

WORLD METEOROLOGICAL ORGANIZATION

REPORT OF THE WORKSHOP TO IMPLEMENT THE WMO STRATEGY FOR SERVICE DELIVERY

MAHÉ, SEYCHELLES, 25 – 28 October 2016



FINAL REPORT



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Introduction

Following the invitation of the Government and the Seychelles Meteorological Authority (SMA), the Public Weather Services (PWS) Programme of the World Meteorological Organization (WMO) organized a workshop in Victoria to assist SMA with a self-assessment of the current level of its service delivery and to prepare an Action Plan to gain a higher level of service delivery.

The WMO Strategy for Service Delivery, (WMO-No.1129), which is aligned with the WMO Strategic Plan, was approved by the WMO Sixteenth Congress (Cg-XVI) (Geneva, May 2011). An Implementation Plan was subsequently prepared and approved by the WMO Executive Council. The Strategy explains the importance of service delivery; defines the four stages of a continuous, cyclic process for developing and delivering services and the elements necessary for moving towards a more service-oriented culture; and describes practices to strengthen service delivery across the entire WMO.

The Strategy reflects the desire of WMO Members for a more uniform and structured approach to service development and delivery. The goal of the Strategy is to help National Meteorological and Hydrological Services (NMHSs) raise standards of service delivery in the provision of products and services to users and customers. The Implementation Plan provides a flexible methodology to help Members evaluate their current service delivery practices, and to serve as high-level guidance for developing more detailed methods and tools that will enable Members to improve their service delivery process.

The Strategy is adaptable to the unique needs of Members from both developed and developing countries, regardless of who the users are and whether the products and services delivered are public or commercial. The WMO Secretariat and WMO constituent bodies are responsible for facilitating and coordinating the implementation of the Strategy. WMO Members who have already implemented a formal quality management system (QMS) are more likely to be focused on meeting user needs and to consider this a key aspect of service delivery. For Members who have not introduced a QMS, implementing a service delivery strategy streamlined to the WMO Strategy for Service Delivery will be an excellent step towards improved organization-wide quality management.

For users who are susceptible to the impacts of weather and climate, the benefits of receiving high-quality services that fully meet their needs are wide-ranging. Members who provide high levels of service delivery through their public weather services (PWS) are likely to be viewed by their users and the organizations that fund them as a valuable return on the investment of public funds. This can help to ensure the sustainability of PWS.

The management of service-providing organizations must remain focused and committed to ensure that high-quality service delivery is achieved throughout their organizations.

To understand the concept of service delivery, one must understand what is commonly meant by “service”. This Strategy defines a service as a product or activity that meets the

needs of a user or can be applied by a user. To be effective services should be credible, available and timely, dependable and reliable, usable and useful, expandable, sustainable, responsive and flexible and authentic (Figure 1).

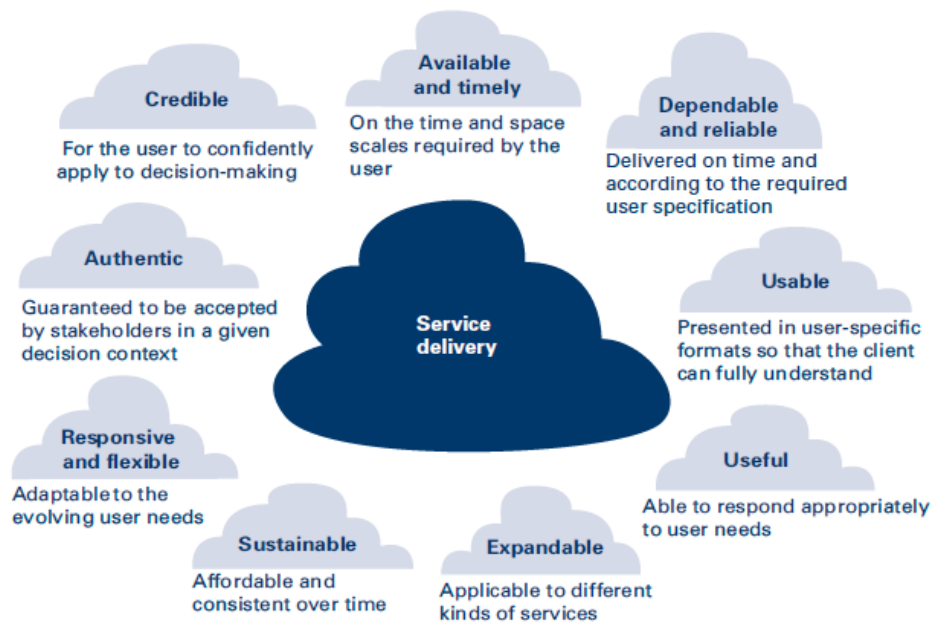


Figure 1: Effective service delivery

The Strategy describes a continuous cycle of four stages, which define the framework for service delivery (Figure 2).

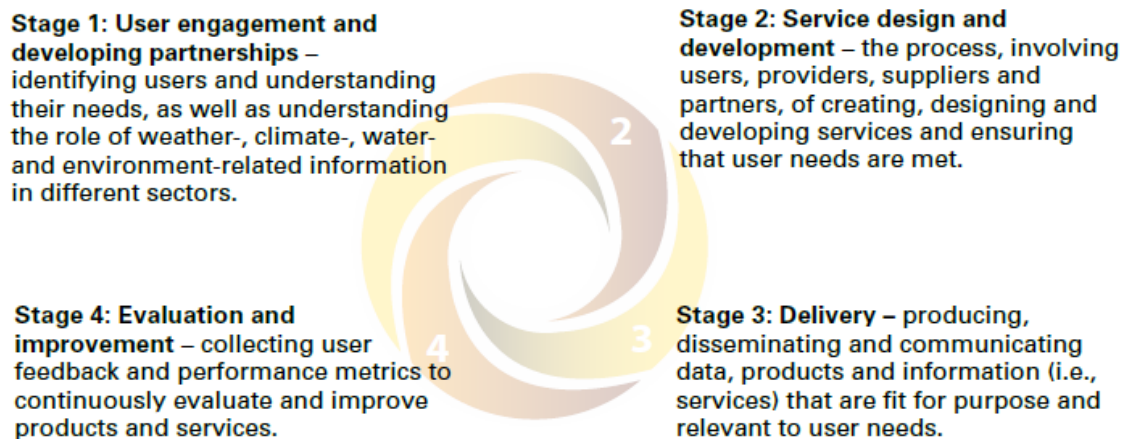


Figure 2: The four stages of a continuous, cyclic process for developing and delivering services.

Furthermore the strategy identifies six elements that describe the activities required for high-quality service delivery and the transition towards a more service-oriented culture (Figure 3).



Figure 3: Six elements of the WMO Service delivery strategy for moving towards a more service-oriented culture.

The management of service-providing organizations must remain focused and committed to ensure that high-quality service delivery is achieved throughout their departments.

The Implementation Plan for the Strategy has been developed to help all Members assess and improve their service delivery irrespective of their current level and capacity. The key element of the implementation of the strategy at national level is the Service Delivery Progress Model (SDPM). Current levels of service delivery can be assessed either by the service providers themselves or with external assistance. The assessment should be made with the help of the SDPM which shows the type of activities and behaviours that are appropriate for service providers with a certain level of service delivery development. The SDPM guides Members on the actions and activities required to progress to higher levels of service delivery over the short, medium and long term.

Milestones for the implementation of the Strategy are set for the short term (2 years), medium term (6 years) and long term (10 years). The key deliverables resulting from the implementation of the Strategy over the short term will be:

- 1) an assessment of the current level of service delivery
- 2) putting in place the necessary action plan to start improving service delivery
- 3) an assessment of the resources required to implement the action plan

Other changes may require a series of actions over medium or long timescales, so it is important that they are documented and tracked through to completion. Over the medium term, the Implementation Plan aims to help a certain percentage of Members gain at least one level in their service delivery development and to document the process and share lessons learned with other Members. Over the long term, the aim of the Strategy is to develop or strengthen a service culture and facilitate the mainstreaming of service delivery in the programmes and activities of Members' service providers, resulting in a tangible improvement in the user's perception of their services.

