

SEVENTH SESSION OF THE RA V MANAGEMENT GROUP (MG)
(Honiara, 4 November 2011)

LIST OF PARTICIPANTS

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AGENDA

1. Opening of the Session
 2. Matters arising from the sixth session of the RA V Management Group
 3. Follow-up to the fifteenth session of Regional Association V (XV-RA V), the Sixteenth Congress (Cg-XVI) and the Regional Seminar on Climate Services
 - 3.1 Monitoring the status of implementation of the RA V Strategic Plan (2010-2011)
 - 3.2 Implementation of the RA V Strategic Operating Plan (2012-2015)
 - 3.3 Working mechanism of the Association
 - Finalization of Terms of Reference and Work Plan of the Working Groups
 - 3.4 Development of a Regional WIGOS (WMO Integrated Global Observing System) Implementation Plan for RA V
 - 3.5 Implementation of the Global Framework for Climate Services (GFCS)
 - 3.6 Regional events in the sixteenth financial period (2012-2015)
 4. Other business
 - 4.1 Severe Weather Forecasting and Disaster Risk Reduction Demonstration Project (SWFDDP)
 - 4.2 Pacific Meteorological Council
 5. Closure of the Session
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DRAFT SURVEY QUESTIONNAIRE FOR 2012-2015

*) Adopted from RA-V SOP 2012-2015

**) Adopted from RA-V Survey Questionnaire 2010-2011 and new items based on 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**

Regional Key Outcomes (RKO)	Regional Key Performance Indicators *)	Capability indicators **)	2012	2015	Contributing program		
					WMO	RA V	National
RKO 1.1.1: Aviation weather services are effective and sustainable	Level of compliance with ICAO standards and recommended practices (SAR)	1. Provides improved aeronautical meteorological services	(Yes/No)				
		2. Is designated as meteorological authority	(Yes/No)				
		3. Is fully equipped to make and transmit aerodrome meteorological observations	(Yes/No)				
		4. Issues TAF operationally	(Yes/No)				
		5. Issues SIGMET operationally	(Yes/No)				
		6. Receives OPMET data operationally	(Yes/No)				
		7. Operates WAFS satellite receiving equipment	(Yes/No)				
		8. Receives WAFS products operationally through other channels	(Yes/No)				
		9. Provides flight documentation to airlines	(Yes/No)				
		10. Implements cost-recovery of aeronautical meteorological services implemented	(Yes/No)				
		11. Has in place a quality management system meeting international standards	(Yes/No)				
		12. Implements WMO-No. 258 requirements for aeronautical meteorological personnel	(Yes/No)				
		13. Verifies aviation forecasts (including TAF) and warnings using a WMO-approved set of methods	(Yes/No)				
		14. Obtains feedback from aviation users through opinion surveys, user groups, etc.	(Yes/No)				
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 	12. Obtains feedback from marine users through opinion surveys, user groups, etc.	(Yes/No)				
		Produces marine forecasts/warnings for coastal waters including sea state and wave/swell	(Yes/No)				
		5. Issues marine forecasts/warnings for coastal waters	(Yes/No)				

		including sea state and wave/swell	(Yes/No)				
		6. Produces marine forecasts/warnings for high seas	(Yes/No)				
		9. Provides support for combating marine pollution	(Yes/No)				
		11. Number of systems implemented for real-time monitoring of storm surge or tsunami					
		11. Number of systems implemented for real-time monitoring of storm surge or tsunami (please give the number of the systems)					
		1. Number of operational tide gauges (please give the number of the gauges)					

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**

Regional Key Outcomes (RKO)	Regional Key Performance Indicators *)	Capability indicators **)	2012	2015	Contributing program		
					WMO	RA V	National
RKO 2.1.1: Multi-hazard early warning systems are implemented and improved.	• Completion of Tropical Cyclone Operational Plan (TCOP) milestones	Use of TCOP as reference	(Yes/No)				
	• Level of success of the Severe Weather Forecast and Disaster risk reduction Demonstration Project (SWFDDP) including any western window extension	Contributes to successful execution of the Severe Weather Forecast and Disaster Risk Reduction Demonstration Project(SWFDDP) in the South-West Pacific	(Yes/No)				
	Level of implementation including coverage and number of hazards of multi-hazard early warning systems	Participates in a Region-wide multi-hazard early warning system Has ability to respond to airborne hazards, in particular smoke from wildfires, volcanic emissions, chemical or biological spills, and nuclear accidents	(Yes/No) (Yes/No)				
	Number and degree of integration of NMHSs into national emergency and disaster management systems	Involves in national risk reduction planning and disaster management processes and activities	Yes/No				
	Level of cooperation and interaction between NMHSs and their	<ul style="list-style-type: none"> Link to national marine/ocean/geophysical agency Link to WMO and IOC in Tsunami Early warning System 	(Yes/No)				

	marine/ocean/geophysical agency counterparts, and between WMO and IOC in supporting national and regional tsunami early warning systems	<ul style="list-style-type: none"> Links with national disaster managers 	(Yes/No)				
	• Level of accuracy and timeliness of flood warnings	6. Issues flood warnings 7. Issues flash flood warnings (Yes/No)	(Yes/No) (Yes/No)				

Expected Result 3 (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

Regional Key Outcomes (RKO)	Regional Key Performance Indicators	Capability indicators	2012	2015	Contributing program		
					WMO	RA V	National
RKO 3.1.1: Climate information and prediction services are improved	Level of accuracy of monthly/seasonal predictions	Availability of monthly/seasonal climate prediction	(Yes/No)				
	Level of application of, and satisfaction with, climate service	4. Increases the number of users receiving climatological products periodically	(Yes/No)				
	Level of implementation of regional aspects of GFCS including RCCs	Implementation of Regional aspect of GFCS Components	(Yes/No)				
	Level of contribution of RA V Members to the WMO Annual Climate Summary	Contribution to WMO annual summary	(Yes/No)				
RKO 3.3.1: Hydrological information is improved	• Accuracy of information, and coverage, and density, of hydrological observations	Level of information accuracy Density of hydrological Stations					
		1. Expands the spatial and temporal coverage of hydrological observation networks					
		2. Implements reliability measures for maintenance procedures for measurement and equipment in hydrological stations (Yes/No)					

		3. Implements reliability measures for quality control procedures applied on data collected from hydrological stations					
		4. Calculates runoff with quality and accuracy					
		5. Measures changes in river flow in snow/glacier-fed rivers					
		6. Issues flood warnings					
		7. Issues flash flood warnings					
		8. Issues landslide/debris flow warnings and constantly improves upon them	(Yes/No)				
		9. Improves warnings capability through enhanced and effective cooperation with other NMHSs					
		10. Enhances the preparedness to predict and manage hydrological droughts					
		11. Improves knowledge and assessments for decision-making at national and regional levels					
		12. Improves the adaptation capacity of water resources systems in a changing climate					
		13. Improves the capacity for water-related disaster management					
		14. Runs public education program regarding water-related information, including hazards, hydrological forecasts and warnings					
		15. Make assessment of basin-wide water/precipitation availability, including use of climate scenarios					
		16. Has availability of national joint activities/programmes between hydrologists and meteorologists					

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

Regional Key Outcomes (RKO)	Regional Key Performance Indicators *)	Capability indicators **)	2012	2015	Contributing program		
					WMO	RA V	National
	Availability of station metadata	9. Maintains metadata records for observation stations	(Yes/No)				
	Regional WIGOS Demonstration Project					

	initiated						
	Regional priorities for observing system development documented					
RKO 4.1.2: Observing networks are implemented	Level of implementation of RBSN and RBCN including GSN and GUAN	Availability of operational Regional Basic Climatological Network (RBCN) stations (please give the number of stations)					
	Level of implementation of hydrological networks	Number of automatic weather stations (AWSs) (please give the number of stations)					
	Level of implementation of marine observations	8. Carry out marine observations and provides data to support global and regional climate studies	(Yes/No)				
	Progress against GOOS, GTOS and GCOS Regional Action Plans	Number of operational GCOS surface stations (please give the number of stations) Number of operational GCOS upper-air stations (please give the number of stations)					
RKO 4.2.1: WIS is implemented	Extent of participation in international exchange through the WIS / GTS						
	Existence of, and progress against, a regional implementation strategy for WIS / DAR services	6. Benefits from WIS in terms of data and products exchange	(Yes/No)				
	Extent to which communication needs of members are met	2. Has connection to Internet by broadband 3. Has connection to Internet by telephone dial-up	(Yes/No) (Yes/No)				
	Level of use of NWP products accessed via WIS	Utilization of WIS to access NWP product	(Yes/No)				
RKO 4.3.1: Historical climatological data are preserved	Level of availability of long period, rescued, digitized climate records with appropriate metadata	-The extent to which long climate data are available - If yes, since which year - Does the long climate data have appropriate metadata?					

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

Regional Key Outcomes (RKO)	Regional Key Performance Indicators (*)	Capability indicators (**)	2012	2015	Contributing program		
					WMO	RA V	National
RKO 5.3.1 Atmospheric chemistry observations and assessment meet regional needs	Level of implementation of GAW	- Does your service have active GAW - If yes, number of GAW stations?					
RKO 5.4.1					
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"> Level of understanding of ENSO impact to respective countries Level of understanding of IOD impact to respective countries Does your service have products to predict ENSO, IOD, MJO? If yes, what are the levels of predictive skills? 					

Expected Result 6 (ER 6):

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

Regional Key Outcomes (RKO)	Regional Key Performance Indicators (*)	Capability indicators (**)	2012	2015	Contributing program		
					WMO	RA V	National
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 	<ul style="list-style-type: none"> Do you think that there is sufficient capacity in the regional association to provide training to members? Do you have sufficient capacity at national level to provide training for your staffs? If yes, to what extent does the training and education activities comply with WMO No. 258 	- yes / no - yes/no - full compliance/not comply/ ...				

	of meteorological and hydrological staff with WMO No. 258						
RKO 6.4.1: Donor funding is coordinated and effective	Level of funding support for regional programmes and activities	-To what extent do you think is the effectiveness of RA training program with respect to suitability of topics selected and frequency of the training?					

