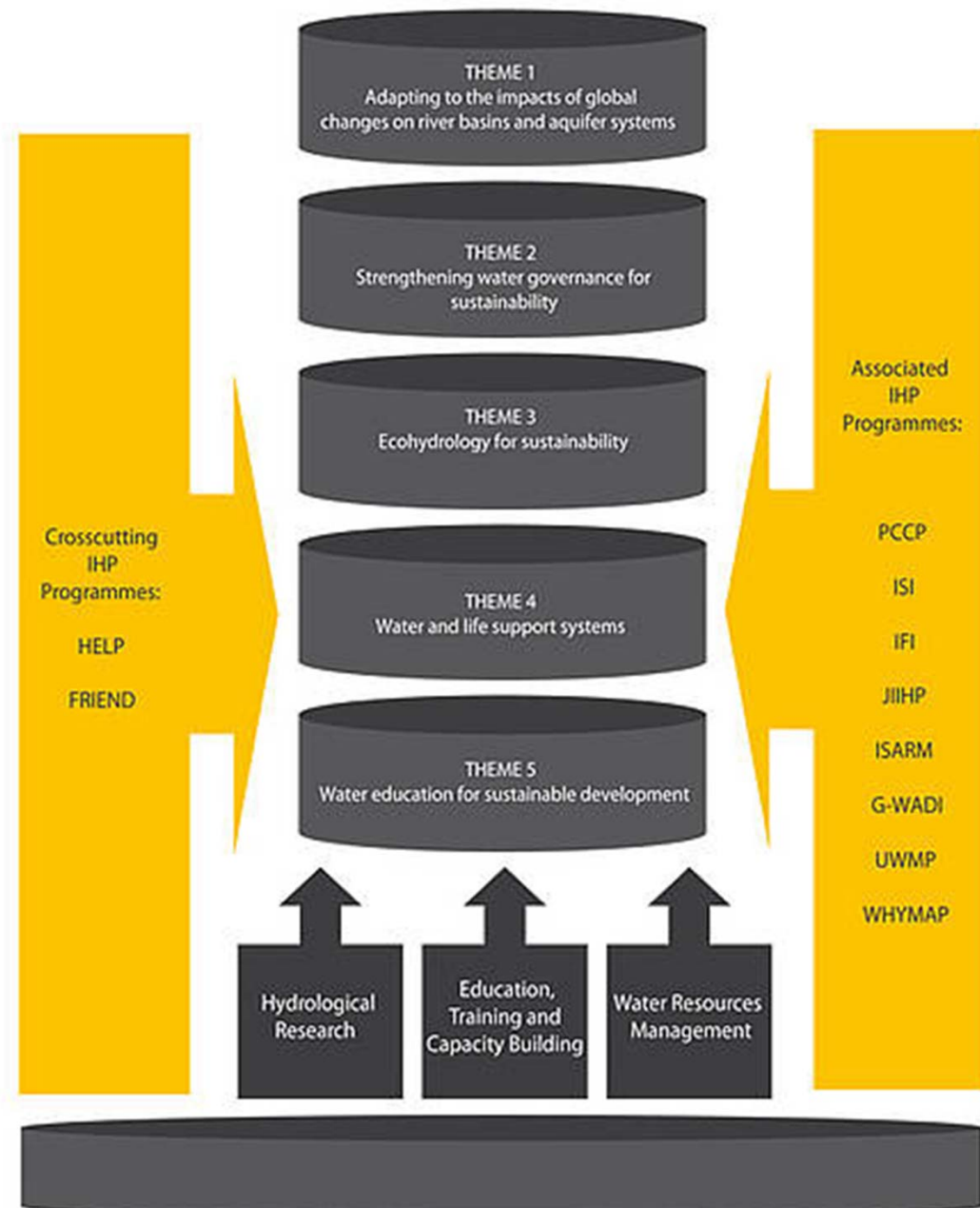
地球規模変動の河川流域や
地下水システムへの影響
に対する適応策

持続可能性のための
水ガバナンスの強化

持続可能性のための生態水文学

水・生命支援システム

持続可能な発展のための水教育



OVERVIEW OF THE RELATIONSHIPS BETWEEN THE CORE THEMES OF IHP VII,
AND THE CROSSCUTTING AND ASSOCIATED PROGRAMME COMPONENTS

IHP 横断型プロジェクト(1)

- [FRIEND \(Flow Regimes from International Experimental and Network Data\)](#). An international research programme that helps to set up regional networks for analyzing hydrological data through the exchange of data, knowledge and techniques at the regional level
- [GRAPHIC \(Groundwater Resources Assessment under the Pressures of Humanity and Climate Change\)](#). A UNESCO-led project seeking to improve our understanding of how groundwater interacts within the global water cycle, how it supports human activity and ecosystems, and how it responds to the complex dual pressures of human activity and climate change.
- [G-WADI \(Global Network on Water and Development Information in Arid Lands\)](#). A global network on water resources management in arid and semi-arid zones whose primary aim is to build an effective global community to promote international and regional cooperation in the arid and semiarid areas.
- [HELP \(Hydrology for the Environment, Life and Policy\)](#). A new approach to integrated catchment management by building a framework for water law and policy experts, water resource managers and water scientists to work together on water-related problems.
- [IFI \(International Flood Initiative\)](#). An interagency initiative promoting an integrated approach to flood management which takes advantage of the benefits of floods and the use of flood plains, while reducing social, environmental and economic risks. Partners: the World Meteorological Organization (WMO), the United Nations University (UNU), the International Association of Hydrological Sciences (IAHS) and the International Strategy for Disaster Reduction (ISDR).

IHP 横断型プロジェクト

- [ISARM \(Internationally Shared Aquifer Resources Management\)](#). An initiative to set up a network of specialists and experts to compile a world inventory of transboundary aquifers and to develop wise practices and guidance tools concerning shared groundwater resources management.
- [ISI \(International Sediment Initiative\)](#). An initiative to assess erosion and sediment transport to marine, lake or reservoir environments aimed at the creation of a holistic approach for the remediation and conservation of surface waters, closely linking science with policy and management needs.
- [JIIHP \(Joint International Isotope Hydrology Programme\)](#). A programme facilitating the integration of isotopes in hydrological practices through the development of tools, inclusion of isotope hydrology in university curricula and support to programmes in water resources using isotope techniques.
- [PCCP \(From Potential Conflict to Cooperation Potential\)](#). A project facilitating multi-level and interdisciplinary dialogues in order to foster peace, cooperation and development related to the management of shared water resources.
- [UWMP \(Urban Water Management Programme\)](#). A programme that generates approaches, tools and guidelines which will allow cities to improve their knowledge, as well as analysis of the urban water situation to draw up more effective urban water management strategies.
- [WHYMAP \(World Hydrogeological Map\)](#). An initiative to collect, collate and visualize hydrogeological information at the global scale to convey groundwater-related information in a way appropriate for global discussion on water issues.

IHP VIII (2014-2021)“Water Security: Responses to Local, Regional, and Global Challenges”

- **水災害と水文学的变化**
- **変化する環境下での地下水**
- **水の安全保障と水質**
- **将来の水と人間居住**
- **生態水文学—持続可能な世界のための工学的協調**
- **水教育—水の安全保障のための鍵**



Water-related
Disasters and
Hydrological
Change



Groundwater
in a Changing
Environment



Addressing
Water
Scarcity and
Quality



Water and
Human
Settlements
of the Future



Ecohydrology,
Engineering
Harmony for
a Sustainable
World



Water
Education,
Key for Water
Security

Water Security: Responses to Local, Regional, and Global Challenges

Water security: Responses to local, regional, and global challenges

Water-related Disasters and Hydrological Change

1. Risk Management as adaptation to global changes
2. Understanding coupled human and natural processes
3. Benefiting from global and local Earth observation systems
4. Addressing uncertainty and improving its communication

Groundwater in a Changing Environment

1. Enhancing sustainable groundwater resources management
2. Addressing strategies for management of aquifers recharge
3. Adapting to the impacts of climate change on aquifer systems
4. Improving management of shallow and coastal aquifers
5. Promoting management of transboundary aquifers

Addressing Water Scarcity and Quality

1. Improving governance, planning, management, allocation, and efficient use of water resources
2. Dealing with present water scarcity and developing foresight to prevent undesirable trends
3. Promoting tools for stakeholders involvement and awareness, and conflict resolution
4. Addressing water quality and pollution issues within an IWRM framework – improving legal, policy, institutional, and human capacity
5. Promoting innovative tools for safety of water supplies and controlling pollution

Water and Human Settlements of the Future

1. Game changing approaches and technologies
2. System wide changes for integrated management approaches
3. Institution and leadership for beneficitation and integration
4. Opportunities in emerging cities in developing countries
5. Integrated development in rural human settlement

Ecohydrology, Engineering Harmony for a Sustainable World

1. Hydrological dimension of a catchment – identification of potential threats and opportunities for a sustainable development
2. Ecological catchment structure shaping for ecosystem potential enhancement – biological productivity and biodiversity
3. Ecohydrology system solution and ecological engineering for the enhancement of water and ecosystem resilience and ecosystem services
4. Urban ecohydrology – stormwater purification and retention in the city landscape, potential for improvement of health and quality of life
5. Ecohydrological regulation for sustaining and restoring continental to coastal connectivity and ecosystem functioning