The objective of the workshop was to work with SMA to assess their current capabilities in service delivery. The current practices were systematically reviewed against the definitions



provided in the SDPM. The answers to the questions of each of the six strategic elements justify the current status of the service delivery processes in the SDPM in an objective way. The user needs and requirements were collected during the stakeholder workshop. Gaps between the current service delivery level of SMA and the user needs and requirements were identified.

The second objective was for SMA to determine how they could improve their capacity with the aim of moving to a higher level in the SDPM, and to guide them in the preparation of an action plan on how to develop that capacity and what is needed in terms of resources and expertise. The results of the workshop form the baseline for the development of SMA in order to achieve modernization to a service-focused national meteorological and hydrological service.

Workshop – Day 1

Participants

Seychelles Meteorological Authority (SMA)

Vincent Amelie (CEO, SMA)

SMA staff (List of participants: Annex 1)

WMO Secretariat

Ms Haleh Kootval (Chief, Public Weather services)

ZAMG, Austrian National Meteorological Service

Mr Rainer Kaltenberger (Forecasting and Climatological Section)

After some welcome remarks, SMA introduced itself through a comprehensive presentation covering measurement network, the recent transformation of the NMS from an authority to an agency and ongoing changes in the organizational structure. Furthermore key-stakeholders in Seychelles whose activities are impacted by weather and how SMA is related to them were covered as well as ongoing projects.

Since SMA has just 32 staff-members at the moment, a big challenge in front of increasing responsibilities and services are human resource capacities. Activities in the short-term will include live-TV weather-presentations via the national broadcaster (SBC) by SMA meteorologists. Until then weather presentations are recorded in SMA's own TV-studio several times a day. Data collection at the moment is rather fragmented as an integrated data management system is missing. Current projects include the deployment of a 5.4 GHz wireless communication link to collect near real-time data from Automatic Weather Stations (AWS) at the Inner Islands (Mahé, Praslin, La Digue and Silhouette Island). Another project is the installation of an Automatic Weather Observing System (AWOS) at the airport. A Strategic Plan 2016-2020 for SMA exists and includes the construction of a new headquarter-building, which will have the capacity to coordinate/implement regional and international activities including a research department.

The presentation was followed by a round-table discussion about the mission objectives, scope and anticipated outcome of the workshop. SMA chose to jointly review some aspects of the intended reorganization of the NMS within the workshop, as a result of recently gaining the status of an agency. In the afternoon, ZAMG gave a short introduction about its organization and emphasized how important service-delivery is in all sectors, not just in customer service departments. This was followed by a presentation on the WMO Strategy for Service Delivery and the procedure of the joint assessment of SMA's current service delivery level in the SDPM (Annex 1 of the WMO Strategy for Service Delivery). Afterwards the SMA-participants chose sectors to be studied within the assessment, which was carried out on day 2.



Figure 4: WMO-ID 63980: Weather station on the apron next to the SMA headquarters at Seychelles International Airport/Mahé Island.

Workshop – Day 2

Joint Assessment of SMAs Current Stage of Service Delivery

On day 2 a joint assessment of the SMAs current stage of service delivery was carried out. This started with the products and services of SMA for the key sectors namely, Aviation, Water, Marine, Disaster Risk Management (DRM) and media/general public.

The current practices were systematically reviewed sector by sector against the definitions provided in the SDPM. Guidance was provided for each of the stages of the SDPM.

The answers to the questions of each of the six strategic elements justify the current status of the service delivery processes in the SDPM in an objective way. The assessment results of the strategy elements are depicted in tables 1 to 5. Table 6 finally provides an overview of the results.



Figure 5: Review and discussion of existing delivery processes within the joint assessment.



Table 1: Joint assessment of SMAs current stage of service delivery – Strategy Element 1: Evaluate user needs and decisions.

Strategy Element 1 Evaluate user needs and decisions	Comments	Determination of current level in the SDPM	
Q1a: Who uses the products and services you deliver?	<p>Aviation: Civil Aviation Authority (CAA) – LoA in place, airlines (domestic and international) – Agreement on how to transfer data to dispatch officers (Air Seychelles ground handling, updated every two years) but no formal agreements with all users, military (aviation section) on demand – no formal agreement yet, agreements were updated some months ago</p> <p>Disaster Risk Management: mainland: DRM is one single authority but different stakeholders included, outer islands: stakeholders are contacted directly, MoU regarding color-coding has been initiated but not signed, SOPs in place but no formal agreement in place yet</p> <p>Water and Agriculture: Public Utilities Corp (PUC) responsible for water and wind energy, Seychelles Agriculture Agency (SAA) deal with individual farmers, PUC: MoU is in place but needs to be updated</p> <p>Tourism and Outdoor Activities: Ministry of Tourism, most hotels get daily weather forecasts</p> <p>Media/Public: Media users are known (TV, newspapers, radio-stations) but just informal agreements exist</p>	<p>A: Level 5 DRM: Level 2 WaA: Level 3 TaOA: Level 2 M/P: Level 2</p>	<p>Average Level 2.8 (Sectors)</p>
Q1b: What processes do you have in place for engaging with your users?	<p>Aviation: CAA meetings on ad hoc basis – records of meetings are kept</p> <p>Disaster Risk Management: Feedback on an ad hoc basis, rooms for improvement</p> <p>Tourism and Outdoor Activities: Rarely feedback, rooms for improvement</p> <p>Water and Agriculture: Feedback on an ad hoc basis, rooms for improvement</p> <p>Media/Public: Public survey carried out in 2012 → one outcome: public wants updated graphics (going to be done in December 2016)</p>	<p>A: Level 3 DRM: Level 2 WaA: Level 2 TaOA: Level 2 M/P: Level 2.5</p>	<p>Average Level 2.3 (Sectors)</p>



	<i>Seasonal forecast forum organized by RIMES with stakeholders to collect feedback of seasonal forecast (2014), workshop on seasonal forecast organized by WMO in September 2016</i>		
Q1c: How do your users contact you?	<p>Aviation: Phone, email, face to face meetings, dedicated line for pilots through ATC, option for pilots to come to briefing into SMAs office</p> <p>Disaster Risk Management: Dedicated hotline for DRM, in case of disaster SOPs are in place, senior forecasters/CEO are single point of contact for DRM</p> <p>Water and Agriculture: Via Phone, email, but no dedicated team is set up</p> <p>Tourism and Outdoor Activities: Via Phone, email, but no dedicated team is set up</p> <p>Media/Public: Via Phone, email, but no dedicated team is set up, No feedback form on the website yet (to be set up 2017), Facebook page established 2015 - feedback on ad hoc basis</p>	<p>A: Level 4</p> <p>DRM: Level 5</p> <p>WaA: Level 3</p> <p>TaOA: Level 3</p> <p>M/P: Level 3</p>	Average Level 3.5 (Sectors)
Q1d: How are user requirements gathered and documented to facilitate the developments of products and services?	<p>Aviation: Feedback is documented, agreements updated on demand</p> <p>Disaster Risk Management: requirements not yet documented</p> <p>Water and Agriculture: PUCs requirements are somehow known (monthly updated forecasts and extended medium range forecasts for day 10)</p> <p>Tourism and Outdoor Activities: Difficult to engage stakeholders</p> <p>Media/Public: Media: Problem of documentation, templates for public early warnings exists</p> <p><i>Lack of cooperation from stakeholders leading to relatively low levels of assessment</i></p>	<p>A: Level 4.5</p> <p>DRM: Level 3</p> <p>WaA: Level 2</p> <p>TaOA: Level 2</p> <p>M/P: Level 2</p>	Average Level 2.7 (Sectors)

Joint Assessment Results Strategy Element 1: Level 3

Aviation: 4.1, Disaster Risk Management: 3, Water and Agriculture: 2.5, Tourism and Outdoor Activities: Level 2.5, Media/Public: Level 2.5

Level 3: Development in progress. Users are able to contact NMHSs and their feedback is recorded. There are some formal processes for integrating the feedback received into the development of services. User requirements are defined with limited documentation.



Table 2: Joint assessment of SMAs current stage of service delivery – Strategy Element 2: Link service development and delivery to user needs.