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

Regional Key Outcomes (RKO)	Regional Key Performance Indicators (*)	Capability indicators (**)	2012	2015	Contributing program		
					WMO	RA V	National
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 	-Is your country a member of GEO? - If yes, do you think there is benefit of being a member of GEO consortium?					

Expected Result 8 (ER 8):

An effective and efficient Organization

Regional Key Outcomes (RKO)	Regional Key Performance Indicators (*)	Capability indicators (**)	2012	2015	Contributing program		
					WMO	RA V	National
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, 	-completed -Have you receive the completed SOP 2012-2015? -Do you think that RA-V has appropriately setup responsibilities of working group and its work plan? - Do you receive regularly reports on the progress of RA-V subsidiary bodies - Are you aware of the work carried out by RAV subsidiary bodies? - Are you satisfied by the work carried out by the RAV subsidiary bodies -...					

	<ul style="list-style-type: none"> 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 Commissions Completion of the 2016-2019 Strategic Operating Plan 	- SOP 2016-2019 not initiated					
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Tropical Cyclone Committee for the South Pacific and South-East Indian Ocean (TCC)

Activities for Possible Future Action

APPENDIX V

RA V Tropical Cyclone Committee's Activities for Possible Future Action

1. PROVISION OF TRAINING & CAPACITY BUILDING

Activities	Strategies	Stakeholders	Key Performance Indicators
Upgrade qualification training	Determine feasibility of a basic meteorology course for trainees with lower entrance qualifications	Kiribati, Niue, Samoa and Tonga.	Feasibility and planning in place by 2010
Management training	To provide management training to NMHSS managers.	Members requiring these skills	Appropriate courses targeted.

2. COMMUNICATIONS & IT UPGRADE

Activities	Strategies	Stakeholders	Key Performance Indicators
Satellite technologies	To purchase and install appropriate hardware and software	Members in need of WEFAX replacement	All those in need upgraded to LRIT
Upgrade IT capability Operational PCs, workstations and servers	To replace with or install up-to-date computer facilities.	Kiribati, Solomon Islands and Tonga.	Software and hardware to support at least Win-XP

3. FORECAST & WARNINGS CAPABILITY UPGRADE

Activities	Strategies	Stakeholders	Key Performance Indicators
Graphical TC warning products	To develop appropriate graphics in conjunction with Emergency Management Organisations	RSMC/TCWC, French Polynesia and New Caledonia	Availability of graphical products for all Members.
Development of probabilistic forecasts	To utilise ensemble and climatological data to develop probabilistic fields for winds, rainfall	Members with forecasting capability.	Probabilistic graphical forecast by Nadi by 2009/2010.

4. LINKS TO Disaster Risk Reduction

APPENDIX V

Activities	Strategies	Stakeholders	Key Performance Indicators
Economic Impacts	To conduct a study on the economic and social impacts of tropical cyclones on SIDS in the Pacific region.	LDC/SIDS	Study completed

5. PROMOTE APPLIED RESEARCH

Activities	Strategies	Stakeholders	Key Performance Indicators
Climate Research <ul style="list-style-type: none"> • Quality of Region V section of the southern hemisphere tropical cyclone database 	To eradicate as many of the flaws as possible amongst the existing dataset	Australia, New Zealand, New Caledonia, Fiji and USA	To present progress report at 9 th International Southern Hemisphere Atmospheric and Oceanographic Conference
Climate Research <ul style="list-style-type: none"> • seasonal prediction scheme • Intra-seasonal Forecasting 	MJO based technique to be supported	All Members (south of the Equator), RA V WG on Climate Matters	System being used in forecasting

6. INSTITUTIONAL SUPPORT

Activities	Strategies	Stakeholders	Key Performance Indicators
Comprehensive review of the TCOP	Subcommittee to review and rewrite the existing TCOP	All Members	Completed draft to be part of documentation for 13 th Session in 2010

APPENDIX VI

Technical Plan and Implementation Programme (2010–2014)

1. PROVISION OF TRAINING & CAPACITY BUILDING

Activities	Strategies	Stakeholders	Key Performance Indicators
Satellite product interpretation training	To take advantage of satellite training workshops and courses where possible	Members requiring these skills	Opportunities taken where available
Tropical cyclone forecasters mentor training	To conduct mentoring missions	Members requiring this training	At least 2 visits.
RSMC/TCWC attachment training	To send forecasters to either RSMC Nadi, Australia TCWCs or RSMC Honolulu (Pacific Desk)	All Members	Minimum of 5 per year.
Media skills training	To conduct a workshop in 2011, including other related initiatives.	10 Pacific Member Countries	Workshop completed.
Technical maintenance training	To send technician(s) with a wide range of skills to countries in need	Members requiring technical know-how	Workshop completed.

2. COMMUNICATIONS & IT UPGRADE

Activities	Strategies	Stakeholders	Key Performance Indicators
Emergency Equipment	To equip with suitable backup communications	Members without backup	All Members with alternative communication training
RANET	To expand existing network	Members in need	2 new installations

3. OBSERVATION NETWORKS UPGRADE

APPENDIX VI

Activities	Strategies	Stakeholders	Key Performance Indicators
Observations Networks <ul style="list-style-type: none"> • Preserve & expand RBSN 	To support Pacific GCOS, GUAN & GSN stations	Members with basic set-ups*	At least two countries with upgraded networks.
AWS	To restore, upgrade, enhance and sustain AWS network across RA V TCC area	How do donors know who are the needy benefactors?	4 additional AWSs installed
Regional Maintenance <ul style="list-style-type: none"> • Maintain surface and upper air networks • Enhance and broaden GCOS RMC 	To fix ongoing problems & bring up to an acceptable standard	Members requiring assistance*	At least 90 % of all GUAN/GSN observations from 11 Pacific Islands are received on time, quality controlled and transmitted on the GTS by MetService New Zealand Ltd on a daily basis.

4. FORECAST & WARNINGS CAPABILITY UPGRADE

Activities	Strategies	Key Stakeholders	Key Performance Indicators
TC Module	To install and maintain the software.	Members with forecasting capability.	Installation of software in PNG.
Combined storm surge & wave data	To develop an effective forecasting system to provide reasonable forecasts for inundation caused by impacting tropical cyclones (storm tide and waves) and tropical cyclones at a distance (swells).	Vulnerable Members.	Task team formed, to set plans and report on progress made on the system.

5. PROMOTE APPLIED RESEARCH

APPENDIX VI

Elements	Strategies	Key Stakeholders	Key Performance Indicators
<p>Operational Research</p> <ul style="list-style-type: none"> • Tropical cyclone track and intensity forecasting 	<p>To assess and evaluate existing and new techniques (especially related to midget tropical cyclones); and to provide input on projects aimed at reducing forecast track and intensity errors.</p>	<p>RSMCs and TCWCs</p>	<p>Transfer into forecast and warning centres of improved track and intensity forecasting techniques.</p>

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

TERMS OF REFERENCE AND WORK PROGRAMME

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 program 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.

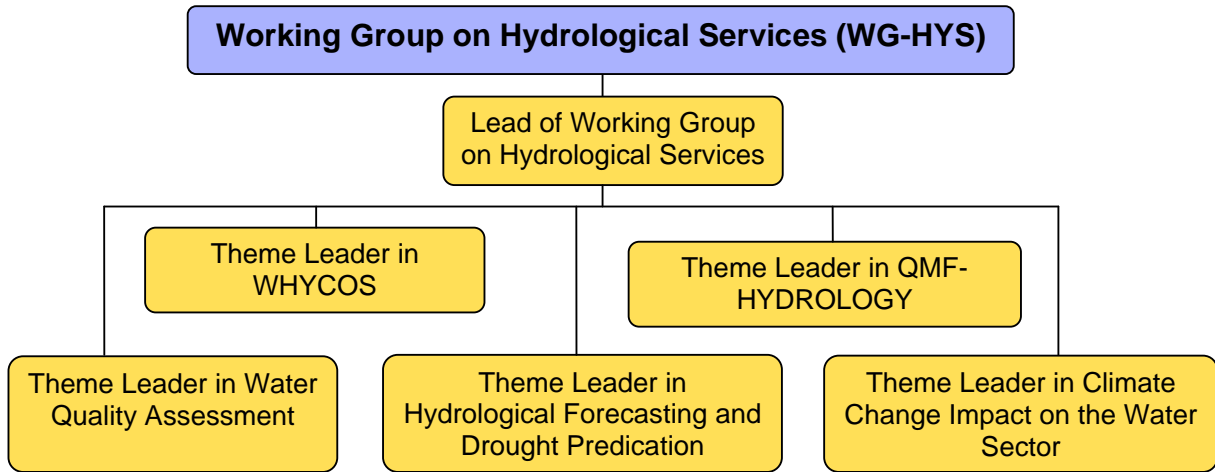


Figure 1: Structure of the Working Group on Hydrological Services

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

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

STRUCTURE AND MEMBERSHIP OF THE WORKING GROUP ON HYDROLOGICAL SERVICES

Working Group on Hydrological Services (WG-HYS)

Dr. Arie S. Moerwanto (Indonesia)	(Lead of WG-HYS)
Dr. Arie S. Moerwanto (Indonesia)	(Theme Leader in WHYCOS)
Mr. John Fenwick (New Zealand)	(Theme Leader in QMF- HYDROLOGY)
Mr. Sulumalo Amataga Penaia (Samoa)	(Theme Leader in Water Quality Assessment)
Mr. Adnan bin Ab Latif (Malaysia)	(Theme Leader in Hydrological Forecasting and Drought Predication)
Dr. Wan Hassan Wan Azil (Malaysia)	(Theme Leader in Climate Change Impact on the Water Sector)

Task Team on WHYCOS (TT- WHYCOS)

Dr. Arie S. Moerwanto (Indonesia)	(Theme Leader in WHYCOS)
Dr. William M. Putuhena (Indonesia)	(Expert in WHYCOS)
Mr. Ashok Kumar (Fiji)	(Expert in WHYCOS)
Mr. John Fenwick (New Zealand)	(Expert in WHYCOS)