Water Education, Key for Water Security

1. Enhancing tertiary water education and professional capabilities in the water sector
2. Addressing vocational education and training of water technicians
3. Water education for children and youth
4. Promoting awareness of water issues through informal water education
5. Education for transboundary water cooperation

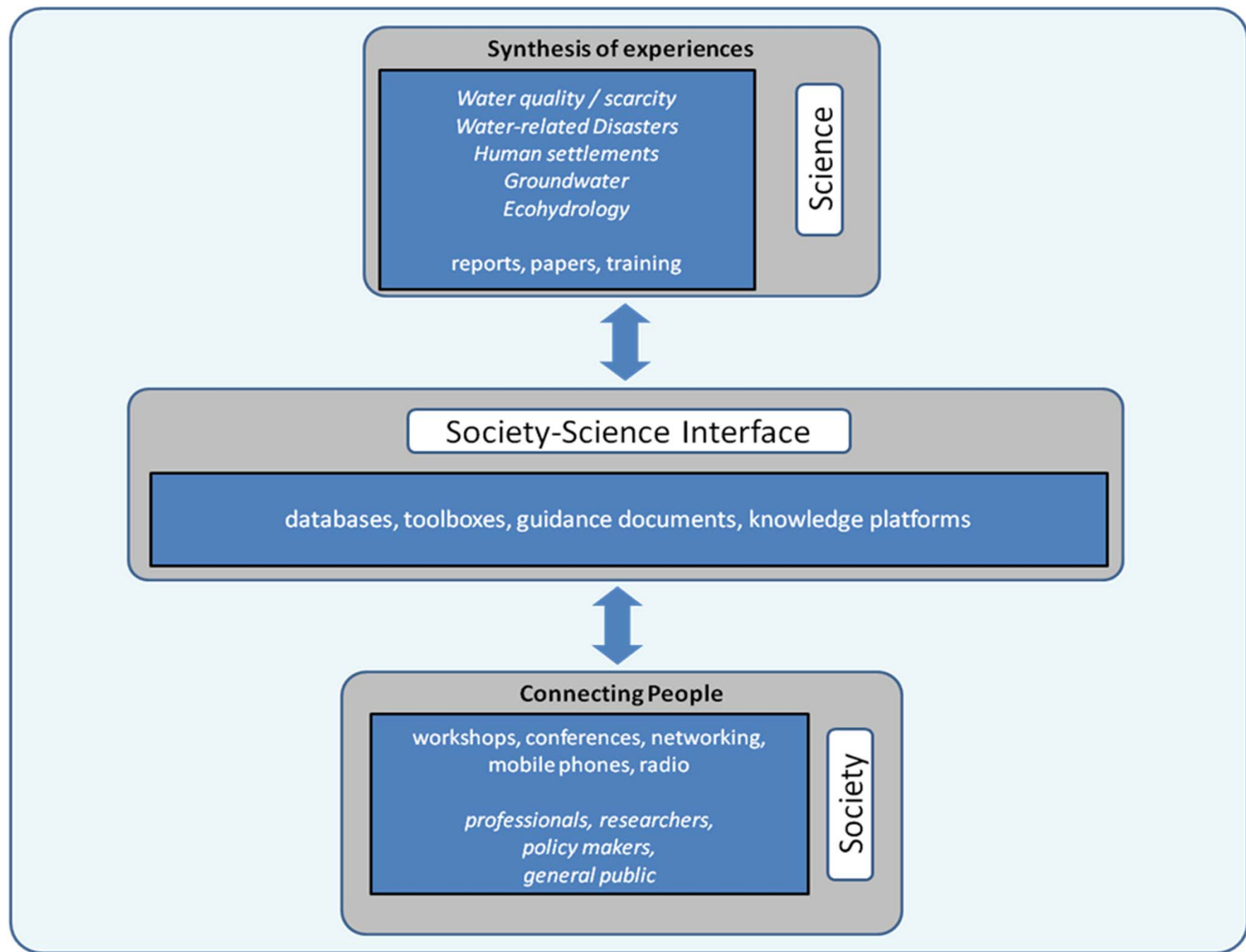
Integrated Water
Resource Management

Transboundary or
Shared Waters

Human Dimension

Governance

Global Change



東南アジア太平洋地域での活動

東南アジア太平洋地域運営委員会 (RSC-SEAP)

歴代議長 (Chair)

- 1993-1995 Yutaka Takahasi (Japan)
- 1995-1997 Baddrdin Macibub (Indonesia)
- 1997-1999 Soontak LEE (R. Korea)
- 1999-2001 Keizrul Abdullar (Malaysia)
- 2001-2003 Richard Ibbitt (NZ)
- 2003-2005 Tran Thuc (Vietnam)
- 2005-2007 Eddy Djajadiredja (Indonesia)
- 2007-2009 Leonardo Liongsson (The Philippines)
- 2009-2011 Heng Liu (China)
- 2011-2013 Trevor Daniell (Australia)

歴代事務長 (Secretary)

- 1993-1999 Kuniyoshi Takeuchi (Japan)
- 1999- Kaoru Takara (Japan)

東南アジア太平洋地域での活動

RSC meetings

1. The Philippines (1993)
2. Cambodia (1994)
3. **Japan (1995)**
4. Indonesia (1996)
5. Thailand (1997)
6. Republic of Korea (1998)
7. China (1999)
8. New Zealand (2000)
9. Viet Nam (2001)
10. Malaysia (2002)
11. Fiji (2003)
12. Australia (2004)
13. Indonesia (2005)
14. Thailand (2006)
15. The Philippines (2007)
16. Mongolia (2008)
17. China (2009)
18. Vietnam (2010)
19. **Japan (2011)**
20. Malaysia (2012)



**REVIEW AND EVALUATION MEETING ON THE
“IHP - WINGA ASPAC”
International Hydrological Programme -
Water Interoperability Networks
for Global Change Adaptation
in Asia Pacific Region**

**ACTIVITIES OF UNESCO JAKARTA ASSISTED BY THE JAPANESE
FUND IN TRUST**

**PROGRESS REPORT from 2008
PROJECT 555RAS2008**

PROJECT BACKGROUND

- The International Hydrological Programme (IHP), UNESCO's intergovernmental scientific co-operative programme in water resources, is a vehicle through which Member States can upgrade their knowledge of the water cycle and thereby increase their capacity to better manage and develop their water resources.
- The programme is implemented through the collaboration and participation of the National IHP Committees of Southeast Asia and the Pacific, hydrological Institutions and water related Research Centres (including UNESCO water centers)

PROJECT AIM AND PROJECT APPROACH

- In the framework of the International Hydrological Programme with particular reference to climatic variability and changes, the present WINGA project intends to develop, in the ASPAC Region, measures for the:
 - assessment,
 - monitoring,
 - mitigation and
 - adaptation to the impacts of global changes on river basins and aquifers and
 - strengthening of scientific approaches for improved water management (including urban water management) and capacity building and education at all levels.

PROJECT AIM AND PROJECT APPROACH

- The present project proposes, with 4 components, a thorough approach to water resources in general by maintaining
- 1) [the interoperability](#) of water networks in the ASPAC region (Regional Steering Committee Meeting for Southeast Asia and the Pacific), essential to the implementation of interlinked activities both at national and regional levels,
- 2) [the IHP training courses](#),
- 3) [Flood disaster prevention](#) and mitigation measures in Asia and the Pacific region (including DRH) and
- 4) [the approach to the Urban Hydrology](#) project with particular reference to the Sustainable Water Management in Asian Cities (*SWITCH-in-Asia*).



INTERNATIONAL HYDROLOGICAL PROGRAMME (IHP)

**Regional Steering Committee (RSC)
for South East Asia and the Pacific (SEAP)**

**IHP Nagoya
Training Courses**

**FLOOD DISASTER PREVENTION
AND MITIGATION**



Flood Design

Rainfall IFD

**FLOOD FORECASTING AND
WARNING SYSTEM**



SWITCH-in-Asia

CAMBODIA

INDONESIA

PHILIPPINES

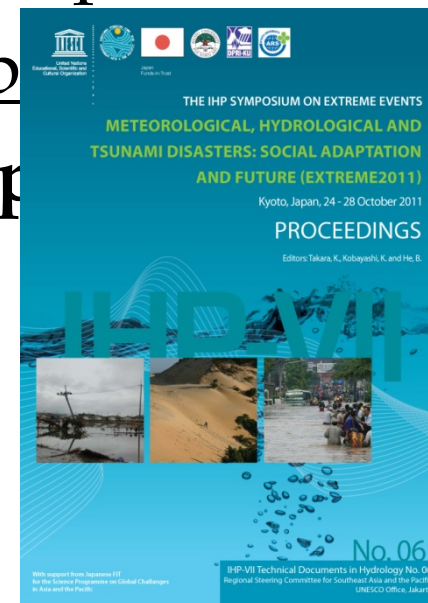
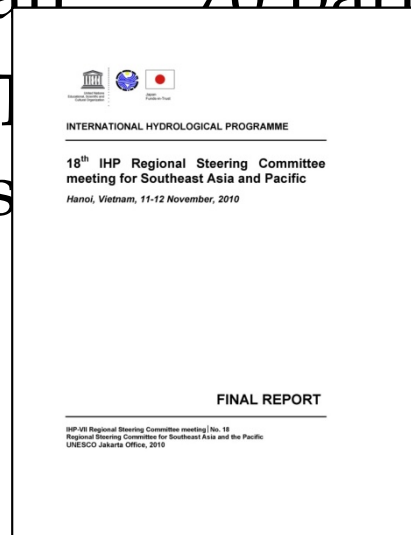
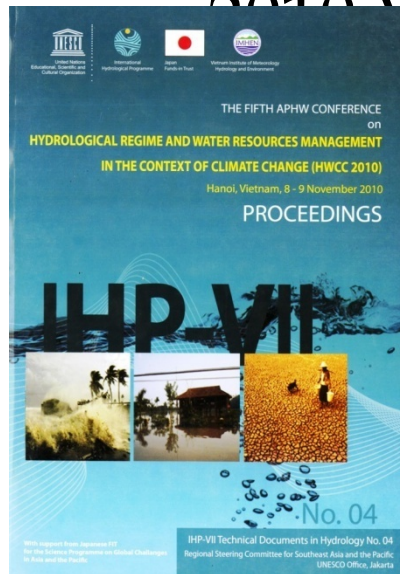
VIET NAM