Strategy Element 2 Link service development and delivery to user needs	Comments	Determination of current level in the SDPM	
Q2a: What documentation do you maintain to define the products and services you deliver?	<p>Aviation: Work instructions are in place, documented and updated</p> <p>Disaster Risk Management: SOPs are in place and updated regularly, workshop with DRM every year to review SOPs</p> <p>Water and Agriculture: SLA exists but not updated in a while</p> <p>Tourism and Outdoor Activities: Upon request on ad hoc basis</p> <p>Media/Public: No formal agreements yet in place</p>	<p>A: Level 4</p> <p>DRM: Level 4</p> <p>WaA: Level 2</p> <p>TaOA: Level 1</p> <p>M/P: Level 1</p>	Average Level 2.4 (Sectors)
Q2b: How are users kept informed when products and services are changed?	<p>Aviation: Well-structured by ICAO standards, but no process to directly approach users</p> <p>Disaster Risk Management: No formal process in place</p> <p>Water and Agriculture: Not applicable since no change has taken place since the beginning of the service (1994) - get seasonal forecast for water management and observation data on rainfall/evaporation</p> <p>Tourism and Outdoor Activities: Forecasts are updated twice per day - just text bulletins to be exposed by hotels - no changes since 90s</p> <p>Media/Public: Media: Some changes have been made - last time: templates were changed together with broadcaster</p>	<p>A: Level 3</p> <p>DRM: Level 3</p> <p>WaA: Level n.a.</p> <p>TaOA: Level n.a.</p> <p>M/P: Level 3</p>	Average Level 3 / n.a. (Sectors)

Joint Assessment Results Strategy Element 2: Level 2 -3

Aviation: 3.5, Disaster Risk Management: 3.5, Water and Agriculture: 2/n.a., Tourism and Outdoor Activities: 1/n.a., Media/Public: 2

Level 2: Development initiated. Services do not adapt to changing user needs and new technology. Products are documented with limited descriptive information.

Level 3: Development in progress. Services are developed and changed as technology allows but engagement with users is ad hoc. Products and services are documented and the information is used to inform management of changes.



Table 3: Joint assessment of SMAs current stage of service delivery – Strategy Element 3: Evaluate and monitor services performance and outcomes.

Strategy Element 3 Evaluate and monitor services performance and outcomes	Comments	Determination of current level in the SDPM	
Q3a: How do you verify the accuracy, quality and effectiveness of the products and services you deliver to users?	<p>Aviation: Timeliness is monitored, amendments in changes of forecasts are done fast, measurements are not defined in SLA, → qualitatively parameters are checked but quantitatively no verification scheme exists</p> <p>Disaster Risk Management: Impact assessment after event to assess accuracy of forecast, color-code system exist, but not yet part of SLAs</p> <p>Water and Agriculture: PUC is getting general daily forecasts, seasonal forecasts and climatological data, forecasts are not verified, hind casts are carried out for seasonal forecasts, users are not trained to understand meaning of words</p> <p>Tourism and Outdoor Activities: -</p> <p>Media/Public: Outreach programs have been carried out in schools but this is not at the moment</p>	<p>A: Level 3 DRM: Level 3 WaA: Level 2 TaOA: Level 2 M/P: Level 2</p>	<p>Average Level 2.4 (sectors)</p>
Q3b: How are the results of the verification of the accuracy, quality and effectiveness of service delivery used to improve the products and services you deliver to your users?	<p>Aviation: No software on TAF verification installed, METAR is verified just in terms of timeliness,</p> <p>Disaster Risk Management: see question 3a</p> <p>Water and Agriculture: see question 3a</p> <p>Tourism and Outdoor Activities: no measurements are in place</p> <p>Media/Public: see question 3a</p>	<p>A: Level 2.5 DRM: Level 2 WaA: Level 2 TaOA: Level 1 M/P: Level 2</p>	<p>Average Level 1.9 (sectors)</p>

Joint Assessment Results Strategy Element 3: Level 2

Aviation: 2.8, Disaster Risk Management: 2.5, Water and Agriculture: 2, Tourism and Outdoor Activities: 1.5., Media/Public: 2

Level 2 – Undeveloped. Some measures of development are in place. The verification of accuracy and/or service delivery takes place, but no systematic process exists to use this information to improve the service.



Table 4: Joint assessment of SMAs current stage of service delivery – Strategy Element 4: Sustain improved service delivery.

Strategy Element 4 Sustain improved service delivery	Comments	Determination of current level in the SDPM	
Q4a: Have you documented your service delivery process?	<p>Aviation: QMS exists, plans to be audited next year, processes of including user feedback</p> <p>Disaster Risk Management: No QMS in place</p> <p>Water and Agriculture: No documentation in place</p> <p>Tourism and Outdoor Activities: No documentation in place</p> <p>Media/Public: No formal documentation/QMS</p>	<p>A: Level 4.5</p> <p>DRM: Level 2</p> <p>WaA: Level 1</p> <p>TaOA: Level 1</p> <p>M/P: Level 1</p>	Average Level 1.9 (sectors)
Q4b: How do you use developments in science and technology to improve service delivery?	<p>Aviation: -</p> <p>Disaster Risk Management: Some processes have been started towards an integrated system</p> <p>Water and Agriculture: No plans yet to use identified developments in S&T</p> <p>Tourism and Outdoor Activities: No plans yet to use identified developments in S&T</p> <p>Media/Public: Plans to use modern techniques/live presentations</p>	<p>A: Level 4</p> <p>DRM: Level 3</p> <p>WaA: Level 2</p> <p>TaOA: Level 2</p> <p>M/P: Level 3</p>	Average Level 2.8 (sectors)
Q4c: How do you communicate the changes in your service delivery process to your customers and users?	<p>Aviation: Formal communication plan is in place, dates of changes are communicated well in advance</p> <p>Disaster Risk Management: is done, but no formal agreement</p> <p>Water and Agriculture: n.a.</p> <p>Tourism and Outdoor Activities: n.a.</p> <p>Media/Public: -</p>	<p>A: Level 4</p> <p>DRM: Level 3</p> <p>WaA: Level n.a.</p> <p>TaOA: Level n.a.</p> <p>M/P: Level 3</p>	Average Level 3.3 / n.a (sectors)



Joint Assessment Results Strategy Element 4: Level 2-3

Aviation: 4.2, Disaster Risk Management: 2.7, Water and Agriculture: 1.5/n.a., Tourism and Outdoor Activities: 1.5/n.a., Media/Public: 2.3

Level 2: Development initiated. The concept of service delivery has been introduced and an assessment of current status has been undertaken.

Level 3: Development in progress. An action plan has been created to improve the current level of service delivery and resources have been identified to implement it.



Table 5: Joint assessment of SMAs current stage of service delivery – Strategy Element 5: Development skills needed to sustain service delivery.

Strategy Element 5 Development skills needed to sustain service delivery	Comments	Determination of current level in the SDPM	
Q5a: Who is the service delivery champion within your National Meteorological or hydro-meteorological Service (NMHS)?	Aviation: No champion has been identified so far Disaster Risk Management: No champion has been identified so far Water and Agriculture: No champion has been identified so far Tourism and Outdoor Activities: No champion has been identified Media/Public: No champion has been identified so far	A: Level 1 DRM: Level 1 TaOA: Level 1 WaA: Level 1 M: Level 1	Average Level 1 (sectors)
Q5b: What mechanisms are in place to enable your staff to be educated in the principles of service delivery	Aviation: In house-seminars on observations and forecasting but not on SD, informal communication is done on service delivery Disaster Risk Management: in-house seminars Water and Agriculture: n.a. Tourism and Outdoor Activities: n.a. Media/Public: in-house seminars	A: Level 2 DRM: Level 2 TaOA: Level n.a. WaA: Level n.a. M: Level 2	Average Level 2/n.a. (sectors)
Q5c: What mechanisms are in place for documenting the roles of staff and their individual training requirements?	Aviation: - Disaster Risk Management: Training is offered as needed but no individual training Water and Agriculture: Training is offered as needed but no individual training Tourism and Outdoor Activities: Training is offered as needed but no individual training Media/Public: Individual trainings in cooperation with broadcaster	A: Level 4 DRM: Level 3 WaA: Level 3 TaOA: Level 3 M/P: Level 4	Average Level 3.4 (sectors)
Q5d: How do you involve staff in improving service delivery?	Aviation: Regular meetings, unit heads meeting to ideas in how to improve SD, suggestion box for staff exits Disaster Risk Management: see Aviation Water and Agriculture: see Aviation Tourism and Outdoor Activities: see Aviation Media/Public: see Aviation	A: Level 4.5 DRM: Level 4.5 WaA: Level 4.5 TaOA: Level 4.5 M/P: Level 4.5	Level 4.5



Joint Assessment Results Strategy Element 5: Level 3*

Aviation: 2.9, Disaster Risk Management: 2.6, Water and Agriculture: 2.8/n.a., Tourism and Outdoor Activities: 2.8/n.a., Media/Public: 2.9

* Large spread among determined levels within strategy element 5

Level 3: Development initiated. No formal training in service delivery is provided, though service delivery principles are informally communicated.



