

Supporting the Development and Improvement of National Strategic Plans

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CONTENTS

CONTENTS	2
EXECUTIVE SUMMARY	4
1. INTRODUCTION	7
2. METHODOLOGY	8
3. BACKGROUND ANALYSIS	8
4. RESULTS	12
4.1 Deliverable (a): Comparative study of available national strategic plans.....	13
4.1.1 Background comparison	13
4.1.2 Conclusions	14
4.2 Deliverable (b): Qualitative summary of interviews	15
4.2.1 Questions asked during interviews	15
4.2.2 Key challenges	16
4.2.3 Recommendations and conclusions	17
4.3. Deliverable (c): Key recommendations for the template.....	19
4.3.1 Minimum key elements to be contained in a strategic plan	20
4.3.2 Analysis of the template	23
4.3.3 Analysis of national strategic plans from the template perspective	24
4.3.4 Recommendations for the template	25
4.4 Deliverable (d): Key recommendations for the national strategic plan development process and the guide.....	26
4.4.1 Strengths of the guide	26
4.4.2 Issues to be addressed and possible improvements to the guide	27
4.4.3 Recommendations for the guide	28
4.4.4 General recommendations for the strategic planning process	29
4.5 Deliverable (e): A questionnaire for National Meteorological and Hydrological Service directors	32
5. CONCLUSIONS	36
5.1 Managing change	37

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5.2	Developing planning and quality management tools	37
5.3	Aligning operations and strategy	37
5.4	Enhancing soft skills of staff	38
5.5	Boosting stakeholder engagement.....	39
ANNEX 1. WEATHER AND CLIMATE INFORMATION SERVICES FOR AFRICA		40
ANNEX 2. PROPOSAL FOR A COURSE ON BUILDING A NATIONAL STRATEGIC PLAN		42
ANNEX 3. LIST OF PEOPLE INTERVIEWED		47
ANNEX 4. SUMMARIES OF SELECTED INTERVIEWS		49
REFERENCES		67

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EXECUTIVE SUMMARY

Recognizing that low availability and application of weather and climate services are threatening social and economic development across Africa, the Department for International Development in the United Kingdom of Great Britain and Northern Ireland has formulated the Weather and Climate Information Services for Africa (WISER) programme. The programme aims to deliver a step change in the use and provision of weather and climate information to support poverty reduction and promote socioeconomic development. With support from the WISER programme, National Meteorological and Hydrological Service (NMHS) national strategic plans (NSPs) were developed for East African Partner States, namely Burundi, Kenya, Rwanda, Uganda and United Republic of Tanzania, using the *WMO Strategic Plan Template*¹ and *WMO Integrated Strategic Planning Guide*² for NMHSs. The same template was also used in other countries, using financial support from other development partners. These countries were Benin, Central African Republic, Comoros, Guinea-Bissau, Senegal, Seychelles and Somalia.

This publication showcases the results of an evaluation on the usefulness of the above-mentioned template and guide, as well as providing an understanding of the processes that NMHSs went through in developing their NSPs. It provides information on the usefulness of NSPs and how helpful NSPs are in identifying key products and services needed at the national level and in increasing the visibility of NMHSs. This case study also informs development partners on how to better support NMHSs in preparation and development of NSPs for modernization of their services.

The case study demonstrates the need for NMHSs to design and implement a logical, aligned and costed strategic plan (SP). It also gives guidance to those hydrometeorology service leaders who wish to pursue the ambition of transforming their NMHS from a traditional meteorological office to a modern business entity that delivers services for its customers, including governors of their countries and populations.

Feedback from interviewed stakeholders including NMHS directors was unanimous. The NSP development process helped them to: better understand their environment; define and sometimes redesign their mission, vision and core values; and set themselves

¹ https://www.metoffice.gov.uk/binaries/content/assets/metofficegovuk/pdf/business/international/wiser/nmhs-strategic-plan-template_africa.pdf.

² https://www.metoffice.gov.uk/binaries/content/assets/metofficegovuk/pdf/business/international/wiser/wmo-integrated-strategic-planning-guide_africa.pdf.

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strategic objectives to help achieve the 3–5 year vision of their NMHS. More importantly, it helped to raise the level of visibility of NMHSs, and increase engagement of stakeholders, partners and potential clients. To a certain level, the process of strategic planning helps increase national investment and improve national standing and visibility, as well as mobilize financial resources for specific projects, or parts of projects. In some cases, it also helps to motivate NMHS staff around a change management process, led by a planning unit team.

To improve the guide, emphasis should be put on the importance of strategic planning, that is, that a well-designed SP will increase the strategy execution and strategy evaluation phases. An SP is an excellent tool for strategy definition and a good management tool for strategy execution and strategy communication to lead transformation of NMHSs. The inclusion of questions and practical examples is key, and they should be easy to understand. The guide should insist on the importance of executive leadership for strategy execution, evaluation and communication.

With regard to the template, recommendations are made on to its formatting and key definitions, but also on the content itself, with proposals for enhancing the existing text. It is proposed to add a new global strategy map that would synthesize the overall strategy, with strategic indicators, strategic objectives and organizational perspectives. Adding a paragraph on sustainability in the section on financing the SP is also suggested.

A step-by-step user-friendly tool should be implemented to accompany the strategic planning process, for example through an e-learning platform, which helps NMHS directors and their teams to have a simplified approach. National in-house training on strategic human resources management is also a suggested activity.

For the strategic planning process, some factors are key to ensuring excellence and to being prepared to embrace total quality management as per standard 9001-2015 of the International Organization for Standardization:

- **Assessing NMHS engagement.** There should be a preliminary phase where the maturity of the NMHS in the development of the NSP versus the strategic planning process is assessed. This case study proposes a questionnaire that could be useful to assess, via NMHS directors, the level of maturity in the process.
- **Disseminating the template and guide.** It is of utmost importance that the revised template and guide be communicated to all NMHSs to enable them to begin the process and produce a first draft of an NSP.

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- **Understanding the national planning process**, and knowing national rules and policies when related to hydrometeorology services, water, the environment and so forth. By applying the national planning process, NMHSs will align their strategy to national frameworks and be in a better position to be visible and develop more partnerships.
- **Leading and managing change.** Modernization means implementing a strategy that will guide NMHSs towards operational excellence, and transformation means change, from a “purely hydrometeorology science/technologists mindset” into a “modern business matter” that is credible at the public level (to understand clearly user needs).
- **Engaging with stakeholders.** This is a natural key success factor for a good strategic planning approach, when it comes to initial dialogue on data sharing, on assessing the hydrometeorology value chain and on any business issues related to the level of expected service delivery.
- **Developing products and services and NMHS knowledge management** – for example knowing the priority markets of NMHSs, what clients want, how client needs are communicated, how clients know what NMHSs deliver, how often clients are spoken to, how deliverables are measured against client needs and how data are transformed into services for clients.

NMHSs can add value to products and services delivered, and sustain knowledge management processes to develop business, by managing the change and securing leadership and visibility, ensuring planning and quality management tools, and aligning operations and strategy. Knowing that collecting data is not profitable but essential, and recognizing this is key to understanding the global value chain of NMHSs.

The services provided to clients, which enable clients to make informed decisions on improving socioeconomic sectors, bring economic benefits to NMHSs. This supposes that the structures of NMHSs support their global strategy and are aligned with the vision of a modern organization that includes specialized communication and public relations units, and liaising with stakeholders and other institutional bodies at the national level.

Enhancing staff soft skills within NMHSs and boosting stakeholder engagement are also key elements in delivering an efficient service delivery strategy and bringing stakeholders, including financing partners, closer to NMHSs.

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1. INTRODUCTION

Recognizing that low availability and application of weather and climate services is threatening social and economic development across Africa, the Department for International Development in the United Kingdom of Great Britain and Northern Ireland formulated the Weather and Climate Information Services for Africa (WISER) programme. The programme aims to deliver a step change in the provision and uptake of weather and climate services to alleviate poverty and promote socioeconomic development.

National strategic planning is recognized to be of central importance to the WISER programme as it supports creating an enabling environment for National Meteorological and Hydrological Services (NMHSs) to adequately perform their mandate. This was supported by WISER during its first phase with the development of national strategic plans (NSPs) for Burundi, Kenya, Rwanda, Uganda and United Republic of Tanzania. This activity used the WMO strategic plan (SP) template (hereafter referred to as the template; WMO, 2016a) for NMHSs and the *WMO Integrated Strategic Planning Guide* (hereafter referred to as the guide; WMO, 2016b), developed by WMO and endorsed by the African Union. These NSPs helped define country priorities and national support for Phase II of WISER.

Other countries also used the same template, with financial support from other development partners. These countries were Benin, Central African Republic, Comoros, Guinea-Bissau, Mozambique, Senegal, Seychelles and Somalia, as well as some countries in the Caribbean, Pacific and Asia.

The purpose of this publication is to present the results of an evaluation conducted by a consultant on the usefulness of the template and guide, as well as to provide a clear understanding of the process that NMHSs have gone through in developing their NSPs. Information is given on the usefulness of NSPs, and how helpful they are in identifying key products and services needed at the national level and in increasing the visibility of NMHSs. This publication also informs development partners on how to better support NMHSs in the preparation and development of their NSPs for modernization of their services.

The next chapter describes the methodology used in the case study, and is then followed by a background analysis, results in the form of deliverables and conclusions. The annexes provide additional details on the WISER programme, a proposal for a course on building an NSP, a list of people interviewed and summaries of selected interviews.

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2. METHODOLOGY

During the evaluation, the opinions of consultants who supported NMHSs in developing their NSPs, as well as NMHS directors and focal points, were sought. These interviews focused on:

- How NMHSs are using their NSPs
- If NSPs are linked to the Global Framework for Climate Services (GFCS)³ and other global agreements such as the Sendai Framework for Disaster Risk Reduction 2015–2030 and Transforming our World: the 2030 Agenda for Sustainable Development
- How and if NSPs are integrated at the regional level (for example, with linkages to the African Union Agenda 2063 and the African Ministerial Conference on Meteorology (AMCOMET) Integrated African Strategy on Meteorology (Weather and Climate Services), and at the national level to the national adaptation plans, and other relevant priorities and action plans.

Questions of alignment with government fiscal planning were discussed, as well as challenges and opportunities for NMHS NSPs. Improvement of the development process of NSPs was investigated, through interviews and with a qualitative comparison of NSPs available for the case study. Focus was on stakeholder analysis and environmental analysis. This publication provides an analysis of how the template and guide could be improved, as well as how the process and requirements to develop an NSP can be improved.

3. BACKGROUND ANALYSIS

The first step in this case study was to analyse the tools made available by WMO, specifically the guide and template developed in 2016.

The guide provides a step-by-step approach to strategic planning for NMHSs. It is in English with samples of tools (a strengths, weaknesses, opportunities and threats (SWOT) analysis template, a political, economic, sociological, technological, legal and environmental (PESTLE) analysis, a stakeholder analysis matrix, a Balanced Scorecard (BSC) template and so forth) and comprises three chapters:

³ <http://www.wmo.int/gfcs/>.

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- Introduction – purpose and structure
- Strategic planning – definitions, rationale, and overview of models and phases
- Guide to integrated strategic planning and its phases – preparatory, assessment and analysis, design and define, implementation, performance measurement, and review and modify

Steps outlined in the guide should be used to draft an NSP.

The template is a separate document, proposed for an NMHS SP, and serves as a standard for preparing SPs in accordance with WMO monitoring and evaluation.⁴ It comprises six chapters:

- Introduction – purpose and strategic planning methodology
- Background – organizational history, organization structure and review of key achievements
- Environmental scan – SWOT analysis, PESTLE analysis, stakeholder analysis, baseline analysis, emerging issues and conclusions
- Organizational vision, mission and core values – vision, mission, organizational mandate and core values
- Strategic framework – strategic goals, objectives, strategies, logical framework, risk assessment, communicating the strategic plan and financing the strategic plan
- Monitoring and evaluation – monitoring, evaluation and reporting

The template also contains suggestions of annexes for additional information.

