



WORLD  
METEOROLOGICAL  
ORGANIZATION



REPUBLIC OF RWANDA



MINISTRY OF NATURAL RESOURCES

*Rwanda Meteorology Agency (Meteo Rwanda)*

Strategic Plan  
*1 July 2016 to 30 June 2019*

*Draft 31 March 2017*

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# FOREWORD

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On behalf of the Board of Directors, Management and Staff of the Rwanda Meteorology Agency (Meteo Rwanda), I am delighted to present to you the Medium Term Strategic Plan for the period 2016 – 2019.

This strategic plan therefore presents us with a road map for the next four years. Its development was necessitated the desire of Meteo Rwanda to align its strategic plan duration with that of WMO.

The plan has been informed by experiences and lessons learnt in implementation of the 2012/13-2014/16 plans and are harmonized with the Government's Medium Term Expenditure Framework (MTEF), which spans the period 2016 through 2020. Analysis of strengths, weaknesses, opportunities and threats helped come up with key strategic issues that define the strategic focus for the next four years.

Meteo Rwanda's strategic plan for the 2016-2019 period fully embraces government's outcome-based approach. We present this document confident that it lays bare our plans for the next four years, plans that outline what each of Meteo Rwanda programmes will contribute to the outcomes.

I believe the initiatives outlined in this strategic plan, when implemented, will help ensure that we improve the overall performance of the weather and climate services. In administering our mandate, we need to perform our responsibilities with the highest degree of professionalism and integrity.

We are making fundamental changes to our business processes, but dependence on our employees, partnerships with stakeholders, science, and technology continues.

We will work closely with our existing and new partners to leverage the national environmental infrastructure (both public and private) in weather, and climate to better meet the public's needs. Advances in science and technology e.g our Doppler weather radar offer extraordinary opportunities to continue improving our services as we work together with our partners to meet Rwanda's needs of safety and sustainable socio-economic development.

On behalf of the Board of Directors, I wish to assure you of our commitment to full implementation of this plan in line with the results framework put in place.

I therefore call upon all our stakeholders to walk with us on this transformational path as we break new ground and open up new opportunities and frontiers for development of the weather and climate services in Rwanda.

I do look forward to seeing results arising from full implementation of this strategic plan.

Dr. KAGABO Desire - Chairperson of the Board of Directors – Meteo Rwanda.

# PREFACE

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Rwanda Meteorology Agency (Meteo Rwanda) is a Government Agency under the Ministry of Natural Resources (MINIRENA) with legal personality, administrative and financial autonomy. The purpose of Meteo Rwanda is to provide weather and climate information services for safety of life and property and socio-economic development.

In Rwanda, observations of rainfall and temperature were established in the 1930s but the first station was installed at Save in 1906.

The Rwanda Meteorology Agency (Meteo Rwanda) Strategic Plan is the guiding document of an improved planning and management system and is focused on requirements for a broader range of weather and climate services information services. Meteo Rwanda Strategic Plan focuses on what the Meteo Rwanda needs to “execute” the mission. Meteo Rwanda’s planning, programming, budgeting and execution cycle links program plans, annual operating plans, and the entire Meteo Rwanda budget to the strategic plan. Ultimately, all members of our workforce will understand their roles in meeting these agency priorities and themes. The Meteo Rwanda weather and climate services play an important role in almost all National goals and cross-cutting priorities.

The main of purpose of Meteo Rwanda, as laid down in the organic law establishing the institution, is to provide accurate and timely weather and climate information to ensure economic and social-cultural developments.

Continuous improvement of weather and climate services in Rwanda is an important component of social and economic development in the region. This strategic Plan is developed to achieve this need as we embark on aligning Meteo Rwanda’s strategic plan to the international body.

