

REGIONAL ASSOCIATION V (SOUTH-WEST PACIFIC)

SIXTH SESSION OF THE RA V MANAGEMENT GROUP

GENEVA, 20 MAY 2011

FINAL REPORT



WORLD METEOROLOGICAL ORGANIZATION

SIXTH SESSION OF THE RA V MANAGEMENT GROUP
(Geneva, 20 May 2011)

1. OPENING OF THE SESSION (AGENDA ITEM 1)

1.1 The sixth session of the RA V Management Group (MG-6) was held at the International Conference Centre of Geneva (CICG) on Friday, 20 May 2011 during the Sixteenth World Meteorological Congress. The list of participants is given in Annex I to this report.

1.2 Dr Sri Woro B. Harijono, president of RA V, opened the session at 12:45 hours on 20 May 2011. The president extended a warm welcome to all participants and thanked the members for accepting her invitation to attend the meeting. She also thanked the Secretariat for the arrangements made for this session. Dr T. Toya, Regional Director for Asia and the South-West Pacific, also welcomed the participants and expressed his appreciation to the Management Group for its substantial contribution to the work of RA V.

1.3 The Management Group adopted the agenda of the session, which is given in Annex II to this report.

2. MATTERS ARISING FROM THE FIFTH SESSION OF THE RA V MANAGEMENT GROUP (AGENDA ITEM 2)

2.1 The Management Group reviewed the final report of the fifth session of the RA V Management Group (MG-5: Citeko, Indonesia, 20-22 September 2010), which focused mainly on the development of the RA V Strategic Operating Plan (2012-2015); the working mechanism of the Association; the Regional Seminar; and the preparation for the Sixteenth World Meteorological Congress (Cg-XVI). The Group agreed that the follow-up to the fifteenth session of RA V (XV-RA V, Bali, 30 April - 6 May 2010) is the main issue for the MG-6 session, which is to be discussed under relevant agenda item 3.

2.2 The Group was briefed on the recent development with the initiation of a Capacity Development Project in DRR in Southeast Asia, which was built on the outcomes of the preliminary survey of the NMHSs and their stakeholders in six countries in Southeast Asia including Indonesia and Philippines in RA V (the other four are: Cambodia, Lao PDR, Thailand and Viet Nam in RA II) carried out through a partnership with WMO/UNISDR and the World Bank. The proposed project entitled "Strengthening Regional Cooperation for Development and Sustainability of Meteorological, Hydrological and Climate Services to support Disaster Risk Reduction and Adaptation in Southeast Asia" aims at improving institutional and operational cooperation of the NMHSs with socio-economic sectors. Under the crosscutting framework of the DRR Programme of WMO, the implementation of the project would engage and leverage technical capacities and network of all relevant WMO technical and scientific programmes. A proposal was submitted to donors for funding in May 2011.

2.3 The Group was pleased to note that a WMO Membership and fact-finding mission to Tuvalu was carried out by Dr T. Toya, Regional Director for Asia and the South-West Pacific and Mr O. Fa'anunu, Vice-president of Regional Association V from 26 to 28 April 2011. The senior government officials committed their full support for becoming a Member of WMO and taking a process to submit an instrument of accession to the Convention of the WMO to the State Department of the USA. In this connection, the mission team also visited the Fiji Meteorological Service/RSMC Nadi - Tropical Cyclone Centre to follow up on the progress of the recommendations of the WMO fact-finding mission to Fiji carried out in August 2007.

2.4 The MG-6 considered the plan for the budgeted regional events of RA V during the fifteenth financial period (2008-2011) as given in Annex III. It noted that the Regional Seminar is planned

for late October 2011 in Solomon Islands with the WMO budget allocation and expected extra-budgetary contributions, and that this issue is to be discussed under agenda item 3.4.

3. FOLLOW-UP TO THE FIFTEENTH SESSION OF REGIONAL ASSOCIATION V (XV-RA V) (AGENDA ITEM 3)

3.1 ADOPTION OF THE RA V STRATEGIC OPERATING PLAN (2012-2015)

3.1.1 The Group recalled that MG-5 had reviewed a draft RA V Strategic Operating Plan (SOP) (2012-2015) submitted by Dr N. Gordon (New Zealand) and revised the draft after extensive discussions. The Group noted that the revised draft had been finalized with the inputs from RA V Members after MG-5 for approval by the president. The final draft has a total of 20 Regional Key Outcomes (RKO) and a total of 49 regional Key Performance Indicators (KPIs). Five RKO were identified as Priority Areas, with 18 associated KPIs. In this connection, the Group was pleased to affirm that the RA V Strategic Operating Plan (SOP) (2012-2015) as given in Annex IV was adopted in December 2010.

Survey Questionnaire

3.1.2 The MG-6 reiterated the importance of the RA V survey to establish a baseline for monitoring and evaluation of the RA V SOP 2012-2015 and requested the Leads of the Working Groups and the Chair of the Tropical Cyclone Committee to review the questions in the preliminary draft questionnaire and propose appropriate questions taking into account the regional KPIs identified in the RA V SOP 2012-2015.

3.2 Working mechanism of the Association

Nomination of Theme Leaders and Volunteer Experts

3.2.1 Recalling that XV-RA V requested the Management Group to finalize the membership of the RA V subsidiary bodies, the Group reviewed the status of nomination of theme leaders and volunteer experts for the four Working Groups on: Weather Services (WXS); Climate Services (CLS); Hydrological Services (HYS); and Infrastructure (INFR). Noting that some theme leaders have not been nominated by RA V Members, the Group agreed to modify the composition of the relevant Working Group and finalize the membership of the Working Groups as given in Annex V.

Terms of Reference and Work Plan of the Working Groups

3.2.2 The Group was pleased to note that draft Terms of Reference (ToR) and work programme including the time-bound Task Teams of Working Groups had been prepared by their Leads as given in Annex VI. It requested the Leads of the Working Groups (in particular Lead of WG-CLS, in view of the agreed change with the creation of a sub-group on Agrometeorological Services) to finalize them in collaboration with the respective theme leaders and to initiate the work of the Working Groups. The MG-6 further noted the status report of the activities of WG-WXS as given in Annex VII.

3.3 Capacity building in RA V

3.3.1 The Group was informed that Indonesia will hold a capacity building training workshop on "Satellite applications for Meteorology and climatology" in Citeko, Indonesia from 19 to 27 September 2011.

3.4 Preparation for the Regional Seminar

3.4.1 The Group was pleased to note that the Government of Solomon Islands had confirmed to host the RA V Regional Seminar scheduled for the year 2011 and expressed its appreciation to the Government of Solomon Islands for its kind offer.

3.4.2 It agreed that the Seminar be held in late October or early November 2011 for 3.5 days with a subsequent half-day Management Group session (total four days), tentatively from 25 to 28 October 2011, and requested the Secretariat to fix the date of the Seminar and make the necessary arrangements with the host country for the organization of the Seminar.

3.4.3 The MG-6 recalled that MG-5 selected a general topic (theme) of "Climate Services" and established a Programme Organizing Committee composed of the Leads of WG-CLS (Coordinator), WG-HYS, WG-INFR, a representative of the host country (Solomon Islands) and the RAP Office staff. The Coordinator proposed the following topics for the Regional Seminar: (a) climate modeling; (b) observing climate variability and change; (c) predicting climate variability and extreme events (flood, drought); (d) El Niño and La Niña; (e) regional climate services; and (f) climate risk reduction. The Management Group supported the above proposal and requested the Programme Organizing Committee to finalize the programme and lecturers in consultation with the Management Group.

4. OTHER BUSINESS (AGENDA ITEM 4)

4.1 The Group was pleased to note that the official letters had been received from Indonesia and Philippines indicating their offer to host the sixteenth session of RA V planned for 2014. It further noted that Papua New Guinea also indicated its willingness to host the RA V session.

5. CLOSURE OF THE SESSION (AGENDA ITEM 5)

5.1 The sixth session of the RA V Management Group closed at 13:35 on 20 May 2011.

**SIXTH SESSION OF THE REGIONAL ASSOCIATION V (SOUTH-WEST ASIA)
MANAGEMENT GROUP (MG-6)**

(Geneva, 20 May 2011)

LIST OF PARTICIPANTS

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**SIXTH SESSION OF THE REGIONAL ASSOCIATION V (SOUTH-WEST ASIA)
MANAGEMENT GROUP (MG-6)**

(Geneva, 20 May 2011)

AGENDA

1. Opening of the Session
 2. Matters arising from the fifth session of the RA V Management Group
 3. Follow-up to the fifteenth session of Regional Association V (XV-RA V)
 - 3.1 Adoption of the RA V Strategic Operating Plan (2012-2015)
 - 3.2 Working mechanism of the Association
 - Nomination of Theme Leaders and Volunteer Experts
 - Terms of Reference and Work Plan of the Working Groups
 - 3.3 Capacity building in RA V
 - 3.4 Preparation for the Regional Seminar
 4. Other business
 5. Closure of the Session
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REGIONAL ASSOCIATION V (SOUTH-WEST PACIFIC)

BUDGETED REGIONAL EVENTS
DURING THE FIFTEENTH FINANCIAL PERIOD (2008-2011)

Regional Events \ Years	2008	2009	2010	2011
Fifteenth Session of the Association			30.IV-6.V.2010 Bali, Indonesia	
Meeting of the Management Group	23.VI.2008 Geneva	24.IV.2009 Kuala Lumpur, Malaysia 5 and 12.VI.2009 Geneva	10.VI.2010 Geneva 20-22.IX.2010 Citeko, Indonesia	20.V.2011 Geneva
Session of WG on WWW		30.XI-4.XII.2009 Honolulu, USA		
Session of WG on Climate Matters			8-11.II.2010 Nadi, Fiji	
Session of WG on Hydrology		14-18.XII.2009 Bandung, Indonesia		
Session of the Tropical Cyclone Committee for the South Pacific and the South-East Indian Ocean	11-17.VII.2008 Alofi, Niue		26-29.IV.2010 Bali, Indonesia	
Fifth Technical Conference on Management of Meteorological and Hydrological Services		20-24.IV.2009 Kuala Lumpur, Malaysia		
Regional Seminar on Alternative Services and Delivery and NMHSs Administration				X.2011 Honiara, Solomon Islands

RA V STRATEGIC OPERATING PLAN (SOP) FOR 2012-2015

Context - The Structure of the WMO Strategic Plan 2012-2015

Starting with the three Global Societal Needs (GSNs), the WMO Strategic Plan defines five Organization-wide Strategic Thrusts (STs) and eight Expected Results (ERs) to achieve its vision, as shown in Table 1.

Table 1: Schematic representation of the structure of WMO Strategic Plan 2012-2015

Global Societal Needs	Strategic Thrusts	Expected Results
Improved protection of life and property (related to impacts of hazardous weather, climate, water and other environmental events, and increased safety of transport on land, at sea and in the air)	Improving service quality and service delivery	Enhanced capabilities of Members to deliver and improve access to high-quality weather, climate, water and related environmental predictions, information, warnings, and services in response to users' needs, and to enable their use in decision-making by relevant societal sectors.
		Enhanced capabilities of Members to reduce risks and potential impacts of hazards caused by weather, climate, water and related environmental elements.
Poverty alleviation, sustained livelihoods and economic growth (in connection with the Millennium Development Goals), including improved health and social well-being of citizens (related to weather, climate, water and environmental events and influence)	Advancing scientific research and application, as well as development and implementation of technology	Enhanced capabilities of NMHSs to produce better weather, climate, water and related environmental information, predictions and warnings to support in particular disaster risk reduction, and climate impact and adaptation strategies.
		Enhanced capabilities of Members to access, develop, implement and use integrated and interoperable Earth- and space-based observation systems for weather, climate and hydrological observations, as well as related environmental and space weather observations, based on world standards set by WMO.
		Enhanced capabilities of Members to contribute to and draw benefits from the global research capacity for weather, climate, water and the related environmental science and technology development.
Sustainable use of natural resources and improved environmental quality	Strengthening capacity-building	Enhanced capabilities of NMHSs, in particular in developing and least developed countries, to fulfil their mandates.
	Building and enhancing partnerships and cooperation	New and strengthened partnerships and cooperation activities to improve NMHSs' performance in delivering services and to increase the value of the contributions of WMO within the United Nations system, relevant international conventions and national strategic issues.
	Strengthening good governance	An effective and efficient Organization.

Context - Priorities

Within the five Strategic Thrusts and eight Expected Results, WMO as a whole has identified the following five priority areas that have significant contribution to the achievement of the expected results:

- Global Framework for Climate Services (GFCS);
- Aviation meteorological services;
- Capacity Building for the developing and least developed countries;
- Implementation of the WMO Integrated Global Observing System (WIGOS) and WMO Information System (WIS); and
- Disaster Risk Reduction (DRR).

Region V agreed at its fifteenth session in May 2010 (paragraph 5.2.6) to attach the highest priority to the following five areas, which are very consistent with the overall WMO priorities. They have been re-ordered to show how they correspond to these WMO global priorities.

- (a) Better climate services;
- (b) Sustainable aviation services;
- (c) Capacity building;
- (d) Improved infrastructure (data and information services) for weather, climate and water; and
- (e) Improved end-to-end Multi-Hazard Early Warning Systems (MHEWS).

Global and Regional Key Outcomes

The eight ERs have been further delineated by Key Outcomes (KOs) at the global level, and their associated Key Performance Indicators (KPIs) to measure the success in achieving the results.

Within the following sections, each of the ERs and table of resultant KOs has been supplemented by a table showing **Regional** Key Outcomes (**RKOs**) for RA V.

The RKOs are numbered to show the global KO they relate to – for example, RKO 1.1.3 for “Public weather services are improved” supports the global KO 1.1 for “improved access to seamless weather, climate, water, and related-environmental products and services (e.g., warnings, forecasts and supporting information)”.

Each RKO is expressed in the form of “something” (e.g., “Public weather services”) followed by a description of how we would like to characterize them (e.g., “are improved”).

Also, for each RKO those primarily involved in activities to achieve the RKOs are listed. Many of these are for the Members themselves to carry out. There are also supporting WMO Programmes or parts of them. Some (but not all) activities will have explicit involvement of RA V subsidiary bodies. Some RKOs which match and support the five priorities agreed at XV-RA V are identified as **Priority Areas**.

Detailed activities to support these RKOs will come through approved work plans for the individual RA V subsidiary bodies (e.g., the elaboration of the Tropical Cyclone Operational Plan) as well as through the activities of the Scientific and Technical Programmes, Technical Commissions, and other WMO working groups.

In terms of this plan and the overall work plans, there of course needs to be recognition of the diversity in the region of:

- Capabilities of NMHSs;
- User communities and requirements; and
- Funding sources and access to resources and staffing.

Monitoring and Evaluation

Monitoring and evaluation are important tools in results-based management to help improve performance and achievement of results. Information will be regularly gathered from Members through surveys, and from information already gathered or held by the WMO Secretariat. This will be used to establish a “baseline” for the Regional KPIs listed in this plan, and then for regular tracking of progress against those Regional KPIs.