The present case study recommends a simpler approach and more pragmatic usage of the various proposed tools at the national level, especially to ensure future development of NMHSs, through a modernized process that helps improve the delivery of services to key users and sectors. These are synthesized in a set of recommendations on how to improve the tools (guide and template): see deliverables (c) and (d) in Chapter 4.

The case study is embedded in the global objective of the WISER programme, as its ultimate goal is to ensure that the works being analysed here are aligned with the programme. Discussions took place in February 2019 with the project leaders and officers in charge of the programme at the United Kingdom's Met Office, to understand better the context and why this case study was conducted.

⁴ https://www.wmo.int/pages/about/monitoring_evaluation_en.html.

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It is important to note that these activities build on the work of and support the mandate of WMO, which has supported the development of NSPs and conducted training workshops with Regional Association I (RA I; Africa) NMHS directors, in 2015 and 2016,⁵ with the following objectives:

- Raise awareness and enhance capacities of NMHS directors on the strategic planning process, template and guide
- Identify existing best practices in terms of the strategic planning process
- Present the different approaches adopted by NMHSs
- Point out benefits and challenges in an attempt overcome them while developing the strategic planning process
- Determine the level of maturity in the design and implementation of NSPs in Africa

After workshops and preliminary work were conducted, strategic planning process status criteria were defined as shown in Table 1.

Table 1. RA I strategic planning process status criteria

<i>Criteria proposed</i>	<i>Level</i>	<i>Meaning</i>
No SP	1	The country does not have a strategy for its NMHS, or the SP is declared to be obsolete. A strategic planning process has to be identified and promoted within the country.
SP pending	2	The country is working on an SP for its NMHS, or the NMHS is working on its SP. Stakeholders may have been included in the process, but have yet to be verified. No other information is available on the process.
SP exists but not successful	3	The country is working on an SP for its NMHS, or the NMHS is working on its SP. Stakeholders have been included in the process, but the key success factors may not all have been implemented, so the SP is not yet operational. A further study of the process and the content of the SP is needed.
SP exists but alignment needed	4	The country has a strategy for its NMHS, but some work still needs to be done to make sure that alignment to the relevant plans is done (international, regional and national levels). Some adjustments may be needed for an optimized version of the SP.
SP aligned	5	The country has a clear, well-defined strategy and applies the

⁵ Workshop reports are available upon request (for Benin and Kenya, 2015).

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<i>Criteria proposed</i>	<i>Level</i>	<i>Meaning</i>
		five key principles of strategic planning process. The SP exists and is aligned. It comes with an implementation plan that is currently being operated. An annual revision is needed and is planned, in line with a total quality management system.

A full database managed by WMO contains the following information:

- Member State
- Least developed country (LDC): *yes or no*
- Level and strategic planning process – status: *referring to Tab#2 above*
- Country request
- NSP received? *yes or no*
- Template and guide used
- Funding source
- NSP completion date
- Contact at NMHS or consultant
- Date of stakeholder consultations
- Ministries/agencies involved in consultations
- Position of government official who signed the NSP
- Launch of the NSP in the country
- Description of how the NMHS used the NSP
- Cost of developing the NSP
- Total relevant national investment (in United States dollars)

To pursue the first deliverable (a) of this case study (comparative study of available NSPs), it was important to focus on WISER target countries, namely Burundi, Kenya, Rwanda, Uganda and United Republic of Tanzania. The opportunity of adding to the comparative study the latest version of the NSP made available by the South African Weather Service (SAWS) was also taken.

Additional NSPs from Benin, Central African Republic, Comoros, Guinea-Bissau, Senegal, Seychelles and Somalia were used to complete deliverable (b) (qualitative summary of interviews with NMHS directors), to provide a more exhaustive view of where RA I stands with the NMHS NSPs.

Table 2 summarizes NSPs considered for the present case study.

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Table 2. NSPs considered in this case study

Country	Work led by consultants hired by:		
	WISER	WMO	Other
Benin		X	
Burundi	X		
Cabo Verde			X
Central African Republic		X	
Comoros		X	
Djibouti			X
Guinea-Bissau		X	
Kenya	X		
Mozambique			X
Rwanda	X		
Somalia		X	
South Africa			X
Uganda	X		
United Republic of Tanzania	X		

4. RESULTS

The products presented in this publication comprise a comprehensive case study in the form of five (and one optional) deliverables:

- (a) Comparative study of available NSPs;
- (b) Qualitative summary of interviews conducted with NMHS directors, with specific examples of challenges faced in the development of NSPs and how to overcome them in the future;
- (c) Specific recommendations with a rationale on what elements of the template need to be updated;
- (d) Key recommendations on how to improve the NSP development process (including the guide) at the national level to ensure future development of NMHSs, in particular how to improve delivery of services to key users and sectors;
- (e) A questionnaire to be disseminated to NMHSs directors, for a better analysis and possible confirmation of the recommendations listed above;
- (f) Proposal for a course on building an NSP (optional: see Annex 2).

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4.1 Deliverable (a): Comparative study of available national strategic plans

4.1.1 Background comparison

A qualitative comparison of the following NSPs made available for the study was first conducted:

- *Strategic Plan for Development of the Meteorological and Hydrological Activities of Burundi 2017-2021*
- *Kenya Meteorological Department: Strategic Plan 2018-2022*
- *Rwanda Meteorology Agency (Meteo Rwanda) Strategic Plan 1 July 2016 to 30 June 2019*
- *South African Weather Services Strategic Plan 2019/2020–2023/2024*
- *Uganda National Meteorological Authority (UNMA) Strategic Plan July 2017–June 2021*
- *Strategic Plan for Tanzania Meteorological Agency 2017/18-2021/22*

A set of objective criteria was preliminarily selected under the scope of what is defined as a strategy-focused organization by the BSC model developed in the early 1990s as an attempt to help organizations measure business performance using financial and non-financial data (Kaplan and Norton, 2001). In addition, relevant issues were taken into consideration, including the stakeholder analysis and environmental scan.

The key set of criteria taken into consideration for the qualitative comparison can be summarized as follows:

- **What is the maturity in terms of change management?** Managers and executives instil in their staff how important the change is to the organization and provide leadership and support for the change.

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- **How is the strategy translated into operational terms?** It is important to describe the strategic elements to the entire staff, so that everyone understands what they are aiming at and what the goals and objectives of the organization are.
- **What is the level of alignment of the organization to the strategy?** Managers work around organizational barriers to achieve success and work units become linked to the strategy through common goals and objectives, thus creating a synergy that ensures the linkages continue to work.
- **How does the organization ensure the strategy is well communicated and part of daily duties?** It is important that everyone understands the strategy and that all staff understand how they affect the goals and objectives of the organization.
- **Is the whole strategic planning process a continual process?** As the strategy is linked to the budgeting process, it is important to ensure evaluation, monitoring and communication are parts of the strategic planning process.

4.1.2 Conclusions

The first part of this case study has brought to light some good examples of what developed NSPs could contain. Progress can be made in many ways, including:

- The template needs to be simplified and shortened, giving more space to the strategic elements and less to the analysis – see deliverable (c) for details (section 4.3).
- Detailed analysis (SWOT, PESTLE and so forth) should be presented – as a summary in the main text of the NSP, but with details given in annexes.
- The guide needs to be updated with NMHS examples from this case study and include more practical content on how to design and execute the strategic elements (cascading a national mandate to a mission, designing realistic core values that can be measured, providing an easier and more readable logical framework (logframe), using understandable and common language and so forth). The National Meteorological and Hydrological Department of Burundi, Kenya Meteorological Department, Meteo Rwanda, Uganda National Meteorological Authority and Tanzania Meteorological Agency can be contacted for more information and examples.
- A national strategic planning team needs to aid the director/permanent representative (PR) of an NMHS as they cannot work alone in this process, which is related to change management and thus has to be pursued in a collective manner.
- When a national planning framework exists, NMHSs should follow it and also take the opportunity of engaging national planning officers.

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- Hands-on interactive workshops organized by/with the donors/stakeholders/WMO coordinators could be appropriate to help NMHS planning teams, even in virtual modes (such as e-learning) as they are useful tools to capture the necessary information, under the guidance of a mentor/consultant.

4.2 Deliverable (b): Qualitative summary of interviews

People interviewed included directors of NMHSs and consultants, experts and other focal points (from WMO for example) who contributed to the strategic planning process in the following countries: Benin, Burundi, Cabo Verde, Central African Republic, Comoros, Djibouti, Guinea-Bissau, Kenya, Mozambique, Rwanda, Senegal, Seychelles, Somalia, South Africa, Uganda and United Republic Of Tanzania.

4.2.1 Questions asked during interviews

To proceed with this deliverable, a series of questions was built based on the objectives of the present case study to:

- Evaluate the usefulness of the existing template and guide
- Give a clear understanding of the processes that NMHSs went through in developing their NSPs
- Inform on the usefulness of NSPs
- Show how helpful NSPs are in identifying key products and services needed at the national level and in increasing the visibility of NMHSs
- Understand how to better support NMHSs in the preparation and development of NSPs for modernization of their services

The following questions were asked during the interviews (face to face, telephone, WhatsApp, Skype and email), conducted over the period January–March 2019:

(a) Which country and organization/NMHS do you represent/work for?

(b) From your perspective, how is the NMHS using the NSP you contribute to?

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- (c) Was the NSP designed so it links to GFCS and/or other global agreements (for example, the 2030 Agenda and the Sendai Framework), regional plans (the African Union Agenda 2063, AMCOMET Integrated African Strategy on Meteorology and so forth) and at the national level to the national adaptation plans, and/or other relevant priorities and action plans?
- (d) Was the development of the NSP aligned to the government's fiscal planning; if so, was it useful? Was the NSP used to provide inputs? If not, what were the challenges and how did it affect the outcome of the NSP?
- (e) Did a stakeholder engagement meeting take place? If so, which key stakeholders were invited, for example, representatives from the ministries of planning, economic development and finance?
- (f) Has the NMHS developed a costed implementation/work/operational plan for the NSP with timelines? If so, has the NSP and its costed implementation/work/operational plan been adopted by the government to improve funding for weather and climate services?
- (g) From your point of view, how can the development process be improved?

Annex 4 provides a summary of selected interviews and answers to questions (a)–(g). Key challenges raised during these interviews, as well as recommendations and conclusions, are given below.

4.2.2 Key challenges

For most interviewed directors and key management staff, there was general agreement that change management is important. However, in the Africa region where many LDCs are struggling with the first step of development, staff remain technical. They do not necessarily know and understand the modern concept, which lies in transforming mindsets from a purely hydrometeorology science/technologists mindset into a modern business matter that is credible at the public level, and which will take into consideration the whole value chain of the hydrometeorology components and bring to all stakeholders the adapted service delivery.

The telecommunications industry has, in the past decade, rearranged its organizations around key competencies related to the rapid development of new technologies such as the Internet. NMHSs, which provide hydrometeorological services for the benefit of the population, should also align with modern methods and consider that it is time, even for LDCs, for change and for new services and products to be developed and offered to clients from all socioeconomic sectors.

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4.2.3 Recommendations and conclusions

The interviews conducted helped to better understand the challenges during the development of NSPs and how to overcome them in the future. Recommendations and conclusions are summarized below.

4.2.3.1 Management and leadership

- **Enhance the leadership of directors, PRs and their advisers**, with management training workshops that include sessions on planning and a programme of management through e-learning (an effective tool that should not be in English only, but in all six languages of the United Nations).
- **Build task force teams** at NMHSs for the strategic planning process, with clear commitment to contributing to the design and costing of projects that bring innovative solutions for the modernization process. The planning teams should be trained with the help of external consultants who can work with them, raise awareness through workshops, develop tool-kits and so forth.
- **Develop a strategic planning process that is clear for all**, with major steps agreed by PRs and their teams, during engagement workshops, where the template is accepted. Action plans should be set up and followed, where focal points in all departments are identified and tasked.
- **Appoint a relevant focal point (not the PR) in each service/department** to drive the strategic planning process – someone in a senior position who knows about strategic planning process.