# ACRONYMS AND ABBREVIATIONS

Acronym	Definition
AMCOMET	African Ministerial Conference on Meteorology
BSC	Balance Scorecard
DFID	Department for International Development
EDPRS	Economic Development for Poverty Reduction Strategy
GoR	Government of Rwanda
IATA	International Air Transport Association
KPI	Key Performance Indicators
LFA	Logical Framework Analysis
M&E	Monitoring and Evaluation
MIDIMAR	Ministry of Disaster Management and Refugee Affairs
MININFRA	Ministry of Infrastructure
MINIRENA	Ministry of Natural Resources
MOH	Ministry of Health
MTEF	Medium Tern Expenditure Framework
NMHS	National Meteorological and Hydrological Services
NOAA	National Oceanic and Atmospheric Administration
PESTLE	Political, Economical, Socio-Cultural, Technological, Legal and Environmental
PMF	Performance Measurement Framework
QMS	Quality Management System
RA	Regional Associations
RBB	Results Based Budgeting
REMA	Rwanda Environment Management Authority
RBM	Result Based Management
SDG	Sustainable Development Goals
SWOT	Strengths, Weaknesses, Opportunities, Threats
TC	Technical Commissions
TOC	Theory of Change
TOR	Terms of Reference
TWG	Technical Working Group
WISER	Weather Information Service
WMO	World Meteorological Organization

# EXECUTIVE SUMMARY

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In November 2011, the law no 54/2011 of 11<sup>th</sup> November 2011 established Meteo Rwanda. The formulation of this strategic plan is to guide the activities of Meteo Rwanda in line with its mandate and the changes that have taken place over time.

It articulates Meteo Rwanda's vision of making Rwanda to be a Meteorological Service that is highly efficient and effective, customer and employee focused. It underscores Meteo Rwanda's aspirations and determination to achieve the best in providing accurate and timely weather and climate information to ensure economic and social-cultural developments.

This 2016 – 2019 strategic plan envisages a paradigm shift from a process based approach of service delivery to a results-based management approach for effective and efficient delivery of services.

This strategic plan has been prepared in the broader picture of Rwanda's socio economic transformation as envisaged by Vision 2020 and Economic Development and Poverty Reduction Strategy II (EDPRS II) as well as in the narrow picture as envisaged by the environment and natural resources sector and is fully aligned with The Medium-Term Expenditure Framework (MTEF).

The strategic plan outlines the major programmes, outcomes, outputs and the performance indicators that allow us to measure our progress towards the stated outcomes and outputs over the plan period. It is an embodiment of our collective promise to our stakeholders on the expected service delivery standards in line with our mandate. It was prepared in a participatory, consultative and all-inclusive manner and this is therefore a product of a rethinking of our intentions and strategic focus.

To maintain focus on the strategic issues, six outcomes were identified as follows:

1. Improved safety of life and property through better application of weather and climate warnings and forecasts.
2. Improved socio-economic sustainable development through better use of weather and climate products and services.

3. Improved availability and accessibility of quality weather and climate data and information services.

For each of the above three outcomes have got outputs and activities, a monitoring and evaluation framework for ensuring successful implementation of the strategic plan has been also provided in order to allow for lessons learnt to be factored into subsequent planning cycles.

Finally, workshops were organized with the key stakeholders to ensure a high level of weather and climate dissemination and ownership.

The management of Meteo Rwanda with guidance and approval of the Meteo Rwanda's Board of Directors developed this strategic plan.



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# 1. INTRODUCTION

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## 1.1. Purpose of Strategic Plan

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Strategic planning is an important aspect of governance and strategic management which seeks to:

- Ensure that stakeholders, in particular staff, are working toward common goals;
- Establish agreement around intended outcomes/results, and assess and adjust the organization's direction in response to a changing environment and set priorities;
- Strengthen operations and focus on value for money.

Thus this Strategic Plan provides a mechanism by which Meteo Rwanda's long term vision, outcomes and corporate objectives can be communicated to all stakeholders, including staff of Meteo Rwanda, whose personal and team objectives link to the corporate objectives defined in this plan.

This Strategic Plan covers the four-year period from 1 July 2016 to 30 June 2019. This period aligns with Vision 2020 and the Economic Development and Poverty Reduction Strategy (EDPRS) of the Government of Rwanda (GoR). It also links to the financial year which runs each year from 1 July until 30 June of the following year.