Expected Result 1(ER 1):

Enhanced capabilities of Members to deliver and improve access to high-quality weather, climate and water and related environmental predictions, information and services in response to users' needs and to enable their use in decision-making by all relevant societal sectors

The Key Outcome (KO) under ER 1 addresses the rapidly changing paradigm for the provision of weather, climate, water and related environmental services.

Key Outcomes	Key Performance Indicators	Contributing Programmes
KO 1.1:Improved access to seamless weather, climate, water and related environmental products and services (for example, warnings, forecasts and supporting information)	<ul style="list-style-type: none"> Analyses showing the social and economic benefits of the improved services NMHSs with regular access to products provided by global and regional centres 	Aeronautical Meteorology Programme Agricultural Meteorology Programme Emergency Response Activities Programme Marine Meteorology and Oceanography Programme Overall coordination of the Scientific and Technical Programmes Public Weather Services Programme World Weather Watch Programme / Data Processing and Forecasting
KO 1.2:Delivery of weather, climate, water and related environmental products and services to users' communities is improved	<ul style="list-style-type: none"> Increase in users with timely access to an increased number and range of products 	Marine Meteorology and Oceanography Programme Public Weather Services Programme

REGIONAL KEY OUTCOMES (RKO)	Regional Key Performance Indicators	Primary Leads to Implement Activities
RKO 1.1.1: Aviation weather services are effective and sustainable	<ul style="list-style-type: none"> Level of compliance with ICAO standards and recommended practices (SARPS) 	Priority Area <ul style="list-style-type: none"> Members Aeronautical Meteorology Programme WG Weather Services
RKO 1.1.2: Marine services are improved	<ul style="list-style-type: none"> Level of satisfaction of users Level of accuracy of marine forecasts and warnings 	<ul style="list-style-type: none"> Members Marine Meteorology and Oceanography Programme WG Weather Services
RKO 1.1.3: Public weather services are improved	<ul style="list-style-type: none"> Level of satisfaction of users Level of accuracy of public forecasts and warnings 	<ul style="list-style-type: none"> Members Public Weather Services Programme WG Weather Services

**Expected Result 2 (ER 2):
Enhanced capabilities of Members to reduce risks and potential impacts of hazards caused by weather, climate and water and related environmental elements**

Key Outcomes	Key Performance Indicators	Contributing Programmes
KO 2.1: Multi-hazard early warning systems are implemented	<ul style="list-style-type: none"> • Increase in the number of NMHSs with multi-hazard early warning systems • Number of NMHSs integrated into national emergency management systems • Developing country Members providing disaster risk reduction products and services 	Disaster Risk Reduction Programme Tropical Cyclone Programme World Weather Watch Programme / Data Processing and Forecasting
KO 2.2: National integrated flood management plans are developed	<ul style="list-style-type: none"> • Number of Members establishing flood management plans • Number of regional hydrological forecasting systems established in transboundary basins 	Hydrology and Water Resources Programme
KO 2.3: Drought early warning systems are improved	<ul style="list-style-type: none"> • NMHSs and Regional Centres issuing drought early warnings • Satisfaction in drought early warnings issued by NMHSs and Regional Centres 	Agricultural Meteorology Programme

REGIONAL KEY OUTCOMES (RKOs)	Regional Key Performance Indicators	Primary Leads to Implement Activities
RKO 2.1.1: Multi-hazard early warning systems are implemented and improved.	<ul style="list-style-type: none"> • Completion of Tropical Cyclone Operational Plan (TCOP) milestones • Level of success of the Severe Weather Forecast and Disaster risk reduction Demonstration Project (SWFDDP) including any western window extension • Level of implementation including coverage and number of hazards of multi-hazard early warning systems • Number and degree of integration of NMHSs into national emergency and disaster management systems • Level of cooperation and interaction between NMHSs and their marine/ocean/geophysical agency counterparts, and between WMO and IOC in supporting national and regional tsunami early warning systems 	<p>Priority Area</p> <ul style="list-style-type: none"> • Members • World Weather Watch Programme / Data Processing and Forecasting • Tropical Cyclone Programme • Disaster Risk Reduction Programme • Tropical Cyclone Committee (linked to RSMT for SWFDDP)

RKO 2.2.1: Flood warnings are improved	<ul style="list-style-type: none"> Level of accuracy and timeliness of flood warnings 	<ul style="list-style-type: none"> Members Hydrology and Water Resources Programme WG Hydrological Services
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Expected Result 3 (ER 3):

Enhanced capabilities of Members to produce better weather, climate, water and related environmental information, prediction and warnings to support in particular climate impact and adaptation strategies

Key Outcomes	Key Performance Indicators	Contributing Programmes
KO 3.1: Improved long-range forecasts and long-term projections	<ul style="list-style-type: none"> Number of standardized products (for example, monthly and seasonal predictions, climate watches) provided by Members Number of Members providing standardized products 	World Climate Programme / World Climate Data and Monitoring Programme World Weather Watch Programme / Data Processing and Forecasting
KO 3.2: Climate information and prediction products for climate adaptation and risk management are improved	<ul style="list-style-type: none"> Number of operational Regional Climate Centres providing inputs for the National Climate Centres Number of Members with formal National Climate Centres, accessing global and regional products, using the guidance materials and transmitting climate products for national needs Number of Members interacting with users while providing climate services, through formal mechanisms including National Climate Outlook Forums, in support of adaptation and climate risk management in key socio-economic sectors Members using best practices for climate adaptation and risk management in key socio-economic sectors 	Agricultural Meteorology Programme World Climate Programme
KO 3.3: Hydrological information and products, including water resource assessments, are improved	<ul style="list-style-type: none"> Number of Members having established Quality Management Frameworks for Hydrology using current guidance materials for hydrology and water resource management Number of regional hydrological databases developed in transboundary river basins 	Hydrology and Water Resources Programme
KO 3.4: Drought information and prediction for risk management is improved	<ul style="list-style-type: none"> NMHSs and Regional Centres issuing drought information and prediction Satisfaction in drought information and predictions issued by NMHSs and Regional Centres 	Applications of Meteorology Programme World Climate Programme

KO 3.5: Provision of improved comprehensive climate observations	<ul style="list-style-type: none"> NOTE – included for reference as a possible additional KO specifically related to GFCS implementation through voluntary resources 	
KO 3.6: Improved and sustained interaction between the research, the operational prediction and product development and the sectoral user communities for putting climate and applied climate research advances into practice under GFCS	<ul style="list-style-type: none"> NOTE – included for reference as a possible additional KO specifically related to GFCS implementation through voluntary resources 	
KO 3.7: Improved infrastructure and standardized technical procedures and tools, for development and coordinated flow of GFCS information and products	<ul style="list-style-type: none"> NOTE – included for reference as a possible additional KO specifically related to GFCS implementation through voluntary resources 	
KO 3.8: Enhanced and expanded user interface and communications mechanisms and user-driven outlook forums for improved climate services	<ul style="list-style-type: none"> NOTE – included for reference as a possible additional KO specifically related to GFCS implementation through voluntary resources 	

REGIONAL KEY OUTCOMES (RKOs)	Regional Key Performance Indicators	Primary Leads to Implement Activities
RKO 3.1.1: Climate information and prediction services are improved	<ul style="list-style-type: none"> Level of accuracy of monthly/seasonal predictions Level of application of, and satisfaction with, climate services Level of implementation of regional aspects of GFCS including RCCs Level of contribution of RA V Members to the WMO Annual Climate Summary 	<p>Priority Area</p> <ul style="list-style-type: none"> Members World Climate Programme WG Climate Services
RKO 3.3.1: Hydrological information is improved	<ul style="list-style-type: none"> Accuracy of information, and coverage, and density, of hydrological observations 	<ul style="list-style-type: none"> Members Hydrology and Water Resources Programme WG Hydrological Services

Expected Result 4 (ER 4):

Enhanced capabilities of Members to access, develop, implement and use integrated and interoperable surface-based and space-based systems for weather, climate and hydrological observations, as well as related environmental observations, based on world standards set by WMO and partner organizations

Key Outcomes	Key Performance Indicators	Contributing Programmes
KO 4.1: WMO Integrated Global Observing System (WIGOS) is implemented	<ul style="list-style-type: none"> • Completion of WIGOS milestones according to WIGOS implementation plan • Increased availability of observations for users 	Space Programme Global Climate Observing System World Weather Watch Programme World Climate Programme / Global Observing System World Weather Watch Programme / Instruments and Methods of Observation Programme World Weather Watch Programme / WMO Integrated Global Observing System
KO 4.2: WMO Information System is developed and implemented	<ul style="list-style-type: none"> • Implementation of WIS by NMHSs with continuous access to observations and products to meet the needs of the NMHSs and national users and to enhance capabilities of Members to access data and products • Enhanced capabilities for data processing and management 	World Weather Watch Programme / WMO Information System Programme World Climate Programme
KO 4.3: Accessible climate observations and climate data archives at the NMHSs and global data centres are increased	<ul style="list-style-type: none"> • Progress in implementing the Global Climate Observing System • Increase in projects to rescue and digitize climate data, to improve the use and exchange of high quality climate data sets and to assess the state of the global climate system • Number of Members developing and implementing modern climate monitoring systems, including climate watch systems 	World Climate Programme / Global Climate Observing System

REGIONAL KEY OUTCOMES (RKOs)	Regional Key Performance Indicators	Primary Leads to Implement Activities
RKO 4.1.1: WIGOS is implemented	<ul style="list-style-type: none"> • Traceability of observations • Availability of station metadata • Regional WIGOS Demonstration Project initiated • Regional priorities for observing system development documented 	Priority Area <ul style="list-style-type: none"> • Members • Space Programme • Global Climate Observing System • World Weather Watch

		<p>Programme</p> <ul style="list-style-type: none"> World Climate Programme / Global Observing System World Weather Watch Programme / Instruments and Methods of Observation Programme World Weather Watch Programme / WMO Integrated Global Observing System WG Infrastructure
RKO 4.1.2: Observing networks are implemented	<ul style="list-style-type: none"> Level of implementation of RBSN and RBCN including GSN and GUAN Level of implementation of hydrological networks Level of implementation of marine observations Progress against GOOS, GTOS and GCOS Regional Action Plans 	<ul style="list-style-type: none"> Members World Weather Watch Programme World Climate Programme / Global Observing System Hydrology and Water Resources Programme Marine Meteorology and Oceanography Programme WG Infrastructure WG Hydrological Services
RKO 4.2.1: WIS is implemented	<ul style="list-style-type: none"> Extent of participation in international exchange through the WIS / GTS Existence of, and progress against, a regional implementation strategy for WIS / DAR services Extent to which communication needs of members are met Level of use of NWP products accessed via WIS 	<p>Priority Area</p> <ul style="list-style-type: none"> Members World Weather Watch Programme / WMO Information System Programme World Climate Programme WG Infrastructure
RKO 4.3.1: Historical climatological data are preserved	<ul style="list-style-type: none"> Level of availability of long period, rescued, digitized climate records with appropriate metadata 	<ul style="list-style-type: none"> Members World Climate Programme WG Climate Services

Expected Result 5 (ER 5):

Enhanced capabilities of Members to contribute to and draw benefits from the global research capacity for weather, climate, water and environmental science and technology development

Key Outcomes	Key Performance Indicators	Contributing Programmes
KO 5.1: Research in climate prediction/projection to improve the skills of seasonal, decadal, and longer time scales	<ul style="list-style-type: none"> Increase in projects to advance climate research NMHS in developing and least developed countries contributing to relevant regional and international research initiatives 	World Climate Research Programme

	<ul style="list-style-type: none"> Measures of skill and value of climate predictions and projections to national and regional climate services 	
KO 5.2: Research in the prediction of high-impact weather on time scales of hours to seasons is enhanced	<ul style="list-style-type: none"> Increased research on operations products and services NMHS in developing and least developed countries contributing to relevant regional and international research initiatives Improvements in the number of internationally coordinated weather research initiatives and/or forecast demonstration projects completed 	World Weather Research Programme / Global Atmospheric Watch Programme World Weather Research Programme
KO 5.3: Atmospheric chemistry observations and assessment meet needs of environmental conventions and policy assessments	<ul style="list-style-type: none"> Regular bulletins on global atmospheric chemistry are provided to environmental conventions and policy assessments Number of technical reports, measurement guidelines and scientific analyses linking atmospheric chemistry to weather, climate, water and the environment 	Global Atmospheric Watch Programme
KO 5.4: Seamless forecasts of weather, climate, water and the environment from months to seasons are developed	<ul style="list-style-type: none"> Increase in the implementation of WMO Global Integrated Forecast System by NMHSs Improvement in skill of monthly to seasonal forecasting systems 	World Weather Research Programme
KO 5.5: Predictions/projections of El Niño/Southern Oscillation (ENSO) and monsoons are improved	<ul style="list-style-type: none"> Improvements in the skills of ENSO and monsoon forecasts Satisfaction in the predictions/projections of ENSO and monsoons 	World Weather Research Programme

REGIONAL KEY OUTCOMES (RKOs)	Regional Key Performance Indicators	Primary Leads to Implement Activities
RKO 5.3.1 Atmospheric chemistry observations and assessment meet regional needs	<ul style="list-style-type: none"> Level of implementation of GAW 	<ul style="list-style-type: none"> Members Global Atmospheric Watch Programme
RKO 5.4.1: THORPEX GIFS benefits warning services	<ul style="list-style-type: none"> THORPEX GIFS products trialled as part of SWFDDP 	<ul style="list-style-type: none"> Members World Weather Research Programme Tropical Cyclone Committee (linked to RSMT for SWFDDP)
RKO 5.5.1: ENSO, IOD, monsoons and MJO predictions are improved	<ul style="list-style-type: none"> Level of understanding of these phenomena Level of predictive skill for these phenomena 	<ul style="list-style-type: none"> Members World Weather Research Programme WG Climate Services

Expected Result 6 (ER 6):

Enhanced capabilities of NMHSs, in particular in developing and least developed countries, to fulfil their mandates

