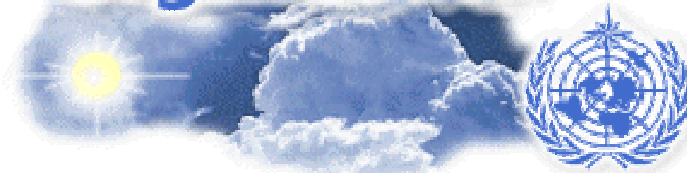


WMO AND CAPACITY BUILDING FOR WATER MANAGEMENT IN ASIA

**WOLFGANG GRABS
RICK LAWFORD**

**SEPTEMBER 26, 2006
BANGKOK, THAILAND**

World Meteorological Organization



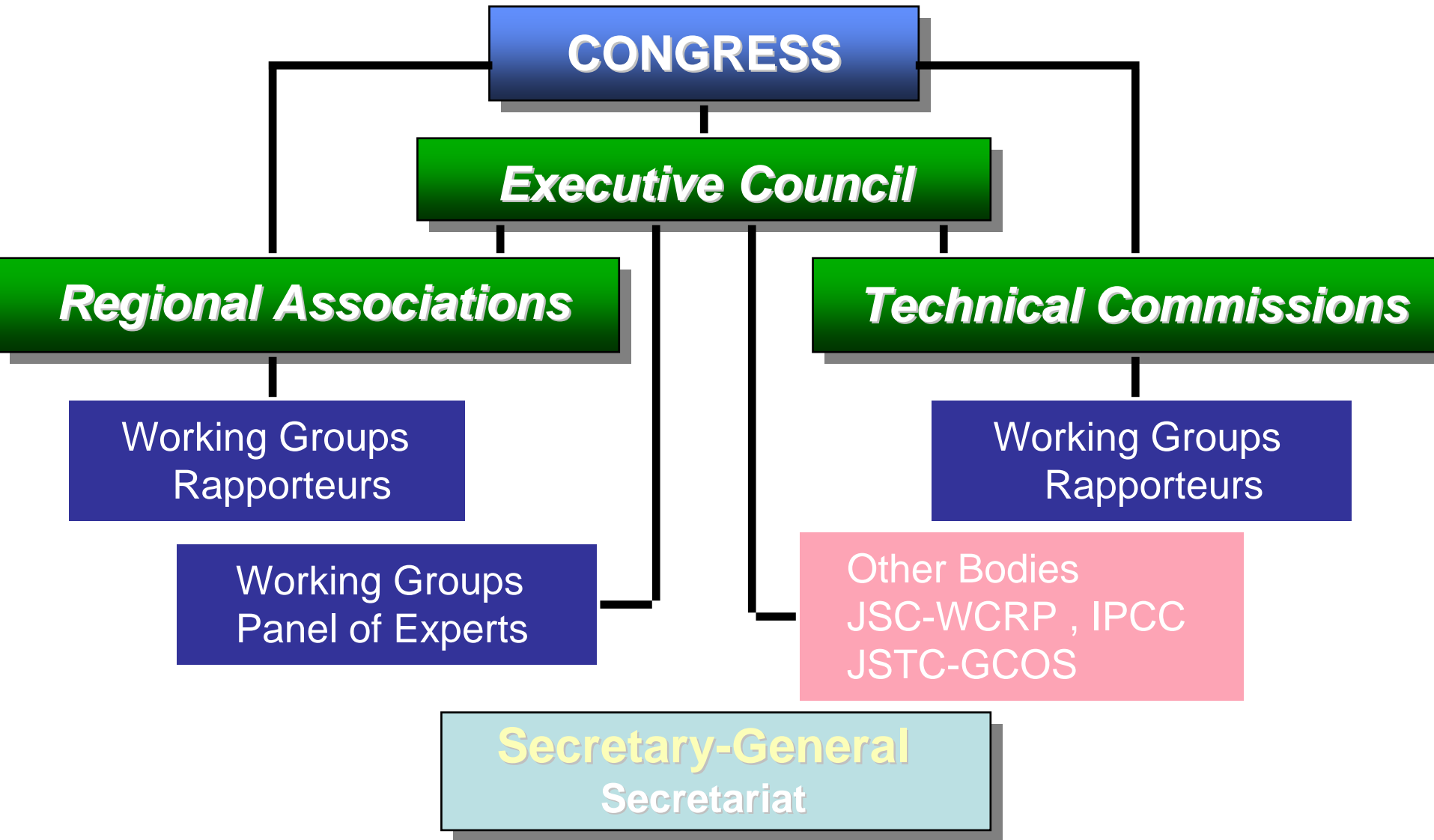
A United Nations Specialized Agency

Working together in Weather, Climate and Water



The World Meteorological Organization is an intergovernmental organization with a membership of 187 Member States and 6 Territories. It originated from the International Meteorological Organization (IMO), which was founded in 1873. Established in 1950, WMO became the specialized agency of the United Nations for meteorology (weather and climate), operational hydrology and related geophysical sciences.

