## In-situ data management framework of the GEOSS/Asian Water Cycle Initiative (AWCI) demonstration basin

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1.Background Under the framework of Global Earth Observation System of Systems(GEOSS), representatives of hydrological and meteorological organizations and science communities in Asia gathered together, and began to discuss about how to address the water-related issues in Asia in cooperative ways by making maximum use of GEOSS. This is the GEOSS / Asian Water Cycle Initiative (GEOSS/AWCI). GEOSS/AWCI approach for converging earth observation satellites, in-situ reference site networks, and operational observation systems, for integration of the observed data, numerical weather prediction model outputs, geographical information, and socio-economic data, and for dissemination of usable information is adopted from and designed in cooperation with the Data Integration and Analysis System (DIAS) which was launched in 2006 as part of the Earth Observation and ocean Exploration System, which is one of five National Key Technologies defined by the 3rd Basic Program for Science and Technology of Japan. 2.AWCI demonstration basin There are 18 global demonstration basin (in-situ hydrological and meteorological observation sites) which Meghna in Bangladesh, Punatsangchhu in Bhutan, Sangker in Cambodia, Seonath in India, Mamberamo in Indonesia, Tone in Japan, Upper Chungju-dam in Korea, Sebangfai in Lao PDR, Langat in Malaysia, Selbe in Mongolia, Shwegyin in Myanmar, Bagmati in Nepal, Gilgit in Pakistan, Pampanga in Philippines, Kalu Ganga in Sri Lanka, Mae Wang in Thailand, Chirchik-Okhangaran in Uzbekistan, Huong in Vietnam, to contributing data to AWCI. The basis for the GEOSS/AWCI collaborative framework is the mutual consensus among participating countries and international organizations that defines data sharing and exchanging policy and responsibilities for data processing, management and archiving. These were discussed at the special AWCI International Task Team meeting (25 - 28 September 2006 in Bangkok, Thailand) and 7 times International Coordination Group meetings were held (1st: 9 September 2007 in Bali, Indonesia, 2nd: 16 - 17 April 2008 in Tokyo, Japan, 3rd: 5 - 6 November 2008 in Beijing China, 4th: 6 - 7 February 2009 in Kyoto, Japan, 5th: 15 - 17 December 2009 in Tokyo, Japan, 6th: 13 March 2010 in Bali, Indonesia, 7th: 5 - 6 October 2010 in Tokyo, Japan) and one training course"Data quality check and meta data registration". 3.Data management structure The detailed descriptions such as data format specifications, required parameters, the units, values specifying missing data values, required period and the definitions of data flags were discussed in these International Coordination Group meetings. The AWCI demonstration basin provides operational observation data, but there are various sites' and great deal of variety in observational elements, data format, recorded intervals, etc. Processing these data for common use, they need great deal of a time and energy to complete processing. To reduce the work and time for data checking and format conversion, the DIAS established an Internet based 1)data Upload system, 2)data Quality Control system and 3)meta-data registration system that data providers can use through a web site. These systems were developed jointly with the Intelligent Information Technology group of the University of Tokyo. After finish these processes, the quality controlled and format converted data and dataset documentation are widely open through the DIAS. 4. Summary Thus, the in-situ data has been qualitycontrolled, converted into a unified format, and integrated with other Model output data and satellite observation data, and then could be used by applied with some global hydrological models, and finally the advanced data set will be expected to be used as a sound-decision making for a more reliable water resource management.