Key Outcomes	Key Performance Indicators	Contributing Programmes
KO 6.1: Visibility and relevance of NMHSs and Regional Centres in regional and national development agendas is improved, particularly in developing and least developed countries	<ul style="list-style-type: none"> • Number of NMHSs and WMO Regional Centres with defined roles in national and regional socio-economic development activities, in cooperation with international and regional development agencies • Number of NMHSs with [programmes attracting increased support from national and international partners Cg-XVI Doc 8.3] [programmes and networks for collaborating on service delivery at regional levels Cg-XVI Doc 8.2] 	Least Developed Countries Programme / Regional Programme
KO 6.2: Infrastructure and operational facilities of NMHSs and Regional Centres are improved, particularly in developing and least developed countries	<ul style="list-style-type: none"> • Number of NMHSs with improvement in infrastructure and operational facilities to address identified deficiencies • Number of NMHSs with modernized capacities to develop and disseminate products to their customers • Number of NMHSs with programmes and networks for collaborating on service delivery at regional levels 	Least Developed Countries Programme / Regional Programme Resource Mobilization and Development Partnerships Programme Education and Training Programme (with contributions from various applications programmes)
KO 6.3: Education and Training activities for NMHSs and Regional Centres are improved, especially in developing and least developed countries	<ul style="list-style-type: none"> • The number of Regional Training Centres providing education and training support for GFCS related activities • The degree to which Members are getting value for money from the WMO Fellowship Programme • The degree to which the Regional Training Centres support the regional training demands in particular for students from developing and least developed countries 	Education and Training Programme
KO 6.4: Capacities of NMHSs are enhanced through cooperation and partnerships with other national and regional organizations	<ul style="list-style-type: none"> • Development projects and activities funded through voluntary resources 	Resource Mobilization and Development Partnerships Programme Education and Training Programme Least Developed Countries Programme / Regional Programme

REGIONAL KEY OUTCOMES (RKO)	Regional Key Performance Indicators	Primary Leads to Implement Activities
RKO 6.1.1: Regional and national meteorological and hydrological services are more effective	<ul style="list-style-type: none"> • Extent of implementation of recommendations of SPREP review on regional meteorological services • Availability of, and progress against, national plans for improved products and services 	<ul style="list-style-type: none"> • Members • Least Developed Countries Programme / Regional Programme (in partnership with SPREP) • Hydrology and Water Resources Programme / Regional Programme (in partnership with SOPAC/SPC) • WG Weather Services
RKO 6.3.1: Education and Training Development activities at national and regional levels are improved	<ul style="list-style-type: none"> • Capacity for providing, and satisfaction with, regional training services • Capacity for providing training at national level in accordance with WMO No. 258 • Level of compliance of meteorological and hydrological staff with WMO No. 258 	<ul style="list-style-type: none"> • Members • Regional Training Centres • Education and Training Programme • WG Weather Services
RKO 6.4.1: Donor funding is coordinated and effective	<ul style="list-style-type: none"> • Level of funding support for regional programmes and activities 	<ul style="list-style-type: none"> • Resource Mobilization and Development Partnerships Programme • Least Developed Countries Programme / Regional Programme

Expected Result 7 (ER 7):

New and strengthened partnerships and cooperation activities to improve NMHSs' performance in delivering services and to increase the value of the contributions of WMO within the United Nations system, relevant international conventions and national strategies

Key Outcomes	Key Performance Indicators	Contributing Programmes
KO 7.1: WMO leadership and contribution in relevant UN system and other international partners' initiatives and programmes is improved	<ul style="list-style-type: none"> • Reports of WMO and its co-sponsored programmes to international conventions, particularly the United Nations Framework Convention on Climate Change (UNFCCC), United Nations Convention to Combat Desertification (UNCCD), and United Nations Convention on Biological Diversity (UNCBD), and enhanced interaction with their Subsidiary Body for Scientific and Technical Advice (SBSTA) and Conference of the Parties (COP) processes • United Nations and other international organizations reports quoting WMO and co-sponsored reports, assessments, bulletins and other authoritative outputs • Active strategic partnerships with UN and other international organizations supporting priority activities 	<p>Aeronautical Meteorology Programme</p> <p>Agricultural Meteorology Programme</p> <p>Executive Management</p> <p>Hydrology and Water Resources Programme</p> <p>External Relations</p> <p>World Climate Programme / Intergovernmental Panel on Climate Change</p> <p>Regional Programme</p>
KO 7.2: Public, decision-makers and other stakeholders are increasingly aware of key WMO and NMHSs issues, activities and priorities though enhanced communication	<ul style="list-style-type: none"> • Uptake of WMO reports, bulletins and other provisions; number of website visitors and ranking of WMO Website • Percentage of target audiences indicating utilization of WMO materials and increased awareness • NMHSs trained in communication 	<p>Communication and Public Affairs</p>

REGIONAL KEY OUTCOMES (RKOs)	Regional Key Performance Indicators	Primary Leads to Implement Activities
RKO 7.1.1: Collaborations with other agencies add value	<ul style="list-style-type: none"> • Updated MoU between WMO and SPREP • Updated MoUs between WMO and other relevant regional organizations • Number of international agencies taking part in WMO-coordinated projects that benefit Members 	<ul style="list-style-type: none"> • Regional Programme • Resource Mobilization and Development Partnerships Programme
RKO 7.1.2: GEOSS involvement is increased	<ul style="list-style-type: none"> • Number of RA-V Members who are also Members of GEO 	<ul style="list-style-type: none"> • Members • Regional Programme

**Expected Result 8 (ER 8):
An effective and efficient Organization**

Key Outcomes	Key Performance Indicators	Contributing Programmes
KO 8.1: Effective and efficient WMO Congress and Executive Council	<ul style="list-style-type: none"> Member satisfaction with documentation for Congress, Executive Council and its working groups Member satisfaction with supporting services for Congress and Executive Council (interpretation, conferences services and facilities) Reduction in the cost of sessions 	Policy Making Organs (PMO) Languages and Conferences Programme
KO 8.2: Effective and efficient WMO Secretariat	<ul style="list-style-type: none"> Timely and cost effective completion of management objectives, and oversight recommendations for improved business effectiveness, e.g. from external auditor and Executive Council subsidiary bodies Unqualified audits and effective internal controls Cost-effective fulfilment of requirements for linguistic and publishing services 	Executive Management Overall Coordination Languages and Conferences Programme
KO 8.3: Effective and efficient constituent bodies (regional associations and technical commissions)	<ul style="list-style-type: none"> Member satisfaction with constituent body documentation Member satisfaction with constituent body supporting services (interpretation, conferences services and facilities) Reduction in the cost of constituent body sessions 	Resource Management Constituent bodies, and their subsidiary bodies

REGIONAL KEY OUTCOMES (RKOs)	Regional Key Performance Indicators	Primary Leads to Implement Activities
RKO 8.3.1: RA V subsidiary bodies are well organized and effective	<ul style="list-style-type: none"> Completion of the 2012-2015 Strategic Operating Plan Establishment of the Working Groups and work plan approved by Management Group. Availability to Members of regular, useful reports on progress by RA V Subsidiary Bodies Level of awareness of and satisfaction with work carried out by RA V Subsidiary Bodies Level of explicit reference to RA V activities and requirements in the work plans of WMO working groups, Scientific and Technical Programmes, and Technical 	<ul style="list-style-type: none"> RA V Management Group All other RA V Subsidiary Bodies Regional Programme

	<p>Commissions</p> <ul style="list-style-type: none">• Completion of the 2016-2019 Strategic Operating Plan	
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LIST OF NOMINATED EXPERTS FOR RA V SUBSIDIARY BODIES

Management Group (MG)

(core members)

President (Chairperson)

Vice-president

Three (3) EC members of the Region

Chairperson of TCC

Leads of working groups/Regional Hydrological Adviser

Tropical Cyclone Committee for the South Pacific and South-East Indian Ocean (TCC)

Mr Mike Bergin (Australia) (Chairperson of TCC)

Mr Steve Ready (New Zealand) (Chair, RSMT/SWFDDP)
..... (Coordinator of TT/Storm Surge)**Working Group on Hydrological Services (WG-HYS)**

Dr Arie S. Moerwanto (Indonesia) (Lead of WG-HYS/Regional Hydrological Adviser to the president, Theme Leader in WHYCOS)

Theme	Theme Leader	Volunteer Expert
WHYCOS	Dr Arie S. Moerwanto (Indonesia)	Mr Ashok Kumar (Fiji)
Climate Change Impacts on the Water Sector	Dr Wan Azli Wan Hassan (Malaysia)	Dr Ross Woods (New Zealand)
QMF-Hydrology	Mr John Fenwick (New Zealand)
Water Quality Assessment	Mr Sulumalo Amataga Penaia (Samoa)
Hydrological Forecasting and Drought Prediction	Mr Adnan bin Ab Latif (Malaysia)	Mr Roderick Henderson (New Zealand) Dr Dasarath Jayasuriya (Australia) Mr Ashok Kumar (Fiji)
(not specified)		Mr Iokenti Beniamina (Kiribati) Mr André Maurice Siohane (Niue)

Working Group on Climate Services (WG-CLS)

Mr Erwin E.S. Makmur (Indonesia) (Lead of WG-CLS)

In the area of Regional Climate Services

Theme	Theme Leader	Volunteer Expert
CLIPS including Regional Climate Centre, Regional Climate Outlook Forums and Climate Extreme Prediction	Dr James Renwick (New Zealand)	Ms Janita Pahalad (Australia)
Climate Data Management/Data Rescue	Mr Howard Diamond (USA)	Ms Seluvaia Finaulahi (Tonga) Mr Philip Malsale (Vanuatu)
Climate Change	Dr Chew Kian Hoe (Singapore)	Dr David Wratt (New Zealand) Mr Jailan bin Simon (Malaysia) Mr Sunny K. Seuseu (Samoa) Mr Kaniaha Salesa Nihmei (Vanuatu)

Sub-Group on Agrometeorological Services (SG-AgM)

Theme	Sub-Group Coordinator	Volunteer Expert
Coping with Impacts of Natural Disasters on Agriculture	Dr Andrew Tait (New Zealand)	Mr Azhar Ishak (Malaysia) Mr Peter Napwatt (Vanuatu) Mr Ravind Kumar (Fiji) Mr Ueneta Toorua (Kiribati)
Use of Improved Tools for Operational Agrometeorology		
Agrometeorological Information for Enhancing Farming Productivity		

Working Group on Weather Services (WG-WXS)

Ms Sue O'Rourke (Australia) (Lead of WG-WXS)

Theme	Theme Leader	Volunteer Expert
Cost Recovery	Mr Arona Ngari (Cook Islands)	Ms Sylvia Cheung (Australia) Mr Terry Atalifo (Fiji)
Quality Management	Mr Saw Bun Liong (Malaysia)	Ms Helen Tseros (Australia) Mr Misaeli Funaki (Fiji) Mr David Gibson (Vanuatu)
Forecaster Competencies & Training	Mr Christopher Webster (New Zealand)	Ms Michelle Hollister (Australia) Mr Moleni Tuuholoaki (Tonga) Ms Micheline Fong (Singapore) Mr Misaeli Funaki (Fiji)
Public Weather Services	Mr Mulyon Prabowo (Indonesia)	Ms Lim Lih Mei (Singapore) Mr Sala Sagato Tuiafiso (Samoa) Mr Alipate Waqaicelua (Fiji)
Marine Services	Mr Muhammad Helmi bin Abdullah (Malaysia)	Mr Amit Avikash Singh (Fiji)

Disaster Risk Reduction	Ms Shanon McNamara (Australia)	Mr William Tuivaga (Cook Islands) Mr Sanjay Prakash (Fiji)
(not specified)		Mr Rition Kabunateiti (Kiribati)

Working Group on Infrastructure (WG-INFR)

Mr Russell Stringer (Australia) (Lead of WG-INFR)

With a focus on Information Systems and Services/WIS

Theme	Theme Leader	Volunteer Expert
ISS/WIS	Mr Kevin Alder (New Zealand)	Mr Dominique Bielli (New Caledonia) Mr Leonard Bale (Fiji)
Pacific Satellite Communications	Mr Edward Young (USA)	Mr Bryan Hooge (Australia) Mr Kelly Sponberg (USA) Mr Riris Adriyanto (Indonesia)
DRC and Migration to TDCF	Dr Weiqing Qu (Australia)	Mr Zabani Zuki (Malaysia)
WIS Data DAR Services	Mr Kelvin Wong (Australia)	Ms Kathleen Hirst (Australia)

With a focus on Integrated Observing Systems/WIGOS

Theme	Theme Leader	Volunteer Expert
Surface-based Subsystem of the GOS	Dr Jane Warne (Australia)	Ms Juana Rimba (Indonesia) Mr Jochen Schmidt (New Zealand)
GEOSS and Satellite Utilization	Ms Agnes Lane (Australia)
Instrument Calibration and RICs	Mr Wan Mohd Nazri bin Wan Daud (Malaysia)	Dr John Gorman (Australia)
(not specified)		Mr Kairoronga Iabeti (Kiribati)

TERMS OF REFERENCE AND WORK PROGRAMME OF RA V WORKING GROUPS

1. WMO RA V WORKING GROUP ON HYDROLOGICAL SERVICES (WG-HYS)

Introduction

1. The World Meteorological Organization (WMO) Regional Association 5 (RA-V) covers the South-west Pacific area, including parts of Southeast Asia. At the 15th session of WMO RA V in Bali, Indonesia (30 April – 6 May 2010) and the subsequent 4th Session of the RA V Management Group, the following subsidiary bodies were established:

- Management Group (MG);
- Tropical Cyclone Committee for the South Pacific and South-east Indian Ocean (TCC), Chair, Mr Mike Bergin;
- Working Group on Hydrological Services (WG-HYS), Lead, Dr Arie S. Moerwanto;
- Working Group on Climate Services (WG-CLS), Lead, Mr Erwin E.S. Makur;
- Working Group on Weather Services (WG-WXS), Lead, Mrs Susan O'Rourke;
- Working Group on Infrastructure (WG-INFR), Lead, Mr Russell Stringer.

2. Based on WMO Strategic Plan (SP) with a focus on Regional Strategic Planning and the new approach to XV-RA V and future RA V Working Mechanism, WG-HYS members noted that the three top-level long-term objectives of WMO are to improve forecasts, provide more accurate, timely and reliable forecasts and warnings and enhance delivery of information and services. The immediate focus of the Working Group on Hydrological Services (WG-HYS) is to be improved infrastructure (data and information services) for weather, climate and water. The main areas within hydrological services that were considered the most important included Education, training and capacity building; HYCOS projects; Adaptation to climate change in water sector; Water quality monitoring and assessment; Sustainable maintenance and calibration of equipment for hydrology and water resources; Flood forecasting; Exchanging and sharing of hydrological data and information and Quality management Framework (QMF). It should be noted that implementation of a quality management system and ongoing competency assessment will benefit the entire weather services programme within National Meteorological and Hydrological Services (NMHS) and is not limited to the hydrological service.

Working Group on Hydrological Services

3. The objective of the WG-HYS is to contribute to the implementation of the WMO Strategic Plan and the RA V Strategic Operating Plan 2012-2015. The focus will be on Expected Results 2, 3, 4 and 6 which are related to the Strategic Thrust of 'improving service quality and service delivery, Advancing Scientific Research and Application as well as Development and Implementation of Technology and strengthening capacity building', namely:

- ER2: Enhanced capabilities of members to reduce risks and potential impacts of hazards caused by weather, climate and water and related environmental elements.*
- ER3: Enhanced capabilities of Members to produce better weather, climate, water and related environmental information, prediction and warnings to support in particular climate impact and adaptation strategies.*
- ER4: Enhanced capabilities of Members to access, develop, implement and use integrated and interoperable surface-based and space-based systems for weather, climate and hydrological observations, as well as related environmental observations, based on world standards set by WMO.*

ER6: Enhanced capabilities of NHMSs, in particular in developing and least developed countries, to fulfil their mandates.