REGIONAL: JAKARTA

1. Interoperability (results from 2008)

RSC MEETINGS and Joint International conferences:

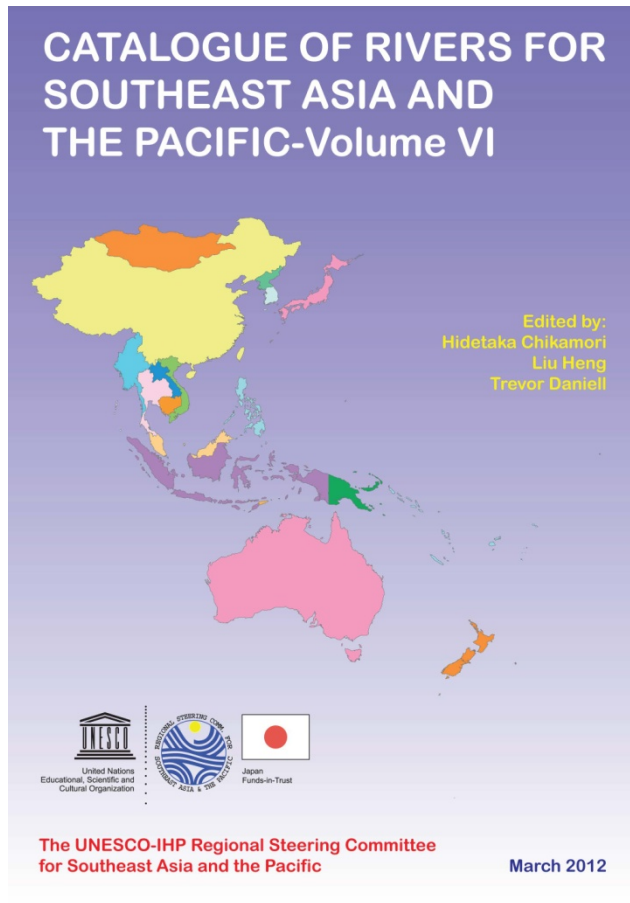
- 2008 Mongolia, 120 participants
- 2009 China, 100 participants
- 2010 Viet Nam, 200 participants



(50)

1. Interoperability (results from 2008)

Catalogue of Rivers, Volume VI:



Contains:

- 7 basins from 7 countries (121 total Vol I-VI)
- 3 basins from new countries, Korea DPRI, Mongolia and Myanmar

1. Interoperability (results from 2008) - findings

RSC MEETINGS and Joint International conferences:

- Approx 500 people have received the Proceedings of the conferences: these are also available in UNESCO Jakarta website and also disseminated through the IHP Natcoms

A questionnaire (included in the progress report) on *“how JFIT Science Programme contributed to the countries’ capacity building and science policy making”* was submitted at the 19th RSC meeting in Kyoto, October 2011 and responded by 16 countries.

1. Interoperability (results from 2008) - findings

Summary of questions:

- Sharing of information acquired during RSC meetings:
 - *Through different ways (IHP Natcoms, Universities, Agencies/Institutions)*
- **In the past, I have incorporated what I have learned from IHP symposiums, trainings and RSC meetings with our country's science sector policy/ programme.**
 - Except for Myanmar and Timor-Leste, almost all participants incorporated their leanings with their country's science sector policy/ programme through the academic societies and governmental panel/ committee in hydrologic issues.
 - For example, in New Zealand, IHP activities contributed to the development of Fresh Water Database, the elaboration of flood design programme which are practiced in Japan and other countries.

1. Interoperability (results from 2008) - findings

Summary of questions:

- **In the past, I have incorporated what I have learned from IHP symposiums, trainings and RSC meetings with our country's science sector policy/ programme.**
 - In China, IHP activities contributed to the technical development in hydrology, especially in Yangtze River and Changjiang River basin management. Also, the monitoring, forecasting, risk mitigation skills and technology which are gained from IHP activities have been incorporated in their 12th Five Year Plan.
 - In Indonesia, through IHP the Indonesian Institute of Science (LIPI) research findings were integrated into Indonesian Water Law No.7, in 2004. IHP Activities also resulted in the establishment of a UNESCO Cat. 2 Water Centre (APCE)
 - Viet Nam upgraded the Water Resources Law

2. IHP Nagoya Training Courses (results from 2008)

- 18th TC 2008 8 participants
- 19th TC 2009 20 +50 (e-learning) participants
- 20th TC 2010 14 + 130 (e-learning) participants
- 21st TC 2011 16 + 77 (e-learning) participants

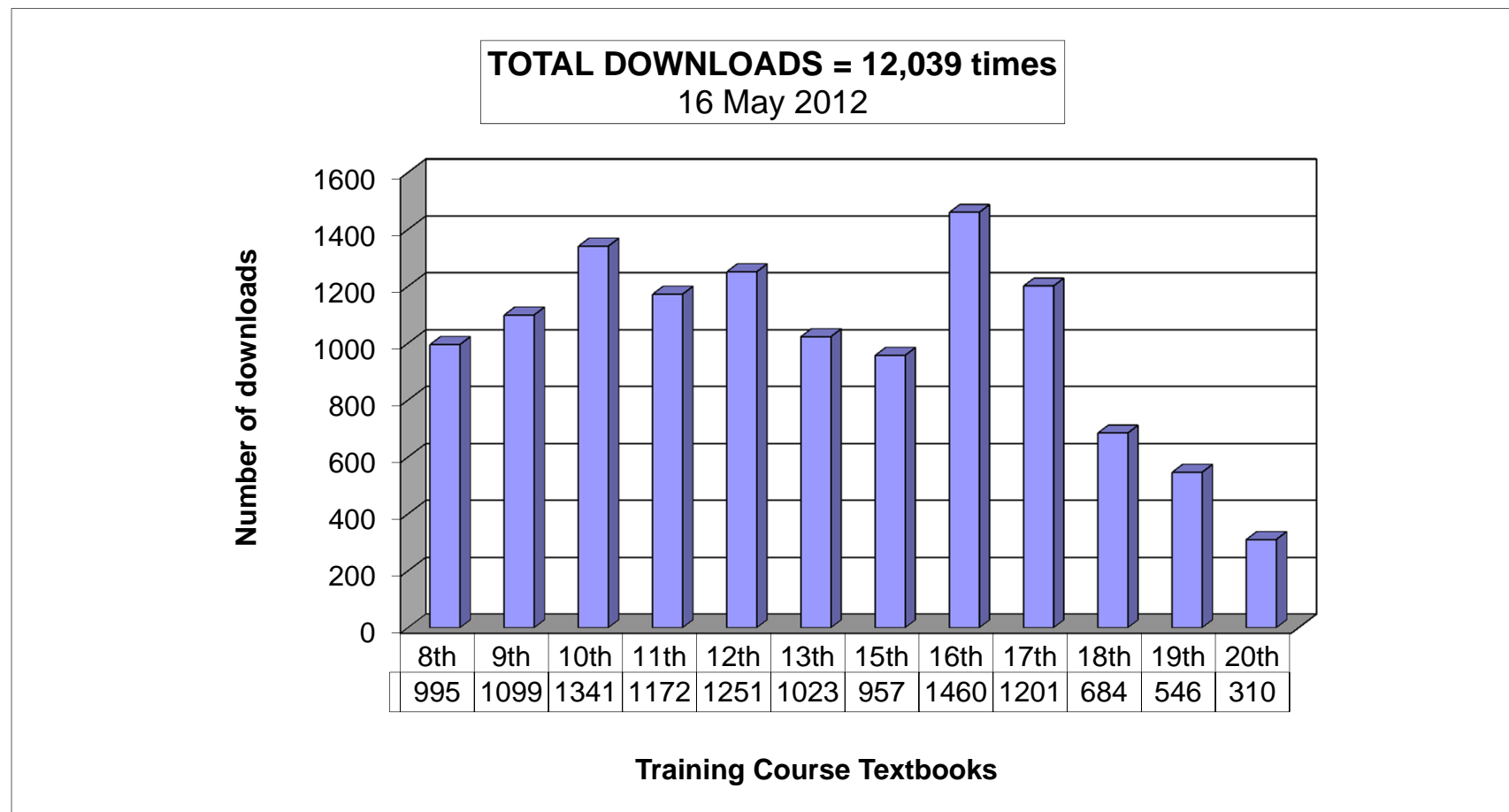
Total **315 participants** (14 countries)

