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II

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**IMPLEMENTATION OF THE REGIONAL STRATEGIC PLAN  
FOR THE ENHANCEMENT OF THE NMSS IN RA II (Asia, 2006-2008)**

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**Summary and Purpose of Document**

This document includes the report on the implementation of the Regional Strategic Plan for Enhancement of National Meteorological Services (NMSs) in Region II.

**Action Proposed**

The session is invited to consider and comment on the document.

## **Background**

The twelfth session of Regional Association II (Seoul, Republic of Korea, 19 to 27 September 2000) approved the Strategic Plan for the enhancement of National Meteorological Services in RAI (Asia) and endorsed the steps of the implementation of the Strategic Plans. The present Strategic Plan for the Enhancement of National Meteorological Services (NMSs) in Regional Association (RA) II (Asia) (2005-2008) was approved by the thirteenth session of RA II at Hong Kong, China, 7-15 December 2004. The purpose of the Strategic Plan at regional level is to develop understanding among NMSs in the Region on the priorities for their individual development and for the overall development of the Region through collaborative projects. Such planning at a regional level will also contribute to raise general awareness about the status of work and provide a framework under which development assistance can be provided and coordinated among Members. Working together, within the purview of the Plan will also contribute towards the implementation of the regional programme in the WMO Long-term plan.

The Association at its thirteenth session at Hong Kong, China endorsed the steps for implementation of the Strategic Plan and agreed that projects for the implementation of the plan at national, sub-regional and regional levels be developed by WMO and its Members, and other regional and international institutions and donor agencies to further enhance their services. To monitor the implementation of the Strategic Plan, a survey on Basic Capability of National Meteorological Services in RA II as suggested in the adopted plan was to be completed and compiled on a yearly basis.

This document summarizes the Strategic Plan implementation activities during the period under review, relevant to Planning and implementation of WWW in RA II based on the reports submitted to this working group.

## **Strategic Plan implementation**

### **Global Observing System**

- The numbers of automatic stations in the RBSN network has registered a 31% increase since 2004, although there is a reduction in the total network by 2 stations as per AGM of Oct 2006.
- All GUAN stations in the Region are working, and meet the GCOS minimum requirements, making this one of the best performing Regions. There are ongoing attempts to increase the geographical coverage and availability of historical data for the GSN.
- RA II, AMDAR Program is operational in China, Japan, Hong Kong - China, Korea and Saudi Arabia (as reported).

### **Ocean Observations**

- A number of RA-II Members are participating in the Data Buoy Cooperation Panel (DBCP) and some of its Action Groups. Members have contributed to International Buoy Programme for the Indian Ocean (IBPIO), Tropical Moored Buoy Implementation Panel (TIP). DBCP Action Groups where RA-II Members are particularly active include:

-The Global Drifter Programme (India, Japan, Republic of Korea). The global array is completed with about 1250 drifters maintained in operations. While about 450

of the drifters now report air pressure, it is planned to equip all 1250 drifters with barometers by 2010.

-The OCEAN Sustained Interdisciplinary Time series Environment observation System (OceanSITES) (Japan, India)

-WCRP-SCAR International Programme for Antarctic Buoys (IPAB) (Japan)

-International Arctic Buoy Programme (IABP) (China, Japan, Russian Federation) with currently 150 buoys deployed in the Arctic Ocean.

-The Argo profiling float network with 2856 floats became operational in July 2007 for a target of 3000. Participating RA-II Members include China, India, Japan, the Republic of Korea, and the Russian Federation.

### **Global Telecommunication System**

- Out of the eighty eight circuits, seventy seven circuits in RMTN plan are in operation. TCP/IP migration is making satisfactory progress. It is expected that the achievement rate would be over 70 percent in 2008. Migration to cost-effective cloud based circuits has been making steady progress since 2000.
- There are 14 Internet based RMTN circuits. In addition, the Internet connection is often used for GTS backup.
- Satellite broadcasting systems are used to complement the GTS. RTHs Bangkok, Tehran and Tokyo are still operating HF broadcast but it appears that soon HF broadcasts will disappear.

