

NATIONAL REPORT ON IHP RELATED ACTIVITIES
IN
REPUBLIC OF KOREA

June, 2006

Korean National Committee
for
The International Hydrological Programme
Republic of Korea

1. ACTIVITIES UNDERTAKEN IN THE PERIOD SEPTEMBER 2004-JUNE 2006

1.1 Meetings of the IHP National Committee

1.1.1 Decisions regarding the composition of the IHP National Committee

For the solution of water problems and the protection of mans welfare and the quality of human life, a UNESCO Resolution in 1964 created the International Hydrological Decade(IHD). Korea as a participant in the program, then appointed within its Ministry of Construction a IHD National Committee(later, IHP National committee), which undertook pioneer hydrologic surveys of selected representative basins in three major river systems during the program period, and embarked in 1975 on a 6-year International Hydrological Programme (IHP) project as the first step toward an extension of surveys of domestic river basins in order to fulfill its responsibilities in the world's consolidated efforts to cope with the water problem. After the completion of the first phase of IHP in 1980, the second phase of IHP project(1981~1983), the third phase of IHP project(1984~1989), the fourth phase of IHP project(1990~1995), the fifth phase of IHP project(1996~2001) and the sixth phase of IHP project(2002~2007) followed for the continuation of representative basin studies, the adoption of new techniques of water resources development and water quality control, the hydrological evaluation of urbanization and variations of watershed including sustainable development in a changing environment, hydrology and water resources development in a vulnerable environment, and education and training in hydrology and water resources.

In the beginning of the New Millennium and this year(2006), Korean National Committee for the IHP was reorganized and strengthened to fulfill the IHP activities more effectively and actively. All members of the Committee were from every part of water related organizations in the country and executive functions are carried out within the Water Resources Bureau, Ministry of Construction and Transportation.

Decisions regarding most of IHP related activities are made by this committee which is held regularly and on request in special occasion.

1.1.2 Status of IHP-VI activities

During the sixth phase(2002~2007) of IHP, the Korean National Committee for the IHP is paying its efforts to achieve the objectives set by UNESCO for this phase of IHP and the following projects are being and be executed in Korean river basins and in the field of hydrology and water resources in Korea.

- (1) Global changes and water resources
- (2) Integrated watershed and aquifer dynamics
- (3) Land habitat hydrology
- (4) Water and society
- (5) Water education and training

Based on these projects(themes), more practically-oriented-projects for Korean hydrologic and water resources conditions have been and will be executed and their detailed information are listed in Table-1.

Table-1 IHP National Events in IHP-VI

Projects/Activities	Brief Description	IHP-VI Subprogram	Location and Duration	Supporting Body	Gov. Input	Output
1. 2004 IHP Representative Basin Studies	<ul style="list-style-type: none"> · Distribution of hydrological data by electronic publication(III) · Study on flash flood forecasting and management for mountainous region(II) · Study of urbanization effect on river water and sewage quality · Water conflict factors and solution in Korean river basins · Development of image education system for water resources education and training · Collection and fundamental analysis of hydrological data of the Representative basins · Preparations of River Catalogue - Vol. 11 	Theme 1, 2, 4 and 5	Korean rivers	MOCT	Major Gov. input	Report and Papers
2. 2005 IHP Representative Basin Studies	<ul style="list-style-type: none"> · Comprehensive analyses on climate change and its effect on water resources · Evaluation of drought and its measures · Distribution of hydrological data by electronic publication(IV) · Study of urbanization effect on river water and sewage quality(II) · Water conflict factors and solution in Korean river basins(II) · Development of image education system for water resources education and training(II) · Collection and fundamental analysis of hydrological data of the Representative basins · Preparations of River Catalogue-Vol.12 	Theme 1, 2, 4 and 5	Korean rivers	MOCT	Major Gov. input	Report and Papers
3. 2006 IHP Representative Basin Studies	<ul style="list-style-type: none"> · Water demand management planning and its studies · Runoff characteristics change and runoff reduction studies according to large-scale housing area development · Runoff analyses by future landuse and climate change · Int'l river management examples investigation and development of management strategy of South-North Korean co-boundary river basins · River basin management manual for Integrated River Basin management(IRBM) · Optimal water resources use and its management technique development in island and coastal region · Groundwater variation characteristics in urban areas · River and culture/civilization studies in river basin · Selection and design of new Representative basins for hydrological data collection · Review of study results and future direction of present Representative basins 	Theme 1, 2, 4 and 5	Korean rivers	MOCT	Major Gov. input	Report and Papers
4. Asian/Pacific FRIEND Studies	<ul style="list-style-type: none"> · Basic hydrologic analyses in AP FRIEND river basins · Comparative regional analyses of hydrology and water resources in AP FRIEND regions 	Theme 1 Area 1.1	Korean rivers	MOCT		Report and Papers
5. Special program on the low-flow management	<ul style="list-style-type: none"> · Low-flow management system simulation · River water quality variation · Changing climate and runoff conditions 	Theme 1 and 2	Korean rivers	MOCT MOE MOA		Report and Papers
6. Water resources management during extreme flood and drought	<ul style="list-style-type: none"> · Extreme flood and drought modeling · Water resources management techniques during extreme hydrologic periods 	Theme 1, 2 and 3	Korean rivers	MOCT MOA		Report and Papers
7. Special program of regional hydrology	<ul style="list-style-type: none"> · FRIEND basin studies · HELP studies · PUB studies 			MOCT MOE		