Summary Service Level Assessment

Table 6 provides an overview of the assessment results of SMA according to the WMO SDPM. The table contains the answers of the questions regarding the respective strategy elements and shows the different levels of service delivery within the SDPM.

Table 6: Overview of the assessment results (level 1: undeveloped, level 2: development initiated, level 3: development in progress, level 4: developed and level 5: advanced).

Strategy Element	Question	Sectors					Overall Sectors	Overall Element
		Aviation	Disaster Risk Management	Water and Agriculture	Tourism and Outdoor Activities	Media/Public		
Element 1 Evaluate user needs and decisions	1a	5	2	3	2	2	2.8	3
	1b	3	2	2	2	2.5	2.3	
	1c	4	5	3	3	3	3.5	
	1d	4.5	3	2	2	2	2.7	
	Per Sector	4.1	3	2.5	2.5	2.5	–	
Element 2 Link service development and delivery to user needs	2a	4	4	2	1	1	2.4	2-3
	2b	3	3	n.a.	n.a.	3	3/n.a.	
	Per Sector	3.5	3.5	2/n.a.	1/n.a.	2	–	
Element 3 Evaluate and monitor services performance and outcomes	3a	3	3	2	2	2	2.4	2
	3b	2.5	2	2	1	2	1.9	
	Per Sector	2.8	2.5	2	1.5	2	–	
Element 4 Sustain improved service delivery	4a	4.5	2	1	1	1	1.9	2-3
	4b	4	3	2	2	3	2.8	
	4c	4	3	n.a.	n.a.	3	3.3/n.a.	
	Per Sector	4.2	2.7	1.5/n.a.	1.5/n.a.	2.3	–	
Element 5 Development skills needed to sustain service delivery	5a	1	1	1	1	1	1	3*
	5b	2	2	n.a.	n.a.	2	2/n.a.	
	5c	4	3	3	3	4	3.4	
	5d	4.5	4.5	4.5	4,5	4.5	4.5	
	Per Sector	2.9	2.6	2.8/n.a.	2.8/n.a.	2.9	–	
Overall								Level 3 (2.6)

* Large spread among determined levels within strategy element 5

The results reveal a hitherto strong focus of SMA on services in the section of aviation meteorology. Well established cooperation also exist in other sectors, but agreements, SOPs and processes needs to be put up, reviewed or updated both internally and together with stakeholders in the respective areas in order to gain higher levels within the SDPM.

The overall assessment of SMA according the WMO SDPM results in **level 3 (2.6) – Development in Progress.**



Figure 6: Tour through SMAs TV studio.

Workshop – Day 3

Gap Analysis and Action Plan

Based on the joint assessment of the capacities regarding service delivery and previous feedback from stakeholders, WMO, SMA and ZAMG carried out a gap analysis and developed an action plan (Tables 7 to 11). The objective of the action plan is to specify how SMA can gain higher levels in terms of service delivery for each strategy element within the SDPM.

Therefore gaps for each strategy element and investigated sections were identified and key actions to address these gaps were jointly determined for short-term and mid-term. Some of the actions can be implemented ad hoc, other changes may require a series of actions over medium or long timescales, so it is important that they are documented and tracked through to completion.

Over the medium term, the Implementation Plan aims to help SMA to gain at least one level in their service delivery development and to document the process and share lessons learned with other Members.

Over the long term, the aim of the Strategy is to develop or strengthen a culture of service and facilitate the mainstreaming of service delivery in the programmes and activities of SMA, resulting in a tangible improvement in the user's perception of its products and services.

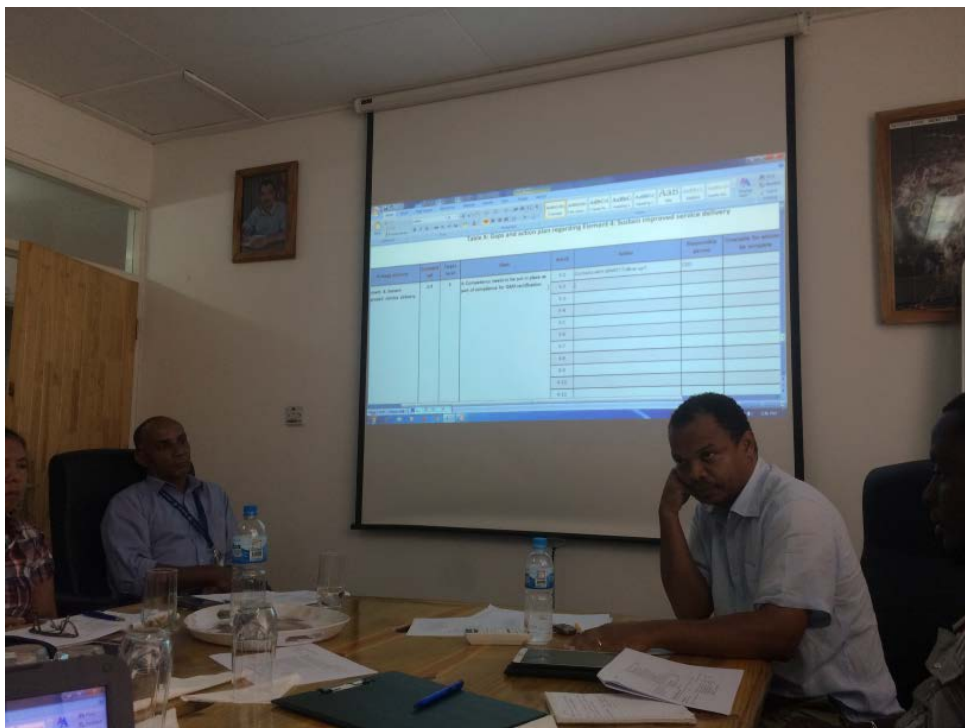


Figure 7: Development of an Action Plan including level of resources, milestones, and types of actions for short, medium and long term, to start improving the Service Delivery level



Recommendations

Briefly summarised, it is strongly recommended to:

- intensify the interaction with the stakeholders through regular meetings
- revise, establish or update MoU, CSA, SLA or contracts at least with key users
- work towards an integrated real-time data management system
- provide more accurate weather forecasts and warnings in certain key-areas such as high grounds
- collect user feedback systematically in a feedback-log
- list all current products in a product catalogue
- tailor products and services to requirements of users
- formalise internal processes and responsibilities regarding service delivery
- improve dissemination of products
- create website in responsive design and update Facebook page on a daily basis
- start/enforce simple verification processes
- establish a service-oriented culture, i.e. *act more proactive than reactive*



Table 7: Gaps and action plan regarding Strategy Element 1: Evaluating user needs and decisions