2. IHP Nagoya Training Courses (results from 2008) major achievements

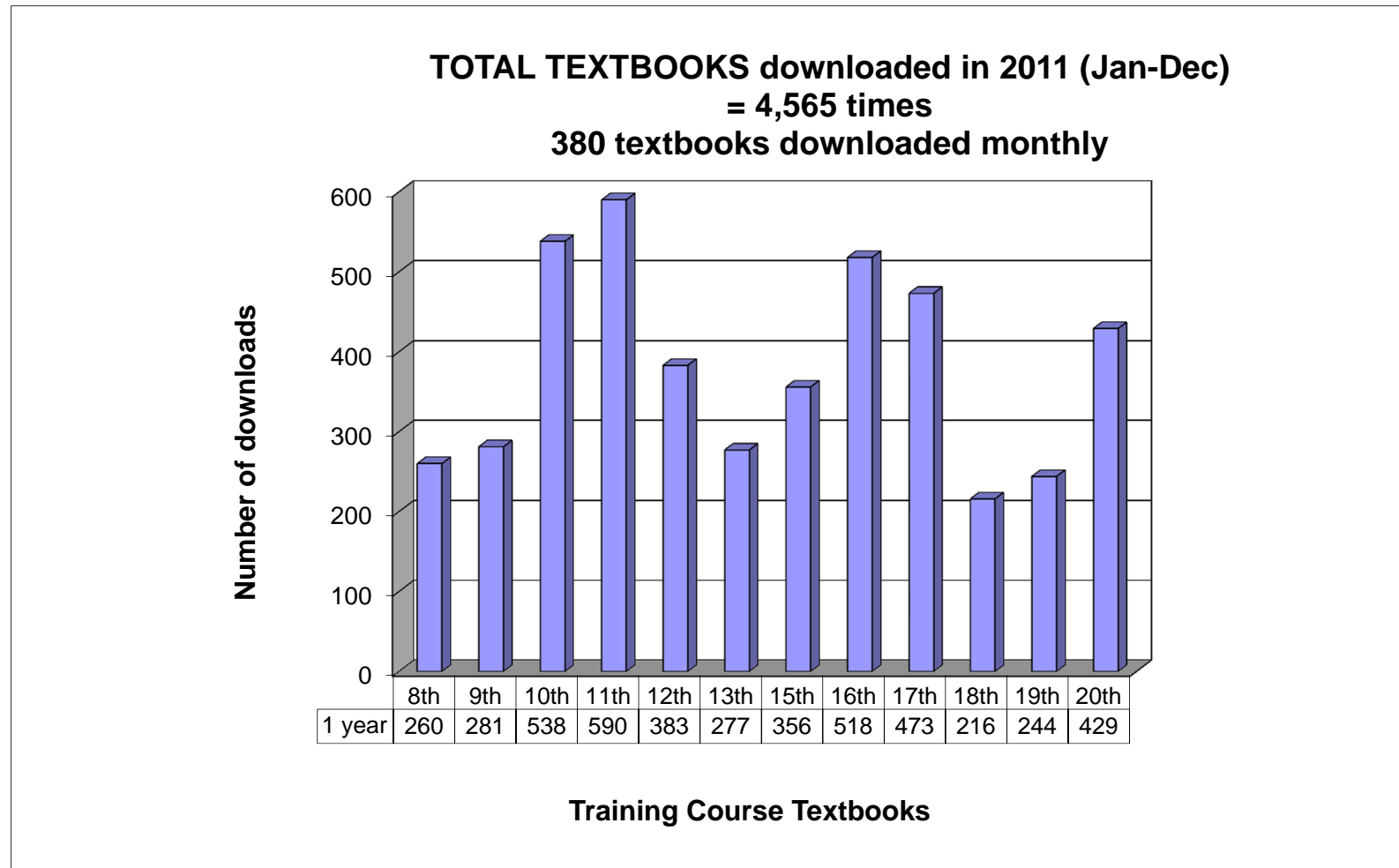
- Training Course Data Base (2007)
- Training course website (since 2008). Allows to have different kind of information:
 - Training courses background in 6 languages (Chinese, Indonesian, Korean, Vietnamese, English and Arabic)
 - To download training course textbooks (so far over 12,000 downloads)

The screenshot shows the UNESCO IHP Nagoya Training Course website. The browser title bar reads "UNESCO IHP Nagoya Training Course". The page features the UNESCO logo and the text "United Nations Educational, Scientific and Cultural Organization" on the left. The main header area includes the text "UNESCO IHP Nagoya Training Courses" and logos for "Japan Funds-in-Trust" and "HyARC". A search bar is located on the right side of the header. Below the header, there is a "Main Menu" on the left with links for "Home", "History of IHP Nagoya Training Course", "The News", "Forum", "Photo Gallery", and "Downloads 'New!'". The central content area displays a "Welcome to the IHP Nagoya Forum" message and a prominent announcement: "21ST IHP TRAINING COURSE IS FINISHED!!". Below this announcement, it states: "The 21st IHP Training Course on 'Introduction to River Basin Environment Assessment under Climate Change' was held at the Disaster Prevention Research Institute (DPRI), Kyoto University from 28 November to 9 December 2011 and attended by 16 participants from 12 countries." On the right side, there is a registration prompt: "If you want to be a part of the forum, please register to participate in discussion!" followed by a registration form with fields for "Username" and "Password", a "Remember Me" checkbox, and a "Log in" button. A link for "Forgot your password?" is also present.

2. IHP Nagoya Training Courses (results from 2008) major achievements



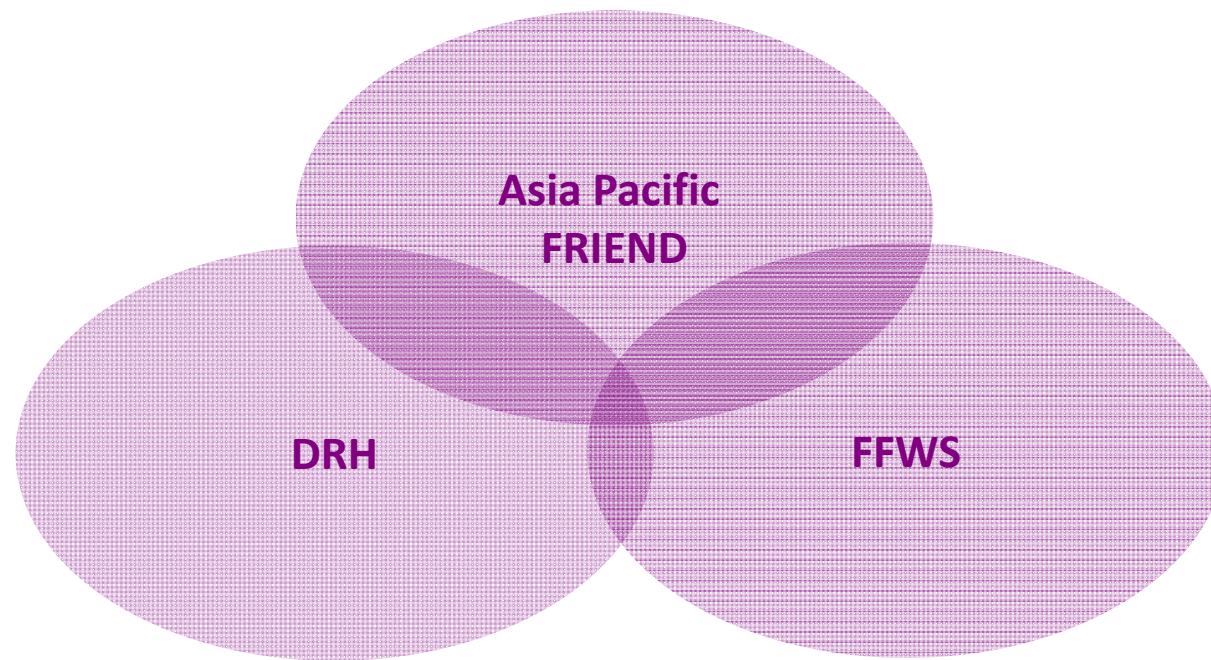
2. IHP Nagoya Training Courses (results from 2011) major achievements

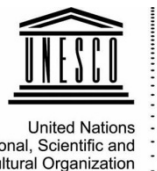


2. IHP Nagoya Training Courses (results from 2008) major achievements

- Enabled distance e-learning since 2009 (in collaboration with the Engineering Sciences and Technology Unit EST through its e-learning network, i.e. SOI-Asia, NREN's and INHERENT) able to connect to different University, Institutions and Research centres in the region). Allowed to pass from 50 physical attendances to 257 distance participations in 3 TCs
- Success stories;
 - Dr Gadis Sri Hariani from LIPI Indonesia who became director of the *Limnology Centre* in 2004 after having followed the Limnology TC;
 - Dr Phan Thi Kim Van from IGC (VAST) who became director of the *Water Resources Centre* in January 2011 after having followed the 20th TC
 - We are continuing monitoring success stories, having written to participants of various TCs (so far 15th, 16th, 17th)