MOCT : Ministry of Construction and Transportation

MOE : Ministry of Environment

MOA : Ministry of Agriculture

In the beginning of the sixth phase of IHP (2002~2007), the Korean National Committee for the IHP has prepared the research programme of IHP-VI phase as given in Table-2 to achieve the objectives set by UNESCO for this phase of IHP.

Table-2 Planned Research Programme of IHP-VI Phase

Theme	Title	Potential Contribution and Research Activities	Executing Milestone						Remark
			2002	2003	2004	2005	2006	2007	
Theme 1	Global Changes and Water Resources								
Focal Area 1.1	Global estimation of resources: water supply and water quality	<ul style="list-style-type: none"> · Low-flow management in consideration of water quality improvement and changing environment in river systems · Developing environmentally sound – sustainable development and management strategies of water resources · Development of water archive and contribution of Korean hydrological data and water quality data to global and regional studies · Comparative global and regional analyses of water resources · Developing national water quality management strategies 							
Focal Area 1.2	Global estimation of water withdrawals and consumption	<ul style="list-style-type: none"> · Comprehensive studies of alternative means to save and conserve water resources for future demand · Evaluation of national water use and demand · Evaluation of groundwater resources and developing suitable management strategies for their withdrawals and consumption 							
Focal Area 1.3	Integrated assessment of water resources in the context of global land based activities and climate change	<ul style="list-style-type: none"> · Integrated studies of water resources changes due to man-made activities · Comprehensive analyses of climate change and its effect to water resources · Assessment of water resources due to land use change 							
Theme 2	Integrated Watershed and Aquifer Dynamics								
Focal Area 2.1	Extreme events in land and water resources management	<ul style="list-style-type: none"> · Hydrological studies of extreme events in Korean river basins · Developing the best flood warning systems and the use of radar-based rainfall information · Evaluation of national drought characteristics and their alternative measures · Water resources management during extreme flood and drought 							
Focal Area 2.2	International River Basins and Aquifers	<ul style="list-style-type: none"> · Developing strategies of international river basin management 							
Focal Area 2.3	Endorheic Basins								
Focal Area 2.4	Methodologies for integrated river basin management	<ul style="list-style-type: none"> · Development of integrated river basin management systems in Korean river basins · Integrated urban water management · Assessment of surface water and groundwater resources in watershed and aquifers 							
Theme 3	Land Habitat Hydrology								
Focal Area 3.1	Drylands								
Focal Area 3.2	Wetlands								
Focal Area 3.3	Mountains	<ul style="list-style-type: none"> · Studies of hydrological processes in mountain watershed · Flash flood and runoff characteristics in mountain hillslope basins 							
Focal Area 3.4	Small islands and coastal zones	<ul style="list-style-type: none"> · Studies of hydrology and water management in small islands and coastal zones · Assessment of groundwater resources in small and volcanic islands · Studies of water supply and alternate water resource systems in small islands and coastal zones 							