4.2.3.2 Change management

- **Conduct coordinated subregional workshops, round tables and training**, to help transform the purely hydrometeorology science/technologist mindset into a modern business matter that is credible at the public level (to clearly understand user needs and bring the adapted service delivery).
- **Build a better communication strategy**, which can be referred to in the NSP, but which should be a separate and comprehensive document, like the operational plan should also be.
 - **Produce documents that give more credibility to the NSP**, for example:
 - (a) A socioeconomic study;
 - (b) A business plan;
 - (c) A concept of operations document;
 - (d) Donor/developer meetings reports including a monitoring/follow-up action plan;
 - (e) A communication strategy.
- **Train key staff in project development** and implementation so they all understand how they can fundraise for their NMHS projects.
- **Build a “train-the-trainers” kit and community** all around the region, and build the WMO strategic planning consulting team.

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4.2.3.3 Stakeholders

- **Engage stakeholders**, including representatives from the ministries of planning, economic development and finance, who would participate in a review of the NSP.
- **Conduct a strategic marketing analysis** (usually found in the business plan) to better understand the dynamics of national co-partners, and co-design/co-work with them, develop a weather enterprise model at the national level and start by doing the analysis (building the case/marketing analysis).
- **Hold seminars/workshops on stakeholder follow-up** to help NMHS directors/PRs who do not have a planning unit or planning competencies to continue discussing service delivery and development of new products with relevant sectorial stakeholders.

4.2.3.4 Products and services

- **Enhance capacities in performing basic services** (a human resources/competencies audit might be necessary first).
- **Develop an efficient service delivery package** (maybe with three separate perspectives: the operations, the service delivery in terms of products and the science/research part), where an impact-based forecasting services study would be a good complement to the NSP. *The WMO Strategy for Service Delivery and its Implementation Plan* (WMO, 2014), Appendix 1, gives details of the WMO approach.
- **Conduct user workshops and meetings, and develop excellent relationships with the NMHS user community** (including multidisciplinary groups at the national level in different sectors: agriculture, disasters management, forestry, health, environment, national climate change community and so forth) where products and services are discussed.

4.2.3.5 Template and guide

- **Simplify the language and harmonize terminology** in the NSP for climate services/hydrometeorological services/NMHSs.
- **Develop a simplified template** to enable local action, while maintaining a high-level approach for the NSP.
- **Focus on the results expected and deliverables in the guide** (SWOT analysis, PESTLE analysis, stakeholder analysis, logframe, risk management, communication plan, strategy map, BSC approach and so forth).
- **Use e-learning and face-to-face workshops/courses/tools** for a good “learning by doing” approach – it is necessary to work on a global programme of capacity development on strategic planning process for NMHSs.
- **Provide national in-house training on strategic human resources management** (managing staff with regard to their job descriptions, soft evaluation, objectives and so forth).

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4.3. Deliverable (c): Key recommendations for the template

Based on the study findings, specific recommendations are proposed in this section, with a rationale on what elements of the template need to be updated and improved.

The analysis and recommendations have been prepared together with Ms Yujie Zhu, seconded expert at WMO, Development and Regional Activities and Director, Development of Strategic Studies, at the China Meteorological Agency (CMA). At CMA for example, the planning team are asked questions such as:

1. Who are the authorized agencies or senior managers of this plan?
2. Who is the audience of the NMHS, that is, who will implement the NSP and who are the target beneficiaries?
3. What are the legal functions and tasks of the NMHS, that is, what is the legal status of the NMHS?
4. What are the challenges and opportunities faced by the NMHS, and what are the strengths and weaknesses of the NMHS? What are the needs of the State and society?
5. With regard to the statutory functions and taking into account the environment and national and social needs, what is the long-term vision of the NMHS? What are the 5 year objectives? What are the key monitoring indicators? What are the main strategic tasks? What are the major projects?

The answers to these questions determine the strategic thinking and planning framework. For example, the third question determines whether the NMHS is purely for public welfare or if it provides profitable meteorological services. The above five issues are the main core of strategic planning. By answering the questions, an excellent and concise SP can be completed.

A simple SWOT analysis of the template was conducted, and compared with other similar templates for the same purposes.

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4.3.1 Minimum key elements to be contained in a strategic plan

Using a template provides a simple and quick outline to organize the planning process. Even if NMHSs have not necessarily followed the WMO template, the key elements should be present. As long as they have designed an SP, it should mean that they understand that an NSP for their NMHS is a road map to growing their business.

Many websites exist from which templates can be downloaded. Recommended key elements include:

1. Executive summary, preface, foreword and signatures of high-level representatives;
2. Organizational description (for example, mandate, mission, vision and values);
3. Strategic analysis (PESTLE, SWOT and stakeholder) and conclusions on key issues;
4. Operational plan of activities (details of who does what and for how long, and so forth);
5. Monitoring and evaluation (key performance indicators and so forth);
6. Communication of the plan (planning team, communication activities, budget and so forth);
7. Financial projections (for each year, long term and so forth).

Generic definitions of the key elements proposed above are given below.

4.3.1.1 Executive summary

This should be completed last, as it summarizes the plan. This section is important as it will help other key stakeholders, such as clients, government bodies, donors, development partners and more generally stakeholders to quickly understand and support the plan. It should be at a high level and not provide too much detail.

It is important to give credibility to the SP. Thus, it needs to be signed by high-level representatives to whom the decision makers of the organization report. Typically, this could be a page with approval signatures from the board of directors or senior management, including the minister in charge of the NMHS.

This page could instead be a foreword and/or preface as they reinforce the commitment to the SP.

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4.3.1.2 Organizational description

This outlines the organization’s history, products and services and accomplishments. It includes the mission, vision and value statements.

Values provide the reader with a sense of key priorities in the organization, for example, teamwork, integrity and customer focus.

The mission statement explains what the business is about. For internal decision-making, the mission statement guides internal staff at executive level to make the aligned decisions. For external parties, such as investors, partners and customers, the mission can inspire them to support the planned activities.

The vision identifies where the organization intends to be in the future: it should be in the form of a short sentence that inspires the staff, that anyone can memorize easily and that guides the business to success within the next 3–5 years.

The presentation of the structure of the organization will help ensure that the NMHS has the human resources to execute the identified opportunities and to achieve the goals established.

4.3.1.3 Strategic analysis

This gives an overview of the SWOT analysis, which is basically an environment analysis. Issues need to be clearly identified: what are the challenges to overcome and what are the main emerging issues now and for the next 5 years?

Overall strategies (strategic pillars, overall goals, strategic objectives, measures to be taken at the higher level and so forth) should be listed. This section gives details about the best opportunities to pursue to achieve the vision. Setting and achieving goals are the hallmarks of a successful organization and are a critical element of the SP.

First identify the 5 year or longer-term goals. The stakeholder analysis is also part of the strategic analysis; by identifying what the users or clients want and need, the organization can focus development efforts (including marketing, business development and investment in technology) on what helps to achieve the vision. Stakeholders include partners from industry and the private sector in general, but also universities and other institutions. It is important to define the so-called “competitive advantage” and ways to develop additional advantages.

4.3.1.4 Operational plan of activities

This outlines responsibilities and timelines for each activity listed, which aligns to the strategic objectives. The operational plan helps transform goals and opportunities into reality.

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Strategic projects are identified in this part. Each of the initiatives are mapped, ideally in a Gantt chart, so the NMHS strategic planning team knows when each project will start and who will lead it.

4.3.1.5 Monitoring and evaluation

It is critical to identify at least one strategic indicator per strategic objective. Criteria for monitoring and evaluation should be designed to ensure responsibilities in a systematic process for measuring progress. All modern businesses understand their metrics and key performance indicators. Tracking the proper indicators indicates how to perform better and adjust.

4.3.1.6 Communication of the plan

Getting the plan to the right stakeholders at the right time is crucial to success. First, it should be determined who should be getting the plan and precautions taken about where it is sent to. The NMHS strategic planning team need to keep in mind that there are different levels of confidentiality to take into consideration and that not all detailed strategic information should be disclosed to any audience. For example, staff might not require knowing the detailed baseline of human resources, and what is planned in the capacity development part, as it might raise hopes, when the NMHS cannot guaranty activities will take place. However, key stakeholders should be on the distribution list; for example, the minister in charge of the NMHS, the minister in charge of finance and planning in the country, and the board of directors of the NMHS. Employees should at least have a summary, to help secure their buy-in (they must know exactly what is expected of them).

4.3.1.7 Financial projections

An overall budget needs to be established, detailing amounts needed for each activity. Resources and funding needed to achieve the strategic goals are to be clearly linked to indicators as well. This part of the SP presents the financial model used to determinate the financial resources, together with a mobilization scheme. A financial plan should be developed for each year. A paragraph on sustainability is highly beneficial, as investments must be sustainable. Many development projects focus on meeting NMHS demands for more observations; however, sustaining this capability is difficult and the benefit of the investment is often short-lived.

Convincing governments to follow borrowing with investment to sustain public services is a challenge – one for which there is no easy remedy. Convincing development partners that donating equipment without providing the resources to maintain that equipment is equally challenging.

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4.3.2 Analysis of the template

The template presents a comprehensive package for NMHSs to develop their NSPs. A brief analysis was conducted during the case study, with positive issues highlighted and other items that could be either redefined or updated identified (see Table 3).

Table 3. Analysis of the template

<i>Positive points</i>	<i>Negative points</i>
<p>Generally well presented in terms of format</p> <p>The foreword and preface allow engagement of high-level representatives</p> <p>The executive summary is clear and easy to understand</p> <p>Gives precise referenced information, for example to <i>The WMO Integrated Strategic Planning Guide</i>, section 2.2, Rationale for strategic planning, p. 5</p> <p>Allows the use of different methodologies</p> <p>Generally has a brief explanation for the instructions</p> <p>A good example is the review of key achievements, which is well explained and illustrated</p> <p>The “lessons learned part is welcome, as it gives NMHSs a different way to summarize and give conclusions on the analysis</p> <p>The action plan section (Annex 4) is efficient and aligned with modern techniques of project management</p>	<p>Not always easy to differentiate between which template parts are to be filled in and the instructions</p> <p>Does not provide a recommended maximum length for each chapter</p> <p>The terminology is not always clear, and can create confusion (for example, “environmental scan” could be changed to “environmental analysis”)</p> <p>Contains too much on the analysis and not enough on the strategic objectives</p> <p>When referring to strategic goals, objectives and strategies, these terms need to be explicit as they may cause confusion: a strategy is composed of all these elements</p> <p>It is too long and needs a full training kit, in addition to the guide, to be understandable</p> <p>Questions for the global analysis may not be relevant, and may need revision</p> <p>Explanations and definitions about the SWOT analysis need revision</p> <p>Differences between outcomes and expected results are not clear; they should lead to indicator definition</p> <p>There is no difference between operational and strategic indicators (these shall either be numbers or percentages)</p> <p>Key elements are not referred to in the template, for example, the action plan</p> <p>Some of the examples related to strategies may cause some confusion</p>

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4.3.3 Analysis of national strategic plans from the template perspective

Analysing the NSPs made available allowed key elements to be identified, focusing on the changes to be made, especially critical parts, such as those presented in bold text in Table 4.