3. Flood disaster Prevention (results from 2008) major achievements

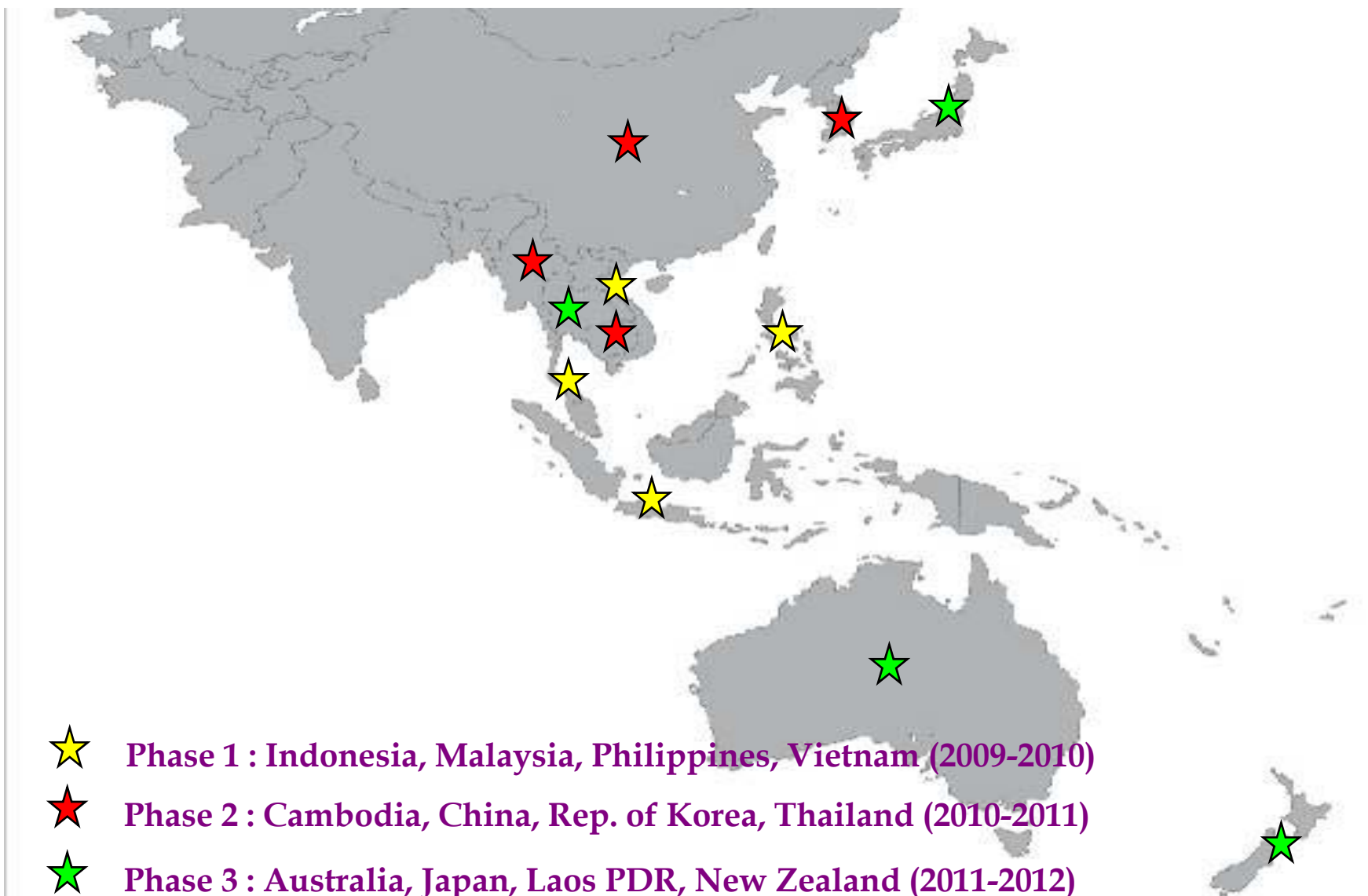




United Nations
Educational, Scientific and
Cultural Organization



Assessment of Flood Forecasting and Warning Systems Project





Assessment of Flood Forecasting and Warning Systems Project



- **Organized Workshop in 23-25 May 2010:**
 - 80 Participants from 8 countries
- **Publish State-of-art Report :**
August 2012

List of Meetings and Workshops (2009-2011):

	Nr. Particip.
1. 1 st IHP-DRH Management Meeting, Kyoto, 2009	3
2. 1 st IHP-DRH Workshop, Wuhan, 2009	14
3. 2 nd IHP-DRH Management Meeting, KL, 2010	11
4. 3 rd IHP-DRH Management Meeting, Kyoto, 2010	5
5. 2 nd IHP-DRH Workshop, Hanoi, 2010	23
6. DRH Application Workshop, Kyoto, 2011	15
7. Sustainability/survivability Science on Disaster Risk Reduction Technology Database Seminar, 2011	8
8. 3 rd IHP-DRH Workshop, Kyoto, 2011	20
9. 4 th IHP-DRH Management Meeting, 2011	3

Total Participants

102



Accomplishments

1. Establishment and Enhancement of IHP-DRH collaboration scheme
2. Publication of 3 IHP- DRH Contents in DRH website



DRH Disaster Reduction Hyperbase - Asian Application (DRH-Asia)

Home | Login or Register | Contact Us | Advanced Search | RSS Subscription | Language

DRH Database | DRH Forum | DRH Forum | DRH Links | DRH Project

Find technologies | Propose a technology | Discuss technologies | DRH partners | DRH Project activities

Translate (translate by Google)

Home | Find technologies | Technology description

1. Title
RAIN-INDUCED LANDSLIDE SUSCEPTIBILITY: A GUIDEBOOK FOR COMMUNITIES & NON-EXPERTS

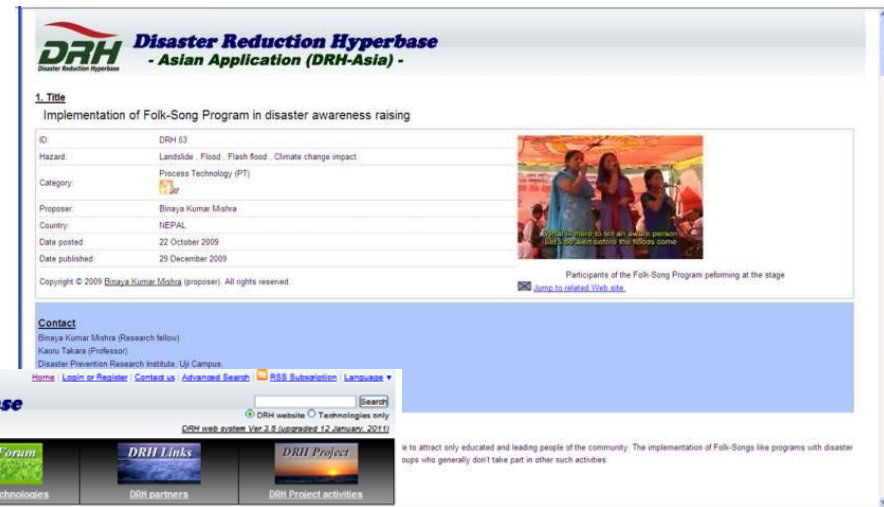
ID: DRH 01
Hazard: Landslide
Category: Process Technology (PT)
Proposer: Daniel J. PECKLEY
Country: PHILIPPINES
Date posted: 02 October 2010
Date published: 22 December 2010

Tools
Print contents
Save as PDF
Propose a technology

Similar technologies
By Hazard
Landslide (10)

Contact
Daniel C. PECKLEY J., PhD
Institute of Civil Engineering, University of the Philippines (UP-ICE)

Figure 1. Cover page of the guidebook for rain induced landslide susceptibility assessment to communities and non-experts



DRH Disaster Reduction Hyperbase - Asian Application (DRH-Asia)

Home | Login or Register | Contact Us | Advanced Search | RSS Subscription | Language

DRH Database | DRH Forum | DRH Forum | DRH Links | DRH Project

Find technologies | Propose a technology | Discuss technologies | DRH partners | DRH Project activities

Translate (translate by Google)

Home | Find technologies | Technology description

1. Title
Implementation of Folk-Song Program in disaster awareness raising

ID: DRH 03
Hazard: Landslide, Flood, Flash flood, Climate change impact
Category: Process Technology (PT)
Proposer: Binaya Kumar Mishra
Country: NEPAL
Date posted: 22 October 2009
Date published: 29 December 2009

Tools
Print contents
Save as PDF
Propose a technology

Similar technologies
By Hazard
Landslide (10)
Flood (10)
Flash Flood (11)
Epidemic (3)

By Category
Process Technology (PT) (10)