Focal Area 3.5	Urban areas and rural Settlements	<ul style="list-style-type: none"> · Development of stormwater management model in urban areas · Studies of change of urban rivers to environmentally sound – natural rivers · Studies of decreasing methods of urban runoff · Assessment of urban stormwater quality systems 							
Theme 4	Water and Society								
Focal Area 4.1	Water, civilization and ethics	<ul style="list-style-type: none"> · Studies of relationship of water with culture and civilization in Korean river basins - - - characteristics of water culture 							
Focal Area 4.2	Value of water	<ul style="list-style-type: none"> · Assessment of water price for effective consumption · Studies of water consumptive habit in the society 							
Focal Area 4.3	Water conflicts – prevention and resolution	<ul style="list-style-type: none"> · Evaluation of water conflict problems in Korean river basins : case studies 							
Focal Area 4.4	Human security in water – related disasters and degrading environments	<ul style="list-style-type: none"> · Review and assessment of prevention activities in water – related disasters · Studies of environmental impacts by water – related disasters 							
Focal Area 4.5	Public awareness raising on water interactions	<ul style="list-style-type: none"> · Development of public awareness and participation programs in water resources project · Studies of public awareness in water resources 							
Theme 5	Water Education and Training								
Focal Area 5.1	Teaching techniques and material development	<ul style="list-style-type: none"> · Evaluation and development of teaching and training techniques in water – related education · Development of internet-based teaching materials for water resources education 							
Focal Area 5.2	Continuing education and training for selected target groups	<ul style="list-style-type: none"> · Development of continuing education and training programs for practicing hydrogists and water – related engineers 							
Focal Area 5.3	Crossing the digital divide	<ul style="list-style-type: none"> · Development of the internet program of water education & information 							
Focal Area 5.4	Institutional development and networking for WET	<ul style="list-style-type: none"> · Access to hydrological and water resources educational expertise within Korea 							

1.1.3 Decisions regarding contribution to / participation in IHP-VII

Upon having received the progress report on the seventh phase of the international hydrological programme(IHP-VII, 2008-2013), the Korean National Committee for the IHP decided to prepare the potential contribution and research programme of IHP-VII during the IHP-VI period(2002-2007) based on the proposed concept and structure of IHP-VII as the followings ;

Water Dependencies : Systems under Stress and Societal Responses

Theme I : Global Changes, Watersheds and Aquifers

Theme II : Governance and Socio-Economics

Theme III: Ecohydrology and Environmental Sustainability

Theme IV: Water Quality, Human Health and Flood Security

Cross Cutting Programmes : HELP and FRIEND

Education and Capacity Building

1.2 Activities at a national level in the framework of the IHP

1.2.1 National / local scientific and technical meetings

Annual regular or many special scientific and technical meetings in the framework of the IHP were held in collaboration with International Hydrologic Environmental Society(IHES), Korea Water Resources Association(KWRA), Korean Society of Civil Engineers(KSCE), ICOLD Korean National Committee (KNCOLD), IWRA Korea Geographic Committee(IWRA-KGC), Korea Federation of Water Science and Engineering Societies(KFWSES), Korea Water Resources Corporation, and other water-related organizations in Korea. In those meetings, national/local hydrologic issues and water resources problems were dealt with special solution measures and their results were published in the form of scientific or technical reports and papers.

1.2.2 Participation in IHP Steering Committees / Working Groups

Republic of Korea was one of most active member countries in IHP Regional Steering Committee's activities for Southeast Asia and the Pacific. Republic of Korean delegates actively participated in the IHP Regional Steering Committee and Working Group meetings held in the period of 2004~2006.

1.2.3 Research / applied projects supported or sponsored

Research projects supported by the Government in the framework of the IHP in the period of 2004~2006 are listed in Table-1. Some other research or applied projects were also supported or sponsored by the Government and other water-related organizations such as Korea Water Resources Corporation during this period.