Strategy element	Current level	Target level	Gaps	Act-ID	Action	Responsible person	Timetable for actions to be completed	Resources					
Element 1: Evaluate user needs and decisions	3	4	Aviation: User/customer contact processes can be improved	1-1	All sectors: Collect feedback systematically in a feedback log <ul style="list-style-type: none"> Set up feedback log (e.g. excel-sheet) on a shared drive Include collection of feedback into daily routine (after meeting with forecasters) 	Hencel (technical action) Gerard (operational action)	December 2016	Internal resources					
			DRM: No MoU in place yet										
			WaA: User requirements are not well defined										
			TaOA: User needs are somehow known, but they are not described in a form of user-requirements						1-2	DRM: Start discussions towards a MoU with DRM, IDC, SIF and with media (TV, radio stations)	CEO	2016	Internal resources
			M/P: There is no formal agreement with broadcaster in place yet						1-3	DRM: Set up a MoU with DRM, IDC and SIF, include the desire of annual user feedback	CEO	2017	Internal resources
			<i>Be more proactive than reactive, approach users actively, not just upon their request.</i>						1-4	MoU with PUC (water and energy) needs to be established based on new user requirements (e.g. sharing of data, monthly updated seasonal forecasts, extended range forecasts,...)	CEO, Marcel	March 2017	Internal resources
									1-5	Approach SAA (Seychelles Agriculture Agency) to coordinate and ask for requirements	CEO, Marcel	March 2017	Internal resources
									1-6	Discuss and set up a formal agreement with SAA after their requirements are known	CEO, Marcel	2017	Internal resources
									1-7	Approach a specific hotel as a pilot to test the idea of a tailor-made product (e.g. rebrand your daily forecast bulletin, use more symbols and a nice layout/design, include high-tide/low-tide,...)	Gerard	June 2017	Internal resources
	1-8	Approach the Hotel Association with product from 1-7 which has shown success	Gerard	~2017	Internal resources								
	1-9	Start discussion about new ideas for	CEO	ASAP	Internal resources								



Strategy element	Current level	Target level	Gaps	Act-ID	Action	Responsible person	Timetable for actions to be completed	Resources
					presenting live for broadcasts including information from social media (SMA's Facebook page) to be included	(+ appropriate staff for presentation		
				1-10	Set up formal agreement with national broadcaster (SBC)	CEO	ASAP	Internal resources
				1-11	Carry out a public user survey	Gerard	6 months after being on-air	Internal resources
				1-12	Initiate internal discussions on how to keep Facebook active on a daily basis Consult WMO Strategy on how to deal with social media	Nelson	November 2016	Internal resources

Table 8: Gaps and action plan regarding Strategy Element 2: Linking service development and delivery to user needs

Strategy element	Current level	Target level	Gaps	Act-ID	Action	Responsible person	Timetable for actions to be completed	Resources
Element 2: Link service development and delivery to user needs	2-3	3	In general products are not recorded (except aviation: AIP document (airport information procedures) on which products and services are available at SMA), information on available climate data (resolution, parameters) exists No process to directly approach users on whether they need changes in existing products and services or new products	2-1	Put list on available climate data and services (include the possibility of writing past weather reports) on website	Marcel	2016	Internal resources
				2-2	All sectors: Create product catalogue with all current products	Gerard	June 2017	Internal resources
				2-3	All sectors: Start discussion with current stakeholders on whether changes could be made in what services and products they receive	CEO A: Gerard DRM: Gerard Media/Public: Gerard Water and Agriculture: Marcel	June 2017	Internal resources



Strategy element	Current level	Target level	Gaps	Act-ID	Action	Responsible person	Timetable for actions to be completed	Resources
						Tourism and Outdoor Activities: Nelson		
				2-4	Review forecast content and format, esp.: discriminate temperature by dividing country into climate zones (low lands/high lands)	CEO to create a task team	2017	Internal resources
				2-5	Create new website in responsive design (mobile friendly)	CEO	2017	Internal resources

Table 9: Gaps and action plan regarding Strategy Element 3: Evaluating and monitoring service performance and outcomes

Strategy element	Current level	Target level	Gaps	Act-ID	Action	Responsible person	Timetable for actions to be complete	Resources
Element 3: Evaluate and monitor service performance and outcomes	2	3	Processes for assessing performance, routine documentation and verification are not in place	3-1	Start simple verification processes <ul style="list-style-type: none"> Implement TAF-verification via Hong Kong software Do verification on a daily basis by comparing forecasts and observations in a spreadsheet (precipitation: contingency table) - start with a single-point-verification 	CEO, Hencel, Gerard	Start: November 2016	Internal resources



Table 10: Gaps and action plan regarding Strategy Element 4: Sustaining Improved service delivery

Strategy element	Current level	Target level	Gaps	Act-ID	Action	Responsible person	Timetable for actions to be complete	Resources
Element 4: Sustain improved service delivery	2-3	3	Aviation Competency needs to be put in place as part of compliance for QMS certification Lack of observation-network/climatological analysis for producing forecasts in certain key-areas such as high grounds	4-1	Contacts with WMO have been made to inform them of non-compliance for aviation forecasters. Continue to look for institutions to train forecasters on BIP-M	CEO	Ongoing	Internal Resources
				4-2	Recruit more staff (both local and expats) at degree level.	CEO	Ongoing	Government funding
				4-3	Initiate and apply some scientific methods on how to make forecasts for specific locations on the island (use climatology, radio soundings to calculate lapse rates)	CEO	Start initiation in 2016, ongoing 2017	Governmental funding, assistance from external experts
				4-4	Use past weather records to conduct climatological research and analysis of drivers	Marcel, CEO	2017	Internal resources
				4-5	Twinning and mentoring by a developed NMS to assist development of forecasting processes in Seychelles	CEO	2017, t.b.d.	Internal resources
				4-6	Improve early warning capacity by <ul style="list-style-type: none"> • increasing observation network (AWS, radar,...) • integrated data management from the observation network 	CEO	2017	Governmental funding

**Table 11: Gaps and action plan regarding Strategy Element 5: Developing skills needed to sustain service delivery**

Strategy element	Current level	Target level	Gaps	Act-ID	Action	Responsible person	Timetable for actions to be complete	Resources
Element 5: Development skills needed to sustain service delivery	3*	4	No service delivery champion is in place No service delivery relevant trainings in place	5-1	Discuss and appoint a Service Delivery Champion (or a team)	CEO to appoint Service Delivery Champion(s)	2017	Internal resources
				5-2	SDC(s) to organize SD relevant trainings using the WMO strategy on SD	Service Delivery Champion(s)	2017	Internal resources

* Large spread among determined levels within strategy element 5



Workshop – Day 4

On day 4 the gap analysis and action plan was finished for each strategy element.

Subsequently ZAMG and WMO addressed the request of SMA and shortly reviewed the drafted organizational chart. Proposed modifications of this chart are attached in Annex 4 to this report.

The workshop was concluded by a presentation of ZAMG about data policy and how different user needs can be met through different types of licenses. The ECOMET-license model (economic interest grouping of the National Meteorological Services of the European Economic Area, <http://www.ecomet.eu>) was outlined. The concept of different user groups (Service provider, Broadcaster/publisher, End user) for commercial use as well as non-commercial data requests from universities and research organisations (according to WMO Resolution 40 of the 12th Congress of the WMO [June 1995]) was briefly introduced and discussed.



Annex 1: List of Participants

Table 12: List of Participants

WORKSHOP TO IMPLEMENT THE WMO STRATEGY FOR SERVICE DELIVERY FOR THE SEYCHELLES METEOROLOGICAL AUTHORITY

MAHE, SEYCHELLES

25 OCTOBER TO 28 OCTOBER 2016

NO	NAME	GEN- DER	INSTITUT- ION	POSITION	ADDRESS	CONTACT CELL/TEL	EMAIL ADDRESS
1	Vincent Amelie	M	SMA	CEO	Quincy Village	+248-2722957	v.amalie@meteo.gov.sc
2	Marcel Belmont	M	SMA	Senior Meteorological Technician	Pointe-Au-Sel, Mahe Seychelles	+248-2728936 +248-4384355	m.belmont@meteo.gov.sc
3	Hencel Hollanda	M	SMA	Technical Support Officer	Bel Air, Mahé, Seychelles	+248-2724088 +248-4384353	h.hollanda@meteo.gov.sc
4	Nelson Lalande	M	SMA	Principal Technical Support Officer	Glacis, Mahé	+248-2814204	n.lalande@meteo.gov.sc
5	Chantale Bijoux	F	SMA	Forecaster	Anse Royale, Mahé	+248-2724390	c.bijoux@meteo.gov.sc
6	Rita Ogada	F	SMA	Forecaster	Anse-Aux-Pins	+248-2722480	r.ogada@meteo.gov.sc
7	Marie-Eve Denis	F	SMA	Quality Control Technician	English River, Mahé	+248-2728939	m.denis@meteo.gov.sc
8	Patrick Alcindor	M	SMA	Senior Staff	Glacis, Mahé	+248-2723582	p.alcindor@meteo.gov.sc
9	Gerard Bijoux	M	SMA	Senior Meteorologist	Anse Royale, Mahé	+248-2724087	g.bijoux@meteo.gov.sc
10	Haleh Kootval	F	WMO	Chief, PWS	7 bis Ave de la Paix CH1211 Geneva 2	+41-22-730-8333	hkootval@wmo.int
11	Rainer Kaltenberger	M	ZAMG	Forecaster and Climatologist	Hohe Warte 38, A 1190 Wien	+43-1-36026-2238	r.kaltenberger@zamg.ac.at