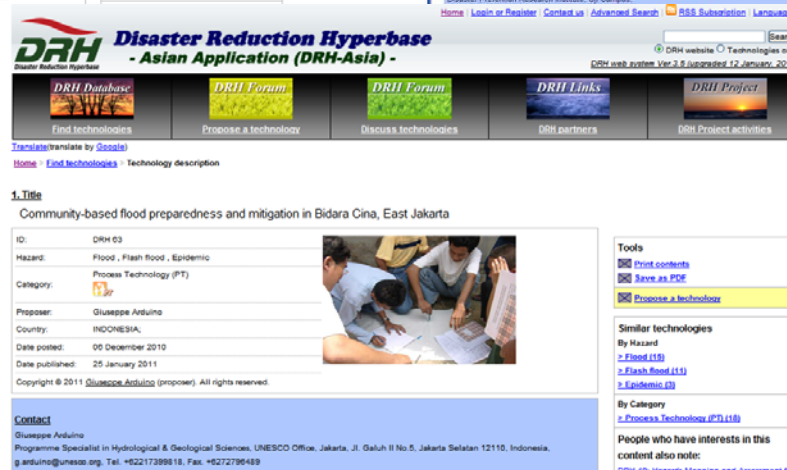
People who have interests in this content also note:
DRH 49: Hazards Mapping and Assessment for

Participants of the Folk-Song Program performing at the stage

Copyright © 2009 Binaya Kumar Mishra (proposer). All rights reserved.
Jump to related Web site

Contact
Binaya Kumar Mishra (Research fellow)
Katsu Takara (Professor)
Disaster Prevention Research Institute, Uji Campus.

to attract only educated and leading people of the community. The implementation of Folk-Songs like programs with disaster camps who generally don't take part in other such activities.



DRH Disaster Reduction Hyperbase - Asian Application (DRH-Asia)

Home | Login or Register | Contact Us | Advanced Search | RSS Subscription | Language

DRH Database | DRH Forum | DRH Forum | DRH Links | DRH Project

Find technologies | Propose a technology | Discuss technologies | DRH partners | DRH Project activities

Translate (translate by Google)

Home | Find technologies | Technology description

1. Title
Community-based flood preparedness and mitigation in Bidara Cina, East Jakarta

ID: DRH 03
Hazard: Flood, Flash flood, Epidemic
Category: Process Technology (PT)
Proposer: Giuseppe Arduino
Country: INDONESIA
Date posted: 06 December 2010
Date published: 25 January 2011

Tools
Print contents
Save as PDF
Propose a technology

Similar technologies
By Hazard
Flood (10)
Flash Flood (11)
Epidemic (3)

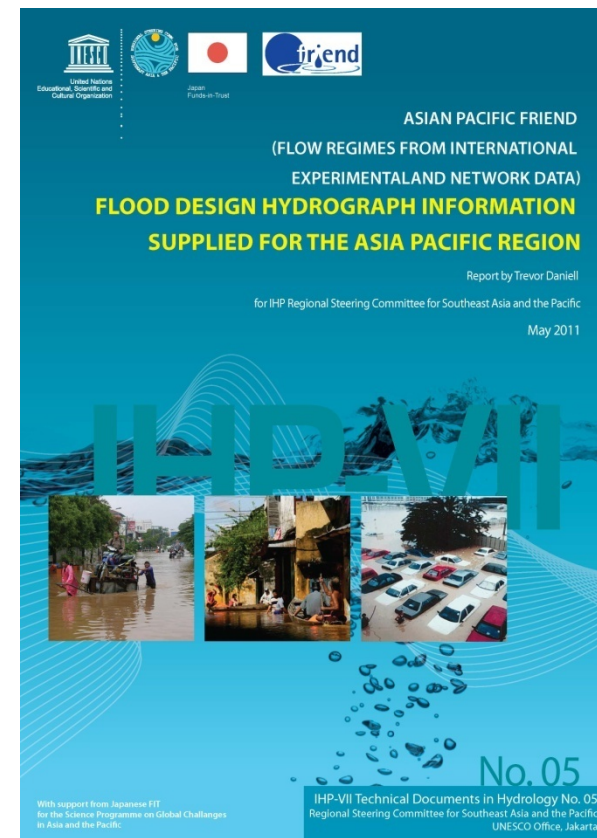
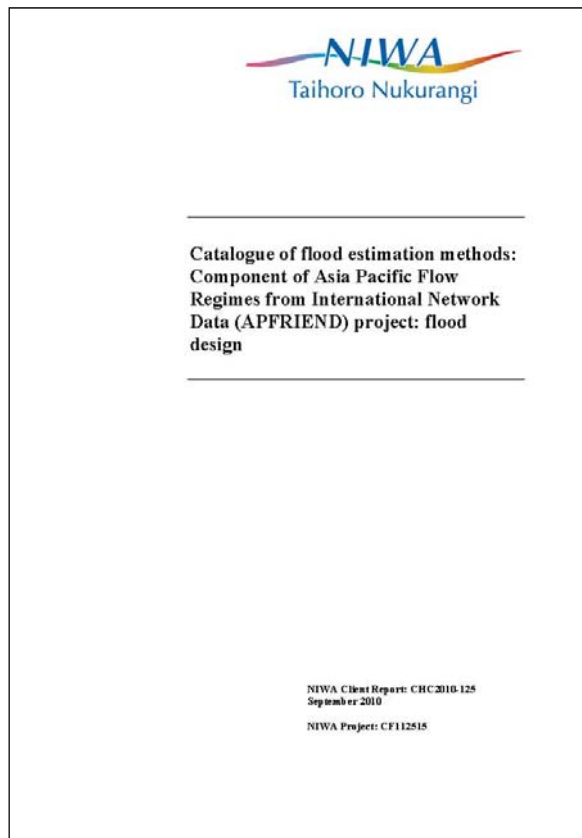
By Category
Process Technology (PT) (10)

People who have interests in this content also note:
DRH 49: Hazards Mapping and Assessment for

Contact
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Asia Pacific FRIEND Phase 2





4. Sustainable Water to Improve Tomorrow's Cities Health (SWITCH-in-Asia)

- The SWITCH-in-Asia Programme consists of various country based projects in the region which will be demonstrating concrete aspects of innovation towards sustainable Urban Water Management and linked with a regional learning alliance





4. Sustainable Water to Improve Tomorrow's Cities Health (SWITCH-in-Asia)

List of Meetings and Workshops (2009-2012):

Nr. Participants

1. SWITCH-IPA Indonesian Component Workshop, 2009 50
2. SWITCH-in-Indonesia Follow Up Meeting, 2009 20
3. SWITCH-in-Asia Regional Partnership Meeting, 2009 90
4. International Workshop on UNESCO new Ecohydrology Demonstration Site projects, 2011 36
5. Citarum Learning Alliance Inception Meeting, 2011 13
6. Hanoi Learning Alliance Inception Meeting, 2012 13



Participants 222





4. Sustainable Water to Improve Tomorrow's Cities Health (SWITCH-*in-Asia*)

Accomplishments (2009-2012):

1. Establishment and enhancement of SWITCH Regional and National Partnerships
2. Establishment of 2 Learning Alliances in Hanoi and Citarum
3. Development of Pilot Project in Citarum Basin (Design Stage)



4. Sustainable Water to Improve Tomorrow's Cities Health (SWITCH-in-Asia)

A screenshot of the SWITCH-in-Asia website. The browser's address bar shows "http://www.switch-in-asia.org/". The website header includes logos for UNESCO, Japan Foundation Trust, and UNESCO-IHE Institute for Water Education. The main heading is "Sustainable Water Management in Asian Cities". A left sidebar contains navigation buttons for Home, Pilot sites, Learning Alliance, Events and Media, and Contacts. The main content area contains text about the initiative and a list of two pillars: Action Research and Demonstration.

UNESCO Office Jakarta promotes the **SWITCH-in-Asia** initiative, an innovative programme that addresses the challenges faced by cities, towns and villages in providing efficient, safe and sustainable water and sanitation services for people, while preserving water and environmental resources.

The **SWITCH-in-Asia** initiative calls for a paradigm shift in urban water management in order to cease using water resources in a way that is not sustainable in a world facing increasing global change pressures.

SWITCH-in-Asia will be developed through national projects interlinked by a **Learning Alliance** aiming at facilitating communication and experience sharing among the partners (within a country as well as within the region). The basis of all national projects is set on three pillars, namely:

- **Action Research** : Develop indicators and new technical know-how on a wide range of areas: ecohydrology concepts, sustainable water and sanitation approaches based on recycling and reuse (including ecotechnologies), soil aquifer treatment systems, among others.
- **Demonstration**: Test and showcase on a real life scale new and innovative approaches for urban water management in a segment of a

THANK YOU FOR YOUR KIND ATTENTION



**REVIEW AND EVALUATION MEETING ON THE
PROPOSED ACTIVITIES OF UNESCO JAKARTA ASSISTED BY THE JAPANESE FUND
IN TRUST PERIOD 2012 - 2014**

**IHP - WINGA ASPAC
PROPOSAL for Phase IV
International Hydrological Programme -
Water Interoperability Networks
for Global Change Adaptation
in Asia Pacific Region**

Introduction to the proposed activities/proposal

In the framework of the International Hydrological Programme **focusing on the impacts of climatic variability and changes**, the present project intends, in the ASPAC Region:

1. to strengthen scientific approaches for improved **water resources management** policies and governance with reference to **hydrological hazards and extreme events**;
2. **enhance water related technical capacity-building** and education at all levels;
3. to reduce and address risks arising from land-based and freshwater natural disasters with particular emphasis on **extreme events**

Project Approach

The approach intends to be scientific in terms of quality results but the attempt is to convey as much as possible the scientific achievements to local governments and communities in order to integrate and develop in the long term the sustainability science concept.

