



Asia-Pacific Network for Global Change Research

International Integrated Water Data Access and Transfer in Asia (IIWaDATA) Project

**Progress report for APN project:
ARCP2006-07NMY-Koike**

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countries

Part One: Overview of project work and outcomes

1. Introduction and background:

In recognition of the need for accurate, timely, long-term, water cycle information as a basis for sound and effective water resources and risk management and with regards to the ongoing initiatives pursuing to meet this need, the IIWaDATA project aims to develop a sustainable scheme for water cycle data collecting, sharing, exchanging, and management at the regional level in Asia in cooperation with national governments, institutes and research communities and also international organizations that would be consistent with the global framework of the Global Earth Observation System of Systems (GEOSS), especially its Water theme component.

The guiding goals of the project are:

- (1) To improve knowledge and enhance prediction of the Asian water cycle variation and its impacts on water resources through integrated observation systems and advanced data management and processing capabilities that will assure an easy access to relevant data in the proper format and to the desired extent to research communities.
- (2) To support informed decisions on water resources management and promote integrated water resources management (IWRM) strategies through providing specific tools and methods for transformation of observation data and scientific knowledge into information relevant for decision- and policy-makers.

2. Participating countries:

Bangladesh, Bhutan, Cambodia, China, India, Indonesia, Japan, Korea, Lao PDR, Mongolia, Myanmar, Nepal, Pakistan, Philippines, Sri Lanka, Thailand, Uzbekistan, Vietnam

3. Objectives:

- (i) Establishment of a mutual consensus among the participating countries that will define data sharing and exchanging policy and responsibilities for data processing, management and archiving;
- (ii) Establishment of an observation convergence strategy in the Asian region;
- (iii) Development/Adopting of effective tools for enhanced data collecting and data management including: software for data processing, quality control and format conversion, sophisticated database systems, and other tools;
- (iv) Development/Adopting of advanced technologies for data integration and data dissemination including: data integration systems based on Internet technologies and capable of integrating data from diverse sources and various disciplines;
- (v) Development/Adopting and implementation of specific tools and methods for transformation of observation data and scientific knowledge into water resources and risk management relevant information including: advanced downscaling methods to successfully introduce the impact of the global climate change on water cycle processes at the local scale, technologies for information fusion to link together various features of the water cycle and other aspects of the Earth system and thus provide sound information for decision makers, visualization tools to help to translate the scientific information, etc.

4. Outcomes and products against original proposal objectives:

- (i) An International Task Team (ITT) consisting of a representative from each participating country and cooperating project has been established.
- (ii) The project has been associated with a broader and longer-term initiative –

Asian Water Cycle Initiative (AWCI) that has been proposed at the 1st Asian Water Cycle Symposium (Tokyo, 2-4 November 2005) in recognition of the need for accurate, timely, long-term, water cycle information as a basis for sound and effective water resources and risk management in the Asian region. AWCI has been recognized by GEO as a GEOSS-supporting initiative (see Fig. 1).

- (iii) An ITT working session was held in Bangkok, 25 September 2006 to discuss the data policies and to outline the implementation strategy. The discussions resulted in proposing demonstration projects (DP) that would show the value of the global integrated data sets for advancing the research into the water cycle and for implementing IWRM strategies through the actual application of the available data to selected basins in participating countries. The in-situ data exchange and sharing policy for DPs was proposed. 32 basins were proposed for DPs (see Fig.2).
- (iv) Work on inventory of the available data in the proposed basins and existing tools and methods relevant to the IIWaDATA (AWCI) objectives has been initiated.
- (v) Collaboration with related organizations and projects has been sought and established.
- (vi) The 2nd Asian Water Cycle Symposium was held in Tokyo, 9-10 January 2007 (<http://www.prime-intl.co.jp/awcs07/index.php>). The AWCI/IIWaDATA participating countries introduced their proposals for DPs. The baseline of the AWCI implementation plan and the data policy proposed on the ITT working session in Bangkok were discussed, modified and endorsed by the participants. A summary of the Symposium has been drafted and will be revised and published at the said web site by March 2007.