### **Global Data Processing System**

- GDPFS centres in the Region continued to enhance and improve their forecasting systems and computer facilities. In 2007, eighteen of the thirty-five Members of Region II were running NWP systems. Six Members (China, India, Japan, Republic of Korea, Russia and Thailand) run global models, and four (China, Japan, Republic of Korea and Russia) also use an ensemble prediction system in operational mode and also use EPS for extended and long-range forecasting. Eighteen Members use regional models for operation.
- To promote regional contribution to the development of the WMO Information System (WIS), the VPN Pilot Project in Regions II has been making steady progress.

### **Public Weather Service**

- A number of capacity building activities were undertaken in the Region during the inter-sessional period. These include VCP Training course on city forecasts, PWS Workshop on Warnings of Real-time Hazards by using Nowcasting Technology, Asia Conferences on Disaster Reduction in Seoul and Astana, Kazakhstan in 2007, OPAG/PWS survey on severe weather warning services in 2006 and Coordination Meeting of the World Weather Information Service (WWIS) Website Hosts.
- City-specific NWP products for developing countries - Steady progress was made in the pilot project since 2006. The first batch of city-specific forecast time series products, provided by Hong Kong, China; Japan and Republic of

Korea were launched on their respective web sites in January 2006. Forecast time series are now provided for a total of 160 cities in 13 participating Members.

- World Weather Information Service (WWIS): The WWIS website (<http://worldweather.wmo.int>) has gained popularity in the region. The WWIS is operating now in six languages, viz. English, Chinese, Portuguese, Spanish and French.
- To enhance communication between host countries, a coordination meeting of the WWIS website hosts was held during January 2007 in Hong Kong, China. A roadmap for future WWIS activities was prepared.
- Severe Weather Information Centre (SWIC): The SWIC web site (<http://severe.worldweather.wmo.int>), was developed and maintained by Hong Kong, China, containing initially tropical cyclone advisories, and official warnings issued by National Meteorological and Hydrological Services (NMHSs) for their respective countries or regions.
- PWS survey on severe weather warning services : the ET/DPM conducted a survey in collaboration with the ET/SPI on severe weather warning services of WMO Members in 2006. A total of 76 returns were received from Members, 34 of which were from RA II.
- New initiatives and upcoming events on PWS include: Proposal on a Public Outreach Campaign in RA II about Meteorological and Hydrological Services in Disaster Risk Reduction.

#### **Future plans for 2008-11:**

#### **Future Composite GOS and its impact on developing countries.**

The EGOS IP recommendations, which address relevant aspects of the issues affecting the evolution of the GOS in developing countries were identified. These relevant recommendations include data distribution, documentation of observations, timeliness and completeness of observations, ozone sondes observations exchange, Baseline System for provision of comprehensive and uniform data coverage, AMDAR technology for more ascent/descent profiles with improved vertical resolution, Ground-based GPS measurements for total water vapour, More profiles in the tropics.

Steps in the framework of the implementation plan include: 1) the identification of relevant recommendations of the plan addressing the major issues; 2) the translation of these relevant recommendations into general outlines and specific recommendations and action, and 3) the formulation of a proposal of a strategic plan for the evolution of the GOS, which will enable Members to realize the changes.

Furthermore, with regard to the conventional basic data to be exchanged internationally, the regional strategic plan will address:

- The feasibility of the creation of a regional or sub-regional programme managing

the evolution of the GOS as EUCOS in Europe, NAOS in America and COSNA in the North Atlantic.

- The organization and funding of major programmes of specific observations over data sparse regions in developing countries.
- The full involvement of the Regions in the THORPEX Programme through the establishment of an Asian Regional THORPEX Committee (both operational and research components) and in the planned GEOSS activities, in cooperation with WMO Programmes and Projects in order to enable the Region to have a full cross-benefit with the WWW Programme.
- In many areas in developing countries the current GOS simply does not exist because of many major deficiencies;
- There is a need to establish funding mechanisms or programmes to sustain the production and the achievement of high level performance of the exchange of good quality conventional meteorological, climatological and environmental data;
- Many stations proposed to be within the RBSN especially for the upper-air component are not implemented;
- Failures to catch up with rapid technological developments;
- Poor economic environment and difficulties to establish stations in uninhabited areas;
- Inadequate or lack of telecommunication facilities, lack of capacities for the operation and maintenance of equipment;
- High cost of consumables especially for upper air stations;
- Lack of qualified personnel; the Class IV training is less and less provided;
- Lack of public infrastructure and expertise being the result of the lack of funding and lack of involvement, support, attention and awareness in the matters of meteorological services (climate, weather) by the public officials (governments and regional economic groupings);
- Lack of efficient synergy and working arrangements between OPAG-IOS, the Rapporteur, the Regional Association Decision Making Bodies (President, Regional Directors) in solving the issues addressing the evolution of the GOS in the region;
- Lack of Regional Observing programmes such as EUCOS in Region VI that will deal with all the issues and problems and will define the strategies to improve the evolution of the GOS in the region; rather than to let a single countries run its own national observation programme (if it exists);