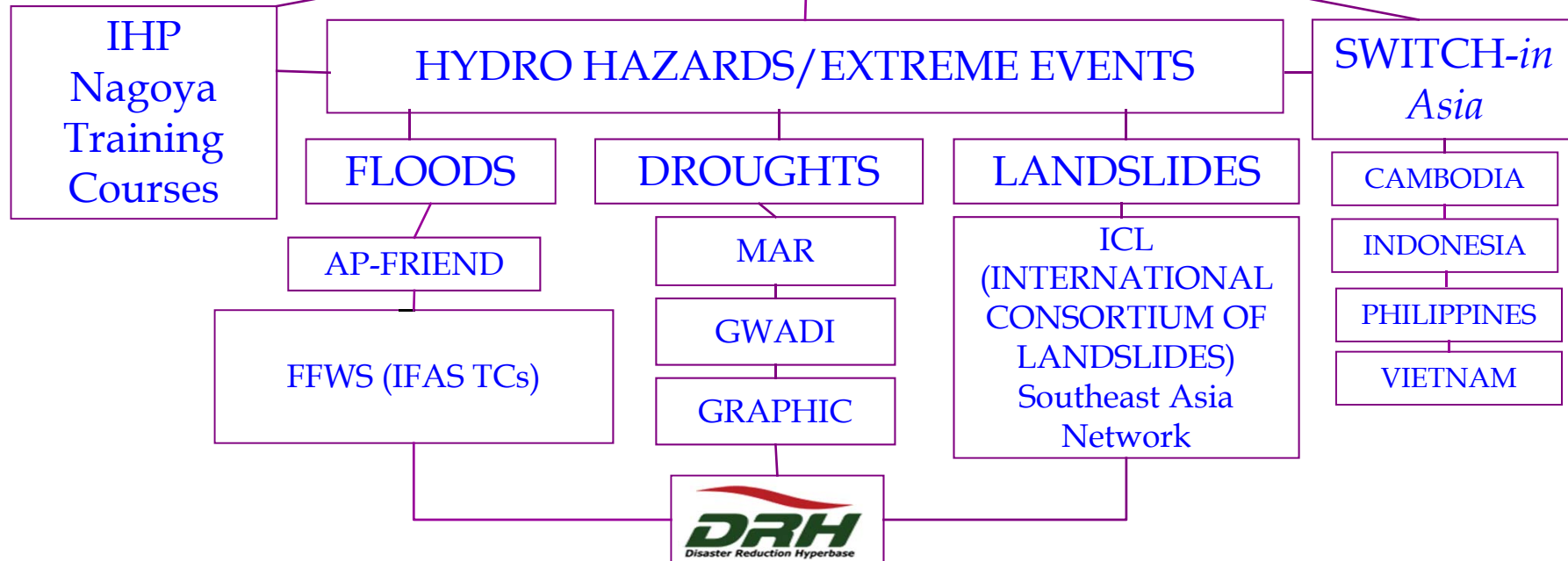


INTERNATIONAL HYDROLOGICAL PROGRAMME (IHP)

BIENNIAL PRIORITIES 36C/5 (2012-2013):

- Strengthen scientific approaches for improved water management policies and governance, focusing on the impacts of climate change on water resources management, particularly in arid and semiarid zones and in urban systems, via specific efforts such as the Managing Aquifer Recharge (MAR), Global Network on Water and Development Information for Arid Lands (G-WADI), Groundwater Resources Assessment under the Pressures of Humanity and Climate Change (GRAPHIC);
- enhance water related technical capacity-building and education at all levels; provide approaches for adapting to the impacts of global changes on river basins and aquifers;
- support national and regional efforts to develop, integrate and complement capacities to reduce and address risks arising from land-based and freshwater natural disasters with a focus on policy advice, knowledge sharing, awareness-raising, and education for disaster preparedness, paying particular attention to integrating a gender perspective and to youth;

Regional Steering Committee (RSC) for South East Asia and the Pacific (SEAP)



REGIONAL STEERING COMMITTEE FOR SOUTHEAST ASIA AND THE PACIFIC

- The RSC is vital for the implementation of interlinked activities in the region, i.e. the APFRIEND Phase 2 on flood design data interpretation in the region as a follow-up and continuation and direct relations to the Flood disaster prevention and mitigation measures in Asia and the Pacific region, and links with the dissemination platform DRH.
- The 20th RSC-SEAP meeting planned to be held in Langkawi, Malaysia, 5-9 November 2012
- The Meeting will be held in conjunction with:
 - 2nd International Conference on Water Resources (ICWR2012)
“Sharing Knowledge of Issues in Water Resources Management to Face the Future”
 - IHP-DRH Workshop

22nd IHP TRAINING COURSE

- the 22nd IHP training course in Nagoya November-December 2012
- The title of the proposed training course is

**"Precipitation Measurement from
space"**

22nd IHP TRAINING COURSE

The 22nd IHP training course is focused on the following major topics:

- (1) Precipitation is one of the major components of the Earth climate system.
- (2) Precipitation has also a big impact as a major fresh water resource to the ecosystem and human activity.
- (3) Observation of precipitation distribution is crucial not only for understanding and predicting changes of precipitation under the current global climate change but also for human activities. Global or even locally, precipitation observation is, however, difficult, because it has large spatiotemporal variations.

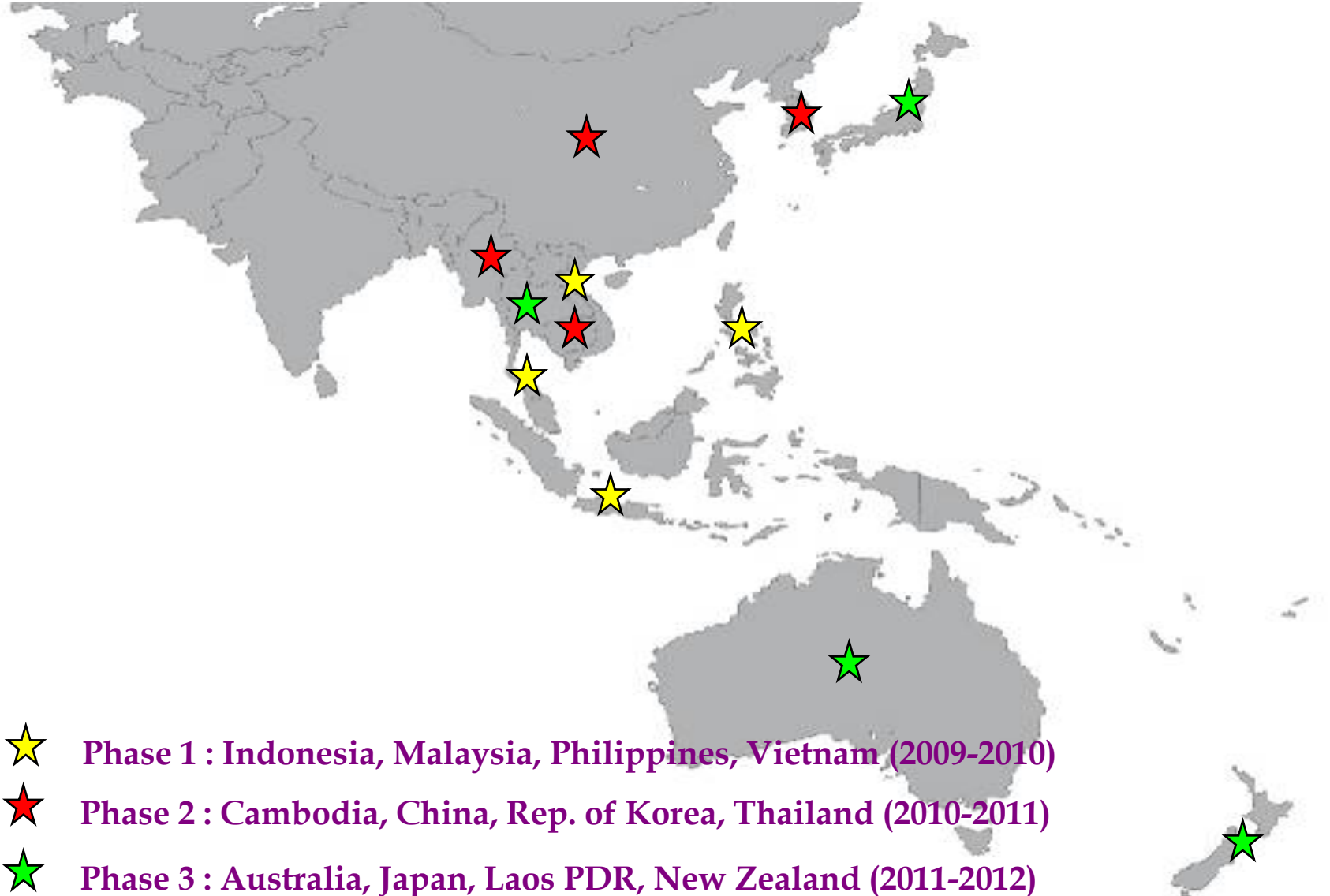
22nd IHP TRAINING COURSE

The TC main objectives are to

- introduce the basics of precipitation retrieval from space and current global precipitation maps
- Demonstrate examples of global precipitation maps from space
- Practice sessions will be used to acquiring learning skills in order to use the precipitation maps.