Annex 2: List of stakeholder organisations, their activities, products requested and how their sector is impacted by weather (pre-workshop brainstorming)

Table 13: List of stakeholder organisations, their activities, products requested and how their sector is impacted by weather (pre-workshop preparation by SMA)

Stakeholders Organisation	Activities	Product Requested	Impact of weather on Sector
Civil Aviation Authority	Aviation weather data for Airport operation	Observation data such as wind speed and direction, temperature, Dew point Temperature, Pressure, Cloud Cover, Visibility and Precipitation	Changes in weather parameters can affect the overall operation of the Airport.
Airlines companies	Weather report and forecast for their operation planning	METAR, SPECI, TAFS, SIGMET, Aerodrome Warnings	Aircrafts landing and Take-off depends mainly on weather conditions
Port Authority, Marine Safety Authority, and Coast Guard	For Marine activities	Daily Marine Forecast and Warnings	Critical for operation of marine activities.
Disaster Risks Management	Coordinate the disaster Risk management and operation.	Warnings of strong winds, cyclone, heavy rains and Tsunami.	
Public Utilities Corporation	Monitoring of Strong Wind incidents and river flows and dams water levels	(1)Wind Speed and Direction (2)Rainfall products e.g. hourly rainfall, outstations daily rainfall, daily evaporation, sunshine durations	(1)Economic losses on installations due to fallen trees. (2) Constant evaluation of river flows in order to control water distribution and impose restriction if necessary. Delays in completing civil works



Contractors	Building construction, Structural designs, roadworks, earthworks (Excavating, soil removal, etc.)	(1) Rainfall (2) Wind information	(1) Can affect the progress of work. (2) Economic loss (building materials, accidents, work stoppage due to bad weather)
Tourism Industry	Mainly outdoor activities for visitors	Summary of climate variables (averages) for each month or season	Variations of monthly climate variables can impact on type of visitors (photographers, sunbathers, snorkelling, temperature sensitive, nature lovers etc)
Farmers and Animal Breeders	Cultivation and Animal breeding	Rainfall, Temperature, Wind and Evaporation	Critical for farming and animal husbandry Certain thresholds have to be followed.
Insurance Companies	Settling claims of their clients	Rainfall, Temperature, Wind. Thunderstorm	Incurs financial expenses
Investors	Investing in property developments, marine or land-based	Rainfall, Temperature (including range), Wind patterns for the monsoons, Wet/Dry season rainfall amounts	The various parameters will have an impact(effect) when evaluating the feasibility of a project by investors
Fishermen	Fishing	Prefer to get Forecasts from Operation Unit	
NGOs and Researchers	Conservation and Research	Wind information, Temperatures, Sunshine duration, Cloud cover, Rainfall	Has great impact on the various activities carried out by the NGOs and researchers.
Academic	Projects, Thesis	Various Climatic Parameters	Required for Activities
The occasional caller	Any not mentioned above	Any weather parameter



Annex 3: Climate Unit - Processed Climatic Elements available at SMA

Table 14: Climate Unit - Processed Climatic Elements available for Seychelles Int. Airport and other stations (1972-2016) – Source: SMA

Elements	Brief Descriptions	Daily Data available	Monthly	Annual	
Precipitation	Totals	✓	✓	✓	
	Max Daily precipitation	✓	✓	✓	
	Rain Days (0.1 mm or more)	✓	✓	✓	
	Hourly precipitation	✓	✓	✓	
	Number of days with 5,10, 25 mm or more				
	Occasions of hourly r/f (5-10,10.1-15,15 mm or more		✓	✓	
	5-day,7-day and 10-day Totals				
	Days with no Rainfall		✓	✓	
	Maximum Hourly rainfall				
	Wet days (1.0 mm or more)		✓	✓	
	Rainfall Maps				
	Air Temperature	Ordinary, Maximum and Minimum	✓	✓	✓
		Extreme Max and Min		✓	✓
Annual Range		✓	✓	✓	
Days with Maximum Temperature exceeding specific limits					
5-day, 7-day and 10-day means			✓	✓	
Soil Temperature	Surface, 10, 50 100 cm for synoptic Hours	✓			
Evaporation (Open)	24-hr evaporation (using hook-gauge) method	✓	✓	✓	



Pan)				
Humidity	Mean, Extremes	✓	✓	✓
Cloudiness	Amount, Clear Days, Cloudy days, Low Cloud Amount & Height	✓	✓	✓
Bright Sunshine	Number of hours and duration	✓	✓	✓
Visibility	Hourly visibility	✓	✓	✓
Radiation	Global radiation	✓	✓	✓
Pressure	Hourly Sea Level Pressure	✓	✓	✓
Wind	Upper Winds, Surface Mean, Max gusts	✓	✓	✓
	Monthly Wind rose and Frequencies			
	Onset of the South East Monsoon			
Thunderstorm	Days with thunderstorms	✓	✓	✓