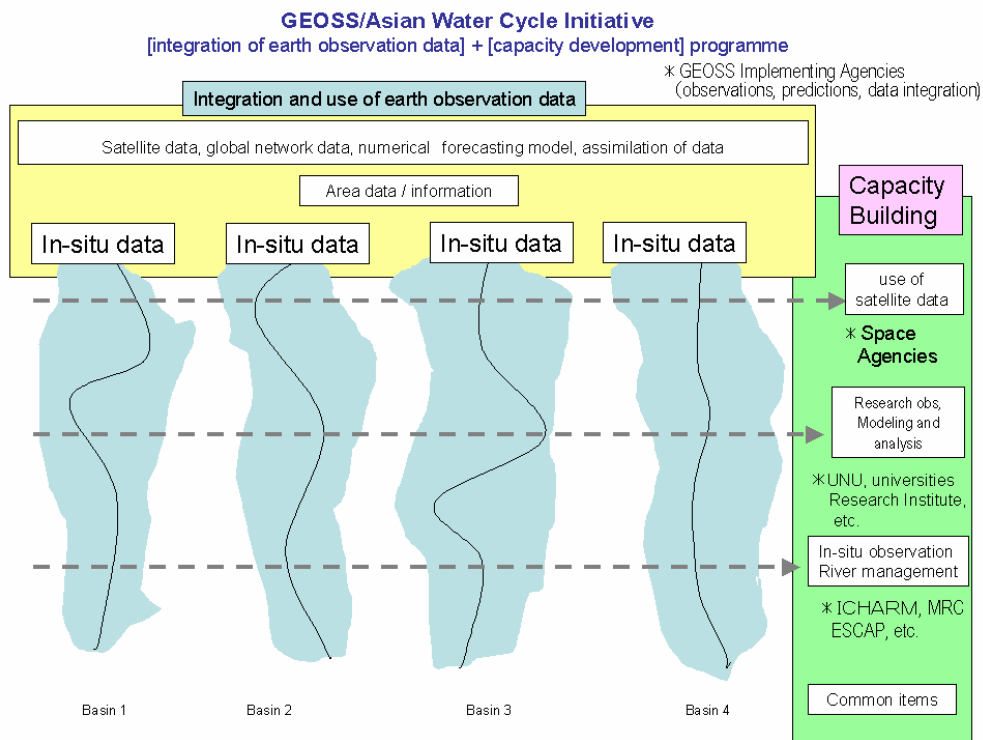


Figure 1: Framework of GEOSS/AWCI - IIWaDATA

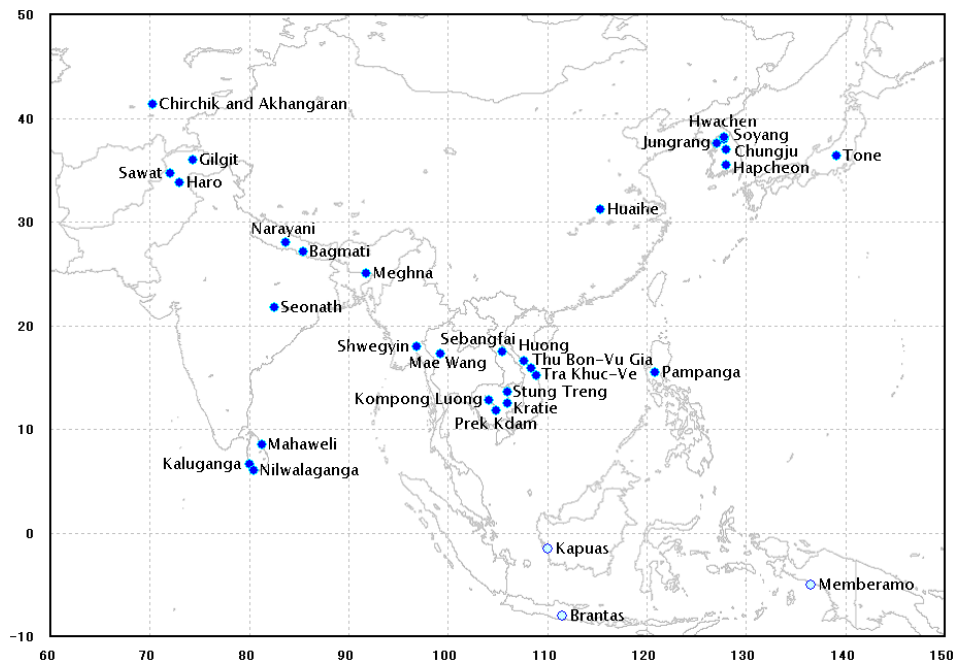


Figure 2: Locations of proposed GEOSS/AWCI (IIWaDATA) DP basins.

5. Self evaluation of work performed to date:

We feel that the extended discussion on the baseline resulted in far better understanding of the objectives and the work that need to be carried out by participating countries. The great success is the agreement on the in-situ data exchange policy by participating countries. An important achievement is recognition of the project by national and international organizations and related existing projects and their interest in mutual cooperation. The achievement of these results has required longer discussions than anticipated and the association of the project with AWCI has also contributed to the initial phase taking a bit longer than initially planned. Even so, considering the objectives and originally proposed timeline, we can state that the project is progressing successfully.

Part Two: Request for project continuation

6. Definitive project targets for 2007/08

The definitive project targets for 2007/08 are in line with the original proposal but also reflect the association of the project with the Asian Water Cycle Initiative (GEOSS/AWCI). Accordingly, the focus is on successful initiation of the GEOSS/AWCI demonstration projects in the selected basins that will adhere to the proposed data exchange and sharing policies and techniques, which are based on the existing schemes of the CEOP (Coordinated Enhanced Observing Period) project (<http://www.eol.ucar.edu/projects/ceop/dm/>). These schemes will be tested through the demonstration projects and consequently, the IIWaDATA sharing and exchange techniques (IIWaDATA-SET) document will be drafted and endorsed for future activities of GEOSS/AWCI.