4. Given the immediate focus of the WG-HYS, outlined in paragraph 2, the proposed initial structure of the WG-HYS is given in Figure 1.

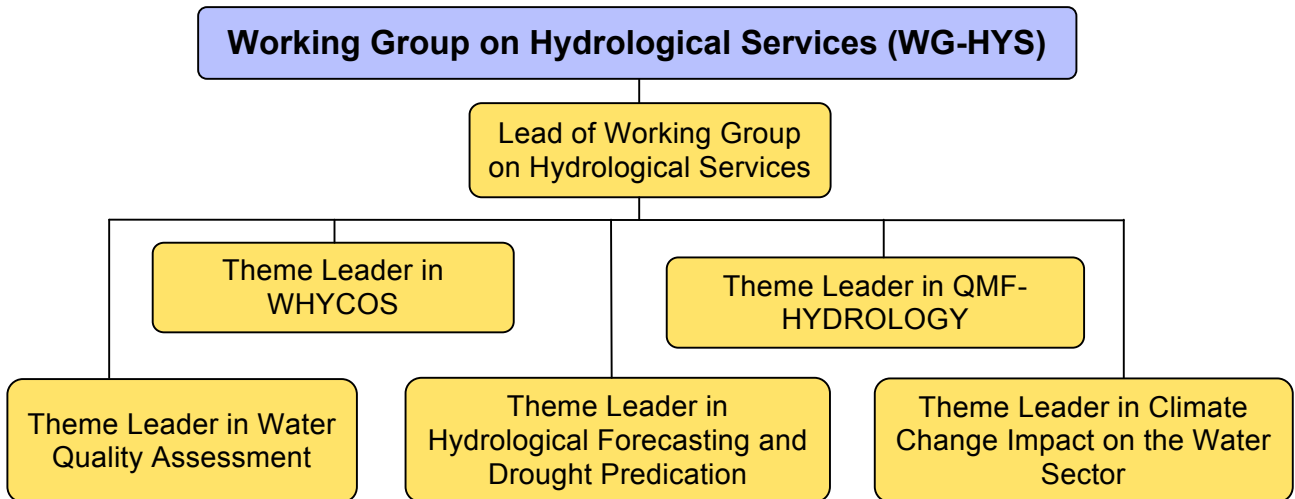


Figure 1: Structure of the Working Group on Hydrological Services

5. The WG-HYS will oversee the activities of any Task Forces and report its progress to the RA V Management Group.

6. The draft terms of reference (ToR) for the WG-HYS and the associated ToR for the Task Teams are given in Appendix I and Appendices II-VI, respectively. Once each group is established the ToR will be fully reviewed and a detailed Work Plan established.

WORKING GROUP ON HYDROLOGICAL SERVICES (WG-HYS)	
Objective	The objective of the Working Group on Hydrological Services (WG-HYS) is to improve forecasts, provide more accurate, timely and reliable forecasts and warnings and enhance delivery of information and services.
Benefits	
Terms of Reference	<p>The Terms of Reference of the Working Group are:</p> <ul style="list-style-type: none"> • Monitor, promote & develop strategies to enhance the capabilities of RA V Members to deliver and improve access to hydrological services, with an immediate focus on sustainable hydrological services; • Coordinate with relevant WMO & others groups to assist with the implementation of an improved forecast, provide more accurate, timely and reliable forecasts and warnings and enhance delivery of information and services; • Establish and coordinate Task Teams, as necessary, to complete specific tasks related to the objectives and priority areas of the WG-HYS; • Report and provide advice to the RA V Management Group on the above issues.
Meetings	<ul style="list-style-type: none"> • The Working Group will operate as a virtual team and conduct regular meetings, via telephone or Skype; • The meeting will be chaired by the Lead of the Working Group and Secretariat duties provided on a rotating basis between the Working Group members; • Minutes and action items arising from the meeting will be provided to all members of the WG-HYS & MG via email within 10 working days of each meeting.
Work Programme	The work to be addressed by the Working Group includes work programme of each task team.

TASK TEAM ON WHYCOS (TT- WHYCOS)	
Objective	Assist to strengthen technical and institutional capabilities of hydrological services and to promote and facilitate dissemination and use of water-related information.
Benefits	Strengthen national capabilities by a better understanding of the hydrological cycle and thus promote regional cooperation through the exchange of information by using modern technology for data collection and dissemination.
Terms of Reference	The Terms of Reference of the Task Team are: <ul style="list-style-type: none"> • Coordinate the regional and sub regional components of WHYCOS in RA V; • Support the development of the SEA HYCOS and strengthening Pacific HYCOS.
Meetings	<ul style="list-style-type: none"> • The Task Team will operate as a virtual team and conduct regular meetings, via telephone or Skype; • The meeting will be chaired by the nominated Theme Leader and Secretariat duties provided on a rotating basis between the Task Team members; • Minutes and action items arising from the meeting will be provided to all members of the Task Team & WG-HYS via email within 10 working days of each meeting.
Work Programme	The work to be addressed by the Task Team includes: <ul style="list-style-type: none"> • Development of a SEA HYCOS project; • Strengthening the Pacific HYCOS; • Strengthen communication links among experts in the region to encourage exchange of experiences, information and technology in hydrology and water resources among Members of Region V; • Promote implementation of WMO Resolutions 25 and 40 related to data exchange; • Provide 3 monthly status reports to the WG-HYS.
Reference	

TASK TEAM ON QMF- HYDROLOGY (TT- QMF- HYDROLOGY)	
Objective	To assist and encourage National Meteorological And Hydrological Services (NMHS) in adopting a quality management frameworks approach to the delivery of hydrology services and the pursuit of achieving Quality Management Standard.
Benefits	Adoption of a quality management framework and achieving certification of Quality Management Standard will benefit in terms of: <ul style="list-style-type: none"> • Providing a sound and proven management framework & continuous improvement; • Facilitating prompt and effective action on complaints; • Raising quality awareness within the organization, through teamwork & communication; • Improving documentation procedures, including implementation of a Quality Manual.
Terms of Reference	The Terms of Reference of the Task Team are: <ul style="list-style-type: none"> • Coordinate with the implementation of QMF-Hydrology in Region V; • Promote the use of WMO manuals and Guidelines in Region V; • Assist in standardization measures in Region V; • Continually seek ways to improve the effectiveness of implementing QMF-HYDROLOGY by regional collaboration and mentoring; • Provide advice to the WG-HYS on the above issues.
Meetings	<ul style="list-style-type: none"> • The Task Team will operate as a virtual team and conduct regular meetings, via telephone or Skype; • The meeting will be chaired by the nominated Theme Leader and Secretariat duties provided on a rotating basis between the Task Team members; • Minutes and action items arising from the meeting will be provided to all members of the Task Team & WG-HYS via email within 10 working days of each meeting.
Work Programme	The work to be addressed by the Task Team includes: <ul style="list-style-type: none"> • Adoption of ISO standards including interpretation of ISO standards for HWR in Region V; • Promote development and implementation of national quality management system; • Participate in WMO QMF activities; • Identify suitable equipment and technologies applicable to the region; • Encourage and support maintenance and calibration of hydrology and water resources equipment; • Promote regional standardization in purchasing equipment for hydrology and water resources and encourage regional products; • Utilize available facility in the region for capacity building and support the designation of Indonesia Research Center for Water Resources (RCWR) as a WMO Regional Center (WMO-RC on Hydrology) for hydrology and water resources; • Provide 3 monthly status reports to the WG-HYS.
Reference	

TASK TEAM ON WATER QUALITY ASSESSMENT (TT-WQA)	
Objective	Assist with the strengthen water quality monitoring and assessment
Benefits	Increasing of water quality monitoring and assessment
Terms of Reference	<p>The Terms of Reference of the Task Team are:</p> <ul style="list-style-type: none"> • Coordinate activities on water quality monitoring and assessment in the Region • Support raising awareness on issues related to water quality; • Provide advice to the WG-HYS on the above issues.
Meetings	<ul style="list-style-type: none"> • The Task Team will operate as a virtual team and conduct regular meetings, via telephone or Skype; • The meeting will be chaired by the nominated Theme Leader and Secretariat duties provided on a rotating basis between the Task Team members; • Minutes and action items arising from the meeting will be provided to all members of the Task Team & WG-HYS via email within 10 working days of each meeting.
Work Programme	<p>The work to be addressed by the Task Team includes:</p> <ul style="list-style-type: none"> • Include water quality component in SEA-HYCOS; • Strengthen water quality monitoring and assessment component in Pacific-HYCOS; • Provide 3 monthly status reports to the WG-HYS.
Reference	

TASK TEAM ON HYDROLOGICAL FORECASTING AND DROUGHT PREDICATION (TT-HFDP)	
Objective	Assist with the implementation on hydrological forecasting and drought predication in RA V which meets the standards and recommendations of WMO.
Benefits	Identifying available tools or methodologies including Geographic Information System (GIS), satellite information and hazard mappings for flash flood forecast.
Terms of Reference	<p>The Terms of Reference of the Task Team are:</p> <ul style="list-style-type: none"> • Coordinate activities on hydrological forecasting in Region V; • Take the lead in identifying available tools or methodologies including Geographic Information System (GIS), satellite information and hazard mappings for flash flood forecast; • Provide advice to the WG-HYS on the above issues.
Meetings	<ul style="list-style-type: none"> • The Task Team will operate as a virtual team and conduct regular meetings, via telephone or Skype; • The meeting will be chaired by the nominated Theme Leader and Secretariat duties provided on a rotating basis between the Task Team members; • Minutes and action items arising from the meeting will be provided to all members of the Task Team & WG-HYS via email within 10 working days of each meeting.
Work Programme	<p>The work to be addressed by the Task Team includes:</p> <ul style="list-style-type: none"> • Improve Flood Early Warning Systems (FEWS); • Consider Flash Floods issue and promote the development of Flash Flood Guidance System (FFGS) in the region; • Introduce and promote Integrated Flood Management (IFM) concept; • Raising awareness about social and economic benefits and value of flood forecasting systems; • Consider Drought predication; • Provide 3 monthly status reports to the WG-HYS.
Reference	

WG-HYS, Appendix VI

TASK TEAM ON CLIMATE CHANGE IMPACT ON THE WATER SECTOR (TT-CCIWS)	
Objective	Assist with the implementation on climate change and climate variability related to hydrology and water resources sector including drought and flood forecasting in Region V.
Benefits	Support development of national and regional strategies for adaptation to climate change in the water sector.
Terms of Reference	<p>The Terms of Reference of the Task Team are:</p> <ul style="list-style-type: none"> • Coordinate activities on climate change and climate variability related to hydrology and water resources sector including drought and flood forecasting in Region V; • Support development of national and regional strategies for adaptation to climate change in the water sector; • Provide advice to the WG-HYS on the above issues.
Meetings	<ul style="list-style-type: none"> • The Task Team will operate as a virtual team and conduct regular meetings, via telephone or Skype; • The meeting will be chaired by the nominated Theme Leader and Secretariat duties provided on a rotating basis between the Task Team members; • Minutes and action items arising from the meeting will be provided to all members of the Task Team & WG-HYS via email within 10 working days of each meeting.
Work Programme	<p>The work to be addressed by the Task Team includes:</p> <ul style="list-style-type: none"> • Support research in hydrology and water resources in relation to climate change; • Strengthen national capacity for development appropriate adaptation measures; • Provide 3 monthly status reports to the WG-HYS.
Reference	

2. WMO RA V WORKING GROUP ON CLIMATE SERVICES (WG-CLS)

Introduction

At the 15th session of World Meteorological Organization (WMO) Regional Association 5 (RA V) in Bali, Indonesia (30 April – 6 May 2010) and the subsequent 4th Session of the RA V Management Group, the following subsidiary bodies were established:

- Management Group (MG);
- Tropical Cyclone Committee for the South Pacific and South-east Indian Ocean (TCC), Chair, Mr Mike Bergin;
- Working Group on Hydrological Services (WG-HYS), Lead, Dr Arie S. Moerwanto;
- Working Group on Climate Services (WG-CLS), Lead, Mr Erwin E.S. Makmur;
- Working Group on Weather Services (WG-WXS), Lead, Ms Sue O'Rourke;
- Working Group on Infrastructure (WG-INFR), Lead, Mr Russell Stringer.

Working Group on Climate Services

Background

Towards Improved Climate information and services. Climate information is expected to have an expanded market at all level of decision-making and operational activities.

Evolving requirements and needs for supporting adaptation to climate variability and change. The requirements are: enhanced observation and continuous monitoring; climate research and modelling; climate predictions and projections, including their interpretation; and understanding human-climate interactions.

The High Level Declaration adopted by the WCC-3 decided to establish a Global Framework for Climate Services (GFCS) to strengthen the production, availability, delivery and application of science-based climate prediction and services.

Global Framework for Climate Services (GFCS): GFCS's goal is to enable better management of the risks of climate variability and change and adaptation to climate change at all levels, through development and incorporation of science-based climate information and prediction into planning, policy and practice.

GFCS initiative is seen as filling the gap between observations and research and climate output; bridging the gap between providers and users of climate information; and being the user interface programme.

Documents on WMO activities on training in agricultural meteorology (CAgM-XV/INF. 15) and symposia, seminars, and workshops in agricultural meteorology (CAgM-XV/INF. 16)

The objective of the Working Group on Climate Services (WG-CLS) is to provide assistance and advice to the president of Regional Association V on all matters pertaining to the regional aspects of the relevant components of the World Climate Programme (WCP) and the Agricultural Meteorology Programme (AMP).

WG-CLS will help to implement the RA V Strategic Operating Plan (SOP) 2012-2015 and the WMO Strategic Plan 2012-2015, specifically the Expected Result 3 (ER 3) of:

Enhanced capabilities of Members to produce better weather, climate, water and related environmental information, prediction and warnings to support in particular climate impact and adaptation strategies.

Although the RA V SOP 2012-2015 is in draft form, it is referenced to provide the context and priorities to guide the work plans of WG-CLS. In particular it specifies a list of Regional Key

Outcomes (RKO), each matched to one of WMO’s global Key Outcomes and each having one or more Regional Key Performance Indicators used to monitor progress.

Membership of WG-CLS

WG-CLS is composed of experts nominated and made available by Member countries in RA V. A core group is formed by the overall Lead and six Theme Leaders, covering subject areas which span as widely as possible the Terms of Reference for WG-CLS.

The role of a Theme Leader is to assist the WG-CLS to address its Terms of Reference as a team, to make a key contribution in their Theme, and to monitor the progress of Task Teams and develop prioritised proposals for additional Tasks.

The proposed structure of Working Group on Climate Services illustrated in Figure 1.