Task Team on QMF- HYDROLOGY (TT- QMF- HYDROLOGY)

Mr. John Fenwick (New Zealand)	(Theme Leader in QMF- HYDROLOGY)
Dr. Agung Bagiawan (Indonesia)	(Expert in QMF- HYDROLOGY)
.....	(Expert in QMF- HYDROLOGY)
.....	(Expert in QMF- HYDROLOGY)

Task Team on Water Quality Assessment (TT-WQA)

Mr. Sulumalo Amataga Penaia (Samoa)	(Theme Leader in Water Quality Assessment)
Prof. Nana Terangna Ginting (Indonesia)	(Expert in Water Quality Assessment)
Mr. Rob Davies Colley (New Zealand)	(Expert in Water Quality Assessment)
.....	(Expert in Water Quality Assessment)

Task Team on Hydrological Forecasting and Drought Predication (TT-HFDP)

- Mr. Adnan bin Ab Latif (Malaysia) (Theme Leader in Hydrological Forecasting and Drought Predication)
- Mr. Roderick Henderson (New Zealand) (Expert in Hydrological Forecasting and Drought Predication)
- Dr. Dasarath Jayasuriya (Australia) (Expert in Hydrological Forecasting and Drought Predication)
- Mr. Ashok Kumar (Fiji) (Expert in Hydrological Forecasting and Drought Predication)
- Dr. Wannay Adidarma (Indonesia) (Expert in Hydrological Forecasting and Drought Predication)

Task Team on Climate Change Impact on the Water Sector (TT-CCIWS)

- Dr. Wan Hassan Wan Azil (Malaysia) (Theme Leader in Climate Change Impact on the Water Sector)
- Dr. Ross Woods (New Zealand) (Expert in Climate Change Impact on the Water Sector)
- (Expert in Climate Change Impact on the Water Sector)
- (Expert in Climate Change Impact on the Water Sector)

Expert still not specified:

- 1. Mr. Lokenti Beniamina (Republic of Kiribati)**
- 2. Mr. Andre Maurice Siohane (Niue Island)**

APPENDIX II

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 Program	The work to be addressed by the Working Group includes work program 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 Program	The work to be addressed by the Task Team includes: <ul style="list-style-type: none"> • Development of a SEA HYCOS project; • Sustaining 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 NMHS in adopting a quality management frameworks approach to the delivery of hydrology services and the pursuit of continuous improvement in the quality of those services
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 Program	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; • Facilitate the development of policies, frameworks and information sources to promote regional standardisation of the most suitable equipment and technologies in order to achieve high levels of reliability, accuracy, user knowledge, training effectiveness, and other economies of scale • 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; • Strengthening institutional arrangement and capacity of NHSs including coordination with NMSs and provide training for NHSs' managers • WMO to assist countries obtain fellowships for both long-term and short-term training in hydrology and water resources • Request WMO to process the designation of Indonesia Research Center for Water Resources (RCWR) as WMO Regional Training Center (RTC) on Hydrology • Raising profile of NHSs and HWRS through <ul style="list-style-type: none"> – Collaboration with NGOs on public awareness – Consider training and responsibility of implementing HWR activities to include provincial level • 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 Program	<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	The Terms of Reference of the Task Team are: <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 Program	The work to be addressed by the Task Team includes: <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	

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 Program	<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	

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

(as at Nov 2011)

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.

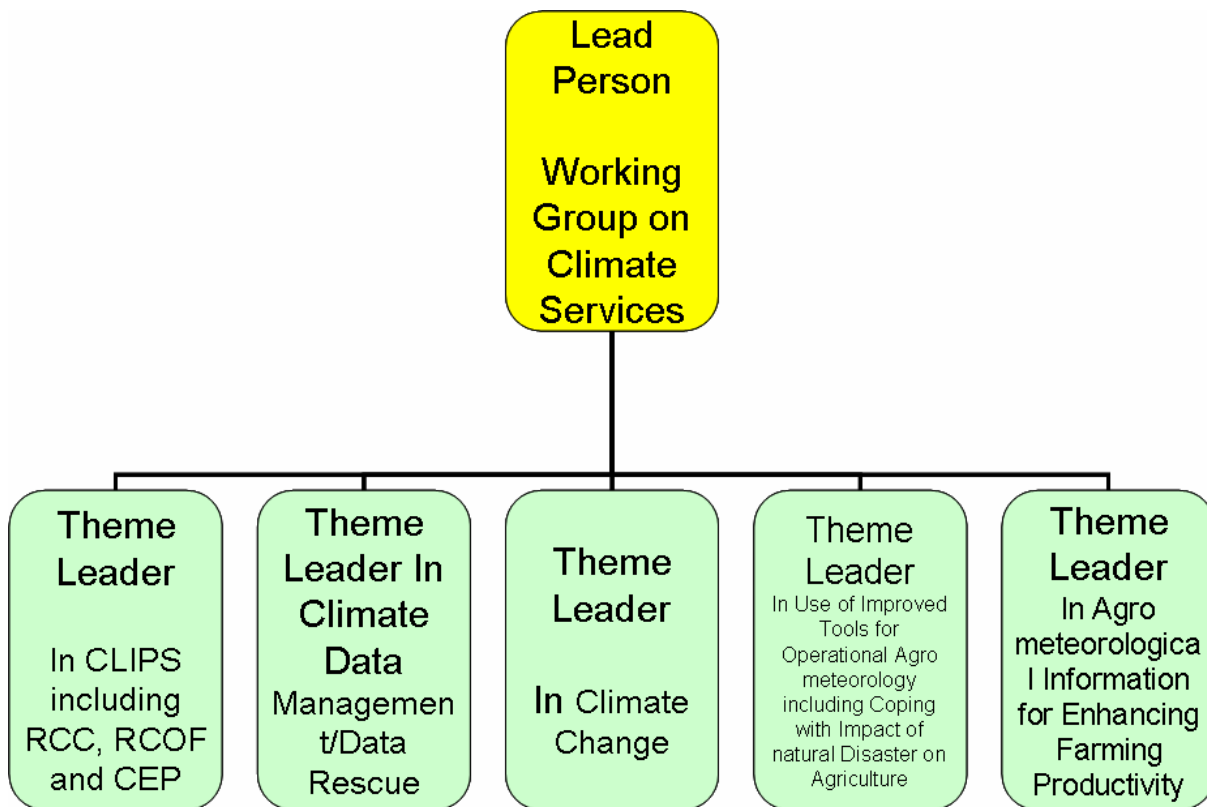


Figure 1: Structure of the Working Group on Climate Services

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 1. 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 Appendix III parts (i) to (vi).

STRUCTURE AND MEMBERSHIP OF THE WORKING GROUP ON CLIMATE SERVICES

Working Group on Climate Services (WG-CLS)

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

With a focus on Regional Climate Services:

Dr James Renwick (New Zealand) (Theme Leader for CLIPS including Regional Climate Centre, Regional Climate Outlook Forums and Climate Extreme Prediction)

Ms. Janita Pahalad (Expert)

Dr Howard Diamond (USA) (Theme Leader for Climate Data Management/Data Rescue)

Ms Seluvaia Finaulahi (Tonga) (Expert)

Mr Philip Malsale (Vanuatu) (Expert)

Dr Chew Kian Hoe (Singapore) (Theme Leader for Climate Change)

Dr. David Wratt (New Zealand) (Expert)

Mr. Jailan bin Simon (Malaysia) (Expert)

Mr. Sunny Seu Seu (Samoa) (Expert)

Mr Kaniaha Salesa Nihmei (Vanuatu) (Expert)

With a focus on Agro Meteorology Services:

Dr Andrew Tait (New Zealand) (Theme Leader for Use of Improved Tools for Operational Agro meteorology including Coping with Impact of natural Disaster on Agriculture)

Mr Ravind Kumar (Fiji) (Expert)

Mr Ueneta Toorua (Kiribati) (Expert)

Mr Azhar Ishak (Malaysia) (Theme Leader for Use of Improved Tools for Operational Agrometeorology)

Mr Peter Napwatt (Vanuatu) (Expert)

The above Theme Leaders and available experts will help to achieve the work of WG-CLS by coordinating or contributing to one or more Task Teams. The composition of Task Teams will be formulated by the Lead WG-CLS in consultation with Task Team Leader and submitted to President RA V.

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	<p>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:</p> <p style="text-align: center;"><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></p>
Terms of Reference	<p>The Terms of Reference of the Working Group are to:</p> <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 Centers 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 Program	<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-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).
Members	<p>Membership of the Working Group will comprise:</p> <ul style="list-style-type: none"> • Lead of WG-CLS (Mr. Erwin E.S. Makmur, Indonesia); • Theme Leader for CLIPS including Regional Climate Centre, Regional Climate Outlook Forums and Climate Extreme Prediction (Dr James Renwick, New Zealand) • Theme Leader for Climate Data Management/Data Rescue (Dr. Howard Diamond, USA) • Theme Leader for Climate Change (Dr Chew Kian Hoe, Singapore) • Theme Leader for Use of Improved Tools for Operational Agro meteorology including Coping with Impacts of Natural Disasters on Agriculture (Dr Andrew Tait, New Zealand) • Theme Leader for Use of Improved Tools for Operational Agro meteorology (Mr. Azhar Ishak, Malaysia)

TASK TEAM ON 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 Program	<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

	<p>traditional local knowledge such as planting dates.</p> <ul style="list-style-type: none"> • 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
Members	<p>Task Team Coordinator:</p> <p>Dr James Renwick (New Zealand);</p> <p>And the experts of the Task Team are:</p> <p>Ms. Janita Pahalad (Australia)</p>
Reference	<p>Final Reports of meetings of:</p> <p>THE WMO R A V WORKING GROUP ON CLIMATE MATTERS, Nadi, Fiji, 8 – 11 February 2010.</p>

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 Program	<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).
Members	<p>Theme Leader:</p> <p>Dr Howard Diamond (USA);</p> <p>And the experts of the Task Team are:</p> <p>Ms. Seluvaia Finaulahi (Tonga)</p> <p>Mr. Philip Malsale (Vanuatu)</p>