HYDRO HAZARDS/EXTREME EVENTS

Floods



HYDRO HAZARDS/EXTREME EVENTS

Droughts

- Droughts as further examples of hydrological extremes
- usually affecting vast regions with a more widespread and extensive range of impacts and last for a longer period.
- Under the growing threat of water scarcity, droughts may have several economical, social and environmental impacts depending on their intensity and duration
- As climate change is expected to raise the number of extreme situations of flooding and drought, both in frequency and in duration, enhanced understanding and improved capacities to manage and adapt to these situations becomes more essential to reduce the impacts of these extremes; especially in arid regions where water stress is more severe and impacts from hydrological extremes impair a wider magnitude on availability of water resources as well as the social dilemma.

HYDRO HAZARDS/EXTREME EVENTS

Droughts

Currently IHP is addressing Droughts through 3 Global Flagship programmes;

- MAR – Managing aquifer recharge
- G-WADI – Global Network on Water and Development Information in Arid Lands
- GRAPHICS – Groundwater Resources Assessment under the Pressure of Humanity and Climate Change

HYDRO HAZARDS/EXTREME EVENTS

Droughts - MAR

- MAR – Managing Aquifer Recharge
 - Pilot project in Viet Nam (Ninh Thuan Province) with UNESCO FO (Ha Noi)
 - Pilot project on Managing Aquifer Recharge will be used, thorough assessment in water quality and quantity and social mapping on water uses, to develop a groundwater database and monitoring system in the coastal areas of the Ninh Thuan Province, as well as adaptation measures to the communities affected.
 - The sustainability science concept will be here integrated with proper investigations on how the communities use water resources for human consumption and agricultural purposes, their needs and expectations, in the attempt of integrating “scientific” achievements in daily customs and practises.



HYDRO HAZARDS/EXTREME EVENTS

Droughts - MAR



HYDRO HAZARDS/EXTREME EVENTS

Droughts - G-WADI

- G-WADI - Global Network on Water and Development Information in arid lands
 - Pilot projects in China and Iran with UNESCO FOs
 - will be used to demonstrate impacts of extreme hydrological situations in two Asian G-WADI Pilot Basins, namely Heihe River Basin in China and Kashafroud River Basin in Iran
 - Taking stock of the data and resources already available within these two basins through the Asian G-WADI Network, knowledge and experience of the Asian G-WADI countries as well as the Global G-WADI Network will be shared with relevant authorities of the Heihe and Kashfroud Basins in order to develop the integrated basin-wide model which will ultimately result in principals towards an adaptation plan for optimized use of water

HYDRO HAZARDS/EXTREME EVENTS

Disaster Reduction Hyperbase as diss.

- **Disaster Reduction ^{platform} Hyperbase Phase V:**
 - DRH management part was transferred in early April 2011 to the Disaster Prevention Research Institute (DPRI), Kyoto University. This will include several developments as for example involvement of younger generations and more ample educational purposes and dissemination to larger audience
 - Coupled with the Hydrohazards/Extreme Events activities
 - It will be used as a web based dissemination platform of the activity results in order to provide an effective information facility for appropriate disaster reduction technology and knowledge among stakeholders

HYDRO HAZARDS/EXTREME EVENTS

- DRH
 - IHP member countries, can have strong cooperation with DPRI to **complement the lack of water hazard-related contents in DRH system.**
 - The fact that DRH has migrated to DPRI will give **enhancement to the educational prospective of DRH**, giving therefore a **strong contribution to the ESD and sustainability science** concepts and therefore will pave the way to further projects to populate the DRH database.

Sustainable Water to Improve Tomorrow's Cities Health in Asia (SWITCH-in-Asia)



PROJECT EXAMPLE Ecotechnologies for Sustainable Water and Sanitation Services for Healthy People and Healthy Environment in selected countries

Project Location

Selected sites in Cambodia, Indonesia, the Philippines, Timor-Leste, and Vietnam

Programme Objectives

The overall project objective is to contribute to sustainable development and to general well-being of people in the target region by promoting the wise use of water and environmental resources. This will be achieved via the improvement of water quality, water and sanitation services, and public health situation. The project will also develop and implement awareness-raising and environmental education programmes, aimed at decision makers, and target community groups (e.g. schools and community organizations). The aim is to improve environmental awareness, water use efficiencies, waste management practices, and hygiene and public health awareness.

The project on 'Ecotechnologies' will be developed and implemented in selected areas in Cambodia, Indonesia, the Philippines, Timor-Leste, and Vietnam. The project has the following Specific Objectives:

1. To develop and implement ecotechnologies for water supply and sanitation (WSS), which aim at rational use of water, and permit effluent treatment in combination with resource recovery and reuse.
2. To develop a school water and sanitation programme, which adopts the same concepts of rational use, resource recovery and reuse, linked to the development of a 'green school' concept.

Partners

The programme requires a broad consortium of partners, representing Government agencies, municipal authorities, city planners, UN agencies and bilateral agencies. Proposed partners include the Ministry of Public Works, Ministry of National Education, UNESCO, other UN agencies (UNICEF, Habitat), Provincial and local authorities (e.g. Municipal Councils), selected universities and research institutes in these countries.

Duration

Phase I: 2010 - 2013 (action research, demonstration projects, and awareness raising).
Phase II: 2013 - 2015 (replication and up-scaling)

Estimated Budget

Phase I: 4 to 9 million US\$ per Country
Total budget: 35 million US\$

Background

This project proposes the development of Ecotechnologies for WSS, which will be low cost, provide a range of additional incentives to communities and users, and prevent the destruction of water and environmental resources and the spread of pathogens. The programme on Ecotechnologies for Sustainable Water Supply and Sanitation will be implemented in selected countries in South-east Asia.

Brief project description

The project will contribute to the development of sustainable solutions for water resource protection, pollution abatement and water and sanitation services delivery. This will be achieved by adopting a strategy that considers the municipal water cycle and the individual components of this cycle in the context of sustainability. The strategic approach is to combine sanitation and hygiene objectives, with effluent treatment and reuse options, which lead to the stimulation of local agriculture and aquaculture activities for food production and income generation.

The main outputs of this project are summarized below:

- Improved water and sanitation services via the development and implementation of ecotechnologies for water and sanitation.
- An active school water and sanitation programme, which adopts the same concepts of rational use and reuse, and links this also to the school curriculum in the context of Education for Sustainable Development (ESD) will contribute to the development of a 'Green School' concept.
- Improved Solid Waste Management (SWM) practices for the protection of the water resources.
- A series of full scale demonstration of innovative UMW practices that will serve as a template for replication elsewhere.
- Sustainable UWM practices
- Improved water quantity management (floods, droughts)
- Updated university curricula
- ESD applications



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SWITCH in-Asia

An Integrated and Innovative Programme towards Sustainable Water Management in Asian Cities

SWITCH	Global
SWITCH-in-Asia	Asia and the Pacific
SWITCH-in-Africa	Africa
SWITCH-in-LAC	Latin America and the Caribbean

UNESCO Office, Jakarta
 August, 2009

Objective and approach:

- A visionary programme for the Asia and Pacific region that aims at tackling the challenges brought by global change on the management of water resources in Asian Cities.
- Calls for a paradigm shift in Urban Water Management (UWM)
- Work on developing, applying and demonstrating a range of tested scientific, technological and socio-economic solutions and approaches, contributing to the development of effective and sustainable UWM schemes in Asian Cities.
- Consists of three main components: Action Research, Demonstration and Capacity Building

Focus:

- The regional programme will be developed through a number of national projects in selected countries and cities throughout the region, currently in Cambodia, Indonesia, the Philippines and Vietnam
- Efforts are focused in:
 - Establishing partnerships
 - Establishing learning alliances
 - Secure funding resources
- Potential partners for the SWITCH-in-Asia projects are IHE-Delft, APSARA (Cambodia), The Department of Environment and Natural Resources DENR (Philippines), The Vietnamese Academy of Science and Technology (Vietnam), APWF, IHP ASPAC Natcoms, UNESCO ASPAC Field Offices, UNESCO Category II Centres, UNEP, UNESCAP and UNHABITAT. Possible donors are EU, ADB, AusAID, World Bank

Sustainable Water to Improve Tomorrow's Cities Health
(SWITCH-in-Asia)
Learning Alliance

- Learning Alliances can be represented by sets of connected stakeholder *platforms*. Their structure and activities will be designed to optimize relationships.
- The goals of the SWITCH-in-Asia LAs are:
 - The diffusion and discussion of research results.
 - The dissemination and discussion of the approaches of old, ongoing and future projects in the field of water management.
 - The creation of knowledge networks to develop synergies and enhance the production of new knowledge in the field of water management.
 - The establishment of collaboration and the inclusion of different stakeholder groups in the debate related to the water management field.

THANK YOU FOR YOUR KIND ATTENTION