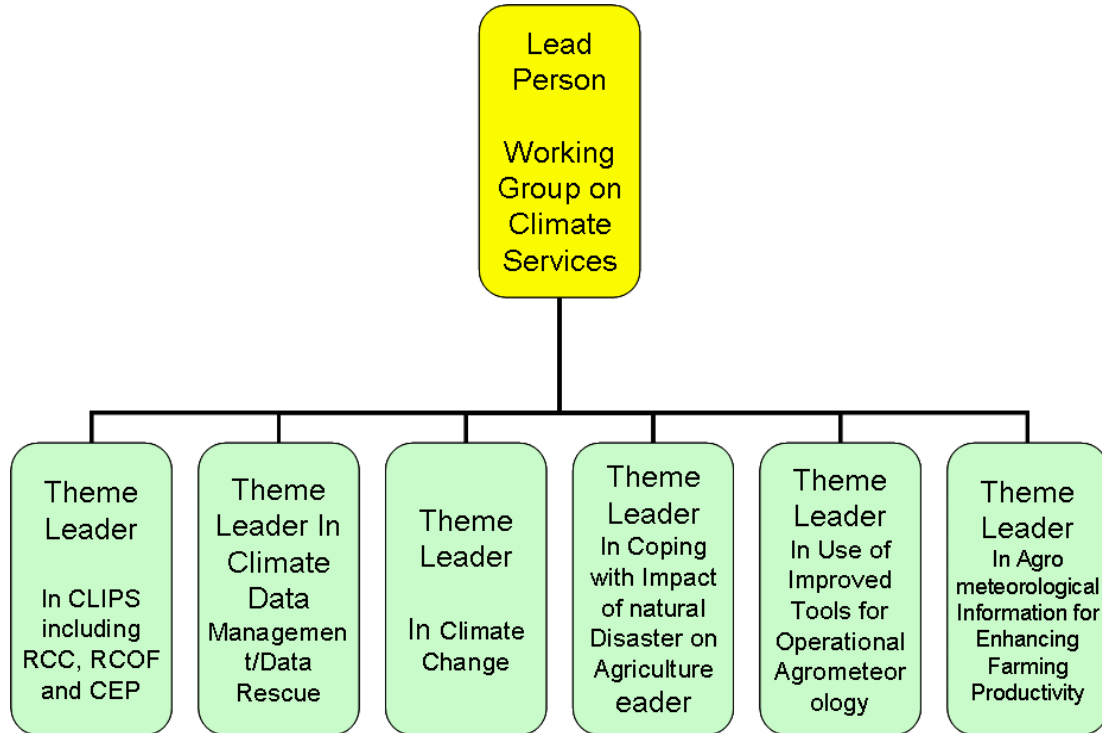


Figure 1: Structure of the Working Group on Climate Services

Working Structure of WG-CLS

The work of WG-CLS is carried out predominantly in Task Teams. Initially there are six Task Teams as shown in Figure 1 and listed in Appendix I. However Task Teams are intended to complete their specified tasks then adjourn. Further Task Teams will form and adjourn throughout the four year life of the WG-CLS in order to carry out the work plan of WG-CLS.

Each Task Team will have a Theme Leader and one or more members/experts. Contributing members will be other available experts having the most relevant expertise, in some cases that includes another Theme Leader. Some individuals may be called on to contribute to more than one Task Team.

More detailed descriptions of the Task Teams are provided in Appendices II-VII.



WORKING GROUP ON CLIMATE SERVICES (WG-CLS)	
Objective	The objective of the Working Group on Climate Services (WG-CLS) is to provide assistance and advice to the president of Regional Association V on all matters pertaining to the regional aspects of the relevant components of the World Climate Programme (WCP) and the Agricultural Meteorology Programme (AMP).
Benefits	WG-CLS will help to implement the RA V Strategic Operating Plan (SOP) 2012-2015 and the WMO Strategic Plan 2012-2015, specifically the Expected Result 3 (ER 3) of: <i>Enhanced capabilities of Members to produce better weather, climate, water and related environmental information, prediction and warnings to support in particular climate impact and adaptation strategies.</i>
Terms of Reference	The Terms of Reference of the Working Group are: <ul style="list-style-type: none"> • To coordinate observational and other climate services with the Global Climate Observing System (GCOS) and the Global Ocean Observing System (GOOS) programmes; • To provide advice on methods to strengthen and improve climate system monitoring, analyses and indices; • To keep abreast of the activities of CCI, IPCC, the United Nations Framework Convention on Climate Change (UNFCCC) and other climate-related bodies, report results of meetings and workshops, and encourage strong regional involvement in these bodies; • To provide advice on and assist in the implementation of various climate information and prediction services in RA V, including Climate Information and Prediction Services (CLIPS), in many different sectors, including extreme climate prediction, agriculture, renewable energy, bioclimatic indices, urban and building planning, risk management, air quality and health; • To examine, coordinate, report on and encourage the use of Geographical Information Systems (GISs) in the provision of climate services; • To provide advice on, assist in identifying and coordinate attendance at climate-related education and training courses/workshops, including information technology and management, based upon a survey of the training requirements in the Region; • To provide further advice and proposals on the role, structure and mechanism of the Regional Climate Centres in the region; • To review and provide advice/guidance on the use of statistical and dynamic climate modeling and downscaling to produce useable regional and national climate forecasts and products; • To provide advice and proposals on other important climate-related issues as they develop and evolve;
Meetings	<ul style="list-style-type: none"> • The Working Group will have core members from different locations across the Region and will need to operate as a virtual team, seeking cost-effective mechanisms to sustain regular communication (for example using e-mail, video and teleconference); • For the face to face meeting will be conducted through special events such as regional workshop, management group meeting, training, etc
Work Programme	The work to be addressed by the Working Group includes: <ul style="list-style-type: none"> • Regular communication amongst the core group to report on, guide the work of, and to develop proposals regarding Task Teams, to share information related to the Objective and TORs of WG-CLS, and to respond to matters referred to it within its TORs; • To complete specific tasks through Task Teams (more details are contained in the Terms of Reference for each Task Team).

TASK TEAM ON CLIPS INCLUDING RCC, RCOF AND CEP (TT-CLIPS)	
Objective	To assist and encourage National Meteorological and Hydrological Services (NMHS) in enhancement of accuracy of the seasonal prediction and using the climate information for many sectors.
Benefits	The benefit of implementing Climate Information and Prediction Services is to ensure that the enhancement of accuracy of the seasonal prediction and make sure the information will be delivered and understandable by users.
Terms of Reference	<p>The Terms of Reference of the Task Team are:</p> <ul style="list-style-type: none"> • To provide advice on and assist in the implementation of various climate information and prediction services in RA V, in many different sectors, including extreme climate prediction, agriculture, renewable energy, bioclimatic indices, urban and building planning, risk management, air quality and health; • To provide advice on, assist in identifying and coordinate attendance at climate-related education and training courses/workshops, including information technology and management, based upon a survey of the training requirements in the Region; • To provide further advice and proposals on the role, structure and mechanism of the Regional Climate Centres in the region; • To review and provide advice/guidance on the use of statistical and dynamic climate modeling and downscaling to produce useable regional and national climate forecasts and products; • To provide advice and proposals on other important climate-related issues as they develop and evolve; • Encourage the collaboration of RA V countries to enhancement seasonal prediction technical; • Provide advice to the WG-CLS on the above issues. <p>Within these Terms of Reference, the Task Team will seek to collaborate and align with regional meteorological communications work done in other relevant forums having a common objective.</p>
Meetings	<ul style="list-style-type: none"> • The Task Team will have members from different locations across the Region and will need to operate as a virtual team, using cost-effective mechanisms to conduct regular meetings, via telephone, videoconference or in person (as extrabudgetary resources permit); • For the face to face meeting will be conducted through special events such as regional workshop, management group meeting, training, etc.
Work Programme	<p>The work to be addressed by the Task Team includes:</p> <ul style="list-style-type: none"> • Improvement the accuracy of extended range forecasts and climate outlooks; • Better conveying complex information to the media and other end users. • Providing sector or application specific outlooks requested for by the users. • Using traditional/local indicators and knowledge where applicable and also be able to identify where global climate change might changed some of the applications of the traditional local knowledge such as planting dates. • Analyse models and climate research developed in other places to check its applicability • The WG reanalyzed the concept of a virtual RCC with four nodes and additional sub-nodes
Reference	Final Reports of meetings of: THE WMO RA V WORKING GROUP ON CLIMATE MATTERS, Nadi, Fiji, 8 – 11 February 2010.

TASK TEAM ON CLIMATE DATA MANAGEMENT / DATA RESCUE (TT-CDM)	
Objective	To assist and encourage National Meteorological and Hydrological Services (NMHS) in enhancement of collecting, archiving, and quality control climatological data
Benefits	The benefit of implementing Climate Data Management/Data Rescue is to ensure a sustainable and high quality of observation data.
Terms of Reference	<p>The Terms of Reference of the Task Team are:</p> <ul style="list-style-type: none"> • To provide advice on methods to identify needs and then to strengthen and improve climate observations, data rescue, data management and data sets to meet these needs; • To provide advice on methods to strengthen and improve climate system monitoring, analyses and indices; • Provide advice to the WG-CLS on the above issues. <p>Within these Terms of Reference, the Task Team will seek to collaborate and align with regional meteorological communications work done in other relevant forums having a common objective.</p>
Meetings	<ul style="list-style-type: none"> • The Task Team will have members from different locations across the Region and will need to operate as a virtual team, using cost-effective mechanisms to conduct regular meetings, via telephone, videoconference or in person (as extrabudgetary resources permit). • For the face to face meeting will be conducted through special events such as regional workshop, management group meeting, training, etc
Work Programme	<p>The work to be addressed by the Task Team includes:</p> <ul style="list-style-type: none"> • To establish and maintain integrated data sets, National Meteorological and Hydrological Services (NMHSs) must coordinate/interact with the other sectors such as agriculture, water resources, fisheries, health, forestry, coastal, marine, and others; • A suitable data management system; • Data rescue.; • Pacific Island Global Climate Observing System (PI GCOS) Programme. • Automated Weather Systems (AWSs).
Reference	Final Reports of meetings of: THE WMO RA V WORKING GROUP ON CLIMATE MATTERS, Nadi, Fiji, 8 – 11 February 2010.

TASK TEAM ON CLIMATE CHANGE (TT-CC)	
Objective	To assist and encourage National Meteorological and Hydrological Services (NMHS) in enhancement of assessment of Climate Change
Benefits	The benefit of implementing Assessment of Climate Change is to provide Climate Change information to sectors for adaptation and mitigation strategy
Terms of Reference	<p>The Terms of Reference of the Task Team are:</p> <ul style="list-style-type: none"> • To keep abreast of the activities of CCI, IPCC, the United Nations Framework Convention on Climate Change (UNFCCC) and other climate-related bodies, report results of meetings and workshops, and encourage strong regional involvement in these bodies; • To provide advice on methods to strengthen and improve climate system monitoring, analyses and indices; • Provide advice to the WG-CLS on the above issues. <p>Within these Terms of Reference, the Task Team will seek to collaborate and align with regional meteorological communications work done in other relevant forums having a common objective.</p>
Meetings	<ul style="list-style-type: none"> • The Task Team will have members from different locations across the Region and will need to operate as a virtual team, using cost-effective mechanisms to conduct regular meetings, via telephone, videoconference or in person (as extra budgetary resources permit). • For the face to face meeting will be conducted through special events such as regional workshop, management group meeting, training, etc
Work Programme	<p>The work to be addressed by the Task Team includes:</p> <ul style="list-style-type: none"> • Providing regional climate change projections in formats suitable for risk assessment and management; • Encouraging RA V members as possible become involved in the AR 5 process. • Encouraging RA V members' climate researchers submit and publish their work to quality journals early so their research can be incorporated into the AR 5.
Reference	Final Reports of meetings of: THE WMO RA V WORKING GROUP ON CLIMATE MATTERS, Nadi, Fiji, 8 – 11 February 2010.

TASK TEAM ON COPING WITH IMPACTS OF NATURAL DISASTERS ON AGRICULTURE (TT-CIN)	
Objective	To assist and encourage National Agricultural in enhancement of knowledge the link between climate phenomenon and agricultural impact.
Benefits	The benefit of implementing COPING WITH IMPACT OF NATURAL is to reduce the agricultural impact by the climate variability.
Terms of Reference	<p>The Terms of Reference of the Task Team are:</p> <ul style="list-style-type: none"> To review and evaluate the operational use of seasonal to inter-annual climate forecasts sustainable agriculture in South West Pacific and make recommendations to improve the presentation of the forecasts for the users; To review reports of climate change scenarios for RA V and catalogue the various agricultural impacts associated with such scenarios; To investigate the drought indices that are commonly used in RA V to evaluate the relation between these indices and the spatial impacts in the agricultural activity. <p>Within these Terms of Reference, the Task Team will seek to collaborate and align with regional meteorological communications work done in other relevant forums having a common objective.</p>
Meetings	<ul style="list-style-type: none"> The Task Team will have members from different locations across the Region and will need to operate as a virtual team, using cost-effective mechanisms to conduct regular meetings, via telephone, videoconference or in person (as extra budgetary resources permit). For the face to face meeting will be conducted through special events such as regional workshop, management group meeting, training, etc
Work Programme	<p>The work to be addressed by the Task Team includes:</p> <ul style="list-style-type: none"> Establish an understanding of the impact of climate variability to agricultural Develop the strategy to adaptation for agricultural as impact of climate variability Develop the strategy to increase the agricultural production using climate information To assess the economic impacts of agrometeorological information in the South-West Pacific through specific case studies; To evaluate the use of remote sensing techniques for monitoring crop growth phases, crops loss due to climate hazards, crops production, and promote their applications in operational agro meteorology.
Reference	

TASK TEAM ON USE OF IMPROVED TOOLS FOR OPERATIONAL AGROMETEOROLOGY (TT-ITA)	
Objective	To assist and encourage National Agricultural in enhancement of knowledge and methodologies to analyse the model for agricultural.
Benefits	The benefit of implementing Use of Improved Tools for Operational Agro meteorology is to assist the mapping of the large scale agricultural needs to a simpler problem.
Terms of Reference	<p>The Terms of Reference of the Task Team are:</p> <ul style="list-style-type: none"> • To analyze and evaluate the use of crop simulation models in the NMHSs and institutions in RA V and suggest the procedures to implement them; • To review the studies on agro climatic and agro ecological zonation that make use of GIS and Agro meteorological Information Systems in RA V and determine the best procedures for their implementation throughout the Region; • To evaluate and propose appropriate methodologies for the application of remote sensing in agriculture in the Region. <p>Within these Terms of Reference, the Task Team will seek to collaborate and align with regional meteorological communications work done in other relevant forums having a common objective.</p>
Meetings	<ul style="list-style-type: none"> • The Task Team will have members from different locations across the Region and will need to operate as a virtual team, using cost-effective mechanisms to conduct regular meetings, via telephone, videoconference or in person (as extra budgetary resources permit). • For the face to face meeting will be conducted through special events such as regional workshop, management group meeting, training, etc
Work Programme	<p>The work to be addressed by the Task Team includes:</p> <ul style="list-style-type: none"> • Assessing methodologies and models of crop simulation that can be implemented to RA V members • Dissemination the crop simulation model to users.
Reference	