This plan is a refresh of Meteo Rwanda's existing 2013 – 2017 plan produced under EDPRS2.

Meteo Rwanda's Strategic Plan will be revised as part of the next strategic planning process covering all GoR bodies.

The refresh of this plan was led by the Planning Officer at Meteo Rwanda and both reviewed and validated by the senior management team and members of the Board of Directors. Consultancy support was provided by Steve Palmer and Becky Venton from the Met Office, UK. The consultancy work was funded through the Pan African sub-programme of the UK's Department of International Development (DFID) Weather and Climate Services for Africa (WISER), overseen by African Ministerial Conference on Meteorology (AMCOMET).

## 1.2. Strategic Planning Methodology

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Meteo Rwanda already had a draft Strategic Plan but the opportunity was taken to review and refresh it in order to:

- Reflect Meteo Rwanda's contribution to the Ministry of Natural Resources' (MINIRENA) plans;
- Rectify a misalignment between the period covered by the existing plan and the GoR planning cycle;
- Meet the requirements associated with the implementation of an International Standards Organisation (ISO) 9001 Quality Management System (QMS);
- Utilise the Strategic Plan template and guidance provided by WMO through the WISER Pan-Africa Programme; and

- Meet requirements from potential funders of Meteo Rwanda activities e.g. WISER Regional Programme.

The methodology adopted is consistent with a review and refresh as opposed to a full strategic planning process, which will take place in the near future. As such, information has been gathered from a number of sources, including the existing draft Strategic Plan. New content has been developed where necessary, developed by the Planning Officer and consultants and reviewed by the senior management team.

The strategic planning model used in this process is Theory of Change (TOC), because it includes a step of Results Based Management (RBM) in order to determine the strategic Key Performance Indicators (KPI). It is a requirement on all GoR bodies to implement RBM from 1 July 2016. Staff objectives and performance are now managed through RBM and in line with this, budgets are managed through Results Based Budgeting (RBB).

TOC is a causal model. It defines all of the building blocks as required to bring about a given long-term goal. It explains *how* and *why* the desired change is expected to come about. This set of connected building blocks shows a pathway of change or a change framework, which clearly explains the causal link between different levels results. A logic model is a tool used to express the TOC.

In developing the logic model or framework, the ‘log frame’, for this Strategic Plan refresh, the following steps have been taken:

1. Review of the vision and mission
2. Definition of values
3. Review of the analysis of the environment, using SWOT and PESTLE
4. Development of the logframe
5. Articulation of goals and objectives
6. Development of a plan for M&E

Normally the above steps would be followed by the development of operational/ action plans and associated RBB. However, in this case, the refresh of this Strategic Plan is taking place *after* activities were defined in the RBM. Hence in this strategic plan, the first year targets are heavily influenced by, and include, a selection of the RBM KPI. In future years, RBM will be influenced by, and thus better align with, this refreshed Strategic Plan.

## 2. BACKGROUND

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### 2.1. Organization History

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Rwanda Meteorology Agency (Meteo Rwanda) is a Government Agency under the Ministry of Natural Resources (MINIRENA) with legal personality, administrative and financial autonomy. The purpose of Meteo Rwanda is to provide weather, water and climate information services for safety of life and property and socio-economic development.

In Rwanda, observations of rainfall and temperature were established in the 1930s but the first station was installed at Save in 1906.

The Rwanda Meteorology Service was created in 1963 and in 1968 Meteo Rwanda was established as the main coordinator of meteorological services in the Ministry of Infrastructure (MININFRA).

Later in 2011, Rwanda Meteorological Service was transformed into Rwanda Meteorology Agency (Meteo Rwanda) by the government law No. 54 bis/2011 of December 2011, which was gazetted in the Official Gazette No. 54 of January 2012, and its 14 core functions are listed in section 4.3 of this Strategic Plan.

In July 2015, Meteo Rwanda was transferred from MININFRA to MINIRENA<sup>1</sup>.