Annex 4: Proposed adaptations in drafted organizational chart

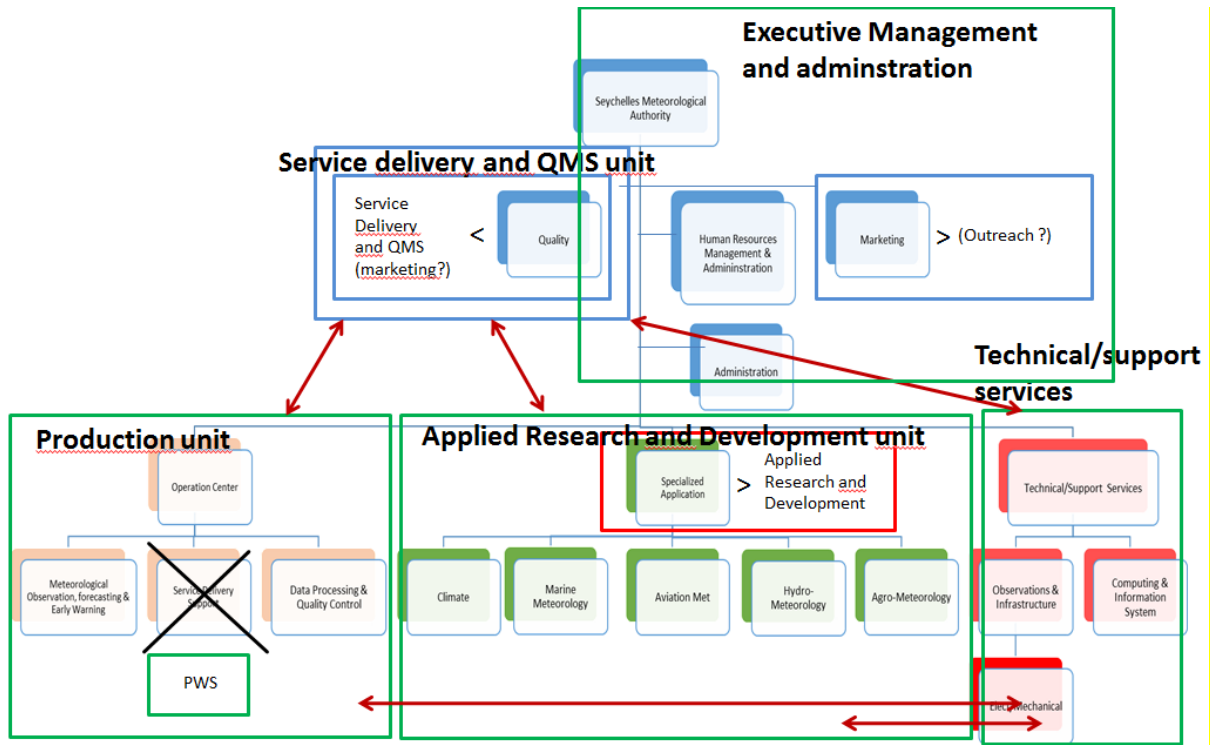
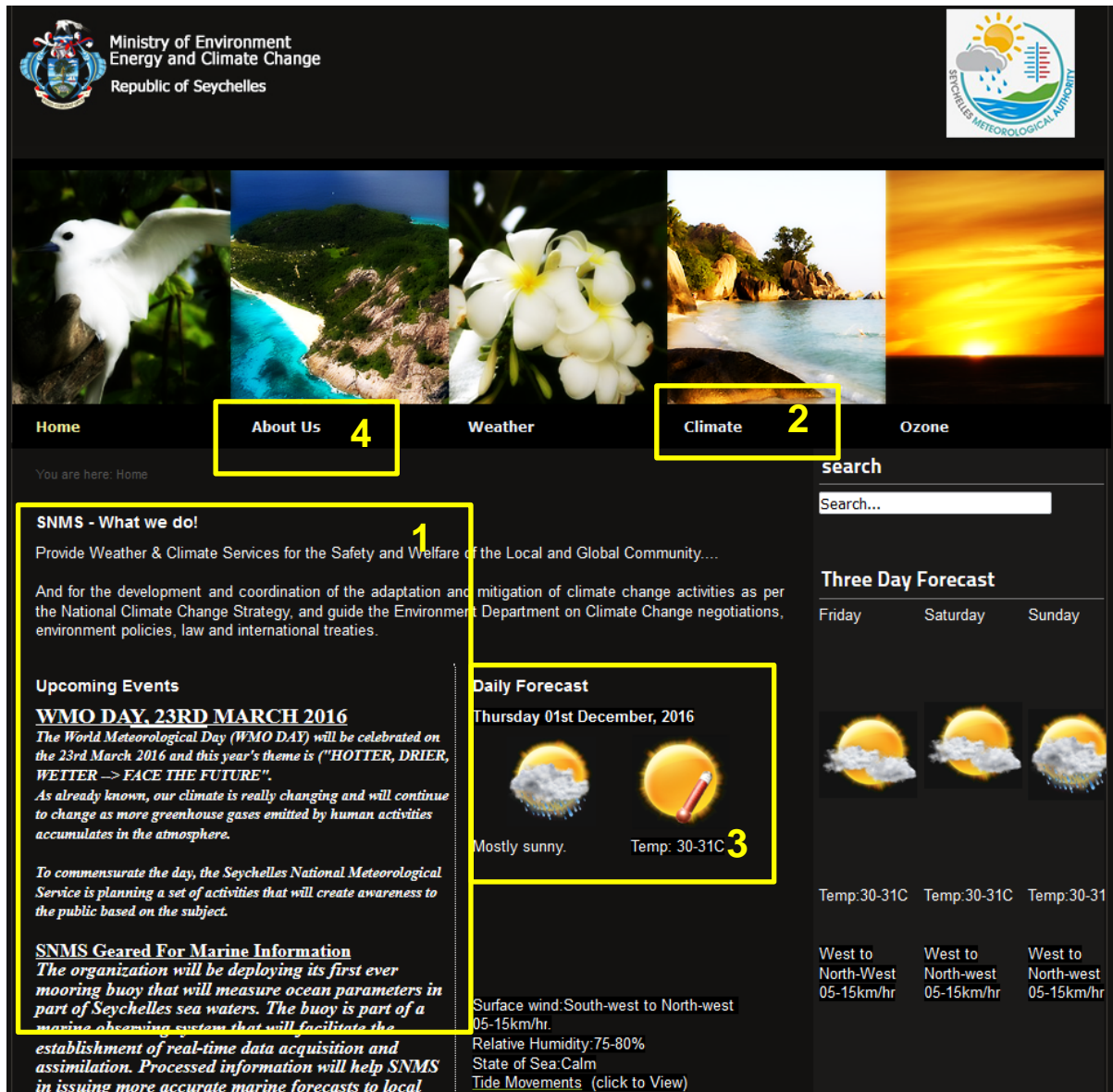


Figure 13: Proposed adaptations in drafted organizational chart to enhance aspects of service delivery

Annex 5: Ad-hoc Feedback to SMAs Website

<http://www.meteo.gov.sc>

There are plans to create a new website in 2017. This is strongly recommended, as the current website lacks both in design and content. The new website should be created in responsive design, i.e. mobile-friendly, given that since 2014 more people worldwide access websites from their mobile device than from a desktop¹. An ad-hoc joint review of the homepage revealed the following issues which should be fixed as soon as possible.



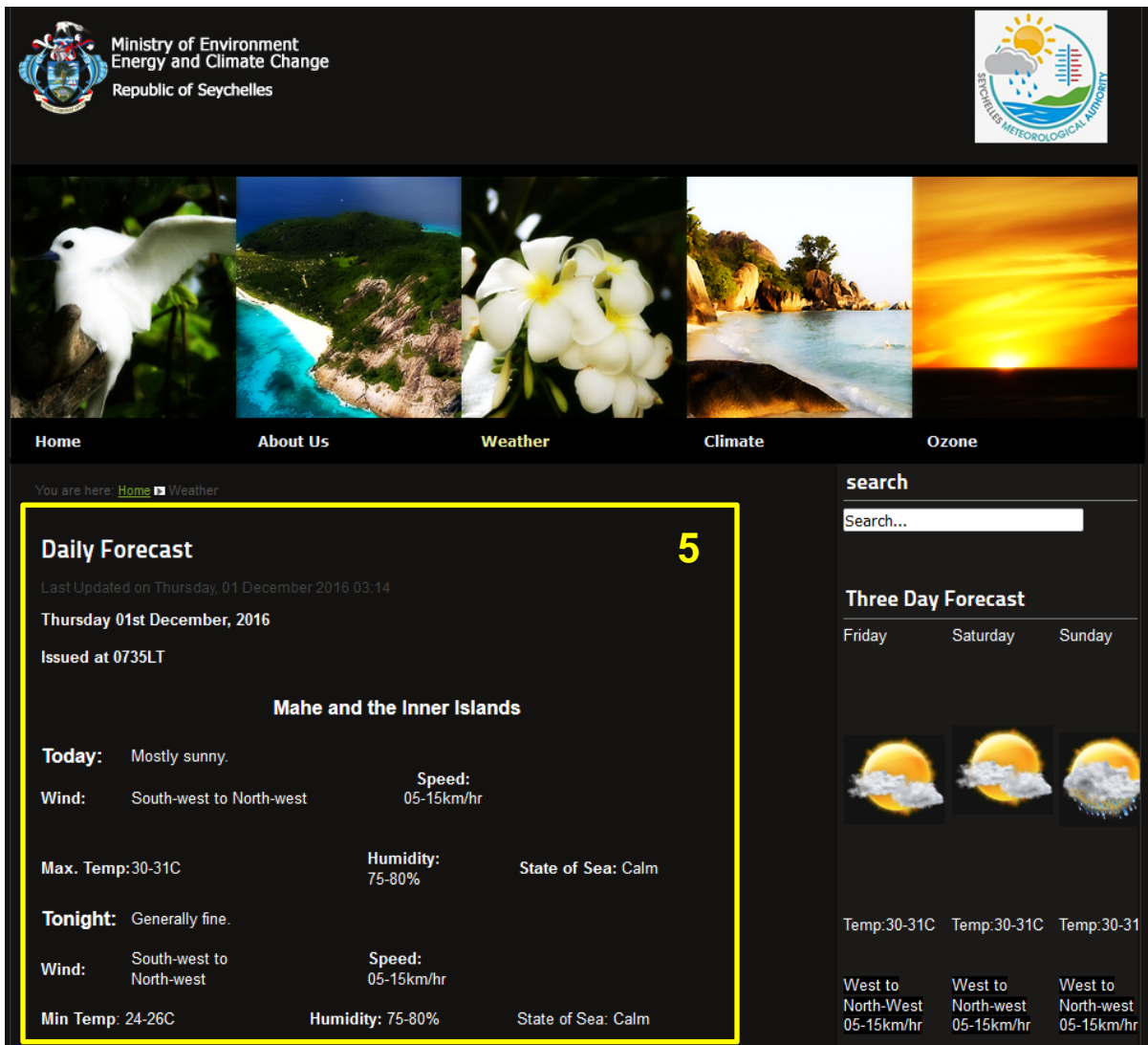
The screenshot shows the homepage of the Seychelles National Meteorological Authority (SNMS). The page features a header with the Ministry of Environment, Energy and Climate Change logo and the SNMS logo. Below the header is a navigation menu with links for Home, About Us, Weather, Climate, and Ozone. The main content area includes a 'What we do!' section, 'Upcoming Events' (highlighted with a yellow box and a '1' annotation), and a 'Daily Forecast' section (highlighted with a yellow box and a '3' annotation). The 'Daily Forecast' section shows a forecast for Thursday 01st December, 2016, with a temperature range of 30-31C and a '3' annotation. The 'Three Day Forecast' section shows a forecast for Friday, Saturday, and Sunday, with a temperature range of 30-31C and a '2' annotation. The 'About Us' link in the navigation menu is also highlighted with a yellow box and a '4' annotation. The text in the 'What we do!' section is white on a black background, making it difficult to read.