The following projects have been and are being implemented for the Asian Pacific FRIEND in the three representative river basins chosen as the Korean Asian Pacific FRIEND basins(Pyungchang-gang, Wichun, Bochungchun river basins).

- Basic hydrologic analyses and data collection
- Comparative regional flow regimes analyses
 - Rainfall models and design storm
 - Flood models and design flood
- FRIEND river basin review and selection
- HELP river basin selection and studies

1.2.4 Collaboration with other national and international organizations / or programmes

The Korean National Committee for the IHP is functioning in the execution of IHP activities in collaboration with the following national and international organizations/or programmes; Korea Water Resources Corporation; Korea Water Resources Association; Korean Society of Civil Engineers; Korean Society of Agricultural Engineers; Korean Meteorological Society; ICOLD Korean National Committee; IWRA Korean Geographic Committee; International Hydrologic Environmental Society(IHES); Korea Federation of

Water Science and Engineering Societies; Korea Institute of Construction Technology; Korean Universities Hydrology and Water Resources Programmes.

1.3 Educational and training courses

1.3.1 Contribution to IHP courses

The Korean National Committee for the IHP is contributing to the Korean Universities hydrology and water resources courses in the framework of the IHP in which graduate students and engineers are mostly involved with IHP projects and also educated or trained through the formal courses.

1.3.2 Organization of specific courses

Special workshops and seminars in the field of hydrology and water resources are annually organized by the Korean National Committee for the IHP in collaboration with above mentioned organizations in 1.2.4. In these specific courses, special topics are dealt with practical application in river basins.

1.3.3 Participation in IHP courses

The Korean National Committee for the IHP has actively been participating in IHP courses which were held in Asia-Pacific regions such as Japan, China and Malaysia by sending highly qualified hydrologists or proper candidates.

1.4 Cooperation with the UNESCO-IHE Institute for Water Education and/or international /regional water centres under the auspices of UNESCO

The Korean National Committee for the IHP had particularly close cooperation with International Center for Water Hazard and Risk Management (ICHARM) under the auspices of UNESCO in its preparatory activities for the establishment during last two years through the participation in workshops and strong support at the UNESCO Council and regional meetings.

1.5 Publications

The Korean National Committee for the IHP is publishing IHP Annual Research Report and the Catalogue of Rivers in Korea every year in the form of Government Publication since 1975. These reports are distributed to all water-related organizations and IHP-KNC members and research results are published on the journals of academic societies or organizations.

Some other technical reports, proceedings of scientific meetings and specific course's materials are also published by the IHP-KNC.

1.6 Participation in international scientific meetings

1.6.1 Meetings hosted by the country

The following IHP meetings were hosted and organized by the IHP-KNC, IHES and Yeungnam University.

- 2004 International Symposium on Hydrological Environment
- 2005 International Symposium on Hydrological Environment

These meetings were held at the Yeungnam University and Inter-Burgo Hotel, Taegu, Republic of Korea in 2004 and 2005.

1.6.2 Participation in meetings abroad

The Korean National Committee for the IHP actively participated in the IHP Inter-Governmental Council meeting as well as the regional IHP meetings such as Meetings of IHP Regional Steering Committee for Southeast Asia and the Pacific, Asian Pacific FRIEND Project and its workshops, working Group meetings and etc.

2. FUTURE ACTIVITIES

2.1 Activities planned until December 2007, foreseen for 2008-2009 and envisaged in the long term

From the beginning of 2002, IHP-KNC prepared concrete national plan for the sixth phase of IHP and began to implement this plan in Korean river basins. IHP-KNC will also actively continue and participate in the Asian Pacific FRIEND project to complete with successful results for the Southeast Asia and the Pacific.

IHP-KNC will also prepare the potential contribution and research programme of IHP-VII by the end of IHP-VI period(2007) and organize some international and regional activities within this period.

The following international symposium and workshop will be organized until December 2007 as the IHP-VI activities of IHP-KNC.

- 2006 International Symposium on Hydrological Environment
- 2007 International Symposium on Hydrological Environment
- Korean Workshops of FRIEND, HELP and PUB