### 2.2. Organization Structure

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The following is the organizational chart approved and gazetted in April 2014. It includes 99 staff, but Meteo Rwanda has not yet implemented the full complement. It employed 63 full time personnel by the end of FY14/15, 78 by the end of FY 15/16 and expects to achieve the full 96 during FY 16/17.

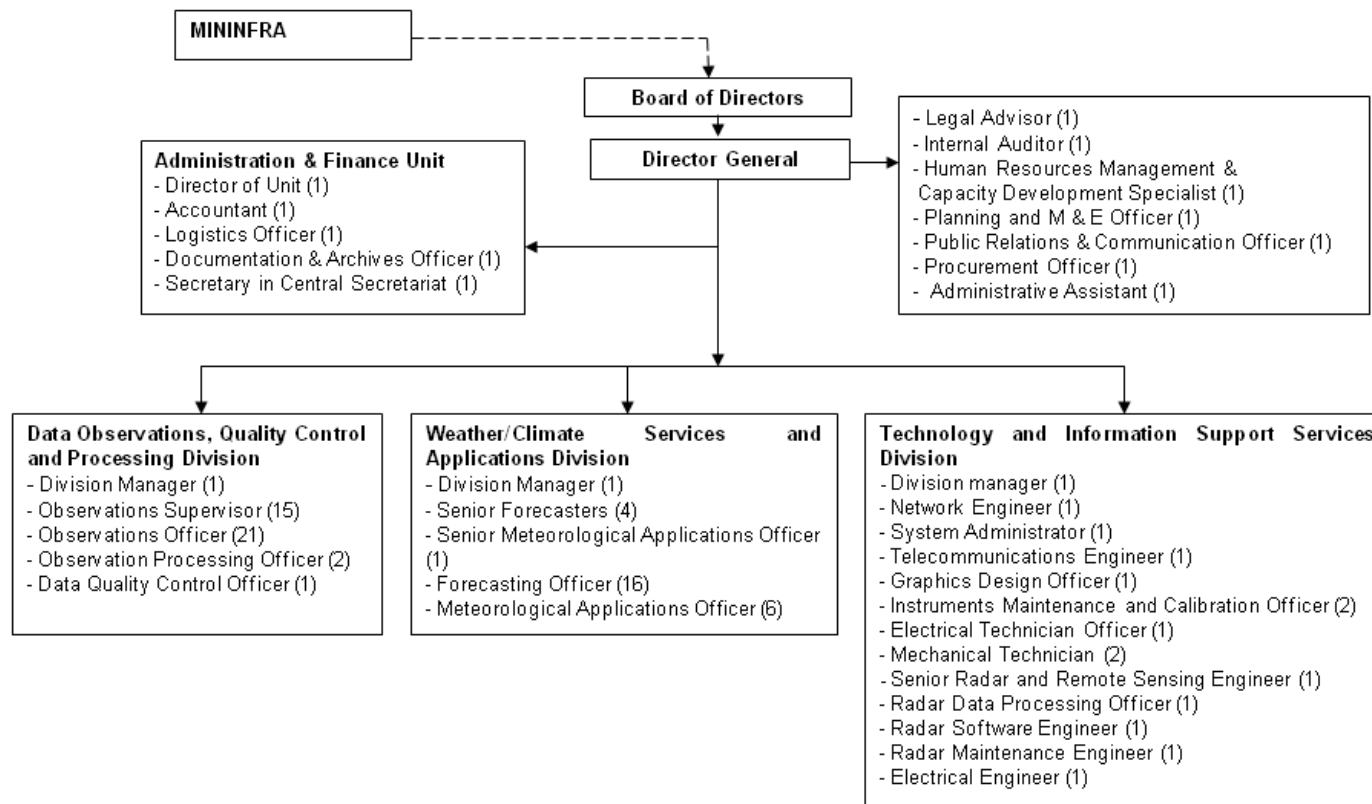
Note that the parent Ministry changed in 2015 from MININFRA to MINIRENA (Official Gazette n° 31 of 03/08/2015).

The Board of Directors was implemented in 2015.

