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## REGIONAL COOPERATION FRAMEWORKS AND WORKING MECHANISM

### Introduction

The World Meteorological Organization (WMO) Regional Association VI (RA VI) includes countries from Europe, the Middle East, and the South Caucasus. RA VI is pivotal in promoting cooperation, coordination, and implementing WMO programmes within the region. The RA VI strengthens meteorological, hydrological, and climate-related services, addressing regional challenges and supporting sustainable development.

### Regional Cooperation Frameworks

RA VI operates through several regional cooperation frameworks that enhance the capacity of National Meteorological and Hydrological Services (NMHSs) across the region:

1. **European Meteorological Infrastructure (EMI):** EMI integrates the efforts of European NMHSs and includes key organizations such as:
	1. **The European Operational Satellite Agency for Monitoring Weather, Climate, and the Environment from Space (EUMETSAT):** the European Organization for the Exploitation of Meteorological Satellites, which operates satellite systems providing crucial data for weather forecasting and climate monitoring.
	2. **The European Meteorological Network (EUMETNET):** a network of European NMHSs that coordinates activities in meteorology, including observations, data sharing, and the development of joint projects.
	3. **The European Centre for Medium-Range Weather Forecasts (ECMWF):** the ECMWF provides global numerical weather predictions and supports research in atmospheric science.
2. **European Severe Storm Laboratory (ESSL): ESSL focuses on severe weather research, including the prediction and analysis of severe storms across Europe.**
3. **Eastern Europe, South Caucasus, and Central Asia Regional Framework:** this framework is designed to enhance the capacity and resilience of NMHSs in Eastern Europe, the South Caucasus, and Central Asia. It emphasizes early warning systems, climate services, and disaster risk reduction, with collaboration facilitated by the **Interstate Council for Hydrometeorology of the Commonwealth of Independent States (CIS)**. This council coordinates activities and fosters cooperation among member states in the region.
4. **Mediterranean and Middle East Cooperation:** in this region, RA VI collaborates with the **Union for the Mediterranean** to improve climate services, manage water resources, and address challenges related to drought and extreme weather events. This partnership plays a crucial role in promoting sustainability and resilience in Mediterranean and Middle Eastern countries.
5. **International River Basin Commissions:** RA VI collaborates with International River Basin Commissions to address water management and operational hydrology issues. These Commissions, such as the **Danube River Basin Commission,** the **Rhine River Basin Commission**, or Sava River Commission, facilitate transboundary cooperation on water resources, flood management, and hydrological monitoring. These frameworks ensure that countries sharing river basins work together on sustainable water management practices and disaster risk reduction.
6. **Southeastern Europe Disaster Prevention and Preparedness Initiative (DPPI SEE):** this initiative serves as a key framework for regional collaboration on disaster risk reduction and preparedness in Southeastern Europe. DPPI SEE enhances regional cooperation in early warning systems, disaster response, and capacity development, contributing to the resilience of communities and infrastructure.
7. **The United Nations Collaborative Platform:** at the regional level, RA VI engages, through the Regional Office for Europe, with the United Nations Collaborative Platform, which enhances coordination among United Nations agencies. This platform integrates meteorological and hydrological services into broader United Nations initiatives, such as disaster risk reduction, climate adaptation, and sustainable development.
8. **European Commission Collaboration:** the European Commission, through its **Joint Research Centre (JRC)**, actively contributes to WMO regional activities under a collaboration agreement between WMO and the European Commission. This partnership strengthens research, innovation, and the development of meteorological and climate services across Europe. Copernicus Emergency Management Service (CEMS) operated by the JRC provides hazard specific early warning systems provided by the including European Flood Awareness System (EFAS), European Forest Fire Information System (EFFIS), and European Drought Observatory (EDO).

### Working Mechanism

RA VI’s working mechanism ensures the effective implementation of WMO policies and programmes at the regional level. Key components of this mechanism include:

Regional Forums:

RA VI convenes a variety of specialized regional forums to engage stakeholders, share knowledge, and promote collaboration:

1. **RCC User Forum:** this forum brings together users of Regional Climate Centres (RCCs) to discuss their needs, share experiences, and provide feedback on the services provided by RCCs.
2. **Scientific Forum:** this forum serves as a platform for scientific exchange, focusing on the latest research and innovations in meteorology, hydrology, and related fields.
3. **Hydrology Forum:** with planned full integration into the Scientific Forum.
4. **Public-Private Engagement Forum:** this forum fosters dialogue and partnerships between the public and private sectors, exploring opportunities for collaboration in meteorological and climate services.