TASK TEAM ON AGROMETEOROLOGICAL INFORMATION FOR ENHANCING FARMING PRODUCTIVITY (TT-AIF)	
Objective	To assist and encourage National Agricultural in enhancement of knowledge the link between climate phenomenon and agricultural impact.
Benefits	The benefit of implementing COPING WITH IMPACT OF NATURAL is to reduce the agricultural impact by the climate variability.
Terms of Reference	<p>The Terms of Reference of the Task Team are:</p> <ul style="list-style-type: none"> • Enhancement of the communication channels for the improved dissemination of agricultural meteorological information; • Strengthening information and dissemination networks; • To evaluate the different ways of diffusion of agro meteorological information for the different users, obtain feedback from the users and to propose appropriate mechanisms to improve it. <p>Within these Terms of Reference, the Task Team will seek to collaborate and align with regional meteorological communications work done in other relevant forums having a common objective.</p>
Meetings	<ul style="list-style-type: none"> • The Task Team will have members from different locations across the Region and will need to operate as a virtual team, using cost-effective mechanisms to conduct regular meetings, via telephone, videoconference or in person (as extrabudgetary resources permit); • For the face to face meeting will be conducted through special events such as regional workshop, management group meeting, training, etc
Work Programme	<p>The work to be addressed by the Task Team includes:</p> <ul style="list-style-type: none"> • To review and recommend applications of seasonal to inter annual climate forecasts to agriculture, forestry and fisheries in the South-West Pacific, through active collaboration with CLIPS; • To assess the current level of interaction with user communities in the applications of climate forecasts and recommend how user needs in the Region can be more effectively met.
Reference	

3. WMO RA V WORKING GROUP ON WEATHER SERVICES (WG-WXS)

Introduction

1. The World Meteorological Organization (WMO) Regional Association 5 (RA-V) covers the Southwest Pacific area, including parts of Southeast Asia. At the 15th session of WMO RA-V in Bali, Indonesia (30 April – 6 May 2010) and the subsequent 4th Session of the RA-V Management Group, the following subsidiary bodies were established:

- Management Group (MG);
- Tropical Cyclone Committee for the South Pacific and South-east Indian Ocean (TCC), Chair, Mr Mike Bergin;
- Working Group on Hydrological Services (WG-HYS), Lead, Dr Arie S. Moerwanto;
- Working Group on Climate Services (WG-CLS), Lead, Mr Erwin E.S. Makur;
- Working Group on Weather Services (WG-WXS), Lead, Mrs Susan O'Rourke;
- Working Group on Infrastructure (WG-INFR), Lead, Mr Russell Stringer.

2. The immediate focus of the Working Group on Weather Services (WG-WXS) is to be sustainable aviation weather services. The main areas within aviation weather services that were considered the most important included effective cost recovery, forecaster competencies and training, implementation of a quality management system and the improved issuance of warnings such as SIGMET. It should be noted that implementation of a quality management system and ongoing competency assessment will benefit the entire weather services programme within National Meteorological and Hydrological Services (NMHS) and is not limited to the aviation weather service.

WORKING GROUP ON WEATHER SERVICES

3. The objective of the WG-WXS is to contribute to the implementation of the WMO Strategic Plan and the RA-V Strategic Operating Plan 2012-2015. The focus will be on Expected Results 1 and 2 which are related to the Strategic Thrust of 'improving service quality and service delivery', namely:

ER1: Enhanced capabilities of Members to deliver and improve access to high-quality weather, climate and water related environmental predictions, information and services in response to users' needs and to enable their use in decision-making by all relevant societal sectors.

ER2: Enhanced capabilities of members to reduce risks and potential impacts of hazards caused by weather, climate and water and related environmental elements.

Along with Expected Result 6 which is related to the Strategic Thrust of 'strengthening capacity building', namely:

ER6: Enhanced capabilities of NHMSs, in particular in developing and least developed countries, to fulfil their mandates.

4. Given the objective of the WG-WXS, the proposed structure is given in Appendix 1 and includes six Task Teams:

- Task Team on Cost Recovery;
- Task Team on Quality Management;
- Task Team on Forecaster Competencies & Training;
- Task Team on Public Weather Services;
- Task Team on Marine Services;
- Task Team on Disaster Risk Reduction.

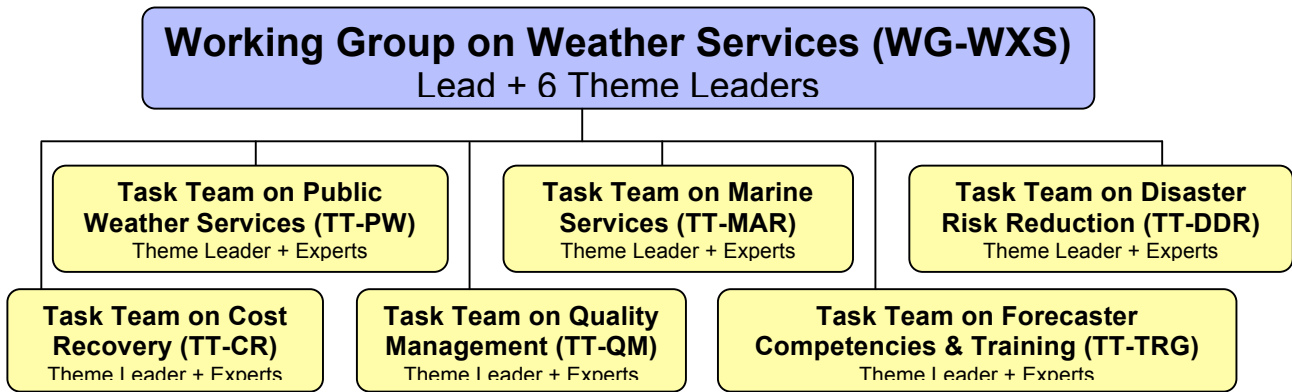


Figure 1: Structure of the Working Group on Weather Services

5. The WG-WXS will oversee the activities of the Task Teams and report its progress to the RA-V Management Group.
6. The topic of improved warnings for aviation, such as SIGMET, will be handled directly by the WG-WXS in conjunction with the relevant areas of ICAO such as the ICAO Meteorological Warnings Study Group (METWSG) and the ICAO Asia/Pacific Regional Office and with the relevant areas of WMO such as the WMO Commission for Aeronautical Meteorology (CAeM).
7. The draft terms of reference (ToR) for the WG-WXS is given in Appendix II and the associated Terms of Reference (ToR) for the Task Teams are given in Appendices III - VIII. Once each group is established the ToR will be fully reviewed and detailed Work Plans established.

WORKING GROUP ON WEATHER SERVICES (WG-WXS)	
Objective	The objective of the Working Group on Weather Services (WG-WXS) is to assist with improving weather service quality and delivery and to contribute to strengthening capacity building within NMHSs, with an initial focus on sustainable aviation weather services.
Benefits	<p>The WG-WXS will help to implement the RA V Strategic Operating Plan (SOP) 2012-2015 and the WMO Strategic Plan 2012-2015, specifically the Expected Results:</p> <p>ER1: Enhanced capabilities of Members to deliver and improve access to high-quality weather, climate and water related environmental predictions, information and services in response to users' needs and to enable their use in decision-making by all relevant societal sectors.</p> <p>ER2: Enhanced capabilities of members to reduce risks and potential impacts of hazards caused by weather, climate and water and related environmental elements.</p> <p>ER6: Enhanced capabilities of NHMSs, in particular in developing and least developed countries, to fulfil their mandates.</p>
Terms of Reference	<p>The Terms of Reference of the Working Group are:</p> <ul style="list-style-type: none"> • Monitor, promote & develop strategies to enhance the capabilities of RA-V Members to deliver and improve access to weather services, with an immediate focus on sustainable aviation weather services; • Coordinate with relevant WMO & ICAO groups to assist with the implementation of an improved and sustainable weather and warning service; • Identify and evaluate international best practice on the delivery of weather & warning services and communicate these with RA-V Members; • Establish and coordinate Task Teams, as necessary, to complete specific tasks related to the objectives and priority areas of the WG-WXS; • Report and provide advice to the RA-V Management Group on the above issues.
Meetings	<ul style="list-style-type: none"> • The Working Group will operate as a virtual team and conduct regular meetings, via telephone or videoconference; • Face to face meetings will be conducted on an opportunity basis through special events such as regional workshops, management group meetings, training sessions, etc • The meeting will be chaired by the Lead of the Working Group and Secretariat duties provided on a rotating basis between the Working Group members; • Minutes and action items arising from the meeting will be provided to all members of the WG-WXS & MG via email within 10 working days of each meeting.
Work Programme	<p>The work to be addressed by the Working Group includes:</p> <ul style="list-style-type: none"> • Establishment of the working structure of the Working Group on Weather Services; • Provide management and guidance to the Task Teams on (1) Cost Recovery TT-CR, (2) Quality Management TT-QM, (3) Forecaster Competencies and Training TT-TRG, (4) Public Weather Services TT-PW, (5) Marine Services TT-MAR and (6) Disaster Risk Reduction TT-DDR; • Establishment and ongoing revision of the Terms of Reference and Work Plans for the WG and TTs; • Provision of input into the RA-V Questionnaire to establish a baseline and subsequent ongoing measurement of performance; • Provide 3 monthly status reports to the RA-V Management Group.

TASK TEAM ON COST RECOVERY (TT-CR)	
Objective	Assist with the implementation on a cost recovery framework in RA-V which meets the standards and recommendations of WMO and ICAO.
Benefits	<p>The benefit of implementing a cost recovery framework is to ensure a sustainable and high quality of service for stakeholders, now and into the future. This can be achieved through the TT-CRs contribution to activities relating to the:</p> <ul style="list-style-type: none"> • WMO Strategic Plan 2012-2015, specifically the Expected Result 1: Enhanced capabilities of Members to deliver and improve access to high-quality weather, climate and water related environmental predictions, information and services in response to users' needs and to enable their use in decision-making by all relevant societal sectors; and the • WMO RA V Strategic Operating Plan (SOP) 2012-2015, specifically the Regional Key Outcome (RKO) 1.1.1: Aviation weather services are effective and sustainable.
Terms of Reference	<p>The Terms of Reference of the Task Team are:</p> <ul style="list-style-type: none"> • Maintain awareness of current international developments in cost recovery; • Maintain awareness of the current status and methods of cost recovery in RA-V member countries; • Assist in the development and implementation of a cost recovery framework, based on WMO 904; • Encourage the collaboration of RA-V countries in implementing a cost recovery framework; • Provide advice to the WG-WXS on the above issues.
Meetings	<ul style="list-style-type: none"> • The Task Team will operate as a virtual team and conduct regular meetings, via telephone or videoconference; • The meeting will be chaired by the nominated Theme Leader and Secretariat duties provided on a rotating basis between the Task Team members; • Minutes and action items arising from the meeting will be provided to all members of the TT-CR & WG-WXS via email within 10 working days of each meeting.
Work Programme	<p>The work to be addressed by the Task Team includes:</p> <ul style="list-style-type: none"> • Establish an understanding of the current level of adoption and methodologies of cost recovery within RA-V, particularly for aviation weather service; • Identify if RA-V Members should be recovering funds on behalf of other Member countries who are providing the services; • Develop guidelines to assist RA-V members in implementing a cost recovery framework consistent with WMO 904; • Assist in the development and implementation of a cost recovery framework within NHMS in RA-V; • Continually seek ways to improve the effectiveness of implementing cost recovery by regional collaboration and mentoring; • Provide 3 monthly status reports to the WG-WXS.
References	<p>WMO 904: Guide on aeronautical meteorological services cost recovery - Principles and guidance. ICAO Doc. 9082: ICAO's Policies on Charges for Airports and Air Navigation Services.</p>

TASK TEAM ON QUALITY MANAGEMENT (TT-QM)	
Objective	To assist and encourage National Meteorological And Hydrological Services (NMHS) in adopting a quality management approach to the delivery of weather services and the pursuit of achieving certification of compliance with the ISO: 9001:2008 Quality Management Standard.
Benefits	<p>Adoption of a quality management framework and achieving certification of compliance with the ISO: 9001:2008 Quality Management Standard will benefit in terms of:</p> <ul style="list-style-type: none"> • Ensuring compliance with ICAO Annex 3 (Note: QMS a standard from November 2012); • Providing a sound and proven framework for quality management, including documentation, training & continuous improvement; • Providing external audit by a 3rd party, providing increased credibility & accountability. <p>This can be achieved through the TT-QMs contribution to activities relating to the:</p> <ul style="list-style-type: none"> • WMO Strategic Plan 2012-2015, specifically the Expected Result 1: Enhanced capabilities of Members to deliver and improve access to high-quality weather, climate and water related environmental predictions, information and services in response to users' needs and to enable their use in decision-making by all relevant societal sectors; and the • WMO RA V Strategic Operating Plan (SOP) 2012-2015, specifically the Regional Key Outcome (RKO) 1.1.1: Aviation weather services are effective and sustainable.
Terms of Reference	<p>The Terms of Reference of the Task Team are:</p> <ul style="list-style-type: none"> • Maintain awareness of current quality management issues, principles and practices; • Maintain awareness of the implementation of quality management systems within NMHS in RA-V, • Assist in the development and implementation of QMS within NHMS in RA-V; particularly with reference to the need to have a quality management system in place for aviation weather services by November 2012; • Continually seek ways to improve the effectiveness of implementing QM by regional collaboration and mentoring; • Provide advice to the WG-WXS on the above issues.
Meetings	<ul style="list-style-type: none"> • The Task Team will operate as a virtual team and conduct regular meetings, via telephone or videoconference; • The meeting will be chaired by the nominated Theme Leader and Secretariat duties provided on a rotating basis between the Task Team members; • Minutes and action items arising from the meeting will be provided to all members of the TT-QM & WG-WXS via email within 10 working days of each meeting.
Work Programme	<p>The work to be addressed by the Task Team includes:</p> <ul style="list-style-type: none"> • Establish an understanding of the level of knowledge, training and adoption of quality management within RA-V; • Develop a set of strategies appropriate to RA-V that complement the objectives and activities of WMO's Quality Management Framework (QMF), working closely with representative(s) of the WMO ICTT-QMF; • Develop guidelines to assist RA-V members in implementing a quality management framework; • Assist with the implementation, in one or more NMHS in RA-V, of a quality management pilot project for certification of compliance of the member(s) with the ISO 9001:2008 Quality Management Standard; • Provide 3 monthly status reports to the WG-WXS.
References	<ul style="list-style-type: none"> • WMO 1001: Guide on the quality management system for the provision of meteorological services for international air navigation. • ICAO Annex 3 to Convention on International Civil Aviation – Meteorological Service for International Air Navigation.