Table 4. Key elements of the existing template and possible improvements

<i>Key element in existing template</i>	<i>Description and possible improvement</i>
Foreword signed by the minister responsible for meteorology and preface signed by the NMHS head	Key element, should be signed by high-level representatives
Executive summary	Key element, should be no longer than two pages, and focus on the strategic elements of the plan
Contents	Important for clarity
Introduction	Important for setting the scene
Purpose of SP	Important but needs to be brief
Strategic planning methodology	Important but needs to be brief, with text in an annex if necessary
Background	Important but needs to be brief, with text in an annex if necessary
Organization history	Important but needs to be brief, with text in an annex if necessary
Organization structure	Important but needs to be brief, with text in an annex if necessary
Review of key achievements	Should be a summary
Environmental scan	Key element, should be no longer than two pages
SWOT analysis: assessment and analysis of organizations strengths, weakness, opportunities and threats	Key element, should be a summary, with additional text in an annex if necessary
PESTLE analysis	Key element, should be a summary, with additional text in an annex if necessary
Stakeholder analysis	Key element, should be a summary, with additional text in an annex if necessary
Baseline analysis of institutional, human and infrastructure capacity	Should be a summary, with additional text in an annex if necessary

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<i>Key element in existing template</i>	<i>Description and possible improvement</i>
Emerging issues	Important but needs to be brief
Conclusions from environmental scan	Key element as it is the link between analysis of the past/present and future
Vision	Key element
Mission	Key element
Organizational mandate	Key element, should be a summary, with additional text in an annex if necessary
Core values	Key element
Strategic framework	Key element as it is the response to the gaps between past/present and future; however, logframe should be simplified
Strategic goals, objectives and strategies	Key element of the strategy, with a simplified logframe approach
Communicating the SP	This important part should be summarized here and refer to a separate document presenting the communication strategy
Financing the SP	Key element of the strategy; a subpart on sustainability should be added
Monitoring and evaluation	Key element of the strategy
Reporting	Key element of the strategy

Note: **Bold text** signifies critical parts.

4.3.4 Recommendations for the template

Based on the above comparative findings, Table 5 summarizes recommendations for improving the template.

Table 5. Recommendations for improving the template

<i>Category of recommendation</i>	<i>Recommendation</i>
Formatting and definitions	Use coloured codes of, for example, what parts need to be filled in, what are instructions and what are comments Add a definitions page: vision, mission, objective, indicator and SWOT analysis; change “goals” into “expected results” Some parts could be already filled in, such as common parts on the purpose, common methods and global plans
Content of the NSP	The executive summary should summarize the content, and be written after drafting the NSP Clearly indicate what SWOT analysis means (and give examples of a template)

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<i>Category of recommendation</i>	<i>Recommendation</i>
	<p>Align the mission and organizational mandate</p> <p>Evaluation and monitoring: clearly state and give examples of strategic indicators</p> <p>Simplify the logframe approach and propose a simpler tool/table that summarizes the expected results, the strategic objectives, the strategic indicators, the key activities/initiatives and the allocated/necessary budget per year</p> <p>Give ideas about the expected length of each chapter</p> <p>Review the section on strategic goals, objectives and strategies</p>
New content	<p>Include a strategy map that synthesizes the overall strategy</p> <p>Incorporate a paragraph on sustainability in the section on financing the SP</p>
Improving knowledge of using the NSP template	<p>Use e-learning and face-to-face workshops/courses/tools for a better “learning by doing” approach; a global programme of capacity development on strategic planning process for NMHSs is needed</p> <p>Provide national in-house training on strategic human resources management (managing staff with regard to their job descriptions, soft evaluation, objectives and so forth)</p>

Annex 2 provides a proposal for a course on building an NSP.

4.4 Deliverable (d): Key recommendations for the national strategic plan development process and the guide

4.4.1 Strengths of the guide

The guide offers a solid reference for all NMHSs intending to start a strategic planning process. Strengths are listed as follows:

- There is a good summary of the content of strategic planning guide, with a proper definition of goals, using a holistic approach
- A participative approach is encouraged, within NMHSs and with external stakeholders
- There is a strong emphasis on the preparation phase, which is crucial
- It is a well-presented document

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- Examples are relevant, especially when they relate directly to the hydrometeorology community
- It contains practical and understandable graphs, for example to give an overview of the planning process
- Some of the text is simple and clear, with relevant quotes (for example, “This is where you dream big!” and “If you fail to plan... then you plan to fail...”)
- The use of step-by-step approaches and simple tables is interesting and easy for those who are unfamiliar with the topic

4.4.2 Issues to be addressed and possible improvements to the guide

The points listed here intend to justify the recommendations made below. From the analysis conducted, it is believed that the guide:

- Is complex and long, with too many items. It is complicated for someone who is not familiar with strategic planning. For example, the stakeholder analysis section looks at the competition or collaborators – “who else is addressing these needs or problem?”. And the section on the design and define phase contains the wording “For the purpose of this guidance document, defining the organization’s vision is recommended as a first step in the mission, vision and values process.”
- Contains some information in the introduction that is not related to strategic planning but is related instead to the WMO mission, which may create some confusion.
- Does not need to present all types of strategic planning models – just three, which are relevant for WMO and its Members, would be sufficient.
- Contains concepts that are mentioned but not described (3Cs, Porter’s five forces and 7Ss).
- Uses terminology and word choices that are not always clear (for example, the design/define phase may be better termed as strategy definition, strategy execution, strategy evaluation and so on).
- Does not always ask the relevant questions, such as those linked directly to the rationale of the strategic planning process.
- Is sometimes confusing (for example, “What are the resources, capacities and weaknesses of external actors in helping to address vulnerability or alter these

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trends?” is not clear). The question of strengths and weaknesses should be addressed separately (especially weaknesses and not just for external actors).

- Lacks explanation – there is a large amount of information but the link with NMHSs is not given (for example, for PESTLE analysis, it should be explained more clearly that the organization will look only at the elements that have a positive or negative impact on the organization).
- Asks sometimes confusing questions that are not directly connected to the topic (for example, in the mission section: “Can the mission survive changes in administration?”, when this is better addressed in the risk analysis section).
- Lacks relevant and good examples including for SWOT analysis.
- Contains too much information and is difficult to understand (for example, in the section on articulate objectives, “In other words, your organization’s work (over one or more strategic planning periods) would have caused a particular outcome (or change) to occur”).
- Uses performance measure examples that are not the most relevant (for example, “Percentage change in partner’s financial contribution to research and product testing”) and may be too operational (just product testing). For responsibility, it is better to refer to the position of the officer in charge (for example, the planning officer) whenever possible, to identify more precisely the staff responsibilities within the organization.
- Lacks information regarding the objectives of the evaluation process. Information regarding decision-making, communication on progress, showing that change is possible and positive, and so forth needs to be added.
- Lacks true differentiation between the strategic and operational dimensions.

4.4.3 Recommendations for the guide

The following are recommendations for improving the guide:

- The importance of strategic planning (and not the WMO objectives) should be reinforced in the introduction of the guide – well-designed strategic planning will increase the strategy execution and strategy evaluation phases. An SP is an excellent tool for strategy definition and a good management tool for strategy execution and strategy communication to lead NMHS transformation.
- There should be some examples of SP models, including the BSC model.
- There should be a focus on specific tools and examples to conduct a strategic analysis (with examples in an annex: 3Cs, Porter’s five forces, 7Ss and so forth),

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together with a complete BSC and PESTLE description, and they should be more related to NMHS activities.

- Questions and practical examples should be included: How to define a vision? How to define a mission? How to define goals? What is the vision for the future?
- The importance of executive leadership for strategy execution, evaluation and communication should be given, and the vision, mission and values should be communicated and cascaded.
- A step-by-step user-friendly tool should be implemented to accompany the process (for example, an e-learning platform, a massive open online course or an application).
- A simplified approach to strategic planning should be given, with a short guide that could eventually be coupled with a comprehensive flyer in all six United Nations languages with graphs and diagrams.
- Emphasis needs to be placed on key issues such as service delivery, risk management and the alignment principle.

4.4.4 General recommendations for the strategic planning process

4.4.4.1 Assessing National Meteorological and Hydrological Service engagement

There should be a preliminary phase, where the maturity versus strategic planning process is assessed. A tool for this would be deliverable (e), a proposed questionnaire that could be useful to assess, via NMHS directors, the level of maturity in the process. This will help to better understand:

- How much engagement is given by the NMHS executive team, including the directors
- How far the NMHS is from forming a strategic planning unit or team that would be committed and contribute to the design and costing of projects that bring innovative solutions for the modernization process
- How ready the NMHS is to accept the support of an external expert (or two) who could provide guidance to the SP team and review actions with management

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4.4.4.2 Disseminating the template and guide

It is of utmost importance that the revised template and guide (in the six United Nations languages) be communicated to all NMHSs, to enable them to begin the process and attempt to develop a first draft of their NSP.

4.4.4.3 Understanding the national planning process

The process of national engagement starts by improving knowledge of the national planning rules and policies. Applying the national planning process will substantially help NMHSs align to national frameworks and be in a better position to be visible and thus for their plans be adopted. It is highly recommended that once an NMHS wants to design its strategy, it asks the relevant national planning and finance authorities what policies and guidelines exist so they can start the exercise. It is the first step to a good stakeholder analysis

4.4.4.4 Change management and leadership

Interviewed NMHS directors understood that one of the key success factors lies with enhancement of their leadership and with their NMHS visibility at the national level. The major challenge has been to prove to governments that this is good for the country, its population and its goods. One recommendation would be to conduct a regional baseline on the impact of director leadership on the performance of NMHSs, and a second one to increase leadership capacities of NMHSs. This would automatically lead to the transformation of behaviours and perspectives when looking at NMHSs, during transformation of the purely hydrometeorology science/technologists mindset into a modern business matter that is credible at the public level. The issue of PR leadership is a key question all along the strategic planning process.

4.4.4.5 Engaging with stakeholders

Engaging stakeholders in the strategic planning process seems obvious, but it is not always optimally done. In some cases, stakeholder meetings/forums take the form of presentations rather than true exchanges on their needs in terms of products and services. A dialogue needs to be engaged on the data-sharing policy, on the hydrometeorology value chain, and on the business issues related to the level of expected service delivery. An exercise could be to plan working sessions on the template, and get stakeholder inputs on the stakeholder analysis table and the logframe tool, including the strategic indicators directly or indirectly linked to their areas.

Key success factors should be taken directly from responses to the following questions:

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- How do NMHSs gain better visibility and links to the national level, to national adaptation plans, and to other relevant priorities and action plans at national level?
- How do NMHSs optimize dialogue with national disaster management authorities?

An important issue is the follow-up of stakeholder seminars, workshops, meetings and so forth and the relevant organization within NMHSs, especially when they do not have the internal planning resources to continue the benefits of discussing service delivery and new products with those stakeholders every NMHS is supposed to meet at least once a year. Annual review of the SP is a minimum requirement and needs to be aligned with national/governmental policies and cycles. The development process in the upgrade/modernization of NMHSs is improved through annual review of NSPs by NMHS senior managers together with stakeholders.

4.4.4.6 Products and services, service delivery, value chain and knowledge management

Key questions that need to be understood by NMHSs and addressed precisely when starting the strategic planning process are:

- What are the three priority markets of the NMHS?
- What do clients want?
- How are client needs communicated?
- How do clients know what the NMHS delivers?
- How often are clients spoken to?
- How are deliverables measured against client needs?
- How are data transformed into services for clients?

If these questions are properly answered, an efficient and effective service delivery strategy can be designed and implemented, with emphasis on the development of new services and the promotion of the NMHS towards stakeholders from the public and private sectors. These are key success factors for adoption at the highest level for an optimal modernization process and adequate resource mobilization.

A sustainable strategy is one that will look at the operative level and is also able to distinguish products and services and build a long-term service delivery plan that includes scientific and research stakeholders from the critical socioeconomic sectors, depending on the country and subregion.

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Strategic planning is a good approach to recall the foundation and history of hydrometeorology in the country. It is important to manage this memory through a convenient knowledge management platform, which needs to be digitalized and safeguarded for future generations. It needs to be possible to easily access historical collected data, from when observations were recorded manually, for a better understanding of tomorrow's climate.