Reference	Final Reports of meetings of: THE WMO RAV WORKING GROUP ON CLIMATE MATTERS, Nadi, Fiji, 8 – 11 February 2010.
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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 Program	<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.
Members	<p>Theme Leader:</p> <p>Dr Chew Kian Hoe (Singapore);</p> <p>And the experts of the Task Team are:</p> <p>Dr. David Wratt (New Zealand)</p> <p>Mr. Jailan bin Simon (Malaysia)</p> <p>Mr. Sunny Seu Seu (Samoa)</p> <p>Mr Kaniaha Salesa Nihmei (Vanuatu)</p>
Reference	Final Reports of meetings of:

	THE WMO RAV WORKING GROUP ON CLIMATE MATTERS, Nadi, Fiji, 8 – 11 February 2010.
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TASK TEAM ON USE OF IMPROVED TOOLS FOR OPERATIONAL AGROMETEOROLOGY INCLUDING COPING WITH IMPACT OF NATURAL DISASTER ON AGRICULTURE (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. • 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 Program	<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.
Members	<p>Theme Leader:</p> <p>Dr Andrew Tait;</p> <p>And the experts of the Task Team are:</p> <p>Mr. Ravind Kumar (Fiji)</p>

	Mr Ueneta Toorua (Kiribati)
Reference	

TASK Team ON AGRO METEOROLOGICAL 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 Program	<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.
Members	<p>Theme Leader:</p> <p>Mr. Azhar Ishak (Malaysia);</p> <p>And the experts of the Task Team are:</p> <p>Mr. Peter Napwatt (Vanuatu)</p>
Reference	

Working Group on Weather Services (WG-WXS)



WMO REGIONAL ASSOCIATION V TASK TEAM ON FORECASTER COMPETENCIES & TRAINING (TT-TRG)

WORK PLAN

1. MEMBERSHIP		
Theme Leader	Address	Contact phone / email
Mr Christopher Webster (New Zealand)	Manager Meteorological Advice & Training Meteorological Service of New Zealand Limited 30 Salamanca Road Wellington 6012 New Zealand	Telephone: +64 4 4700761 Telefax: +64 4 4735231 E-mail: webster@metSERVICE.com
Expert	Address	Contact phone / email
Ms Michelle Hollister (Australia)	Aviation Forecaster Competency Coordinator Bureau of Meteorology GPO Box 1289 Melbourne VIC 3001 Australia	Telephone: +61 3 6221 2067 Telefax: +61 3 9669 4366 E-Mail: m.hollister@bom.gov.au
Mr Moleni Tuuholoaki (Tonga)	Mr Moleni Tuuholoaki Tonga Meteorological Service Fua'amotu Airport P.O.Box 845 Tonga	Telephone: +676 35123 Telefax: E-Mail: molenit@gmail.com
Ms Micheline Fong (Singapore)	Executive Meteorological Officer National Environment Agency Meteorological Services Division P.O Box 8 Singapore Changi Airport, Singapore 918141	Telephone: +65 6381 3156 Telefax: +65 6282 0907 E-Mail: micheline_fong@yahoo.com
Mr Misaeli Funaki (Fiji)	Scientific Officer Fiji Meteorological Services Private Mail Bag NAP0351 NADI Airport, Republic of the Fiji Islands	Telephone: +679 6724 888 Telefax: +679 6720 430 E-Mail: misa.funaki@yahoo.com
Mr Riton Kabunateiti (Kiribati)	Climate Officer Kiribati Meteorological Services P.O.Box 468 Betio, Tarawa Republic of Kiribati	Telephone: +686 25444 Telefax: +686 26089 E-Mail: rkabteiti@gmail.com

2. MEETINGS	
Attendance	<ul style="list-style-type: none"> • A quorum will consist of 2 members. • Meetings can be held in person, by telephone or videoconference. • The Theme Leader may invite technical experts, or other relevant people, to attend.
Timing	<ul style="list-style-type: none"> • Meetings will be held every 3 months
Meetings	<ul style="list-style-type: none"> • 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. • Minutes for each meeting will be put forward as an agenda item for formal acceptance at the following meeting. Once accepted, the minutes will be considered to have been ratified.

3. DESCRIPTION	
Strategic Thrust	ST3: Strengthening Capacity Building
Expected Result	ER6: Enhanced capabilities of NMHSs, in particular in developing and least developed countries, to fulfil their mandates.
Key Outcome	KO 6.3: Education and Training activities for NMHSs and Regional Centres are improved, especially in developing and least developed countries.
Regional Key Objective/s	RKO 6.3.1: Education and Training Development activities at national and regional levels are improved.
Regional Key Performance Indicator	<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 the replacement of the 4th edition of WMO No. 258. • Level of compliance of meteorological and hydrological staff with the replacement of the 4th edition of WMO No. 258.
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-TRG's 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 the replacement of the 4th edition of WMO 258 and the TT-CAT framework. • Encourage the collaboration of RA-V countries in implementing the TT-CAT framework; • Maintain awareness of current and developing expectations and requirements for the qualifications of staff within the NMHS, particularly the future need for aeronautical meteorological forecasters to have successfully completed the BIP-M training programme by November 2016; • Provide advice to the WG-WXS on the above issues.
Work Program	<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	<ul style="list-style-type: none"> the replacement of the 4th edition of 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. regulatory and reference material in CAeM website: http://www.caem.wmo.int/moodle/.
Duration	<ul style="list-style-type: none"> Start date of the TT-TRG: 15 April 2011 End date: end of RA-V Strategic Operating Plan in 2015

4. COMMUNICATION STRATEGIES				
Description	Target Audience	Delivery Method	Frequency / Date	Responsibility
Work Plan	Task Team Members	Document via email attachment	As required	Theme Leader
General Correspondence	Task Team Members	Email	As required	Task Team Members
Task Team Meetings	Task Team Members	Teleconference	As above ("Timing")	Theme Leader
Status & Milestone Reports	WG-WXS and Task Team Members	Report via email attachment	As above ("Work Program")	Theme Leader
Final Report	WG-WXS	Report via email attachment	At End date	Theme Leader

5. MILESTONES			
Milestone	Accountability	Dates	Status
<i>Milestone 1: Establishment of Teleconference communications</i>	CW	Nov 11	
<i>Milestone 2: Completion of initial TT-TRG Survey of all member countries of RA-V</i>	CW	Nov 11	
<i>Milestone 3: Arrange a Start-Up meeting of the TT-TRG group, possibly combined with TT-QM and TT-CR, subject to availability of funding</i>	Tba		
<i>Milestone 4: tba</i>			

6. PERFORMANCE MEASURES		
Description	Methodology	Milestone
See " WMO_RAV_StatusReport_TT-TRG.doc"		

7. WORK PLAN				
Activity / Milestone	Accountability	Predecessors	Date	Status
Activity 1: Establishment of Teleconference communications				
Activity 1.1: Arrange first teleconference	CW and MH	n/a	24 Aug 11	Complete
Activity 1.2: Follow up with missing Task Team members	CW and MH	n/a	Oct & Nov 11	Minor delays
Activity 1.3:				
Activity 1.4:				
Activity 1.5:				
<i>Milestone 1: It has become apparent that, of the six members of the TT-TRG, two or three face significant communication issues such as limited internet connectivity and telephone access. Unless these issues are resolved, the group will not be fully effective.</i>				
Activity 2: Completion of initial TT-TRG Survey of all member countries of RA-V				
Activity 2.1: Create online survey seeking feedback from others in WG-WXS and from surveys used at other recent seminars	CW	n/a	Aug 11	Complete
Activity 2.2: Send Survey link to suitable contacts for all member countries of RA-V	CW	n/a	2 Sep 11	Complete
Activity 2.3: Follow up non-responses and any dubious answers to Survey questions	CW	n/a	Sep & Oct 11	Minor delays
Activity 2.4: Analyse responses	CW	n/a	Nov 11	Minor delays
Activity 2.5: Send consolidated data to WG-WXS and other interested parties	CW	n/a	Dec 11	
<i>Milestone 2: A survey is required to accurately determine the current status of AMP training and the level of adoption of competency assessment within RA-V</i>				
Activity 3: Arrange a Start-Up meeting of the TT-TRG group, possibly combined with TT-QM and TT-CR, subject to availability of funding				
Activity 3.1: Identify a suitable range of dates (avoid TC season of Nov-Apr) and possible venues	CW and others in WG-WXS	n/a	Nov 11	Minor delays
Activity 3.2: Estimate costs and seek funding support.	CW and others in WG-WXS	n/a	Dec 11	Minor delays
Activity 3.3: Seek agreement on venue and hosting arrangements.	tba	n/a	Mar 12	Tba
Activity 3.4: tba				
Activity 3.5: tba				
<i>Milestone 3: A start-up meeting has been proposed by the Chief/AeMD, if combined with TT-QM. The Lead of WG-WXS would like to involve the TT-CR.</i>				



WMO REGIONAL ASSOCIATION V TASK TEAM ON FORECASTER COMPETENCIES & TRAINING (TT-TRG)

STATUS REPORT

1. OVERVIEW	
Members	<p>Theme Leader: Mr Christopher Webster, New Zealand Expert: Ms Michelle Hollister, Australia Expert: Mr Moleni Tuuholoaki, Tonga Expert: Ms Micheline Fong, Singapore Expert: Mr Misaeli Funaki, Fiji Expert: Mr Riton Kabunateiti, Kiribati</p>
Objective	<p>Assist with the implementation of a forecaster competency framework in RA-V which meets the standards and recommendations of WMO and ICAO.</p>
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 the replacement of the 4th edition of WMO 258 (plus supplements) and the TT-CAT framework. • Encourage the collaboration of RA-V countries in implementing the TT-CAT framework; • Maintain awareness of current and developing expectations and requirements for the qualifications of staff within the NMHS, particularly the future need for aeronautical meteorological forecasters to have successfully completed the BIP-M training programme by November 2016; • Provide advice to the WG-WXS on the above issues.
Work Program	<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.
Performance Measures	<ul style="list-style-type: none"> • Information obtained from RA-V MG-5 survey, or other survey if required, to determine the current level of adoption of competency assessment, and current processes for the initial training of any AMFs • Completion of a set of strategies and guidelines, in consultation with TT-CAT • Initiation of a pilot project in an NMHS in RA-V of a competency assessment pilot project • Status reports sent to WG-WXS every 3 months

2. PROGRESS SUMMARY

Progress Summary

- Welcome sent to all members of TT-TRG, mid-April 2011
- TT-TRG members informed of relevant outcomes from WMO Cg-XVI, June 2011 (see "PINK11-6_AERONAUTICAL_MET_en.doc" in <ftp://ftp.wmo.int/Documents/SESSIONS/Cg-XVI/English/Approved%26Corrected/> and <http://www.caem.wmo.int/moodle/> ("Regulatory and Reference material", log-in as a guest).
- Teleconferencing software located via BoM GoToMeeting, August 2011
- First Teleconference held with members from Singapore, Australia & NZ, 24 August 2011 (members from Tonga, Kiribati and Fiji missing)

Agenda items were:

Confirmation that the online meeting software is working for everyone (Michelle).