Organizational Structure of WMO



OBJECTIVES

Environmental Management

Sustainable Development

Prevention of water Related Disasters

HWRP

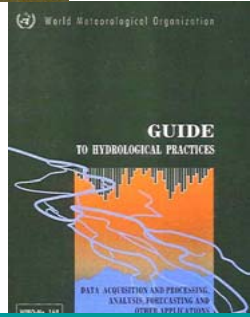
Forecasting and Applications



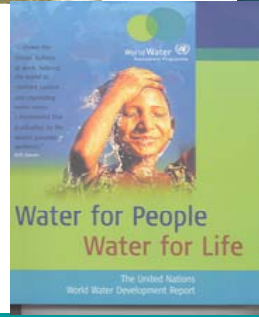
Basic System



Sustainable Development



CAPACITY BUILDING



WATER RELATED ISSUES

PROGRAMS

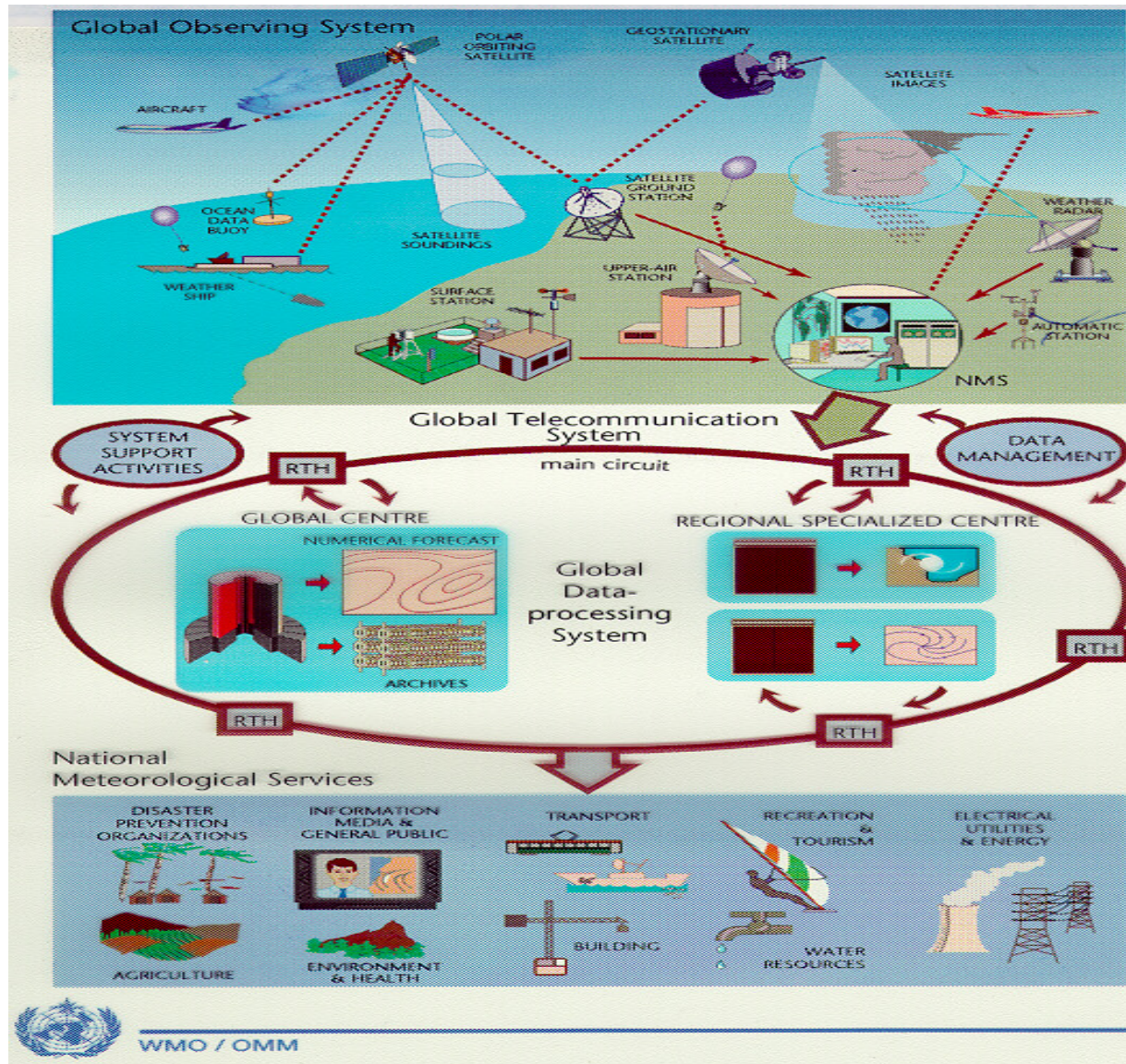
WMO's Global Operational Network

NMHSs of 187 countries contribute to GOS every day

3 World Meteorological Centres

40 Regional Specialized Centers

NMHSs deliver products and services



Between meteorological and hydrological services

Meteorological information and forecasts are often not provided in a form usable for hydrological forecasting,

Non-standardized data archiving, data formats and transmission protocols severely limit timely access to data and information,