Working Groups and Task Teams:

RA VI’s operational structure is well organized to facilitate collaboration across a variety of specialized areas. The mechanism includes:

1. **RA VI Management Group:** the central coordinating body that oversees the implementation of activities within the region. This group ensures that the strategic direction and goals of RA VI are met.
2. **Working Groups, Subgroups and High-Level Task Teams,** such as:
	1. **Infrastructure, Observations, and Information Systems;**
	2. **Services and Applications;**
	3. **Research;**
	4. **Sustainable Development;**
	5. **Early Warnings for All (EW4All) Initiative;**
	6. **Subgroup on Hydrology:** dedicated to support the Hydrology Assembly of RA VI, enhancing regional policies and cooperation on water-related issues.
3. **Teams:** under the working groups, there are multiple teams focusing on specific aspects such as:
	1. **WMO Hydrological Observing System;**
	2. **WMO Hydrological Status and Outlook System**
	3. **RCCs;**
	4. **Regional Instrument Centres;**
	5. **Forecasting, including Flood Forecasting;**
	6. **Multisector Services;**
	7. **Research, Modelling and Prediction, including Artificial Intelligence (AI) and Hydrology Research;**
	8. **(Science-Based) Strategic Communication.**

These teams work on various initiatives, reflecting RA VI's comprehensive approach to addressing regional needs, while also proving its commitment to fostering cooperation, enhancing capacity development, and advancing research and innovation across the region.

Regional Specialized Centres:

RA VI hosts over 100 WMO-designated Regional Specialized Centres, which include:

* 1. **RCCs:** are key hubs for climate monitoring, prediction, and services, offering region-specific climate information and capacity development support to member states.
	2. **Regional Instrument Centres:** provide technical support for the calibration and maintenance of instruments, ensuring the accuracy and reliability of observations.
	3. **Regional Training Centres:** deliver specialized training programmes to enhance the skills and expertise of NMHS personnel.
	4. **Regional WMO Integrated Global Observing System (WIGOS) and the WMO Information System (WIS) Centres:** these centres contribute to the WIGOS and the WIS, facilitating data exchange and integration.
	5. **Regional Radar Data Centres:** consolidate radar data from various sources to provide comprehensive and accurate weather information, essential for early warning systems.
	6. **Regional Air Pollution Research Centres:** maintain extensive monitoring networks to measure pollutants like particulate matter and ozone, supporting public health and environmental policies. Their research helps identify pollution sources and effects, contributing to effective reduction strategies and understanding the link between air quality and climate change.
	7. **Regional Marine Meteorological Centres:** these centres are specialized in marine weather and oceanographic information within the WMO RA VI region. They provide forecasts for wind, waves, and storms, which are essential for maritime safety.
	8. **Drought Management Centre for Southeastern Europe:** established jointly by WMO and the United Nations Convention to Combat Desertification (UNCCD), this centre focuses on drought monitoring, management, and mitigation strategies in Southeastern Europe.

These specialized centres frequently establish regional networks to facilitate collaboration, data sharing, and the dissemination of best practices among NMHSs.

Regional Networks:

Beyond formal structures, RA VI benefits from several informal collaboration networks, including networks of NMHS directors and international advisers. These networks promote peer-to-peer exchange, support capacity development, and enhance the overall effectiveness of meteorological and hydrological services in the region.

Data Exchange and Integration:

RA VI promotes the seamless exchange of meteorological, hydrological, and climatological data among member states. This initiative is crucial for improving forecasting accuracy, enhancing early warning systems, and supporting climate services.

Capacity Development and Training:

RA VI emphasizes capacity development through Regional Training Centres and specialized workshops. These initiatives aim to enhance the skills and knowledge of NMHS personnel, enabling them to deliver high-quality services to their respective countries.

### Achievements and Ongoing Initiatives

RA VI has made significant progress in fostering regional cooperation, particularly in the areas of climate services, disaster risk reduction, and capacity development. Ongoing initiatives include:

RA VI is working to enhance the effectiveness of early warning systems across the region, particularly for extreme weather events and climate-related hazards. RA VI is developing integrated climate services that address the specific needs of various sectors, including agriculture, water management, and public health. RA VI continues to improve the availability and accessibility of high-quality meteorological and hydrological data, supporting better decision-making at national and regional levels.

In 2024, the Regional WIGOS Centres were launched in pilot mode, the WMO Hydrological Observing System (WHOS) prototype will be deployed for the Sava River basin, and the South-East European Early Warning Advisory System, managed by ECMWF, will continue to be enhanced and maintained.

Further expansions would include establishing Regional Aviation Data Collection Centres and Regional Aviation Data Processing Centres to enhance the analysis and forecasting of aviation meteorological data. Additionally, a new Agricultural Meteorological Centre is being developed to support agricultural planning and practices. Regional Hydrological Centres are planned to be established to improve data gathering and forecasting for water resources and flood management.

### Conclusion

WMO Regional Association VI plays a crucial role in advancing meteorological, hydrological, marine, and climate-related services across Europe, the Middle East, and the South Caucasus. Through its robust cooperation frameworks and working mechanisms, RA VI enhances the capabilities of NMHSs, ensuring that member states are well equipped to address regional and global challenges. The collaboration within RA VI, supported by both formal structures like Regional Specialized Centres and informal networks, is vital for achieving sustainable development goals, improving disaster resilience, and supporting climate adaptation efforts across the region.

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