Welcome (Chris).



Informal introductions, individuals describe their backgrounds and roles, encourage exchange of photos (All).

An outline of issues for the TT-TRG, including a review of key dates following Cg-XVI (Chris).

Any questions or concerns from the members (All).

Next meeting date and format (Michelle/Chris).

- TT-TRG survey drafted, then sent to contacts representing all member countries of RA-V, 2 September 2011
- First survey response received, 2 September 2011 (Australia). Subsequent responses (in Chronological order) from New Zealand, Federated States of Micronesia, Philippines, Singapore, Tonga, Cook Islands, W Samoa, Timor-Leste, Fiji, Vanuatu, Brunei Darussalam, Malaysia, French Polynesia, Papua New Guinea, Kiribati and Indonesia. No response as of 25 Oct 2011 from: Solomon Islands and Niue. New Caledonia intends to complete the survey but has not yet done so.
- Several Survey responses have required follow-up due to inconsistent answers to Survey questions
- Latest Workplan, Status Report and an additional short paper sent to Lead of WG-WXS, 25 October 2011

3. STATUS REPORT AGAINST MILESTONES					
Milestone	Baseline Date	Revised Date	Status	Achievements	Issues & Solutions
Milestone 1: Establishment of Teleconference communications	Sep 11	Nov 11			"GoToMeeting" is ideal meeting software, provided internet connections are up to it
Milestone 2: Completion of initial TT-TRG Survey of all member countries of RA-V	Sep 11	Nov 11		As of 25 Oct 2011, responses received from 17 out of 20 NMHSs in RA-V	"Survey Monkey" (www.surveymonkey.com) provides excellent free software for this
Milestone 3: Arrange a Start-Up meeting of the TT-TRG group, possibly combined with TT-QM and TT-CR, subject to availability of funding	Tba				
Milestone 4: tba					

 Complete
  On schedule
  Minor delays
  Serious delays



**World Meteorological Organization
REGIONAL ASSOCIATION V (South-West Pacific)**

Date: 25 October 2011

**WMO RA-V WORKING GROUP ON WEATHER SERVICES
TASK TEAM on FORECASTER COMPETENCIES & TRAINING**

Prepared by: Christopher S. Webster (New Zealand)

1. INTRODUCTION

1.1 The Task Team on Forecaster Competencies & Training (TT-TRG) was formed as part of the Working Group on Weather Services (WG-WXS) in April 2011, following the 15th session of the WMO RA-V in Indonesia (April/May 2010) and the subsequent 4th Session of the RA-V Management Group.

1.2 The immediate focus of the Working Group on Weather Services (WG-WXS) is to be sustainable aviation weather services, as directed by the Management Group.

1.3 The TT-TRG group includes current members of the Commission for Aeronautical Meteorology (CAeM) Task Team on the Competency Assessment Toolkit (TT-CAT) and Expert Team on Education and Training (ET/ET). Coverage of the group extends to six member countries of RA-V.

2. QUESTIONS AND FINDINGS OF THE TT-TRG SURVEY

2.1 The TT-TRG Survey may be viewed at: <http://www.surveymonkey.com/s/MH5QB7Z>. In the creation of this survey, input was sought from:

- two recent surveys on the development and assessment of national competencies at WMO RTCs
- the Lead of WG-WXS and the former PR of NZ with WMO.

2.2 The survey was sent to members of the WG-WXS wherever possible, for them to complete on behalf of their NMHS. Where this was not possible, the survey was sent individually to contacts from the "Composition of the WMO" (WMO/OMM-No 5) and other known contacts. All responses were personally acknowledged and the contributors thanked.

2.3 Responses were received from Australia, New Zealand, Federated States of Micronesia, Philippines, Singapore, Tonga, Cook Islands, W Samoa, Timor-Leste, Fiji, Vanuatu, Brunei Darussalam, Malaysia, French Polynesia, Papua New Guinea, Kiribati and Indonesia.

- There was no response as of 25 Oct 2011 from Solomon Islands and Niue.
- New Caledonia intends to complete the survey but has not yet done so.

2.4 Several responses have required follow-up due to inconsistent answers. Below is a preliminary summary of responses received so far.

2.5 Numbers of Aeronautical Meteorological Personnel (AMP): (Survey Questions 2 & 3)

Numbers of Aeronautical Meteorological Forecasters (AMF) in RA-V

	Number of AMF staff within NMHS									
	0	1 to 2	3 to 5	6 to 10	11 to 15	16 to 20	21 to 25	26 to 30	31 to 40	> 40
Frequency of NMHS having "Number of AMF staff"	4	1	3	3	2				1	3

note: three RA-V NMHS not included in table

Numbers of Aeronautical Meteorological Observers (AMO) in RA-V

	Number of AMO staff within NMHS									
	0	1 to 2	3 to 5	6 to 10	11 to 15	16 to 20	21 to 25	26 to 30	31 to 40	> 40
Frequency of NMHS having "Number of AMO staff"	2		2	1	2	1	2	1	1	5

note: three RA-V NMHS not included in table

2.6 Awareness of decisions from Cg-XVI regarding education and training, in particular the new BIP-M, and the aviation competency and qualification issues (that will come into force in 2013 and 2016, respectively)? (Survey Question 6)

I have read the documents	I have been told	Not at all aware
9 NMHS	5 NMHS	3 NMHS

note: three RA-V NMHS not included in table

2.7 Frequency of NMHS responses to timeframe for expected completion of the following stages of the competency assessment process: (Survey Question 8)

	2011	2012	2013	2014	2015
Review documentation	3	8			
Develop national competencies	3	7	1		
Develop and test assessment process	1	6	2		
Implement & document the assessments		6	4	1	
Implement any remedial training		5	4	1	
Re-assess the staff not yet competent		4	5	1	1
Review the process	1	4	3	1	2
Create a database of assessments	4	2	3		2

note: several respondents did not answer this question

2.8 Frequency of NMHS responses to priorities of where assistance will be needed in aeronautical use of the following: (Survey Question 9)

	High priority	Medium priority	Low priority
Satellite Data and Products	12	4	
NWP	11	1	4
Observational data	9	3	4
Coding & decoding of obs	5	6	5
Coding & decoding fcsts/warnings	5	5	6
Communication skills	8	5	3
English language skills	5	8	3

note: three RA-V NMHS not included in table and one respondent did not answer this question

3. OTHER TRAINING ACTIVITIES IN RA-V

3.1 **Competency Assessment workshops.** There have been various competency assessment workshops around the world in the past two years (most recently at CIMH in Barbados, July 2011 and in Turkey, September 2011 as part of the UKMO Aviation Seminar). Two further workshops are scheduled near to RA-V in 2011, in India and Hong Kong. The latter is of particular interest to RA-V.

3.2 **The Hong Kong workshop, Dec 2011.** Hong Kong Observatory will host a WMO Voluntary Cooperation Programme (VCP) training workshop from 5 to 9 December 2011. The workshop aims to assist countries with Implementation of Competency Assessment for Aeronautical Meteorological Personnel (AMP).

Proposed topics include:

- Competency Standards and explanatory guidance for AMP, including descriptions of the "top-level" and second-level competencies and what they mean for members of RA-V
- promotion of the CAeM ET/ET website
- the WMO Meteorologist definition (post-Cg-XVI), and implications for Aeronautical Meteorological Forecasters
- The Competency Assessment Tool-kit, what it is and how it works
- group exercises on implementing competency assessment
- Implementation of QMS
- raising awareness of the upcoming implementation dates.

Ten member countries from RA-V will be represented by participants on this workshop (Cook Islands, Fiji, Indonesia, Kiribati, Malaysia, Papua New Guinea, Philippines, Solomon Islands, Samoa, Singapore), and one presenter is from Australia.

4. ACTIVITIES OF WMO EXPERT TEAMS

The Task Team on the Competency Assessment Toolkit was established at the fourteenth session of the CAeM in Hong Kong, February 2010, together with the re-establishment of the Expert Team on Education and Training. Planned activities until the fifteenth session of the Commission (in 2014) are outlined below.

4.1 CAeM ET/ET

The ET/ET will support member countries in their drive to demonstrate compliance with competency standards for AMP. Among the upcoming tasks of the team are:

- a 3-yearly review of AMP competency descriptions
- review of NMHS AMP assessments to ensure that requirements are fulfilled
- gap analysis of NMHS AMP assessments
- co-ordination of training materials on aeronautical meteorology, including establishment of Distance Learning materials that satisfy AMP competency requirements
- provision and update of reviewed training and resource material on the <http://www.caem.wmo.int/moodle> website.

4.2 CAeM TT-CAT

The Competency Assessment Toolkit provides a framework which can be used by all countries to demonstrate competence of their aeronautical meteorological personnel (AMP).

In addition, the Task Team, along with many other contributors, has supported the actual development of implementation plans in many countries. The goal of full implementation of AMP competency assessment by the end of 2013 is within reach.