Use of different forecasting concepts, methods and technical language,

Between forecasters and forecast users

Forecasting is often not objective-driven; different users of forecasting information require specific forecasting products,

Use technical vocabulary in forecast and warning dissemination

The Flood Forecasting Initiative

Improve the capacity of meteorological and hydrological services to jointly deliver timely and more accurate products and services required in flood forecasting and warning and in collaborating with disaster managers.

HOMS

The WMO System for Technology Transfer In Hydrology

180
Components

Hydrological

Operational

Multipurpose

System

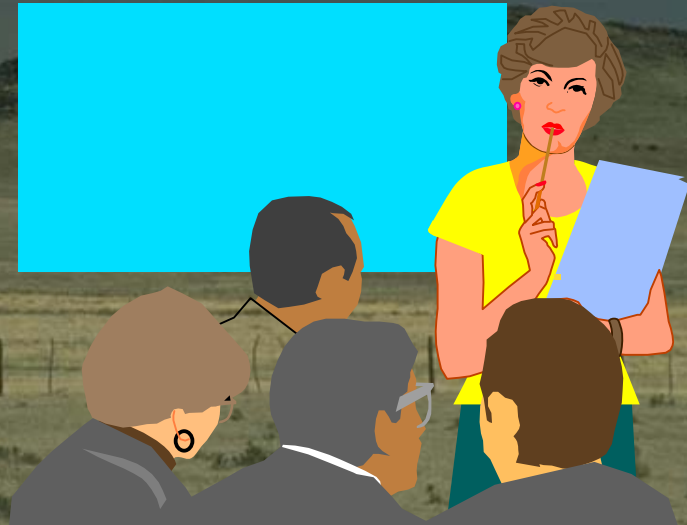
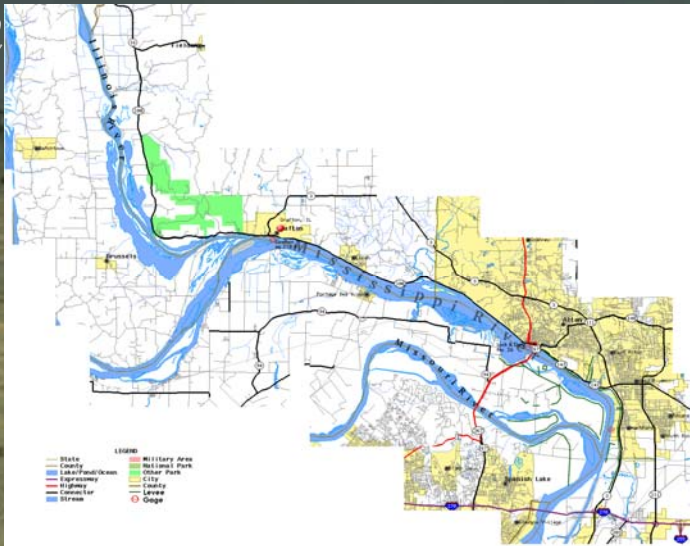
Instrumentation