**Recommended actions:**

- The evolution must take into account upgrading, restoring, substitution and capacity building (especially in the use of new technologies), taking into account both the use of the data and the production of the data. It is possible that some countries do not and will not be able to produce the data and will therefore only be users of data. To help countries produce data for international exchange, due consideration must be given to the three issues previously identified, i.e. public infrastructure, expertise and funding.
- Possible approaches towards the evolution of the GOS were identified by the EGOS IP, which recommended for developing countries observing systems that were less dependent on infrastructure, expertise, and funding, such as satellite, AMDAR, and AWSs. However, a minimum set of reliable RAOBs would be required both as a backbone to the upper air network, and also to validate the satellite observations with enough height and accuracy. Migration toward the BUFR code (as a reliable representation of the data) is required.
- If resources are available, the highest priority should go to (a) maintaining the RBSN and RBCN, noting that GUAN stations are part of the RBSN, and (b) rehabilitating observing sites in critical locations.
- Members are urged to distribute, as quick as possible, certain type of observations made routinely in near real-time but not distributed worldwide. These information are of interest for use in other meteorological applications.
- Observations made by Pilot sounding – In the tropics, the wind profile information is considered to be of particular importance.
- Observations made with high temporal frequency should be distributed globally at least hourly. Examples include regular aviation observations (METAR, SPECI, high resolution Radar observations, AWSs, Buoys Hourly SYNOP, precipitation and wind from local or regional mesonet, soil moisture and temperature.
- The need for good metadata exchange in support of observational data sometimes in real time.

### **Implementation of the Sixth WMO Long-term Plan (6LTP)**

There were some actions recommended by the CBS Extraordinary Session held in Seoul, Republic of Korea, 9-16, November, 2006 on implementation of the Sixth WMO Long-term Plan (6LTP) and to the preparation of the WMO Strategic Plan 2008-2011. Some of the points those are relevant to RA II and this Working Group are presented below for consideration while formulating the strategic plan for 2008-11:

- The international community has recognized the importance of an integrated approach to observing the Earth system and has created the Group on Earth Observations (GEO) to implement the Global Earth Observation System of Systems (GEOSS). WMO is integral to the success of GEOSS since NMHSs are responsible for a large fraction of the existing space-based and in situ Earth observing system and must continue to play a leading role in its evolution and application.

- Transforming key scientific information and knowledge in useful and practical messages at the local level is of great importance to effect appropriate social change. NMHSs can play a more prominent role in education and training at all levels of society to increase public and sector-specific environmental awareness. The societal impact of meteorological and hydrological assessments and forecasts is increasing as many developed, as well as developing and least developed, economies become increasingly sensitive to weather, climate and other environmental factors.
  - Climate change requires societies to understand and assess impacts and to develop the necessary adaptation strategies. By providing fundamental knowledge of the climate system and predictions based on climate models, NMHSs can help societies transform.
  - There is a growing demand for new types of forecasts – seasonal-to-interannual, sub-seasonal, and on shorter space scales. This is increasing the opportunities for research and requires much closer cooperation between the weather, climate and hydrological communities.
  - The increasing need for timely, accurate and useful environmental information will require changes in the way NMHSs work together. Weather, climate and related forecasts require a shared network of global, regional and national observations, data assimilation and numerical prediction tools. Growing reliance on a shared infrastructure will be the most cost-effective and efficient way to provide future NMHSs' products and services. Various impediments, including competition and data restrictions, are preventing the WMO community from achieving this ambition.
  - The current WMO institutional arrangements ensure organizational stability, they do not allow the organization to adapt quickly to changing societal needs. While this four-year strategy goes part way to recognizing this need, greater flexibility is required, including more effective use of modern management tools.
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