- The first phase of TT-CAT effort was the development of the Toolkit; this phase is complete.

- The second phase is the series of workshops to market the Toolkit and support the development of competency assessment implementation plans; this phase is nearing completion.
- The next phase is planned to support actual assessments.

(courtesy of chair of TT-CAT)



WMO REGIONAL ASSOCIATION V TASK TEAM ON FORECASTER COMPETENCIES & TRAINING (TT-TRG)

STATUS REPORT

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Work Program	<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.
Performance Measures	<ul style="list-style-type: none"> • Information obtained from RA-V MG-5 survey, or other survey if required, to determine the current level of adoption of competency assessment, and current processes for the initial training of any AMFs • Completion of a set of strategies and guidelines, in consultation with TT-CAT • Initiation of a pilot project in an NMHS in RA-V of a competency assessment pilot project • Status reports sent to WG-WXS every 3 months

2. PROGRESS SUMMARY

Progress Summary

- Welcome sent to all members of TT-TRG, mid-April 2011
- TT-TRG members informed of relevant outcomes from WMO Cg-XVI, June 2011 (see "PINK11-6_AERONAUTICAL_MET_en.doc" in <ftp://ftp.wmo.int/Documents/SESSIONS/Cg-XVI/English/Approved%26Corrected/> and <http://www.caem.wmo.int/moodle/> ("Regulatory and Reference material", log-in as a guest).
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Agenda items were:

Confirmation that the online meeting software is working for everyone (Michelle).

Welcome (Chris).

Informal introductions, individuals describe their backgrounds and roles, encourage exchange of photos (All).

An outline of issues for the TT-TRG, including a review of key dates following Cg-XVI (Chris).

Any questions or concerns from the members (All).

Next meeting date and format (Michelle/Chris).

- TT-TRG survey drafted, then sent to contacts representing all member countries of RA-V, 2 September 2011
- First survey response received, 2 September 2011 (Australia). Subsequent responses (in Chronological order) from New Zealand, Federated States of Micronesia, Philippines, Singapore, Tonga, Cook Islands, W Samoa, Timor-Leste, Fiji, Vanuatu, Brunei Darussalam, Malaysia, French Polynesia, Papua New Guinea, Kiribati and Indonesia. No response as of 25 Oct 2011 from: Solomon Islands and Niue. New Caledonia intends to complete the survey but has not yet done so.
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3. STATUS REPORT AGAINST MILESTONES					
Milestone	Baseline Date	Revised Date	Status	Achievements	Issues & Solutions
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Milestone 2: Completion of initial TT-TRG Survey of all member countries of RA-V	Sep 11	Nov 11		As of 25 Oct 2011, responses received from 17 out of 20 NMHSs in RA-V	"Survey Monkey" (www.surveymonkey.com) provides excellent free software for this
Milestone 3: Arrange a Start-Up meeting of the TT-TRG group, possibly combined with TT-QM and TT-CR, subject to availability of funding	Tba				
Milestone 4: tba					

 Complete
  On schedule
  Minor delays
  Serious delays



WMO REGIONAL ASSOCIATION V TASK TEAM ON QUALITY MANAGEMENT (TT-QM)

WORK PLAN

1. MEMBERSHIP		
Theme Leader	Address	Contact phone / email
Mr Saw Bun Liong Malaysia	Director of Central Forecast Office Malaysian Meteorological Department Jalan Sultan 46667 Petaling Jaya Selangor Darul Ehsan Malaysia	Telephone:+603 7967 8118 Telefax:+603 7955 0964 E-Mail: sawbl@met.gov.my
Expert	Address	Contact phone / email
Ms Helen Tseros Australia	Ms Helen Tseros Coordinator Quality Management Bureau of Meteorology GPO Box 1289 Melbourne VIC 3001 Australia	Telephone:+61 3 9669 4541 Telefax: +61 3 9669 4695 E-Mail: H.Tseros@bom.gov.au
Mr Misaeli Funaki Fiji	Scientific Officer Fiji Meteorological Services Private Mail Bag NAP0351 NADI Airport, Republic of the Fiji Islands	Telephone: +679 6724 888 Telefax: +679 6720 430 E-Mail: misaeli.funaki@met.gov.fj

2. MEETINGS	
Attendance	<ul style="list-style-type: none"> • A quorum will consist of 2 members. • Meetings can be held in person, by telephone or videoconference. • The Theme Leader may invite technical experts, or other relevant people, to attend.
Timing	Meetings will be held every 6 months or as required.
Meetings	<p>The meeting will be chaired by the nominated Theme Leader and Secretariat duties provided on a rotating basis between the Task Team members;</p> <p>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.</p> <p>Minutes for each meeting will be put forward as an agenda item for formal acceptance at the following meeting. Once accepted, the minutes will be considered to have been ratified.</p>

3. DESCRIPTION	
Strategic Thrust	ST1: Improving Service Quality and Service Delivery
Expected Result	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.
Key Outcome	KO 1.1: Improved access to seamless weather, climate, water and related environmental products and services (for example, warnings, forecasts and supporting information).
Key Performance Indicators	Analyses showing the social and economic benefits of the improved services; NMHSs with regular access to products provided by global and regional centres.
Regional Key Objective/s	RKO 1.1.1: Aviation weather services are effective and sustainable.
Regional Key Performance Indicator	Level of compliance with ICAO standards and recommended practices (SARPS).
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	Adoption of a quality management framework and achieving certification of compliance with the ISO: 9001:2008 Quality Management Standard will benefit in terms of: <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.
Terms of Reference	The Terms of Reference of the Task Team are: <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.
Work Program	The work to be addressed by the Task Team includes: <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 6 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.
Duration	Start date: March 2011 End date: 2014

4. COMMUNICATION STRATEGIES				
Description	Target Audience	Delivery Method	Frequency / Date	Responsibility
Work Plan	Task Team Members	Document via email	As required	Theme Leader
General Correspondence	Task Team Members	Email	As required	Task Team Members
Task Team Meetings	Task Team Members	Teleconference	Meetings will be held every 6 months or as required.	Theme Leader
Status & Milestone Reports	WG-WXS and Task Team Members	Report via email	6 monthly	Theme Leader
Final Report	WG-WXS	Report via email	2012	Theme Leader

5. MILESTONES			
Milestone	Accountability	Dates	Status
<i>Milestone 1: Workplan complete.</i>	TT-QM	Nov 11	
<i>Milestone 2: WMO TT-QMS Survey for RA-V.</i>	TT-QM	Dec 11	
<i>Milestone 3: Guidance on QMS Implementation sent to RA-V members.</i>	TT-QM	Apr 12	
<i>Milestone 4: Guidance and support on QMS provided to RA-V members during implementation.</i>	TT-QM	2014	

6. PERFORMANCE MEASURES		
Description	Methodology	Milestone
TT-QM Workplan endorsed by the RA-V MG	RA-V MG Meeting	1
WMO QM Survey results obtained for RA-V	WMO QM survey results reported	2
Resource material on QMS implementation available to RA-V members	Notification via email and resources available via the internet.	3
Availability of TT-QM and expertise for support	Correspondence with TT-QM members	4

7. WORK PLAN				
Activity / Milestone	Accountability	Predecessors	Date	Status
Activity 1: TT-QM Workplan				
Activity 1.1: Establish contact with TT-QM members	Sue O'Rourke	-	Mar 11	Complete
Activity 1.2: Draft Workplan for comment	Sue O'Rourke	1.1	Mar 11	Complete
Activity 1.3: Start-up meeting	SBL	1.1	End 2011	
Activity 1.4: Endorsement of Workplan by RA-V WG-WXS	RA-V MG	1.2	Nov 11	
<i>Milestone 1: Workplan complete.</i>		1.4	Nov 11	
Activity 2: RA-V QM Survey				
Activity 2.1: WMO QM Survey conducted by WMO TT-QMS.	WMO TT-QMS	-	Nov 11	
Activity 2.2: RA-V TT-QM to promote survey within RA-V.	HT	2.1	Nov 11	
Activity 2.3: WMO Survey results for RA-V obtained from WMO.	HT	2.2	Nov 11	
Activity 2.4: Analyse survey results relevant to RA-V.	HT	2.3	Dec 11	
Activity 2.5: Report and recommendations.	SBL	2.4	Dec 11	
<i>Milestone 2: QM Survey for RA-V complete.</i>		2.5	Dec 11	
Activity 3: QMS Guidance				
Activity 3.1: Access to BoM hosted WMO QM webpage.	HT	-	Apr 12	
Activity 3.2: Guide to implementing QMS.	HT	-	Apr 12	
Activity 3.3: QMS information package established.	HT	3.1, 3.2	Apr 12	
Activity 3.4: QMS information package sent to RA-V members	SBL	3.3	Apr 12	
<i>Milestone 3: Guidance on QMS Implementation sent to RA-V members.</i>		3.4	Apr 12	
Activity 4: QMS Implementation				
Activity 4.1: Provide guidance and support for RA-V members during their QMS implementation.	TT-QM	2, 3	2014	
<i>Milestone 4: Guidance and support on QMS provided to RA-V members during implementation.</i>		4.1	2014	







WMO REGIONAL ASSOCIATION V TASK TEAM ON QUALITY MANAGEMENT (TT-QM)

STATUS REPORT

1. OVERVIEW	
Members	Theme Leader: Mr Saw Bun Liong, Malaysia Expert: Ms Helen Tseros, Australia Expert: Mr Misaeli Funaki, Fiji
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.
Terms of Reference	The Terms of Reference of the Task Team are: <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.
Work Program	The work to be addressed by the Task Team includes: <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.
Performance Measures	<ul style="list-style-type: none"> • Workplan endorsed by RA-V WG-WXS. • WMO TT-QMS survey conducted and report complete. • Resource on QMS implementation available to RA-V members. • Availability of TT-QM and expertise for support.