Data base Management

Computational Models

Standards

Training Activities



WHYCOS Objectives

- To strengthen technical and institutional capabilities of Hydrological Services.
(Short Term)
- To promote and facilitate dissemination and use of water-related information. (Short Term)
- To strengthen Regional and International cooperation. (Long Term)
- To establish a global network of key National stations. (Long Term)

WMO's Hydrology and Water Resources Activities in South Asia (1): WHYCOS programme

Currently, the following major activities are on-going:

Establishment of a Regional Flood Information System in the Mekong Basin (in collaboration with the Mekong River Commission (MRC), project is funded for the next 5 years). Participating countries: Cambodia, Lao PDR, Thailand, Vietnam

Establishment of a Regional Flood Information System in the Hindu Kush Himalayan Region (in collaboration with the International Centre for Integrated Mountain Development (ICIMOD), project needs funding for the full implementation phase). Participating countries: Bhutan, Bangladesh, China, India, Nepal, Pakistan. Affiliated: Afghanistan, Myanmar

These projects have major capacity-building components

WMO's Hydrology and Water Resources Activities in South Asia (2):

Flood management and disaster prevention

Capacity-building: Transfer of know-how and technology (HOMS Programme) – Workshop in Nanjing, China, September 2006

Regional Workshops on Flash Flood Forecasting in collaboration with partners: Tsukuba, Japan (March 2005), Lhasa, China (December 2005)

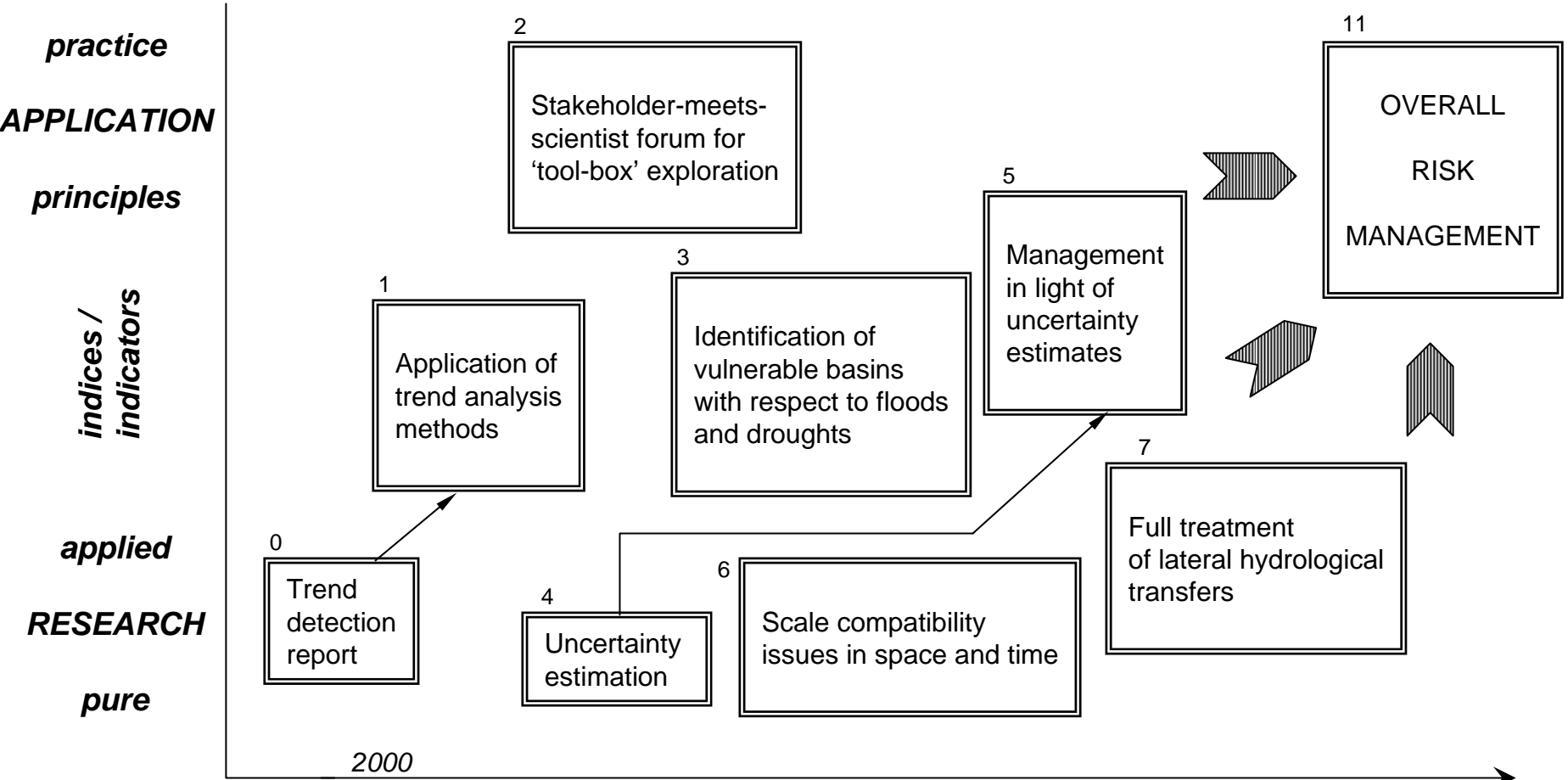
Flash Flood demonstration projects (in planning phase)