4.5 Deliverable (e): A questionnaire for National Meteorological and Hydrological Service directors

As an output of the case study, a questionnaire for NMHS directors has been developed, based on the above analysis and synthesis. It could be in the format of a Google form or similar through the Moodle e-learning platform, and should help survey and monitor:

- The recommendations listed in the deliverables of this publication
- The strategic planning process conducted by NMHSs

The questionnaire presented in Table 6 should be completed with all relevant suggestions, including those of other parties such as experts of the WMO strategic planning unit, before being disseminated to NMHS directors.

The model that inspired this questionnaire is the 7S framework developed by McKinsey & Company (2008), which structures an organization around seven Ss: Strategy, Structure, Skills, Staff, Style, Systems and Shared values.

The model has been adapted so it is relevant to the present context and helps NMHSs analyse their own organization to be better prepared for the future. Accordingly, the different areas to be questioned are as given in Figure 1.

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Figure 1. Areas for the NMHS director questionnaire



The answers to the questions in Table 6 will allow NMHSs to determine the current status in each of seven fields.

Table 6. Questionnaire for NMHS directors

<i>Area</i>	<i>Question</i>
Strategy	How do you see your NMHS in the next 5 years?
	How do you define it in a short and inspiring vision?
	What has your NMHS accomplished in the past 10–15 years?
	What is your mission statement?
	What are the major gaps between what the NMHS is achieving now and the 5 year vision?
	How is your NMHS going to develop?
	What should the organization do more of?
	What are the key strengths as of this moment?
	What are the foundational elements that you should increase or at least proactively maintain?
	What should the organization quit doing, if any?
	What are the desired outcomes of the NMHS?
Shared values	What are the key elements of your history since the NMHS started to operate?
	What are the general behaviours found in most of your staff?

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Area	Question
	What are the five words that best describe your organization?
	Do these words align with the culture and values of the NMHS you lead and intend to develop?
Structure	How do you define your structure?
	Does this help you achieve your vision?
	Is the structure helping the NMHS staff deliver what is expected?
	If not, how can this be overcome?
Staff skills	Do employees have the necessary knowledge and skills to do their jobs?
	How will you engage and empower the talent in your NMHS?
	Who are the service delivery champions within your NMHS?
	How do you involve staff in improving service delivery?
	How is career development managed within the NMHS?
	Do you have a strategic human resource management plan?
	Do you have a capacity development plan aligned with the strategy?
Stakeholder engagement	How often does the NMHS meet with its key stakeholders?
	Who are the stakeholders? Please categorize.
	What do the stakeholders expect from the NMHS?
	Who are the NMHS partners, donors and competitors?
	How can you develop the relationship with your key stakeholders?
	Have you conducted a stakeholder analysis?
Service delivery	Who uses the products and services you deliver?
	How do you know what your users want?
	How are user requirements gathered and documented to facilitate the development of products and services?
	How do you use developments in science and technology to improve service delivery?
	How can the NMHS improve the product and services offered?
	What type of innovative service does the NMHS intend to develop in the next 5 years?
	How are the clients and users/beneficiaries changing and what might they want in the future?
	Have you documented your service delivery processes?
Systems	What are the processes and tasks that performers carry out to produce the desired outcomes?
	What standards or indicators are currently used to measure performance of these processes and tasks?

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<i>Area</i>	<i>Question</i>
	What processes do you have in place for engaging with your users?
	What documentation do you maintain to define the products and services you deliver?
	How are users kept informed when products and services are changed?
	How do you verify the accuracy, quality and effectiveness of the products and services you deliver to users?
	How are the results of the verification of accuracy, quality and effectiveness of service delivery used to improve the products and services you deliver to your users?
	How do you communicate the changes in your service delivery process to your customers and users?
	What mechanisms are in place to enable your staff to be educated in the principles of service delivery?
	What mechanisms are in place for documenting the roles of staff and their individual training requirements?
	How do you measure quality in your NMHS?
	How do you monitor success and strategy in your NMHS?

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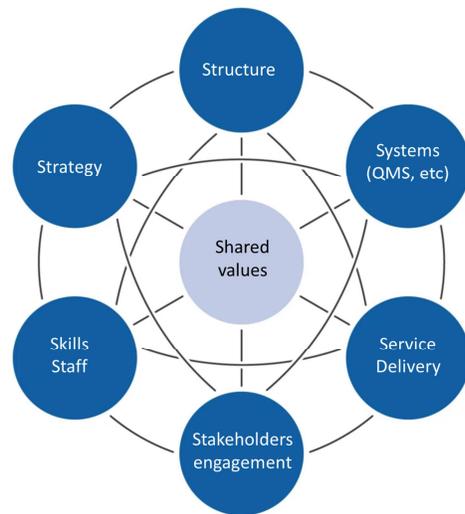
5. CONCLUSIONS

This publication has demonstrated the need for NMHSs to design and implement a logical, aligned and costed SP. It also gives guidance to hydrometeorology services leaders who wish to pursue the ambition of transforming their NMHS from a traditional meteorological office to a modern business entity that delivers services for its customers, including governors of their countries and populations.

Feedback from interviewed key stakeholders, including NMHS directors, was unanimous. Following the NSP development process helped them to: better understand their environment; define and sometimes even redesign their mission, vision and core values; and set themselves strategic objectives to help achieve the 3–5 year vision of their NMHS. Importantly, it helped directors raise the level of visibility of NMHSs, and increase the engagement of stakeholders, partners and potential clients. To a certain level, the process of strategic planning proposed by the WISER programme in partnership with WMO helps to mobilize financial resources for specific projects, or parts of projects. In some cases, it also helps to motivate NMHS staff around a change management project, led by a planning unit team.

Figure 2 gives the key success factors for an optimized national strategic planning process, when an NMHS wants to modernize and implement its strategy.

Figure 2. Key success factors for the NMHS strategic planning process



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5.1 Managing change

Strong leadership and change management are key factors in modernizing NMHS providers. It is important that any changes are visible at national, subregional and international levels. NMHSs should be responsible for adapting their human resources to understand changes and to try to limit resistance to change.

A strategic planning process team should be identified to liaise with stakeholders for an efficient service delivery and design of a business plan. This team should also monitor the process of cost recovery, look to generate funds and oversee the development of new projects. This process is well defined in the *WMO Strategy for Service Delivery and its Implementation Plan* (WMO, 2014).

Change does not happen overnight. The process can be visualized as happening in three phases:

- Phase 1 – preparing for change, including identifying points of resistance and undertaking readiness assessments
- Phase 2 – managing change, including the creation of a resistance management plan
- Phase 3 – reinforcing change, including collecting feedback and looking for pockets of resistance

5.2 Developing planning and quality management tools

NMHS providers can raise the credibility of their services and planning tools by implementing a quality management system, such as International Organization for Standardization 9001 certification. By gaining certification from a quality management system, NMHSs providers prove they deliver high-quality services that are effective and efficient. Furthermore, by embedding a risk management tool and a monitoring and evaluation process for new services, NMHSs can increase their performance on different levels, such as economically, technically, and from the perspectives of human resources and processes.

5.3 Aligning operations and strategy

Operations that are not aligned with an organization's strategy are not profitable in the long term. Strategy aims should be closely aligned with projects being undertaken to ensure that results meet the goals of all stakeholders involved. By aligning all internal

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activities and initiatives to the strategy, value can be added to the products and services delivered, and help to sustain a knowledge management process.

It is a good idea to develop an alignment indicator that incorporates how different parts of the modernization plan should align. This could include how the organization structure aligns to the NMHS overall vision, how the capacity development plan aligns to the organization needs and how financial resources integrate with the capacity development plan.

A measure of the alignment could be comprise qualitative and quantitative indicators such as:

- Degree of organizational structure alignment (how the structure is in line with the vision)
- If the capacity development plan fits the organizational needs
- If the financial resources integrating the capacity development plan are sufficient
- The ratio of government to total income, allowing a minimum of 5–10% extra generation revenue
- The number of memorandums of understanding/contracts signed with private sector/other socioeconomic sector
- Existing business plan
- Existing financial investment plan
- Existing communications/marketing plan

5.4 Enhancing soft skills of staff

Services can be improved by enhancing the soft skills of NMHS staff and by auditing their performance on a regular basis. Therefore, human resources management is an important process within an NMHS modernization plan. It is essential that good working conditions are provided, adequate budgets for human resources are assigned and a proper environment for the staff to learn is provided. By offering schemes, such as employee benefits for good work, NMHSs can ensure staff loyalty and high service quality.

To develop this, NMHSs should undertake a comprehensive stakeholder engagement process, which includes the implementation of a capacity development programme covering several key areas, such as communications, negotiation and conflict resolution, risk/crisis management, media relations and stakeholder dialogue techniques.

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5.5 Boosting stakeholder engagement

The development of a single project implementation unit, which is in charge of the project's service delivery, will help with stakeholder engagement. This unit should be responsible for communicating with all stakeholders the service delivery strategy, finance details and marketing plans. This will bring all stakeholders closer together and ensure complete visibility throughout the project.

Linkage with GFCS, through the National Framework for Climate Services, is key to success, and also with other programmes developed by the WMO Secretariat (<https://public.wmo.int/en/programmes>).

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ANNEX 1. WEATHER AND CLIMATE INFORMATION SERVICES FOR AFRICA

The Weather and Climate Information Services for Africa (WISER) programme's mission is to make a step change in the quality, accessibility and use of weather and climate information services at all levels of decision-making for sustainable development in Africa. The programme:

- Focuses on service delivery, directed by user needs, that support poverty reduction and development
- Works holistically to inform climate risk decision-making, bringing together research, policy and practice
- Works with regional, national or subnational plans, that involve users
- Works through existing and mandated organizations and channels where possible and appropriate

WISER is funded with aid from the British people in the United Kingdom of Great Britain and Northern Ireland, and delivers maximum value for money by working in partnership and collaboration, and by capacity-building and leveraging funds to ensure long-term sustainable delivery and improvement of weather and climate services in Africa.

WISER initially provided £ 35 million over 4 years to enhance the resilience of African people and of economic development to weather-related shocks. The WISER programme has two main parts:

1. A pan-African programme (£ 10 million) focusing on improvement of the governance and enabling environment for weather and climate services. This will predominantly be achieved through support to the Africa Climate Policy Centre and through that to the African Ministerial Conference on Meteorology and WMO. This will have the primary focus of advancing co-development and uptake of the needs-based, user-led weather and climate services to strengthen the enabling environment, including donor coordination, protocols for sharing data, running the Climate Research for Development initiative and a fellowship programme.

2. A regional programme (£ 25 million) focusing on the Lake Victoria Basin and surrounding region (Burundi, Ethiopia, Kenya, Rwanda, Uganda and United Republic of Tanzania), aimed at improving the quality and relevance of weather and climate information and supporting its uptake and use. It is envisaged that this regional initiative will provide a proof of concept to inform the development of other regional initiatives in potential subsequent phases. The United Kingdom's Department for International

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Development has commissioned the Met Office to act as fund manager for the Lake Victoria Basin part of the programme.

Key requirements for the WISER programme are that: (a) investments are made in line with agreed regional and national strategies and plans, (b) it provides a vehicle for better coordination of activities within the weather and climate sector, (c) it attracts more investment into the sector and (d) investments are directly linked to improved service delivery.

Find out more about the programme at <https://www.metoffice.gov.uk/about-us/what/working-with-other-organisations/international/projects/wis-r>.

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ANNEX 2. PROPOSAL FOR A COURSE ON BUILDING A NATIONAL STRATEGIC PLAN

The table below contains a proposal for a step-by-step course to be facilitated by consultants who have been using the strategic plan (SP) template¹ and know about its strengths and weaknesses. It should be translated into all United Nations languages.