2. PROGRESS SUMMARY	
Progress Summary	<ul style="list-style-type: none"> • Established contact with TT-QM members. • Draft workplan complete. • Survey questions complete. • Status report complete. • BoM hosted WMO webpage for QM developed. • Practical Guide for the Implementation of a Quality Management System for NMHS finished and awaiting endorsement.

3. STATUS REPORT AGAINST MILESTONES					
Milestone	Baseline Date	Revised Date	Status	Achievements	Issues & Solutions
Milestone 1: Workplan complete.	Nov 11			Draft workplan complete.	
Milestone 2: WMO TT-QMS Survey for RA-V	Dec 11			WMO TT-QMS have developed a comprehensive survey to be distributed to all NMHS for completion in November.	RA-V TT-QM will promote this within RA-V and obtain the results for RA-V.
Milestone 3: Guidance on QMS Implementation sent to RA-V members.	Apr 12			BoM hosted WMO webpage for QM developed. Practical Guide for the Implementation of a Quality Management System for NMHS finished and awaiting endorsement.	Looking at feasibility of an online forum as part of the WMO QM website.
Milestone 4: Guidance and support on QMS provided to RA-V members during implementation.	2014				

 Complete
  On schedule
  Minor delays
  Serious delays

WMO RA-V WORKING GROUP ON INFRASTRUCTURE (WG-INFR) (version: 30 October 2011)

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

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.

The RA V SOP 2012-2015 was finalised and approved by the President of RA V in December 2010 (this was affirmed at MG7, Geneva 20 May 2011, and the SOP was reproduced in full in the Final Report of that meeting). 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 (RKOs), 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 RKOs 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.

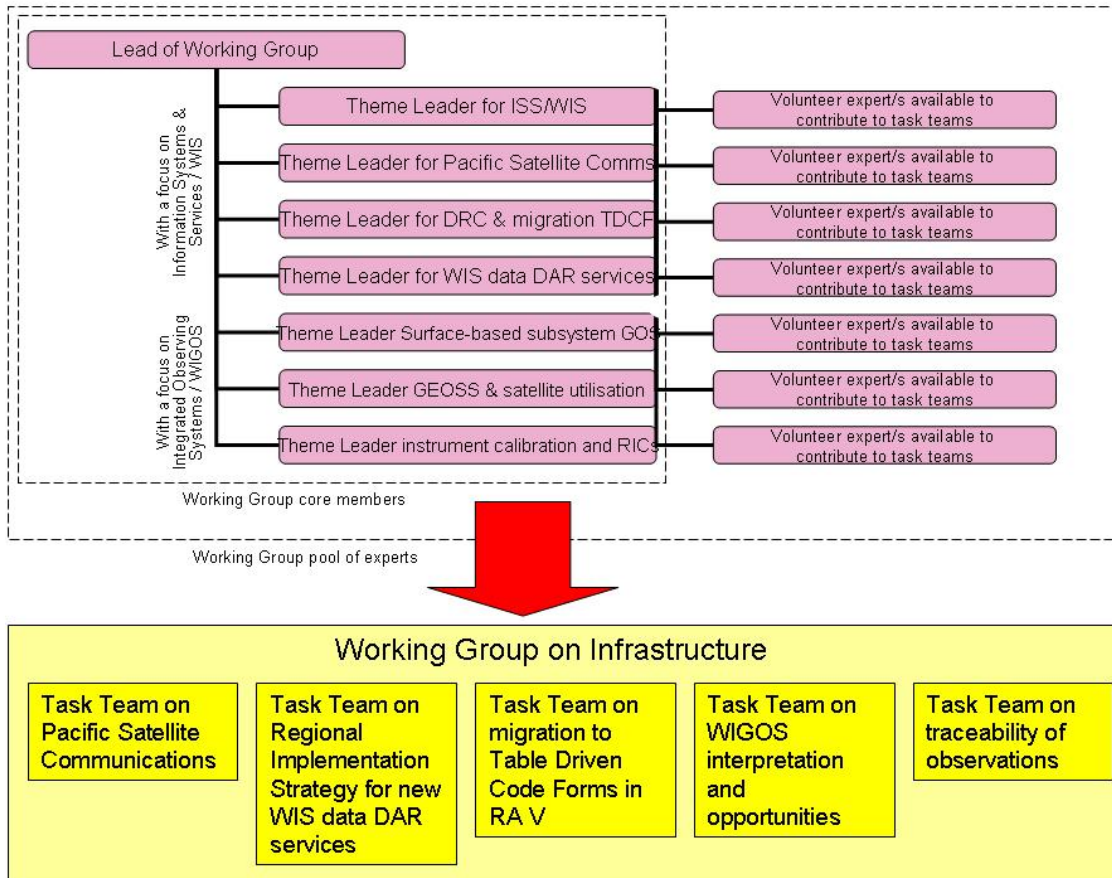


Figure 1: Structure of the Working Group on Infrastructure, showing the experts and subject areas included in WG-INFR in the top portion of the figure and the working structure to which they contribute in the bottom portion of the figure.

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 1. 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 Appendix III parts (i) to (v).

STRUCTURE AND MEMBERSHIP OF THE WORKING GROUP ON INFRASTRUCTURE

Working Group on Infrastructure (WG-INFR)

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

With a focus on Information Systems and Services / WIS:

Mr Wim Van Dijk (New Zealand) (Theme Leader for ISS/WIS)

Mr Edward Young (U.S.A.) (Theme Leader for Pacific Satellite Communications)

Dr Weiqing Qu (Australia) (Theme Leader for DRC and migration to TDCF)

Mr Kelvin Wong (Australia) (Theme Leader for WIS data DAR services)

With a focus on Integrated Observing Systems / WIGOS:

Dr Jane Warne (Australia) (Theme Leader for Surface-based subsystem of the GOS)

Ms Agnes Lane (Australia) (Theme Leader for GEOSS and satellite utilization)

Mr Wan Mohd Nazri bin Wan Daud (Malaysia)
(Theme Leader for instrument calibration and RICs)

Volunteer Experts available to contribute to the work of Task Teams

Mr Dominique Bielli (New Caledonia)	Ms Juana Rimba (Indonesia)
Mr Leonard Bale (Fiji)	Dr Jochen Schmidt (New Zealand)
Mr Kelly Sponberg (U.S.A.)	Dr John Gorman (Australia)
Mr Bryan Hodge (Australia)	Mr Kairoronga Iabeti (Kiribati)
Mr Riris Adriyanto (Indonesia)
Mr Zabani Md. Zuki (Malaysia)
Ms Kathleen Hirst (Australia)

The above Theme Leaders and available experts will help to achieve the work of WG-INFR by coordinating or contributing to one or more Task Teams. The composition of Task Teams will be formulated by the Lead WG-INFR in consultation with Task Team Coordinators and submitted to President RA V for approval:

Task Team on Pacific Satellite Communications (TT-PSC)

Task Team Coordinator, plus one or more member/s

Task Team on Regional Implementation Strategy for new WIS data DAR services (TT-DAR)

Task Team Coordinator, plus one or more member/s

Task Team on WIGOS Interpretation and Opportunities (TT-WIGOS)

Task Team Coordinator, plus one or more member/s

Task Team on Migration to Table Driven Code Forms in RA V (TT-TDCF)

Task Team Coordinator, plus one or more member/s

Task Team on Traceability of Observations (TT-TO)

Task Team Coordinator, plus one or more member/s

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	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: <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>
Terms of Reference	The Terms of Reference of the Working Group are to: <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 Program	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-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).
Members	Membership of the Working Group will comprise: <ul style="list-style-type: none"> • Lead of WG-INFR (Russell Stringer, Australia); • Theme Leader in ISS/WIS (Wim Van Dijk, New Zealand); • Theme Leader in Pacific satellite communications (Edward Young, U.S.A.); • Theme Leader in DRC and migration to TDCF (Weiqing Qu, Australia); • Theme Leader in WIS data DAR services (Kelvin Wong, Australia); • Theme Leader in Surface-based subsystem of the GOS (Jane Warne, Australia); • Theme Leader in GEOSS and satellite utilisation (Agnes Lane, Australia); • Theme Leader in instrument calibration & RICs (Wan Mohd Nazri bin Wan Daud, Malaysia).

TASK TEAM ON PACIFIC SATELLITE COMMUNICATIONS (TT-PSC)	
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 Program	<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.
Members	<p>Task Team Coordinator:</p> <ul style="list-style-type: none"> • Edward H. Young, Jr. (USA); <p>Other members of the Task Team are:</p> <ul style="list-style-type: none"> • Mr Kelly Sponberg (U.S.A.); • Mr Bryan Hodge (Australia); • Mr Riris Adriyanto (Indonesia); • Ms Agnes Lane (Australia).
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 <p>Manual on the GTS; WIS Implementation Plan.</p>

TASK TEAM ON REGIONAL IMPLEMENTATION STRATEGY FOR NEW WIS DATA DAR SERVICES (TT-DAR)	
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 Program	<p>The work to be addressed by the Task Team includes:</p> <ul style="list-style-type: none"> • Prepare a document describing "How the WIS Implementation Plan applies to RA-V", including: <ul style="list-style-type: none"> ○ For National Centres (NCs), a discussion of specific questions (new arrangements for providing metadata, will archived data be available for retrieval, will WIS be used to provide access to additional products,) ○ For Data Collection and Production Centres (DCPCs), a discussion of specific questions (the designation process and sources of information and assistance, arrangements for providing metadata,) ○ An overall strategy and timeline for RA-V linked to the establishment of GISC (Melbourne). • A case study: documenting the establishment of an NC (possibly New Caledonia) • A case study: documenting the establishment of a DCPC (possibly New Zealand) • Periodic progress reports on the establishment of GISC (Melbourne).
Members	<p>Task Team Coordinator:</p> <ul style="list-style-type: none"> • Mr Kelvin Wong (Australia); <p>Other members of the Task Team are:</p> <ul style="list-style-type: none"> • Mr Wim Van Dijk (New Zealand); • Dr Weiqing Qu (Australia); • Ms Kathleen Hirst (Australia); • Mr Dominique Bielli (New Caledonia); • Mr Kairoronga Iabeti (Kiribati); • Mr Leonard Bale (Fiji).
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 Program	<p>The work to be addressed by the Task Team includes:</p> <ul style="list-style-type: none"> • Circulate a bulletin to Members containing: <ul style="list-style-type: none"> ○ Information about the WIGOS Implementation Plan (WIP), how it applies to RA-V, and the activities in RA-V to develop a Regional-WIP; ○ A request for views on priorities for RA-V within the overall WIGOS framework, beyond those already addressed in the Strategic Operating Plan (2012-2015); ○ An invitation for suggested pilot or demonstration projects which could be highlighted in the R-WIP for RA-V, would contribute to capacity building and could be candidates for funding support. • Contribute to the development of the Regional WIGOS Implementation Plan (R-WIP); • Contribute to the completion of relevant tasks in the R-WIP for RA-V
Members	<p>Task Team Coordinator:</p> <ul style="list-style-type: none"> • Mr Russell Stringer (Australia); <p>Other members of the Task Team are:</p> <ul style="list-style-type: none"> • Dr Jane Warne (Australia); • Dr Jochen Schmidt (New Zealand); • Ms Juana Rimba (Indonesia); • Ms Agnes Lane (Australia).
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