Disaster prevention regional workshop (Kathmandu, Nepal (organized by ICIMOD) August 2006)

Regional demonstration project (WMO/GWP) on “Community-Based Approaches to Flood Management” implemented in Bangladesh, India and Nepal

WCP-Water technical tasks for the period 2005-2008

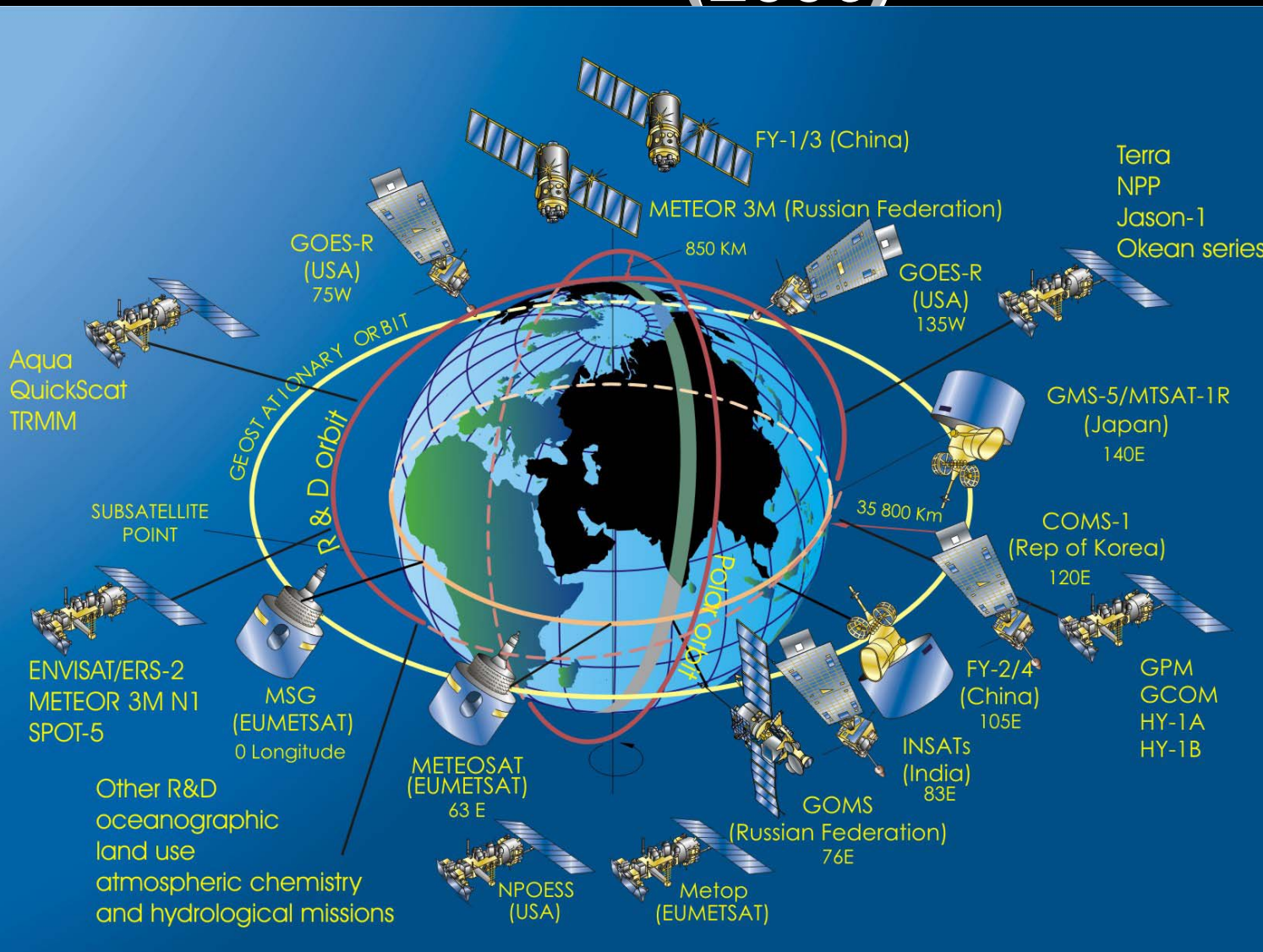
Core Technical Capability	Potential Tasks
Hydrologic networks and data	Identification of pristine basins and climate-sensitive stream gauges (mid 2006)
Statistical methods	Report on trend and significance test specifically developed for use with data exhibiting long-term persistence (late 2005) Report detailing the sensitivity of streamflow to precipitation for 800 catchments worldwide (late 2006)
Use of climate information	Bringing climate information to water managers (Expert meeting, late 2006)
Hydrologic hazards and risk	Expert meeting and assessment report of patterns and trends in floods and droughts worldwide (early 2007)