Proposal for a course on building a national strategic plan (NSP)

Module 1	The basics: why it is important for National Meteorological and Hydrological Services (NMHSs) to design their SP
Content	<p>Global view on strategic planning (history, plan–do–check–act (PDCA) and so forth)</p> <p>Different models (for example, the Balanced Scorecard)</p> <p>Recall the four key perspectives of strategy building (human resources/process/finance/clients)</p> <p>Understand the step-by-step approach: build the team and so forth</p> <p>Become familiar with the guide and template</p> <p>Decide on the method and be ready to use the template</p>
Quiz/questions	Answer a series of simple questions, aimed at understanding how much the participants are convinced to pursue the course
At the end of the module	The permanent representative (PR)/director/team will be convinced that they need an NSP for their NMHS (if they are not, they should not pursue the course)
Module 2	Building a strategic planning team

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https://www.metoffice.gov.uk/binaries/content/assets/metofficegovuk/pdf/business/international/wiser/nmhs-strategic-plan-template_africa.pdf.

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Content	<p>Identify key people within the organization (plus, eventually, an external consultant)</p> <p>Organize a workshop to engage the team into the process</p> <p>Communicate internally (high-level representatives and key managers)</p>
Quiz/questions	Write a one-page profile (include a group photograph) about the SP team
At the end of the module	The NMHS has an SP team and the director/PR is not alone and can start designing the NSP; they have communicated the process internally and to a higher level (ministerial)
Module 3	Conduct a strategic analysis
Content	<p>Use the template to conduct a strategic analysis including the following:</p> <ul style="list-style-type: none"> • Context: history, mandate, achievements and lessons learned • Political, economic, sociological, technological, legal and environmental analysis • Stakeholder analysis • Strengths, weaknesses, opportunities and threats (SWOT) analysis • Conclusion of the SWOT analysis with emerging issues
Quiz/questions	Write a summary that concludes the strategic analysis (mention the tools and how difficult it was to use them)
At the end of the module	The NMHS SP team has scanned and analysed all internal and external factors to plan for the future
Module 4	Planning for the future: define a strategy
Content	<p>Define the mission (based on the mandate: “Future starts now”)</p> <p>Define the core values and principles (based on expected behaviour)</p> <p>Design the vision: give a picture of the future NMHS; one short sentence: what is the global ambition and two or three key differentiators (must be short and inspiring)</p>

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	<p>Design the strategy foundations:</p> <ul style="list-style-type: none"> • Key expected results (impact in the template, to be aggregated) • Strategic pillars/axes (goals) • Define the strategic objectives (outcomes) while respecting the logical approach of the four perspectives: human/capacity development, internal process, financial/budget and beneficiaries/clients <p>Define the strategic indicators (output/for each objective, number of development partners/new financial partners)</p> <p>Compile all in a strategy map summarizing mission, vision, values, objectives and indicators, while respecting the perspective</p>
Quiz/questions	Prepare a strategy map that summarizes everything; the quiz shall also help understand and measure how difficult the teamwork has been
At the end of the module	The NMHS SP team has defined all strategic elements to establish the strategy
Module 5	Designing for the future: step into the pluriannual action plan
Content	<p>Use the template to prepare a table (Table 7, “Sample action plan”, to be simplified) and:</p> <ul style="list-style-type: none"> • Define activities for each objective, with the logframe approach • Define the finance figures for each activity
Quiz/questions	The table will be the outcome/result of this module (include information about the level of difficulty)
At the end of the module	The NMHS SP team is nearly ready to implement the action plan
Module 6	Monitoring and evaluation: build a reporting dashboard
Content	<p>Explain how the NMHS will monitor the performance and evaluation (see Chapter 6 of the template)</p> <p>Chose the method (for example, data collection, PDCA and</p>

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	<p>standard ISO 9001-2015 of the International Organization for Standardization) that will help continuous improvement (internal audits, management reviews, success stories, communication on progress, challenges overcome, corrective measures, possible review of strategy and so forth)</p> <p>Build the dashboard (either through a manual Excel file or through automated simple tools using business intelligence) with the following entries:</p> <ul style="list-style-type: none"> • Strategic objectives • Strategic indicators (outcome) • Baseline • Target • Data source • Data-collection method (explained in more detail above) • Frequency • Responsibility
Quiz/questions	The dashboard will be the outcome/result of this module (questions about the level of difficulty to achieve it can be raised)
At the end of the module	The NMHS SP team has a performance monitoring tool
Module 7	Building a communication/dissemination plan
Content	<p>Useful pointers about developing SP communication can be easily coached through an e-learning course:</p> <ul style="list-style-type: none"> • Hold a staff meeting (or forum if the NMHS is big) to present the SP; face-to-face communication is always more effective • Highlight certain parts of the plan in the organization's newsletter to reinforce messages to employees (if a newsletter does not exist, then create it) • Make sure employee feedback is allowed for on the plan and encourage discussion • Use the SP to help develop marketing tools, but ensure external

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	<p>partners sign a confidentiality agreement</p> <ul style="list-style-type: none"> • Ensure the look of the plan and printed or web communications are consistent and reflect the modernized NMHS image
Quiz/questions	The plan of communication and reports of activities listed above will be the outcome/result of this module (it would also be a good exercise to help the team pitch the organization strategy; the pitch could be coached through webinars)
At the end of the module	The NMHS SP team has designed a comprehensive communication plan to support good dissemination of the strategy. (In addition to the communication plan, a comprehensive marketing plan could describe how NMHSs will sign contracts with their key stakeholders and partners, attract new developers and so forth, and convert them to paying customers and maximize sustainability.)
Module 8	Finalizing the SP
Content	<p>The remaining parts of the SP are written, including the following:</p> <ul style="list-style-type: none"> • Preface and/or foreword • Signatures of high-level representatives • Executive summary • References and other remaining items
Quiz/questions	How difficult was it to get the SP signed at a high level?
At the end of the module	The NMHS SP team has a complete and finalized SP ready for dissemination
Module 9 (optional)	Identify and detail the strategic projects
Content	Use the activity plan to select the most appealing and value added products and services to design so-called strategic projects, detailing beneficiaries, and milestones
At the end of the module	The NMHS has a portfolio of strategic projects

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ANNEX 3. LIST OF PEOPLE INTERVIEWED

<i>Name</i>	<i>Position</i>	<i>Country/organization</i>
Kokou Marcellin Nakpon	Permanent representative (PR)	Benin
Aloys Rurantije	PR	Burundi
Camille Loumouamou	Consultant	Burundi
Ester Brito	PR (former) Ministério da Agricultura e Meio Ambiente/advisor to the minister	Cabo Verde
Athanase Yambele	PR	Central African Republic
An-Ynaya Bintie Abdouzarakou	Former PR, Agence Nationale de l'Aviation Civile et de la Météorologie (ANACM)	Comoros
Hakim Youssouf	PR, Technical Director of the Meteorology Department, ANACM	Comoros
Samuel Mwangi	Director of Kenya Meteorological Department	Kenya
Ephantus Nyaga	Consultant	Kenya
Adérito Celso Félix Aramuge	PR	Mozambique
Nyree Pinder	Consultant	Mozambique
John Ntaganda	PR	Rwanda
Munyarugero Jean	Meteo Rwanda representative	Rwanda
Becky Venton	Consultant	Rwanda
Magueye Maramé Ndao	PR, Director-General of the Meteorological Agency, Agence Nationale de l'Aviation Civile et de la Météorologie	Senegal
Mariane Diop Kane	Deputy Director General	Senegal
Mactar Ndiaye	Consultant	Senegal
Vincent Amelie	PR	Seychelles

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<i>Name</i>	<i>Position</i>	<i>Country/organization</i>
Steve Palmer	Consultant	Seychelles
Omar H.M. Shurie	PR	Somalia
Evans Mukolwe	Consultant	Somalia
Mnikeli Ndabambi	PR	South Africa
Festus Luboyera	PR	Uganda
Charles Basalirwa	Consultant	Uganda
Timiza Wilbert	Senior meteorologist	United Republic of Tanzania
Philbert Tibajuka	Consultant	United Republic of Tanzania
Bill Leathes	Weather and Climate Information Services for Africa (WISER), technical lead	WISER-UK
Adam Curtis	WISER technical lead	WISER-UK
Rebecca McCoy	WISER fund programme manager	WISER-UK
John Mungai	WISER project manager	WISER-UK
William Nykwada	Consultant	WMO
Jay Wilson	Senior programme manager	WMO
Félix Hounton	Former programme manager	WMO
Joseph Mukabana	Former Director of WMO Regional Office for Africa and Least Developed Countries (AFLDC)	WMO
Ernest Afiesimama	Programme officer for AFLDC	WMO
Bernard Gomez	Representative for Western, Central and Northern Africa	WMO
Mark Majordina	Representative for Eastern and Southern Africa	WMO
Linia Mashawi	Consultant	

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ANNEX 4. SUMMARIES OF SELECTED INTERVIEWS

The table below provides responses of some of the interviewees to the following questions:

- (a) Which country and organization/National Meteorological and Hydrological Service (NMHS) do you represent/work for?
- (b) From your perspective, how is the NMHS using the national strategic plan (NSP) you contribute to?
- (c) Was the NSP designed so it links to the Global Framework for Climate Services (GFCS) and/or other global agreements (for example, the Transforming our World: the 2030 Agenda for Sustainable Development and the Sendai Framework for Disaster Risk Reduction 2015–2030), regional plans (the African Union Agenda 2063, the African Ministerial Conference on Meteorology (AMCOMET) Integrated African Strategy on Meteorology and so forth) and at the national level to the national adaptation plans, and/or other relevant priorities and action plans?
- (d) Was the development of the NSP aligned to the government's fiscal planning; if so, was it useful? Was the NSP used to provide inputs? If not, what were the challenges and how did it affect the outcome of the NSP?
- (e) Did a stakeholder engagement meeting take place? If so, which key stakeholders were invited, for example, representatives from the ministries of planning, economic development and finance?
- (f) Has the NMHS developed a costed implementation/work/operational plan for the NSP with timelines? If so, has the NSP and its costed implementation/work/operational plan been adopted by the government to improve funding for weather and climate services?
- (g) From your point of view, how can the development process be improved?

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Summaries of selected interviews

Question	Answer
	<p>Joseph Mukabana, Former Director of Kenya Meteorological Department (KMD) and Director of WMO Regional Office for Africa and Least Developed Countries (AFLDC)</p>
a	KMD, Kenya
b	<p>The NSP is a very important tool/instrument for the development of any NMHS.</p> <p>First, the NMHS must be synchronized with priorities in the government national development plan (GNDP), which is a development blueprint with a vision on when the country should assume developed status. GNDP in Kenya has a 5 year cycle called a medium-term plan (MTP).</p> <p>Second, from the NSP, an implementation/work/operational plan is developed, which is costed and has a timeline. The cost or budget constitutes the total funding level required and must be for the upgrade or modernization of the NMHS, and includes the following components:</p> <ul style="list-style-type: none"> • Infrastructure (buildings for operations, staff houses, access roads, electricity, water, observatories, offices and so forth) • Observation network of stations and systems (instruments) • Telecommunication network and systems for rapid data exchange • Data processing, analysis and forecasting systems at the Central Forecasting Office • Product dissemination system for service delivery to the users of meteorological services • Climate database management system for data archiving • Human capacity development to produce personnel with requisite expertise, skills and competences <p>Hence, the NSP is used to access funds from the government for the upgrade</p>

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Question	Answer
	or modernization of meteorological services (infrastructure and personnel)
c	<p>Yes, the NSP developed was linked to GFCS (because the NSP addresses weather and climate). The NSP was also linked to the global multilateral environmental agreements that include the Sendai Framework, the Sustainable Development Goals (SDGs) as well as regional plans, notably the African Union Agenda 2063 on the “Africa we want” and national adaptation plans.</p> <p>This linkage/connection was brought about because the NSP was aligned to the country’s national development blueprint called The Kenya Vision 2030, which aims to transform Kenya into a newly industrialized nation by 2030 and has three pillars – economic, social and political – that are aligned with regional and global development agendas. The three pillars are anchored in the foundations of macroeconomic stability; infrastructural development; science, technology and innovation; land reforms; human resource development; security, public sector reforms and a national value system.</p>
d	<p>Yes. As explained above, the NMHS must be aligned to and synchronized with priorities in the government fiscal planning enshrined in GNDP, which has a 5 year cycle and is reviewed within MTPs. GNDP is a development blueprint with a vision on when the country should acquire a developed status.</p> <p>The NSP was very useful because the budgeting process in the NSP implementation/work/operational plan was reviewed annually by the government in line with the country’s financial year. This enabled the government to release funds annually to the NMHS for ongoing projects in support of modernization of meteorological infrastructure and services.</p>
e	<p>Yes. Stakeholder engagement took place in the form of a producer–user engagement for weather and climate services during the Regional Climate Outlook Forums, which were organized and held just a few weeks before the onset of the seasonal rainfall. The producer–user engagement enabled the NMHS to understand what services different customers require and to provide products to user sectors that include agriculture, water resources, public health, energy and disaster management, tourism,</p>