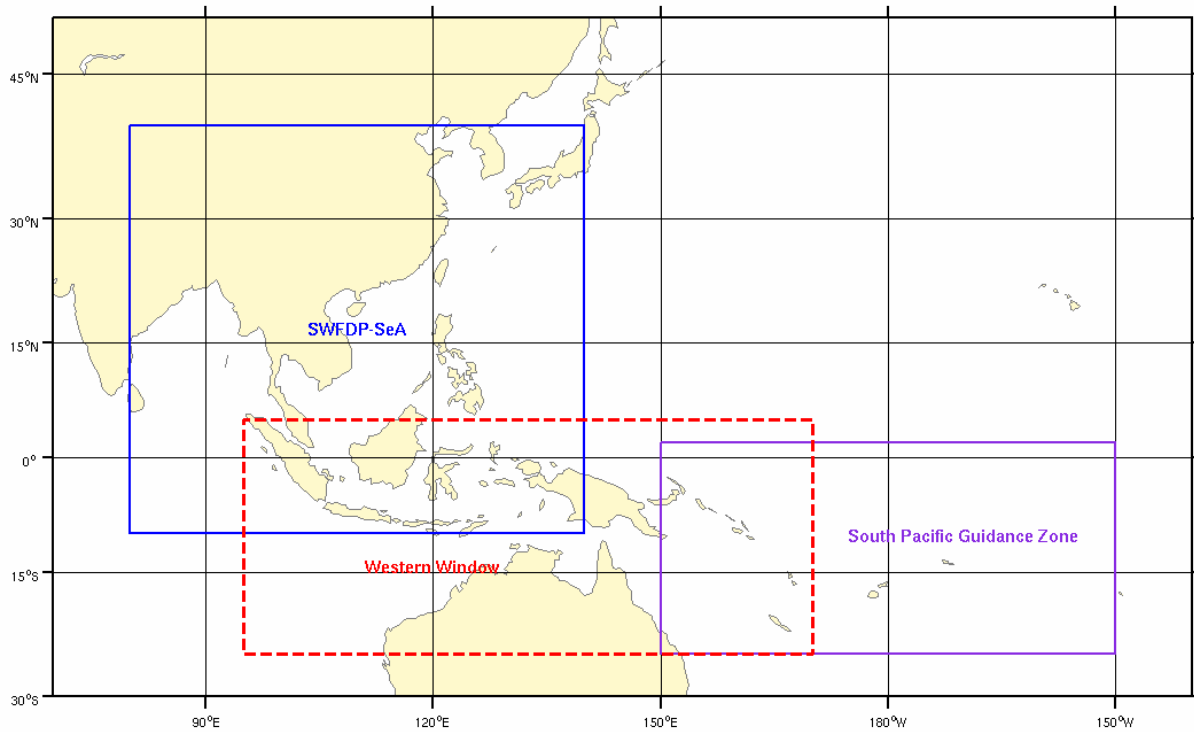
TASK TEAM ON MIGRATION TO TABLE DRIVEN CODE FORMS IN RA V (TT-TDCF)	
Objective	To assist the coordination amongst Member countries of RA V of their plans for, and progress on, migration to the use of TDCF in accordance with WMO plans.
Benefits	The work of this Task Team will help to achieve RKO 4.2.1 (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 Program	<p>The work to be addressed by the Task Team includes:</p> <ul style="list-style-type: none"> • Publicise annually amongst Members the WMO monitoring results with information about the WMO timelines for migration; • Prepare a report on practical options for implementation of encoder/decoder software.
Members	<p>Task Team Coordinator:</p> <ul style="list-style-type: none"> • Dr Weiqing Qu (Australia); <p>Other members of the Task Team are:</p> <ul style="list-style-type: none"> • Mr Wim Van Dijk (New Zealand); • Mr Kelvin Wong (Australia); • Mr Zabani Md. Zuki (Malaysia); • Mr Dominique Bielli (New Caledonia); • Mr Kairoronga Iabeti (Kiribati); • Mr Leonard Bale (Fiji).
Reference	TBA

TASK TEAM ON TRACEABILITY OF OBSERVATIONS (TT-TO)	
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 Program	<p>The work to be addressed by the Task Team includes:</p> <ul style="list-style-type: none"> • Survey on the traceability of calibration standard in RA V. • Information and advice on implementation of ISO 17025.
Members	<p>Task Team Coordinator:</p> <ul style="list-style-type: none"> • Mr Wan Mohd Nazri bin Wan Daud (Malaysia); <p>Other members of the Task Team are:</p> <ul style="list-style-type: none"> • Dr John Gorman (Australia).
Reference	WMO-No.8: CIMO Guide

**Allocation of the budget for the Development and Regional Activities
(DRA) Department for the sixteenth financial period (2012-2015)**

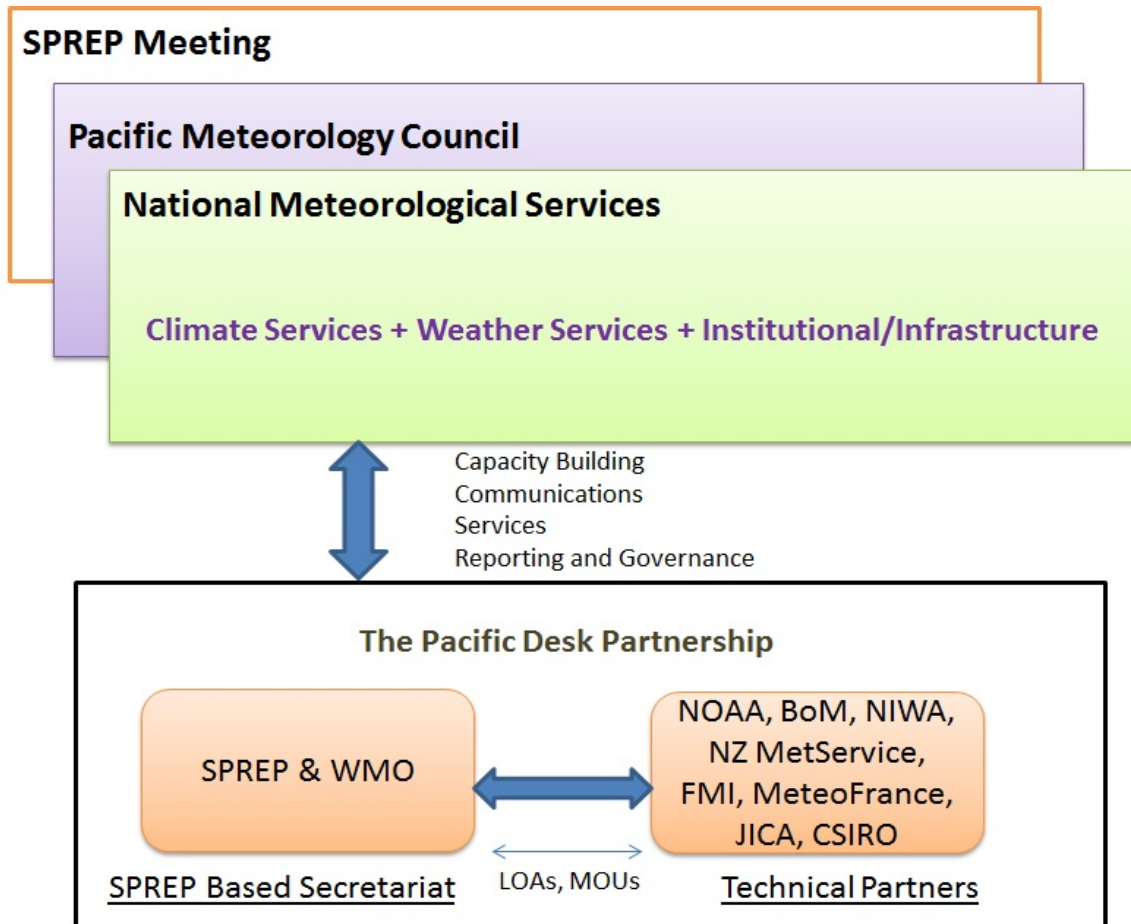
(000 CHF)

	I	II	III	IV	V	VI
RA Session	423	362	194	194	163	296
RA President	16.3	16.3	16.3	16.3	16.3	16.3
MG WG	25.5	25.5	25.5	20	25.5	41
TCs	36	40	0	41	28	0
WGs etc	173	168.9	199	183	172	183
Geneva	2707	1359	1348	1348	1359	2049
Field Office	3849	825	347	1119	838	0
Total	7230	2797	2130	2921	2602	2585



Possible 'Western Window' to the SWFDP project (red dotted line)

The South Pacific Guidance Zone (purple solid line) is the area of guidance formally provided for the SWFDDP-RAV and the area labelled SWFDP-SeA (blue solid line) is the domain of the regional subproject in Southeast Asia.



Pacific Meteorological Council (PMC) and the Pacific Meteorological Desk Partnership (PMDP)