Figure 20: GMET-Homepage Feedback (1)

- 1.) Design: White letters on black background combined with different types of fonts makes texts difficult to read

¹ <http://www.smartinsights.com/mobile-marketing/mobile-marketing-analytics/mobile-marketing-statistics/>
accessed on 05/12/2016

- 2.) Remove blind links (referral to pages which doesn't exist). Add seasonal forecast (add a legend and clearly explain meaning of different terms as "above average") and monthly climate reports to climate section. Post link on Facebook once information is available.
- 3.) Add information on expected timing of weather to daily forecasts, e.g. partly cloudy in the morning, afterwards sunny with isolated rain showers (Figure 1), symbol supposed to indicate temperature is misleading
- 4.) Add captcha-protected contact form to "About us" section.
- 5.) Improve layout and design which is confusing at the moment – Clearly separate forecasts for today, tonight, and outlook for next 48h. Add link to tidal forecast.
- 6.) Consult WMO (2012) on how to efficiently use Social Media as a NMS: Guidelines on the Strategies for use of Social Media by National Meteorological and Hydrological Services, WMO-No. 1086, http://www.wmo.int/pages/prog/amp/pwsp/publicationsguidelines_en.htm)



The screenshot shows the website of the Ministry of Environment, Energy and Climate Change, Republic of Seychelles, and the Seychelles Meteorological Authority. The navigation menu includes Home, About Us, Weather, Climate, and Ozone. The main content area features a "Daily Forecast" section for Thursday, 01st December, 2016, issued at 0735LT. The forecast is for Mahe and the Inner Islands. The "Today" forecast is mostly sunny with a wind speed of 05-15km/hr. The "Tonight" forecast is generally fine with a wind speed of 05-15km/hr. The "Three Day Forecast" section shows the forecast for Friday, Saturday, and Sunday, with temperatures ranging from 30-31C and winds from the West to North-West at 05-15km/hr.

Ministry of Environment
Energy and Climate Change
Republic of Seychelles

SEYCHELLES METEOROLOGICAL AUTHORITY

Home About Us Weather Climate Ozone

You are here: [Home](#) > [Weather](#)

Daily Forecast 5

Last Updated on Thursday, 01 December 2016 03:14
Thursday 01st December, 2016
Issued at 0735LT

Mahe and the Inner Islands

Today: Mostly sunny.
Wind: South-west to North-west **Speed:** 05-15km/hr




Max. Temp: 30-31C **Humidity:** 75-80% **State of Sea:** Calm

Tonight: Generally fine.
Wind: South-west to North-west **Speed:** 05-15km/hr

Min Temp: 24-26C **Humidity:** 75-80% **State of Sea:** Calm

search
Search...

Three Day Forecast

Friday	Saturday	Sunday
		
Temp:30-31C	Temp:30-31C	Temp:30-31
West to North-West 05-15km/hr	West to North-west 05-15km/hr	West to North-west 05-15km/hr



Annex 6: Workshop Programme

WORLD METEOROLOGICAL ORGANIZATION

WDS/PWS/WMO -SSD/Doc.1

**WORKSHOP TO IMPLEMENT
THE WMO STRATEGY FOR SERVICE DELIVERY
FOR THE SEYCHELLES METEOROLOGICAL
AUTHORITY**

Mahé, Seychelles, 25-28 October 2016

ORIGINAL: ENGLISH

PROVISIONAL PROGRAMME

DAY 1 (WORKING HOURS: 0900-1700)			
TIME(S):	TITLE(S) / SUBJECT(S):	PRESENTER(S):	TIME(S):
WELCOME AND INTRODUCTION			
0900-1200	Meeting of the mission with to discuss and agree on: <ul style="list-style-type: none"> • Mission objectives • Mission scope • Sectors to be studied • Responsibilities of each party • Anticipated outcome 	Mr Vincent Ameli (CEO, SMA and PR of Seychelles with WMO) Senior staff of SMA Ms Haleh Kootval (WMO) Mr Rainer Kaltenberger (ZAMG)	0900-1200
<p>The above meeting will be held on the first day between SMA, WMO and ZAMG to clearly state the expected outcome of the mission and the activities that will be carried out in order to achieve the outcome.</p>			



Lunch			
1300-1700	<p>Joint assessment with SMA, WMO and ZAMG of SMA's current service delivery level in the Service Delivery Progress Model (Annex 1 of the WMO Strategy for Service Delivery). The assessment will include:</p> <ul style="list-style-type: none"> • Joint assessment with SMA of their current user engagement processes • Joint assessment with SMA of their current service design and development processes • Joint assessment with SMA of their current production and delivery processes • Joint assessment with SMA of their current evaluation and Monitoring processes 	<p>Mr Vincent Ameli (SMA)</p> <p>Senior staff of SMA</p> <p>Ms Haleh Kootval (WMO)</p> <p>Mr Rainer Kaltenberger (ZAMG)</p>	1300-1700

DAY 2 (WORKING HOURS: 0900-1700)			
0900-1200	<p>This activity will continue from Day 1:</p> <p>Joint assessment with SMA, WMO and ZAMG of SMA's current service delivery level in the Service Delivery Progress Model (Annex 1 of the WMO Strategy for Service Delivery). The assessment will include:</p> <ul style="list-style-type: none"> • Joint assessment with SMA of their current user engagement processes • Joint assessment with SMA of their current service design and development processes • Joint assessment with SMA of their current production and delivery processes <p>Joint assessment with SMA of their current evaluation and Monitoring processes</p>	<p>Mr Vincent Ameli (SMA)</p> <p>Senior staff of SMA</p> <p>Ms Haleh Kootval (WMO)</p> <p>Mr Rainer Kaltenberger (ZAMG)</p>	0900-1200
Lunch			



1300-1700	Discussions on the actual and potential stakeholders and their needs for met/hydro services	<ul style="list-style-type: none">• WMO• ZAMG	1300-1700
DAY 3 (WORKING HOURS: 0900-1700)			
0900-1200	Analysis of the stakeholders needs and use of weather and related information: <ul style="list-style-type: none">• What are the activities of the major stakeholders; how the sector is impacted by weather; how they get information and services from SMA; and what improvements in services they require	<ul style="list-style-type: none">• SMA• WMO• ZAMG	0900-1200
Lunch			
1300-1700	Analysis of the stakeholders needs and use of weather and related information: <ul style="list-style-type: none">• What are the activities of the major stakeholders; how the sector is impacted by weather; how they get information and services from SMA; and what improvements in services they require (continued)	<ul style="list-style-type: none">• SMA• WMO• ZAMG	1300-1700
DAY 4 (WORKING HOURS: 0900-1700)			
0900-1700	<ul style="list-style-type: none">• Report on the level of development of SMA, jointly produced by WMO, ZAMG and SMA• Development of an Action Plan including level of resources, milestones, and types of actions for short, medium and long term, to start improving the Service Delivery level	<ul style="list-style-type: none">• SMA• WMO• ZAMG	0900-1700
	Closure of the workshop		

SMA: Seychelles Meteorological Agency

ZAMG: The Central Institute for Meteorology and Geodynamics, Austria

WMO: World Meteorological Organization