TASK TEAM ON FORECASTER COMPETENCIES & TRAINING (TT-TRG)	
Objective	Assist with the implementation on a forecaster competency framework in RA-V which meets the standards and recommendations of WMO and ICAO.
Benefits	<p>The benefit to the stakeholders will be assistance and collaboration in meeting the requirements for the implementation of a Competency Assessment framework within the meteorological providers of the member countries within WMO RA-V. This can be achieved through the TT-TRGs contribution to activities relating to the:</p> <ul style="list-style-type: none"> • WMO Strategic Plan 2012-2015, specifically the Expected Result 6: Enhanced capabilities of NHMSs, in particular in developing and least developed countries, to fulfil their mandates; and the • WMO RA V Strategic Operating Plan (SOP) 2012-2015, specifically the Regional Key Outcome (RKO) 6.3.1: Education and Training Development activities at national and regional levels are improved.
Terms of Reference	<p>The Terms of Reference of the Task Team are:</p> <ul style="list-style-type: none"> • Maintain awareness of current international developments in forecaster competency and training, in particular the work of WMO CAeM Task Team on Education & Training (ET/ET) and the Task Team on the Competency Assessment Toolkit (TT-CAT); • Maintain awareness of current and developing expectations and requirements for the implementation of competency assessment systems within the NMHS, particularly the need to demonstrate compliance with competency requirements for aeronautical meteorological personnel by November 2013; • Assist in the development and implementation of competency assessment systems in RA-V, based on WMO 258 (plus supplements) and the TT-CAT framework. • Encourage the collaboration of RA-V countries in implementing the TT-CAT framework; • Provide advice to the WG-WXS on the above issues.
Meetings	<ul style="list-style-type: none"> • The Task Team will operate as a virtual team and conduct regular meetings, via telephone or videoconference; • The meeting will be chaired by the nominated Theme Leader and Secretariat duties provided on a rotating basis between the Task Team members; • Minutes and action items arising from the meeting will be provided to all members of the TT-TRG & WG-WXS via email within 10 working days of each meeting.
Work Programme	<p>The work to be addressed by the Task Team includes:</p> <ul style="list-style-type: none"> • Establish an understanding of the current level of adoption of competency assessment & management within RA-V; • Develop a set of strategies appropriate to RA-V that complement the objectives and activities of WMO's TT-CAT, working closely with representative(s) of the WMO TT-CAT; • Develop guidelines to assist RA-V members in implementing the TT-CAT framework and an overall competency management framework; • Assist with the implementation, in one or more NMHS in RA-V, of a competency assessment pilot project for implementation of the TT-CAT framework; • Provide 3 monthly status reports to the WG-WXS.
References	<p>WMO 258: Guidelines for the education and training of personnel in meteorology and operational hydrology. ICAO Annex 3 to Convention on International Civil Aviation – Meteorological Service for International Air Navigation.</p>

WG-WXS, Appendix V

TASK TEAM ON PUBLIC WEATHER SERVICES (TT-PW)	
Objective	What is the Objective of the Task Team (this must be linked to an RKO)?
Benefits	What is the Benefit to stakeholders relevant to this Task Team?
Terms of Reference	<p>What are the Terms of Reference of the Task Team?</p> <p>Terms of reference show how the scope will be defined, developed, and verified. They should also provide a documented basis for making future decisions and for confirming or developing a common understanding of the scope among stakeholders. In order to meet these criteria, success factors/risks and restraints should be fundamental keys.</p>
Meetings	<ul style="list-style-type: none"> • The Task Team will operate as a virtual team and conduct regular meetings, via telephone or videoconference; • The meeting will be chaired by the nominated Theme Leader and Secretariat duties provided on a rotating basis between the Task Team members; • Minutes and action items arising from the meeting will be provided to all members of the TT-PW & WG-WXS via email within 10 working days of each meeting.
Work Programme	Include a brief executive summary of the general work programme of the Task Team. What are the key deliverables? The deliverables must be achievable, measurable and time-bound.
References	Are there relevant WMO documents or other references?

WG-WXS, Appendix VI

TASK TEAM ON MARINE SERVICES (TT-MAR)	
Objective	What is the Objective of the Task Team (this must be linked to an RKO)?
Benefits	What is the Benefit to stakeholders relevant to this Task Team?
Terms of Reference	<p>What are the Terms of Reference of the Task Team?</p> <p>Terms of reference show how the scope will be defined, developed, and verified. They should also provide a documented basis for making future decisions and for confirming or developing a common understanding of the scope among stakeholders. In order to meet these criteria, success factors/risks and restraints should be fundamental keys.</p>
Meetings	<ul style="list-style-type: none"> • The Task Team will operate as a virtual team and conduct regular meetings, via telephone or videoconference; • The meeting will be chaired by the nominated Theme Leader and Secretariat duties provided on a rotating basis between the Task Team members; • Minutes and action items arising from the meeting will be provided to all members of the TT-MAR & WG-WXS via email within 10 working days of each meeting.
Work Programme	Include a brief executive summary of the general work programme of the Task Team. What are the key deliverables? The deliverables must be achievable, measurable and time-bound.
References	Are there relevant WMO documents or other references?

TASK TEAM ON DISASTER RISK REDUCTION (TT-DDR)	
Objective	What is the Objective of the Task Team (this must be linked to an RKO)?
Benefits	What is the Benefit to stakeholders relevant to this Task Team?
Terms of Reference	<p>What are the Terms of Reference of the Task Team?</p> <p>Terms of reference show how the scope will be defined, developed, and verified. They should also provide a documented basis for making future decisions and for confirming or developing a common understanding of the scope among stakeholders. In order to meet these criteria, success factors/risks and restraints should be fundamental keys.</p>
Meetings	<ul style="list-style-type: none"> • The Task Team will operate as a virtual team and conduct regular meetings, via telephone or videoconference; • The meeting will be chaired by the nominated Theme Leader and Secretariat duties provided on a rotating basis between the Task Team members; • Minutes and action items arising from the meeting will be provided to all members of the TT-DDR & WG-WXS via email within 10 working days of each meeting.
Work Programme	Include a brief executive summary of the general work programme of the Task Team. What are the key deliverables? The deliverables must be achievable, measurable and time-bound.
References	Are there relevant WMO documents or other references?

4. WMO RA V WORKING GROUP ON INFRASTRUCTURE (WG-INFR)

Introduction

At the 15th session of World Meteorological Organization (WMO) Regional Association 5 (RA V) in Bali, Indonesia (30 April – 6 May 2010) and the subsequent 4th Session of the RA V Management Group, the following subsidiary bodies were established:

- Management Group (MG);
- Tropical Cyclone Committee for the South Pacific and South-east Indian Ocean (TCC), Chair, Mr Mike Bergin;
- Working Group on Hydrological Services (WG-HYS), Lead, Dr Arie S. Moerwanto;
- Working Group on Climate Services (WG-CLS), Lead, Mr Erwin E.S. Makur;
- Working Group on Weather Services (WG-WXS), Lead, Mrs Susan O'Rourke;
- Working Group on Infrastructure (WG-INFR), Lead, Mr Russell Stringer.

Working Group on Infrastructure (WG-INFR)

The objective of the Working Group on Infrastructure (WG-INFR) is to contribute to the improvement of infrastructure (data and information services) for weather, climate and water in Region V through implementation of the WMO Integrated Global Observing System (WIGOS) and WMO Information System (WIS).

WG-INFR will help to implement the RA V Strategic Operating Plan (SOP) 2012-2015 and the WMO Strategic Plan 2012-2015, specifically the Expected Result 4 of:

Enhanced capabilities of Members to access, develop, implement and use integrated and interoperable Earth- and space-based systems for weather, climate and hydrological observations, as well as related environmental observations, based on world standards set by WMO.

Although the RA V SOP 2012-2015 is in draft form, it is referenced to provide the context and priorities to guide the work plans of WG-INFR. In particular it specifies a list of Regional Key Outcomes (RKO), each matched to one of WMO's global Key Outcomes and each having one or more Regional Key Performance Indicators used to monitor progress.

The Terms of Reference for WG-INFR, as shown in Appendix II, are broad in nature. However each task tackled is aimed at one of the RKO and having an impact on one or more of the associated Regional KPIs.

In addition to the RA V SOP 2012-2015, other influences on the work of WG-INFR include:

- recommendations, priorities and results inherited from the predecessor Working Group on the Planning and Implementation of the World Weather Watch in Region V, and its Sub-Group on Information Systems and Services; and
- liaison with WMO Technical Commissions and the many relevant subsidiary bodies, in particular the Commission for Basic Systems (CBS) and its groups on Information Systems and Services and on Integrated Observing Systems, as well as the WIS Project Office and the WIGOS Project Office.

Membership of WG-INFR

WG-INFR is composed of experts nominated and made available by Member countries in RA V. A core group is formed by the overall Lead and seven Theme Leaders, covering subject areas which span as widely as possible the Terms of Reference for WG-INFR.

The role of a Theme Leader is to assist the WG-INFR to address its Terms of Reference as a team, to make a key contribution in their Theme, and to monitor the progress of Task Teams and develop prioritised proposals for additional Tasks.

A larger pool of experts is also available to contribute to the work of WG-INFR. This is listed in Appendix 1 and illustrated in Figure 1.

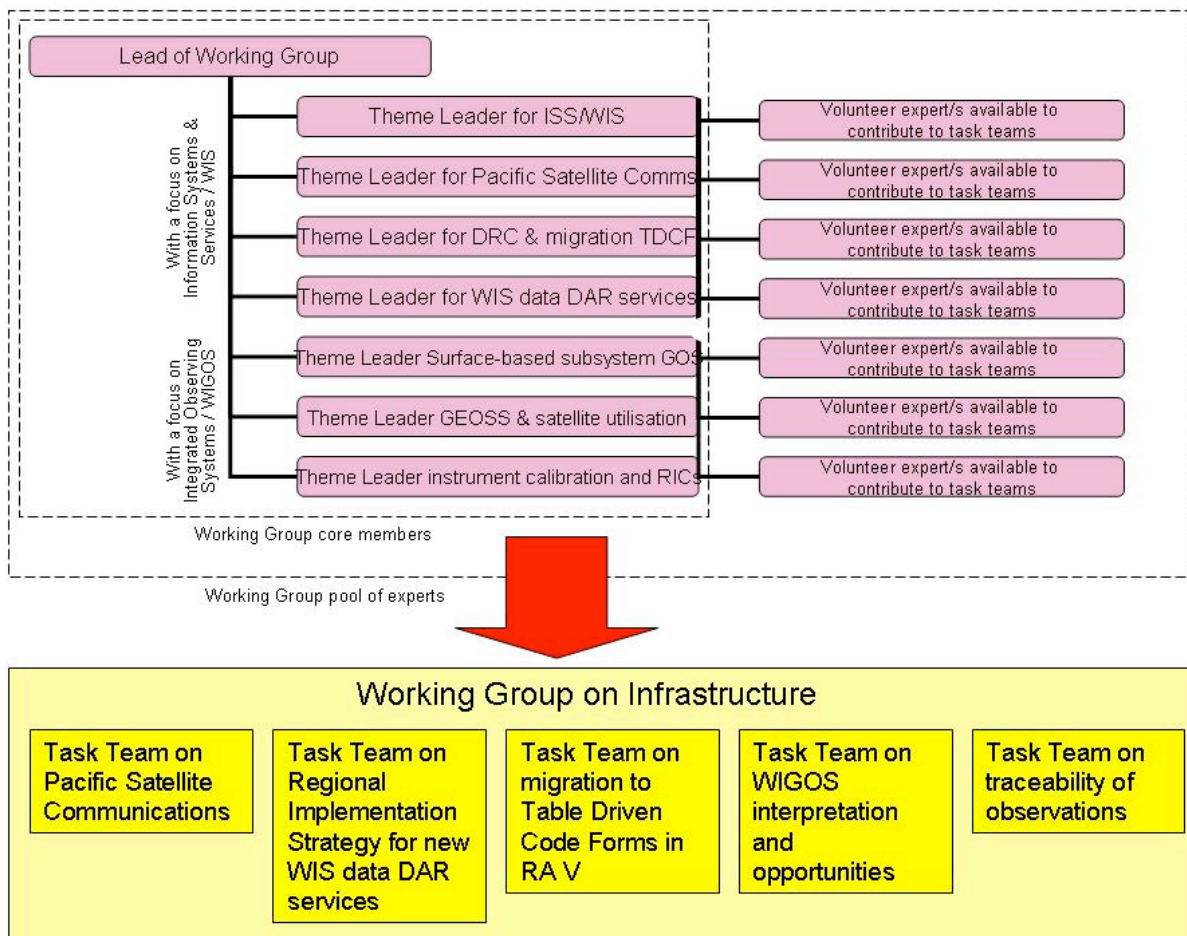


Figure 1: Structure of the Working Group on Infrastructure, showing the experts and subject areas included in WG-INFR in the top portion of the figure and the working structure to which they contribute in the bottom portion of the figure.

Working Structure of WG-INFR

The work of WG-INFR is carried out predominantly in Task Teams. Initially there are five Task Teams as shown in Figure 1 and listed in Appendix I. However Task Teams are intended to complete their specified tasks then adjourn. Further Task Teams will form and adjourn throughout the four year life of the WG-INFR in order to carry out the work plan of WG-INFR.

Each Task Team will have a Coordinator and one or more members. The Coordinator role will generally be undertaken by the most relevant Theme Leader. Contributing members will be other available experts having the most relevant expertise, in some cases that includes another Theme Leader. Some individuals may be called on to contribute to more than one Task Team.

More detailed descriptions of the Task Teams are provided in Appendices II-VI.

WORKING GROUP ON INFRASTRUCTURE (WG-INFR)	
Objective	The objective of the Working Group on Infrastructure (WG-INFR) is to contribute to the improvement of infrastructure (data and information services) for weather, climate and water in Region V through implementation of the WMO Integrated Global Observing System (WIGOS) and WMO Information System (WIS).
Benefits	<p>WG-INFR will help to implement the RA V Strategic Operating Plan 2012-2015 and the WMO Strategic Plan 2012-2015, specifically the Expected Result 4 of:</p> <p style="text-align: center;"><i>Enhanced capabilities of Members to access, develop, implement and use integrated and interoperable Earth- and space-based systems for weather, climate and hydrological observations, as well as related environmental observations, based on world standards set by WMO.</i></p>
Terms of Reference	<p>The Terms of Reference of the Working Group are to:</p> <ul style="list-style-type: none"> • monitor, promote & develop strategies for the Regional development and sustainable implementation of the WMO Information System. The highest priority remains overcoming the persistent shortcomings of the RMTN for time-critical and operation-critical data exchange. Avenues include Pacific-wide satellite communications, collaboration in the development and support of RANET, EMWIN reception, and improved access to Internet services. Attention is also needed to the new functionality of WIS for flexible data discovery, access and retrieval services; • monitor, promote and develop integrated strategies for the Regional development and sustainable implementation of the observing systems of WMO Programmes and co-sponsored Programmes. Areas for attention include: advising the President of the Association on the proposed composition and changes to the RBSN and RBCN; promotion of traceability of instrument calibrations to international standards, building on the effective operation of Regional Instrument Centres; adopting relevant elements of WMO's Implementation Plan for Evolution of the GOS; extending the coverage of AMDAR aircraft reports; and lightning detection through local systems and participation in global networks; • provide guidance and propose demonstration projects for the implementation of the WIGOS concept in the Region; • identify means for strengthening liaison with bodies involved in the development and implementation of relevant observing and information systems; • identify education and training requirements for relevant information and communication techniques and observing systems and operations; • provide a focal point for maintaining WMO regulatory material related to observations and information systems; • coordinate Task Teams to complete specific tasks and develop proposals to the Management Group for winding up completed teams and starting new teams; and • report to and advise the RA V President and Management Group on the above issues.
Meetings	<ul style="list-style-type: none"> • The Working Group will have core members from different locations across the Region and will need to operate as a virtual team, seeking cost-effective mechanisms to sustain regular communication (for example using e-mail, video and teleconference);
Work Programme	<p>The work to be addressed by the Working Group includes:</p> <ul style="list-style-type: none"> • regular communication amongst the core group to report on, guide the work of, and to develop proposals regarding Task Teams, to share information related to the Objective and TORs of WG-INFR, and to respond to matters referred to it within its TORs; • to complete specific tasks through Task Teams (more details are contained in the Terms of Reference for each Task Team).