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Question	Answer
	<p>building/construction and transport (land, air and water).</p> <p>Representatives from the ministries of planning, economic development and finance were invited to participate during the design and development of the NSP.</p> <p>For the government to issue development funding to the NMHS in support of its projects for modernization or upgrade, economists from the Ministry of Economic Planning and Development and financial officers from the Ministry of Finance must be involved in the design and development of the NSP and its costed operating plan/work plan, which has a timeline.</p> <p>The Ministry of Finance considers only projects that are designed and developed by the Ministry of Planning and Economic Development.</p>
f	<p>Yes, the NMHS developed a costed implementation/work/operational plan for the NSP with timelines as indicated above. And yes, the NSP and its costed implementation/work/operational plan have been adopted by the government to improve funding for weather and climate services.</p>
g	<p>The development process in the upgrade/modernization of the NMHS could be improved through annual review of the NSP by senior managers of the NMHS with stakeholders. The annual review must be in line with the government's MTPs.</p>
	<p>Nyree Pinder, Met Office, United Kingdom of Great Britain and Northern Ireland, and consultant, Instituto Nacional de Metereologia (INAM), Mozambique</p>
a	<p>INAM started to engage in the strategic planning process a few years ago, using it as a tool for mapping projects on a global perspective, with a detailed operational plan for all projects and mapping the stakeholders at national and international levels. Together with design of the values–vision–mission–objectives model, INAM is using the NSP in monthly meetings and for aligning resources – with a communication and marketing tool.</p>
b	<p>References are made in the NSP, but it still remains very “high level”; friendly community spaces are yet to be created. Maybe better communication could</p>

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Question	Answer
	ease the process.
c	The NSP and the operational plan align generally to World Bank documents: fitting with the standards eases and engages donors in INAM projects and activities.
d	A very good activity in gathering the stakeholders was performed at INAM, with workshops raising awareness about the strategic planning process, with groups built around games to understand better relations between stakeholders (disaster risk reduction agency, hydrology agency and so forth) and INAM. There were inception visits at the early stages of the strategic planning process and then another series of workshops six months later (activity mapping where donors and government were asked to discuss and propose solutions for resource mobilization) over a period of 2 years. The process did not include the ministries of planning and finance at first, but they are now engaged to allow alignment of the INAM NSP to the national planning process.
e	Yes, as when the NMHS wants to buy equipment, it needs to provide all costed elements. But as of February 2019, the INAM NSP had not yet been adopted.
f	<p>The latest version of the NSP is not yet available; the results framework is still missing as it is a difficult tool to design. Ideally, there should be improvements that include:</p> <ul style="list-style-type: none"> • A network for a sustainable National Framework for Climate Services (NFCS) with an “impact-based forecasting services” approach • A simplified language and harmonized terminology when it comes to NSPs for climate services/hydrometeorology services/NMHSs • A better communication strategy, which can be referred to in the NSP, but which should be a separate and comprehensive document, like the operational plan should be as well • E-learning and face-to-face workshops/courses/tools could be better used for a proper “learning by doing” approach: a global programme of capacity

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Question	Answer
	<p>development on the strategic planning process for NMHSs needs to be worked on</p> <ul style="list-style-type: none"> The NSP alone is not sufficient in the planning process; it needs to be completed by a socioeconomic study, a business plan, a concept of operations document and complete donor/developer meeting reports including a monitoring/follow-up action plan
	<p>William Nykwada, Bernard Gomez and Mark Majordina, WMO officers, Regional Office for AFLDC</p>
<p>a</p>	<p>The resource officers mentioned above have contributed highly to the development of various NSPs in the region, including:</p> <ul style="list-style-type: none"> Uganda, where the key issue was to first conduct a re-structuring of the organization Zambia, which is still under negotiation: development partners are already helping out and different areas of improvement have been identified; the NSP was done in 2017 Sierra Leone, as WMO has helped launch the NSP process in the region Liberia, which launched and started the process in 2015–2016 <p>Africa was the region where the template and guide were first endorsed in meetings held in Zambia in 2016, and where countries decided that strategies would be developed in 2017–2018, with plans for up to 5 years. Now is a monitoring/evaluation period and NSPs should be checked again in the next 4–5 years.</p>
<p>b</p>	<p>Generally, the strategic planning process is a new concept to many NMHSs in the Africa region. Even though many have implemented a planning process, a lot of advocacy still needs to be done. After reviewing a few countries in the region, some remarks can be drawn:</p> <ul style="list-style-type: none"> The template is not always applied The NSP helps design strategies for the NMHS The global goals are mentioned as references, but not really

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Question	Answer
	<p>connected to daily activities</p> <ul style="list-style-type: none"> • There is an issue about the buy-in of leaders, either directors of the NMHSs or leaders at the government level • When started, it is verified that the process helps to engage with national authorities, such as the Ministry of Finance, the ministry responsible for meteorology/hydrology, and it usually means a kick-off for the NSP design, and then implementation after adoption; but it takes time
c	<p>There are some linkages to the national development plans, the ones of the line ministry in charge of meteorology/hydrology, and indeed the NSPs refer to general frameworks (Sendai Framework, GFCS, SDGs and so forth), but these do not seem to have much influence/affect when it comes to cascading to the operations of the NMHS: these are usually treated as background documents.</p>
d	<p>In the case of Rwanda; yes definitely, as explained in more detail below by the permanent representative (PR), the Met Director and the consultant who contributed.</p> <p>In other cases, challenges have been to transform the “traditionally built on Met authority” into a “modern service delivery platform for all socioeconomic sectors”, and at the same time delivering advisory services for natural disasters to the government, and maintain the data quality database as a public good.</p> <p>Competition is becoming strong in the region, where for example IBM is becoming an advanced hydrometeorology service provider thanks to the Internet of Things, and other companies are coming as well (Weather Services International, Amazon Web Services and so forth), so the model is more in a cooperation mode with NMHSs, rather than to compete.</p>
e	<p>Yes, in some cases, stakeholder engagement has been very well organized and has contributed highly to the design of the NSP.</p> <p>For example, in Liberia, rubber plantations are very important as an industry; specific climatology reports are produced and the private sector (for example,</p>

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Question	Answer
	<p>the Goodyear company) invited.</p> <p>In many countries, agrometeorology bulletins are supposed to be produced, but a close relationship with agriculture actors is to be yet developed. It is difficult to understand what they expect.</p> <p>Relevancy with stakeholders needs to be regularly monitored. Although the process might be different from one NMHS to another, establishing a good relationship with the government (ministry in charge of hydrometeorology/finances) is always an added value for the well-being of citizens. Therefore, the key starting point is to engage with the stakeholders, and agree with them on what the expectations are, so as to build a relevant implementation/operation plan.</p>
f	Not always, but the key issue here is to present realistic figures.
g	<p>Key questions raised and ideas for improvement:</p> <ul style="list-style-type: none"> • How to work with partners versus seeing them as competitors • How to maintain basic services • How to simplify the documents to enable local action, while maintaining a high-level approach for the NSP • How to develop the proper dialogue with the national disaster management authorities • How to design an efficient service delivery package (maybe with three separate perspectives: the operations, the service delivery in terms of the product and the science/research part) • How to link better to the national level to the national adaptation plans, and to other relevant priorities and action plans at the national level • How to enhance leadership at the NMHS level (PRs and advisers) • How to simplify the tool proposed by the WMO template/guide (logframe is difficult to understand, risk management is very useful and stakeholder analysis is very important to develop the proper service delivery platform) <p>Overall, these seem to be a change management issue.</p>

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Question	Answer
	<p>Félix Hounton, WMO officer; and Kokou Marcellin Nakpon, Director-General (DG) and PR, Météo Bénin, Benin</p>
a	<p>A consultant, under the leadership of the WMO officer, conducted, in mid-2016, the first mission to design the NSP following WMO tools. The mission focused on the stakeholder analysis, and since then the NSP has been improved. However, implementation is still in progress, as the ministry in charge needs to ensure key conditions are in place, such as the proper statutes with an application act – under consideration since September 2018 – to form the agency of meteorology services. On a good note, under the new government, statutes have been proposed and voted on, but they have not yet been approved and applied.</p>
b	<p>There have been several proposals for revenues to be generated specifically for meteorology services (from the aeronautical sector), and recent decisions at government level have empowered the NMHS.</p> <p>So yes, the NSP aligns to the national plans, and on a more regional level, there are projects of climates services being developed jointly with other countries (for example, Togo), with a validation workshop held in March 2019.</p>
c	<p>The NSP takes into consideration the national allocation for the meteorology component, but budgets do not yet allow large investments for what Météo Benin needs. So other sources of finance are being studied with a view to being applied (for example, from marine transportation).</p>
d	<p>Stakeholder one-to-one meetings were performed in 2016, and a comprehensive report was presented in the NSP. Since then, follow-up has been conducted, especially with some of the socioeconomic sectors such as energy, merchant marine and agriculture (pluri-disciplinary groups installed).</p> <p>New services/products have been designed (forecasts taking into account modern information systems).</p>
e	<p>It was not done in 2016, but the planning office within the ministry in charge of the NMHS is doing this currently, together with the DG.</p>

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Question	Answer
f	The focus will be on organizing seminars/workshops on stakeholder follow-up to help the NMHS with no planning resources to continue the benefits of improving service delivery and development of new products that meet user needs.
	Ester Brito, Past President, Former PR, Instituto Nacional de Meteorologia e Geografia (INMG), Cabo Verde
a	A consultant was hired in 2018 by WMO to perform the stakeholder analysis and thus help complete the NSP process that was started in early 2018 locally. The NSP was finalized in September 2018 by the consultant and submitted for approval by the INMG Board. As a reminder, it was the second round for the 2019–2023 period after the first one was designed for 2013–2017. The INMG Board was changed in September 2018 and an updated version was proposed at the end of 2018 to the INMG Board, chaired by the new president. It is currently still under the ministerial validation process. The NSP has helped formation of a strategic planning team within the organization and for ideas/projects to be consolidated by INMG experts and leaders. The process has helped the organization start the change process.
b	Although global references are included in the last version of the NSP, regional and national frameworks are being cascaded, which aligns activities with INMG goals. The important link to the global framework is through disaster risk reduction actors and lies in the GFCS process, which allows Cabo Verde to work on an NFCS. Workshops with WMO on GFCS have been progressing well, taking into consideration the national development plan (PEDS) of Cabo Verde.
c	PEDS has an associated budget (to be reviewed in 2021, every 5 years) for all projects that align to it, in all key socioeconomic sectors, including environment (to which INMG reports). As these allocated governmental funds are not sufficient, development partners from Cabo Verde and from outside are welcome to contribute to co-design and co-development of meteorological and climate services.
d	Yes, different engagement meetings with stakeholders took place, during the