- Feed-in from related research programmes:-*
- 8 * *Separate assessment of land-use / climate / management impacts*
 - 9 * *Water quality (chemical and ecological)*
 - 10 * *Socio-economic risk factors*

DIMENSIONS OF IMPLEMENTATION

WMO space-based sub-system of the WWW's Global Observing System (2006)



Unparalleled international cooperation has been achieved in satellite activities

Status of the WWW's space-based component Global Observing System (GOS)

Standing members

- operational satellite operators

Newest members

- NASA – Aqua, Terra, NPP, TRMM, QuickScat
- JAXA – GCOM series
- ESA – ERS 1 and 2, ENVISAT
- FSA – METEOR 3M N1 (R&D inst), OKEAN series
- CNES – Jason-1, SPOT-5
- IMD – INSAT series
- Republic of Korea – COMS-1
- CNSA – HY-1A, HY-1B

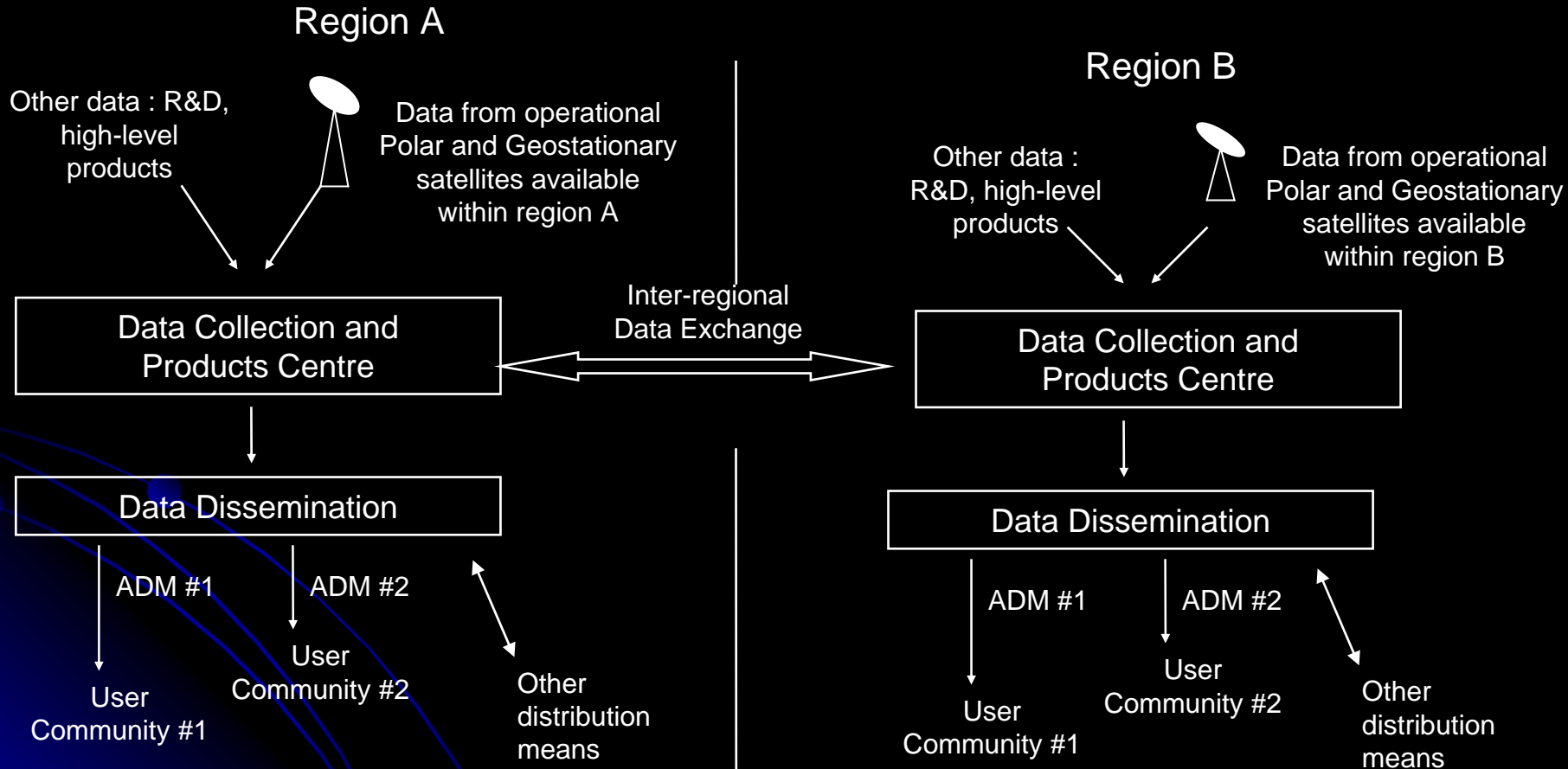
Possible future members

Increased real-time access to satellite data

Integrated Global Data Dissemination System (IGDDS)

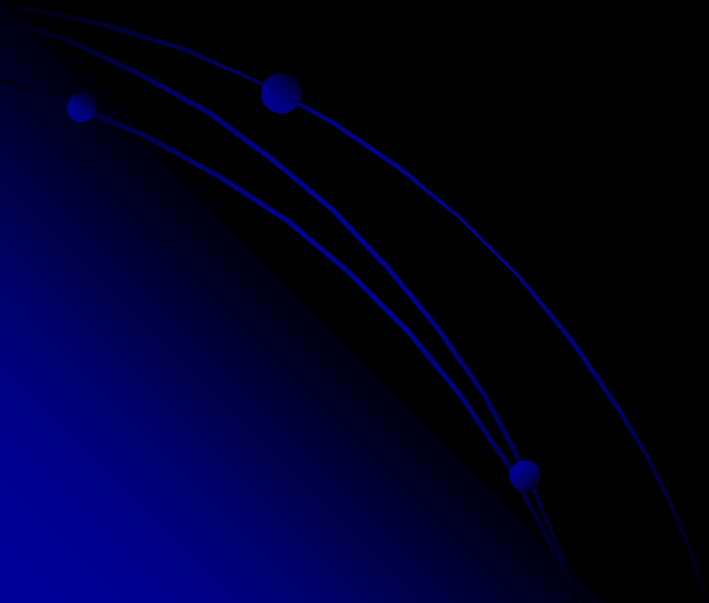
- Satellite data & products circulation scheme
 - to meet the needs of WMO Programmes for improved access
 - as agreed in WMO Space Programme Implementation Plan
- IGDDS Baseline
 - Integrates all satellite-related data fluxes
 - Global exchange of satellite data among regional centres
 - Dissemination relying on ADM and Direct Broadcast
 - ADM mainly via Digital Video Broadcast by telecom satellite
 - cost-efficient for end-users and for operators

IGDDS regional/global concept



Advanced Dissemination Methods (ADMSs) by Satellite Operators

- Asia-Pacific regions :
 - current Shinetek ADM over China
 - trial planned in 2006 for wide Asia-Pacific ADM including DVB-S broadcast and terrestrial links
- IGDDS - WMO existing system as a core component of GEONetCast



SUMMARY

WMO HAS A NUMBER OF PLATFORMS TO SUPPORT CAPACITY BUILDING ACTIVITIES IN ASIA. WMO OFFERS ITS CAPABILITIES FOR THE DEVELOPMENT OF INITIATIVES THAT SUPPORT GEO AND IGWCO GOALS IN THE WATER SECTOR.