The work plan steps include:

(1) Follow-up to the first IIWaDATA working session (2nd Asian Water Cycle Symposium) – A report on the outcomes of the first working session and baseline of

the GEOSS/AWCI (IIWaDATA) demonstration projects will be provided in April 2007 (Project Leaders and ITT).

(2) APN Funds will be expended in support of focused actions and leading to the implementation of the demonstration projects and final drafting of the IIWaDATA-SET document. These actions will include teleconferences among the ITT members and the second ITT focused workshop scheduled for summer 2007 (July-August).

(3) The second IIWaDATA working session (3rd Asian Water Cycle Symposium) that will be held in conjunction with the 1st Asian Water Forum, in Beppu, Japan, 12/2007. The same organizing approach as used for the first working session will be applied. At this session, nominated ITT members will introduce the preliminary results of the demonstration projects in their respective countries and will report on developed IIWaDATA scheme to national representatives. Breakout sessions will be organized to finalize any remaining issues. A final plenary will be held to endorse the IIWaDATA-SET document.

(4) Follow-up to the second working session – A report on the outcome of the second working session will be drafted and the IIWaDATA-SET document published and distributed. The demonstration projects will continue under the GEOSS/AWCI framework according to the attached baseline (see below).

Baseline of GEOSS/AWCI implementation plan

Objectives

1. To develop an information system of systems for promoting the implementation of integrated water resources management (IWRM).
2. To make a bridge between the data and information from the global scale to a river basin scale for sound decision making.
3. To shift from research activities and achievements to operational use for contributing to societal benefits.

Targeted River Basin Criteria for Demonstration Projects

1. Importance of the basin from the viewpoint of the socio-economic benefit area and hydrological sciences
2. Minimum requirement of data availability:
 - a. Data type: rainfall, streamflow, weather station data (air temp., wind speed, pressure, humidity)
 - b. Spatial density of observation stations: according to the WMO standard but local specifics to be considered;
 - c. Watershed characteristics information
3. Highly expected data:
 - a. Upper air observation is highly recommended
 - b. Near-real time data availability is highly recommended;
 - c. Ground water and water quality data availability for the river basins where those problems should be addressed.
4. Size of the watershed: 100 km² – 1,000,000 km²

Data Interoperability

1. Metadata design
2. Metadata registration
3. Data quality check and archive
4. Data format unification
5. Data integration function
6. Distributed- and Centralized data distribution

User Interface

1. Data request: global/regional/local, observed/modeled, natural science/socio-economic
2. Function request: data integration, information fusion, analysis, prediction, dissemination

Data Policy – compliant with CEOP in-situ data policy

1. Release of Data in Compliance with WMO Resolution 40 (CG-XII) and WMO Resolution 25 (CG-XIII)
2. No Commercial Use or Exploitation
3. No Data Transfer to Third Parties (*data should be disseminated through the data centers which assure proper metadata is provided together with the data and which monitor who is using the data in case users should be informed about any update or change to the data or metadata provided by PIs.*)
4. Timing for Release of AWCI River Basin Data from the CDA Archive
 - a. category 1 - standard data - data release after 6 months
 - b. category 2 - special data - data release after 15 months
 - *Streamflow data - (i) operational - category 1 data; (ii) research site maintained by university, through a project - category 2 data; also remote sites need to be included in category 2 data*
 - *A suggestion was made to also consider exchange of real-time or near-real-time data (category 0) that are crucial for improving weather forecasts and hence flood forecasting. This will be considered for later phase AWCI dedicated to transition to operational issues. For the demonstration projects, the categories 1 and 2 should be sufficient.*
5. Acknowledgement and Citation
6. Co-operation between AWCI Data Users and AWCI River Basin Principal Investigators (PIs)
7. Co-Authorship for AWCI River Basin Principal Investigators (PIs)
8. AWCI Publication Library

Timeline

2007: Pre-phase: survey of capabilities; Completion of implementation plan; Input to the task sheets; Test archive: metadata, observed data during CEOP Phase 1 (EOP3, EOP4), a basin in each country in the archive

2008 – 2011: Data archive for data collection 2007-2010; Demonstration project implementation

2009 – 2010: Preparation for shifting from more-research to more-operational phase

Demonstration projects – next step

As the first step, only one river basin in a country will be considered for DP and country representatives have an action to select the most adequate one according the criteria above. The country representatives will also identify the most pressing issue in the basin, review the data availability table according the data requirements above, and will specify the capacity building needs. For that purpose the AWCI secretariat will prepare template questionnaires.

Consequently, specific proposals for DPs will be drafted by the country representatives in cooperation with the AWCI secretariat.