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Question	Answer
	consultant's mission in July 2018, mainly at their premises, on the two main islands (Santiago and Sal). Socioeconomic sectors represented were from all industries and services (aviation, agriculture, health, commerce, tourism, energy/water, environment and so forth), but the ministries of planning, economic development and/or finance were not met.
e	Yes, the NSP has a costed implementation plan, and it has been submitted to the Environment Ministry for approval. As all projects listed are not in the budgetary line of the government, donors and development partners are called to co-design and co-implement solutions for INMG modernization.
f	<p>From experience at INMG since 2013, the key challenge has been to gather a task team around the strategic planning process, and get engagement and commitment to contribute to the design and costing of projects that bring innovative solutions for the modernization process. On top of this, changes at the board level have not helped to stabilize the focus on this process by all staff. However, it seems that 2019 brings in new management that will liaise much better with the ministry (Environment) so that the institutional issue (which is internal to Cabo Verde) does not interfere with the change process.</p> <p>It is still recommended that the strategic planning process be led by one or two experts, who provide guidance to the task team and ask top management to regularly review the NSP.</p>
	Athanase Yambele, PR, Meteo Centrafrique, Central African Republic
a	The first project in 2016 was led by a WMO consultant who helped the PR, Director of Hydrometeorology, to fill in the NSP template. At that time, there was a plan to transform the Direction Générale into a separate agency, with a working group that was supposed to help reorganize. Then, the government decided to go back to the initial structure.
b	The global agreements, together with the regional and national ones, are mentioned and cascaded only on a theoretical basis.
c	A simple approach of validation by the Director of Cabinet at the ministerial level has been conducted so far. A copy of the NSP was delivered to them. A

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Question	Answer
	new structure is still under evaluation with a possible transformation from the Direction Générale, which reports to ANAC (Civil Aviation Agency), into a separate meteorology agency – Meteo Centrafrique. This has been happening since early 2018.
d	The stakeholder analysis template was sent to departments from the main socioeconomic sectors of the country, only representatives from the Ministry of Transportation, and the civil aviation and agriculture sectors are regularly met. However, a table summarizing stakeholder engagement is presented in the NSP and validated by the PR.
e	The NMHS has developed a costed implementation plan, including activities and timelines, with the help of the consultant. But it has not yet been adopted by the government.
F	The major challenge has been to prove to the government that this is a good change and transformation process for the country and its population.
	An-Ynaya Bintie Abdouzarakou, Agence Nationale de l’Aviation Civile et de la Météorologie (ANACM) (Former PR); and Hakim Youssouf, Technical Director of the Meteorology Department, PR, Météo Comoros, Comoros
a	A consultant was hired in 2016 by WMO to co-design together with DT Meteo (the technical department in charge of meteorological issues in the country) the first draft of the NSP. Although a first draft was circulated for some time, under the guidance of the now retired director, it was the first time they would start a strategic planning process that followed the WMO guidelines. The idea came from a December 2015 workshop held in Benin organized by WMO, which Comoros participated in. The 2 week mission together with remote work allowed preparation of a first draft in early 2017, which has not been officially adopted so far. The main reasons for this are the change of leaders, elections at the highest level and another round of institutional changes. A comprehensive stakeholder analysis was performed and thus helped complete the NSP process that was engaged. The strategic plan (SP) is currently used as a reference document in the development of DT Meteo,

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<i>Question</i>	<i>Answer</i>
	which is currently being considered by partners in future projects.
b	The NSP took into account the global, regional and national agreements and frameworks, in particular those taken considered by the various strategic documents of Comoros, such as the Accelerated Growth and Sustainable Development Strategy 2015–2019.
c	The NSP, together with the implementation costed activity plan, aligns to the development strategy of Comoros, so it should also be aligned to the finance/budgetary cycle. However, the validation work was not performed at the ministerial level. The NSP is clearly a helpful tool to promote a modernized Météo Comoros and should be used to develop service delivery for all stakeholders, from all socioeconomic sectors. So far, no plan for financial autonomy has been proposed, so Météo Comoros still reports to the DG ANACM, the national civil aviation general directorate, under the Ministry of Transport.
d	A few changes have been made at the Comoros country level (vice-presidency, minister in charge of the Météo component and so forth), which is slowing down the validation process. However, contacts with stakeholders are not interrupted, and regular meetings happen with the civil protection authorities, the civil aviation authorities, the transportation ministry, as well as tourism, small industries/craft and so forth, which are being consulted to formalize partnerships. The NSP has been used formally to provide information to donors for certain activities (for example, the World Bank in the case of new automatic weather stations for agrometeorology purposes and the United Nations Development Programme for the purpose of training 14 staff in meteorology).
e	Yes, a costed implementation/work/operational plan has been done and is embedded in the NSP. However, it has not yet been adopted by the government.
f	The WMO template was followed, even though it was new to the organization: it brought new tools that were not known about before, such as strengths, weaknesses, opportunities and threats (SWOT), political, economic, sociological, technological, legal and environmental (PESTLE) and

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Question	Answer
	<p>stakeholder analysis, and offered opportunities to be more visible when meeting with potential clients.</p> <p>By adapting existing services, developing new services and promoting the Meteo Department to stakeholders, the NSP process has been very helpful. However, so far, it has not been adopted at the highest level, which is slowing down the modernization and enhancement of services. Resource mobilization is key to enhancing NMHS capacities, but first they need to be stabilized before trying to become an autonomous entity.</p> <p>WMO may help in linking its Members with governments, for example by organizing national workshops where stakeholders are invited and including the finance ministry, as well as development/economical partners.</p>
	<p>John Ntaganda, PR; Munyarugero Jean, Meteorology representative; and Becky Venton, consultant, Rwanda Meteorology Agency (Meteo Rwanda)</p>
a	<p>There is currently a government 5 year cycle strategic planning process, with a mid-period review.</p> <p>Meteo Rwanda has a planning department that was set up a few years ago, and which is now incorporated in the organizational structure (it was an external advisory from the Ministry of Infrastructure before 2014), under the Environment Ministry. The United Kingdom’s Met Office has been involved since 2017 and initiated key analysis (SWOT, PESTLE, emerging issues, vision–mission–core values, stakeholder, key outputs/goals and so forth) with the local team also based on the previous SP.</p>
b	<p>The global frameworks are mainly GFCS/NFCS, which has been a long dialogue process, as to understand how to talk about the services and expectations. It was very important to set up the NCC (National Climate Committee) with one representative of the NMHS and work on a risk management table. Alignment is understood to be key to the national frameworks, as otherwise the NMHS strategy will not be credible, and donors will not partner in the meteorology activities of the country.</p>

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Question	Answer
c	The NMHS has understood the change process key issues, with quality management as a tool to anchor change. It has realized that alignment to the government cycle (7 year period) is needed and that the next NSP should incorporate a transformation process document (2017–2024).
d	Stakeholders were met officially for the previous NSP design, not as a full engagement process for this period.
e	The costing process is already in place.
f	<p>The main challenges are:</p> <ul style="list-style-type: none"> • Engaging the team: include a consultant from outside to work with the team • Using the existing format of the WMO template is not easy (Word/Excel) • The language of the template for the logframe is not uniform and appears complex with lots of terms • The risk management table might not be so easy to apply <p>To improve, including a section on national planning might aid understanding of the level of maturity in the NMHS planning process. Also, it could be interesting to conduct a regional benchmark on the impact of the PR leadership on the performance of the NSP.</p>
	Vincent Amelie, PR; and Steve Palmer, consultant, Seychelles Meteorological Authority
a	Definitely yes, with a PR very much involved and very committed to engage in the process.
b	Very focused on the local needs, with challenges to cascade the global agreements to the local level.
c	No significant problems, again, focused on local actions.
d	Stakeholders have been interviewed through individual meetings, on a one-to-one basis.
e	The PR and their team provided this information to WMO already.

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Question	Answer
f	There was a pilot phase to test the template, which was found to be useful, with a strong tool, namely logframe, that helped design the global logic of the NSP and committed the team to continue and have collective discussions on strategic matters.
	Mnikeli Ndabambi, Acting Chief Executive Officer and PR South Africa, South African Weather Service (SAWS)
a	There has been historical implementation of the SAWS strategic planning mindset together with its finalization through the planning unit at senior manager level in the structure, in 2017. So yes, the NSP process is important and it is used to work collectively on strategic themes, like addressing SAWS markets (aviation, disaster risk reduction, health and so forth). Since the 2013 act amendments that established the SAWS mandate from the national department, the strategic planning process also allowed enhancement of the quality of the information system, with quarterly reports to the national department and information on the scientists' backgrounds if needed. It also helped structure a "met authority" position reporting to the Chief Executive Officer, to oversee International Civil Aviation Organization requirements for SAWS to provide excellence in aviation services, and to evaluate relevance and effectiveness, instrument compliance and so forth.
b	The SAWS NSP primarily aligns to the Ministry of Environmental Affairs strategic framework, and then partly to other key global plans, including the requirements of WMO and AMCOMET. However, it refers to these only when it comes to activities and when alignment is possible. For example, it aligns to GFCS in the sense that there is an NFCS in South Africa since its first design in 2015), which confirms that owing to collaboration among SAWS, the National Disaster Management Centre, emergency services and other role players, early warning systems and readiness have been improved.
c	As the NSP process is fully aligned with the national process, the budgetary issues follow the same 5 year plan rules, with an annual review of performance. Challenges mostly concerned risk management. The International Organization for Standardization (ISO) 31000 approach was followed, which benefited the NSP and thus the organization. Risks affecting

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Question	Answer
	organizations can have consequences in terms of economic performance and professional reputation, as well as environmental, safety and societal outcomes. This ISO 31000 standard provides guidelines and principles for managing these types of risk to help SAWS improve identification of opportunities and threats and effectively allocate and use resources for risk treatment.
d	SAWS has in its structure an executive corporate and regulatory affairs unit, which manages communication and stakeholders (coordination with the regional offices, provision of material and so forth). So yes, stakeholder engagement meetings take place regularly, and representatives from the Department of Planning, Monitoring and Evaluation are invited.
e	Yes, SAWS has developed a costed implementation/work/operational plan for its NSP with timelines. And yes, it has been adopted by Parliament.
f	Major improvements lie mainly in how to achieve better service delivery, communicate better with customers, transform the purely hydrometeorology science/technologists mindset into a modern business matter that is credible at public level (to understand clearly user needs).
	Timiza Wilbert, Senior meteorologist; Philbert Tibaijuka, Consultant, Tanzania Meteorological Agency (TMA)
a	Since capacity-building activities were started, including on strategic planning, the SP has been designed as a guiding tool for operations and investments and also used to develop annual business plans and budgets. TMA is an agency of the government, and the NSP is developed with stakeholders and the parent ministry, which ensures it is incorporated into the 5 year national development plan.
b	A lot of references are made to global agreements including SDGs, scaled down in proper mode. The NSP also aligns to the WMO 2016–2019 key objectives and priorities, which are turned into activities. A results-based table helps with cascading down global into meteorological activities, and the ISO 9001 certification process helps link global and local issues. GFCS is also integrated into the NSP, and helps stakeholder engagement, as well as

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Question	Answer
	the AMCOMET strategy and the Southern African Development Community master plan.
c	The parent ministry communicates to the finance and planning ministry regularly, but TMA does not directly interfere with the finance one, but this does not mean the TMA NSP is not aligned. Indeed, it is known that when activities are not properly aligned to government priorities, then the meteorology component will not be visible or credible, and the appropriate support would not be received.
d	First face-to-face meetings were organized as a multisector workshop (50 participants including the prime minister and vice-presidency officers), including the planning and finance ministries, which has a dedicated unit that deals with stakeholders. This unit has the responsibility of assisting the DG in strategic planning with four personnel, including following up with stakeholders.
e	The procurement and planning units of TMA would help cost/give budgets to develop the costed operations plan of the NSP (US\$ 35 million total cost for the 5 years)/national annual plans. Annual budgets are easier to get from the NSP.
f	The WMO template was followed, even though it was new to TMA. It brought new tools, which were of good value (risk management, communication strategy for the plan and so forth) and offered opportunities to be more visible. One key recommendation would be that WMO supports more change management capacity development (for example, training for personnel development in strategic planning). One challenge is when the government has a strict view/format for the SP, as long as the NSP aligns with the government planning process, then it is ok!

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