TASK TEAM ON PACIFIC SATELLITE COMMUNICATIONS (TT-XXX)	
Objective	To identify effective and achievable means for Pacific countries to obtain time-critical and operation-critical meteorological and related information and to provide observations and other hazards information.
Benefits	The work of this Task Team will help to achieve RKO 4.2.1 (WIS is implemented) by enhancing the capability of Members in the Pacific to meet their communication needs and to participate in the international exchange of data.
Terms of Reference	<p>The Terms of Reference of the Task Team are:</p> <ul style="list-style-type: none"> • To identify the priority needs of countries in the Pacific to obtain and exchange meteorological and related information; • Include communications needs both within-country and regional/global needs; • To identify and examine existing communications solutions and their shortcomings; • To investigate options and alternatives and make recommendations on effective and achievable means to overcome the shortcomings; • To make recommendations on capacity building initiatives to enable sustained operation and maintenance of communications systems on multi-hazard platforms; • To assist RA V Management Group to explore cooperative mechanisms and opportunities for multi-lateral collaboration in the implementation of new systems and related capacity building; and • Provide advice to WG-INFR on the above issues. <p>Within these Terms of Reference, the Task Team will seek to collaborate and align with regional meteorological communications work done in other relevant forums having a common objective, including the RANET - Pacific Communications Steering Committee, SPREP and PI-GCOS.</p>
Meetings	<ul style="list-style-type: none"> • The Task Team will have members from different locations across the Region and will need to operate as a virtual team, using cost-effective mechanisms to conduct regular meetings, via telephone, videoconference or in person (as extrabudgetary resources permit).
Work Programme	<p>The work to be addressed by the Task Team includes:</p> <ul style="list-style-type: none"> • Review existing meteorological and climate service meteorological arrangements through communications surveys and RMTN arrangements. • Review planned within-country improvements in communications infrastructure and plans for national meteorological/climate services to take part in upgrading their capacities. • Make recommendations where opportunities lend themselves to multi-lateral solutions to address current gaps and future outlooks. • Report out findings to relevant forums, such as the WG on Infrastructure (every three months), the SPREP RMSD, RANET Pacific Communications Steering Committee, etc.
Reference	<p>Final Reports of meetings of:</p> <ul style="list-style-type: none"> • RA V WG-PIWWW, Honolulu, 7-10 December 2009 • RA V WG-PIWWW, Sub-Group on ISS, Honolulu, 2-5 December 2009 • Manual on the GTS; WIS Implementation Plan.

TASK TEAM ON REGIONAL IMPLEMENTATION STRATEGY FOR NEW WIS DATA DAR SERVICES (TT-XXX)	
Objective	To assist Member countries in RA V to work together to achieve a coordinated approach to the implementation of new WIS data Discovery Access and Retrieval (DAR) services in RA V.
Benefits	The work of this Task Team will help to achieve RKO 4.2.1 (WIS is implemented) by establishing a regional implementation strategy for WIS/DAR and enhancing the capability of Members across the Region to access and supply weather, climate, hydrological and related environmental data and information.
Terms of Reference	<p>The Terms of Reference of the Task Team are to:</p> <ul style="list-style-type: none"> • Establish a regional implementation strategy for WIS/DAR services; • Provide information and advice to Members about the WIS Implementation Plan and its implications and application in the Region; • provide guidance documentation on how to implement the new functionality of WIS, especially metadata; • provide advice on the designation process and promote the early action by NMHSs to have their own centres designated; • Promote the establishment of GISC, DCPC and National Centres in the Region; • Seek early pilots to demonstrate the operation of GISC, DCPCs and NCs, including a demonstration of WIS capability in a SIDS National Centre and a non-NMHS centre; • Liaise with the WIS Project Office and relevant Expert Teams of the CBS OPAG-ISS; • Provide advice to WG-INFR on the above issues.
Meetings	<ul style="list-style-type: none"> • The Task Team will have members from different locations across the Region and will need to operate as a virtual team, using cost-effective mechanisms to conduct regular meetings, via telephone, videoconference or, if the opportunity arises, in person.
Work Programme	<p>The work to be addressed by the Task Team includes:</p> <ul style="list-style-type: none"> • Xx • Xx
Reference	<p>Various references/information at the WMO WIS web page at http://www.wmo.int/pages/prog/www/WIS/, including:</p> <ul style="list-style-type: none"> • WIS Implementation Plan • Manual on WIS and Guide to WIS, draft version 1.0

TASK TEAM ON WIGOS INTERPRETATION AND OPPORTUNITIES (TT-WIGOS)	
Objective	To identify actions needed at the Regional level to implement the WIGOS framework, and to identify opportunities and priorities for immediate progress including through Demonstration Project/s.
Benefits	The work of this Task Team will help to achieve RKO 4.1.1 (WIGOS is implemented) by identifying actions, opportunities and priorities, particularly through Demonstration Project/s, leading to enhanced capability of Members across the Region to implement and use integrated and interoperable observing systems.
Terms of Reference	<p>The Terms of Reference of the Task Team are to:</p> <ul style="list-style-type: none"> • Provide information and advice to Members and the RA V Management Group about the WIGOS concept, the implementation strategy, and the implications and requirements for actions at the Regional level; • Identify opportunities and priorities for Regional action; • Consult widely in order to formulate proposal/s for WIGOS Demonstration Project/s, with an emphasis on activities that are sustainable and may be generalized for adoption across the entire Region; • Provide advice to WG-INFR on the above issues.
Meetings	<ul style="list-style-type: none"> • The Task Team will have members from different locations across the Region and will need to operate as a virtual team, using cost-effective mechanisms to conduct regular meetings, via telephone, videoconference or, if the opportunity arises, in person.
Work Programme	<p>The work to be addressed by the Task Team includes:</p> <ul style="list-style-type: none"> • Xx • Xx
Reference	<p>Various references/information at WMO WIGOS web page at http://www.wmo.int/pages/prog/www/wigos/index_en.html, including Principle Documents:</p> <ul style="list-style-type: none"> • WIGOS Test of Concept Development and Implementation Plan (WDIP) • WIGOS Concept of Operations (CONOPS) • WIGOS Development and Implementation Strategy (WDIS) • The WIGOS Imperative

TASK TEAM ON MIGRATION TO TABLE DRIVEN CODE FORMS IN RA V (TT-XXX)	
Objective	To assist the coordination amongst Member countries of RA V of their plans for, and progress on, migration to the use of TDCF in accordance with WMO plans.
Benefits	The work of this Task Team will help to achieve RKO 4.2.1 (WIS is implemented) by enhancing the capability of Members to participate in the international exchange of data.
Terms of Reference	<p>The Terms of Reference of the Task Team are to:</p> <ul style="list-style-type: none"> • Compile and share information on progress and plans for migration to TDCF by Member countries across RA V; • assist the coordination of migration plans within the Region; • advise Members on all aspects related to migration strategy, including WMO timelines; • promote training activities and the use of encoder/decoder software; • liaise with CBS OPAG-ISS/IPET-DRC on the migration to TDCF; • provide advice to WG-INFR on the above issues.
Meetings	<ul style="list-style-type: none"> • The Task Team will have members from different locations across the Region and will need to operate as a virtual team, using cost-effective mechanisms to conduct regular meetings, via telephone, videoconference or, if the opportunity arises, in person.
Work Programme	<p>The work to be addressed by the Task Team includes:</p> <ul style="list-style-type: none"> • Xx • Xx
Reference	TBA

TASK TEAM ON TRACEABILITY OF OBSERVATIONS (TT-XXX)	
Objective	To monitor and assist the progress of Member countries of RA V to achieve traceability of instrument calibrations to international standards, building on the effective operation of Regional Instrument Centres.
Benefits	The work of this Task Team will help to achieve RKO 4.1.1 (WIGOS is implemented) by enhancing the standardisation of instruments and methods of observation in RA V, which is one of the key areas of standardisation for WIGOS.
Terms of Reference	<p>The Terms of Reference of the Task Team are to:</p> <ul style="list-style-type: none"> • Maintain an up to date summary of the capacity of Member countries in RA V to achieve traceability of instrument calibrations to international standards; • Maintain an up to date summary of, and publicize amongst Members, the Capabilities of Regional Instrument Centres in RA V to assist in calibrating national meteorological standards and related environmental monitoring instruments; • Identify and promote opportunities to enhance the capabilities and capacities described above; • provide advice to WG-INFR on the above issues.
Meetings	<ul style="list-style-type: none"> • The Task Team will have members from different locations across the Region and will need to operate as a virtual team, using cost-effective mechanisms to conduct regular meetings, via telephone, videoconference or, if the opportunity arises, in person.
Work Programme	<p>The work to be addressed by the Task Team includes:</p> <ul style="list-style-type: none"> • Xx • Xx
Reference	WMO-No.8: CIMO Guide



WMO REGIONAL ASSOCIATION V WORKING GROUP ON WEATHER SERVICES (WG-WXS)

STATUS REPORT

1. OVERVIEW	
Members	<ul style="list-style-type: none"> • Lead of WG-WXS: Mrs Sue O'Rourke (Australia) • Theme Leader in Cost Recovery: Mr Arona Ngari (Cook Islands) • Theme Leader in Quality Management: Mr Saw Bun Liong (Malaysia) • Theme Leader in Forecaster Competencies & Training: Mr Christopher Webster (NZ) • Theme Leader in Public Weather Services: Mr Mulyon Prabowo (Indonesia) • Theme Leader in Marine Services: Mr Muhammed Helmi bin Abdullah (Malaysia) • Theme Leader in Disaster Risk Reduction: Ms Shannon McNamara (Australia)
Objective	The objective of the Working Group on Weather Services (WG-WXS) is to assist with improving weather service quality and delivery and to contribute to strengthening capacity building within NMHSs, with an initial focus on sustainable aviation weather services.
Terms of Reference	<p>The Terms of Reference of the Working Group are:</p> <ul style="list-style-type: none"> • Monitor, promote & develop strategies to enhance the capabilities of RA-V Members to deliver and improve access to weather services, with an immediate focus on sustainable aviation weather services; • Coordinate with relevant WMO & ICAO groups to assist with the implementation of an improved and sustainable weather and warning service; • Identify and evaluate international best practice on the delivery of weather & warning services and communicate these with RA-V Members; • Establish and coordinate Task Teams, as necessary, to complete specific tasks related to the objectives and priority areas of the WG-WXS; • Report and provide advice to the RA-V Management Group on the above issues.
Work Programme	<p>The work to be addressed by the Working Group includes:</p> <ul style="list-style-type: none"> • Establishment of the working structure of the Working Group on Weather Services; • Provide management and guidance to the Task Teams on (1) Cost Recovery TT-CR, (2) Quality Management TT-QM, (3) Forecaster Competencies and Training TT-TRG, (4) Public Weather Services TT-PW, (5) Marine Services TT-MAR and (6) Disaster Risk Reduction TT-DDR; • Establishment and ongoing revision of the Terms of Reference and Work Plans for the WG and TTs; • Provision of input into the RA-V Questionnaire to establish a baseline and subsequent ongoing measurement of performance; • Provide 3 monthly status reports to the RA-V Management Group.
Performance Measures	To be advised.

2. PROGRESS SUMMARY

Progress Summary

- WMO RA-V Management Group Meeting – September 2010.
- Templates for the Work Plan, Action Items and Status Reports provided to the Management Group, including other Working Groups.
- Establishment of the Working Group on Weather Services WG-WXS, Theme Leaders and Experts.
- Establishment of 6 Task Teams on (1) Cost Recovery TT-CR, (2) Quality Management TT-QM, (3) Forecaster Competencies and Training TT-TRG, (4) Public Weather Services TT-PW, (5) Marine Services TT-MAR and (6) Disaster Risk Reduction TT-DDR, including Theme Leaders and relevant experts.
- The expert from Kiribati had not nominated an area of expertise. An email requesting nomination of an expert area has been sent. The nominated expert has suggested that an alternated expert be considered.
- Information on the expert from the Cook Islands for the TT-DDR has not yet been received so this is being followed up via email.
- Correspondence with the members of the WG-WXS, TT-CR, TT-QM, TT-TRG, including a proposal for the Terms of Reference and input for the establishment of more detailed Work Plans.
- Correspondence with members of the TT-MAR and TT-PW, including a request to establish the Terms of Reference and the Work Plan for the Task Teams.
- The RA-V SOP was distributed to team members.
- The Draft RA-V Survey Questionnaire was distributed to team members. Some initial feedback has been received.

3. STATUS REPORT AGAINST MILESTONES					
Milestone	Baseline Date	Revised Date	Status	Achievements	Issues & Solutions
Milestone 1: Working Group and Task Teams established.			C	Establishment of WG-WXS, TT-CR, TT-QM, TT-TRG, TT-PW, TT-MAR & TT-DRR.	The expert from Kiribati still requires a nomination of an area of expertise, and possible re-nomination of the expert.
Milestone 2: Terms of Reference and Work Plans for WG and TTs complete.			S	Draft Terms of Reference and Work Plans for WG-WXS, TT-CR, TT-QM, TT-TRG circulated to relevant team members. The TT-MAR and TT-PW have been contacted to begin establishment of the ToR and Work Plans.	TT-DRR still need to be contacted. Information on the TT-DDR expert from the Cook Islands has not yet been received.
Milestone 3: RA-V Questionnaire input.			S	Feedback from 2 team experts so far.	This is an important step in establishing a baseline for the WG-WXS, particularly in establishing where the efforts of the group should be focussed and as a means for measuring performance.
Milestone 4:					

C: Complete

S: On schedule

MD: Minor delays

SD: Serious delays