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<sup>1</sup> <http://www.meteorwanda.gov.rw/index.php?id=12>, accessed on 9 November 2016

ORGANIZATIONAL CHART - RWANDA METEOROLOGICAL AGENCY 2014



## 2.3. Review of Key Achievements

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<b>From the original 2013-2017 Strategic Plan</b>	<b>Updates and additional achievements on refresh of the plan in 2016</b>
<p>In 2013, Meteo Rwanda had 4 synoptic stations, 9 Agro meteorological stations, 72 climatological stations and 90 manual rainfall stations with volunteer observers.</p>	<p>By 2016, additional 100 automatic rainfall stations, 42 Automatic Weather Stations were installed, one C-band weather Radar was installed.</p>
<p>Meteo Rwanda had a databank system for Meteorological data collection, quality control and storage using CLICOM database management system.</p> <p>Data transmission was using the Post Office, SSB Radios.</p>	<p>Meteo Rwanda acquired an improved data management system: CLIMSOFT version3 and recently updated to 4.</p> <p>Data transmission is rapid through GPRS, internet and Mobile phone, text messages.</p>
<p>Meteo Rwanda acquired state of the art system for short and medium range forecasting (PUMA2010).</p>	<p>PUMA 2010 was upgraded to 2015 in September 2016 providing additional functionality.</p> <p>Meteo Rwanda also has access to Numerical Weather Prediction (NWP) products from Regional web portal.</p> <p>From the WMO Severe Weather Forecast Demonstration Project, with which we have introduced daily Regional Teleconferencing</p>

Carries out Climatological analysis; Agro and hydro-meteorological observations and analysis.	Introduced daily Five Days Forecasts and a Ten Days Bulletin for famers
In respect of international obligations in accordance with resolution 40 of WMO, Meteo Rwanda exchanges weather and climate data. And participates and contributes to National, regional and International organisations.	Meteo Rwanda continues to exchange weather and climate data in compliance with the Resolution 40 of WMO.
Before 2013, the Institution had a law establishing the Agency but was still in transition to become an Agency with approved Organisational Structure.	Meteo Rwanda was established as an Agency under MINIRENA and had its Structure approved, has a Board of Directors and is in the process of implementing the Organisational Structure.
	A brand identity for Meteo Rwanda was established and continues to be implemented in its products and services, and a Public Relations office to promote the image of the Agency was established
Meteorological Operations purely referred to the WMO technical regulations and guidelines.	Meteo Rwanda adopted the ISO 9001 QMS Standards and has developed processes and documentation, and is aiming at being audited for certification.



<p>The forecasting office was working on 12-hour watch and yet makes forecasts valid for 24 hours.</p>	<p>The forecast office, which has operated a 24/7 hour watch since March 2016, and continues to carry out Meteorological operations processes in line with the main recommendations of the WMO Strategy on Service Delivery and is a regular and active participant in the daily regional teleconferences that were established under the WMO's Severe Weather Forecasting Demonstration Project (SWFDP),</p>
<p>Short term projects addressing narrow activities and usually co-opted by others.</p>	<p>Meteo Rwanda has a number of projects<sup>2</sup> that are contributing to the development of its capabilities.</p>
<p>Established a public weather service studio, presentation software and training technical and presenting staff to enable the development of new services for TV and radio.</p>	<p>Increased dissemination channels using new technology e.g. routine upload of forecasts to Twitter, YouTube and other social media; SMS service to farmers in PASP project areas</p>
<p>Majority of existing staff were on contractual basis; whose contracts have to be renewed on monthly basis.</p>	<p>All current staff are on permanent and pensionable terms which has improved institutional stability.</p>

<sup>2</sup> The strategic projects include:

1. GoR Environment and Climate Change Fund (FONERWA, a bucket fund from various donors)
2. United States Administration for International Development (USAID) funded Climate Services for Agriculture Rwanda that is being coordinated by the Centre Agriculture Research (CGIAR)
3. WMO's Global Framework for Climate Services (GFCS) implemented by the Korean Meteorology Administration (KMA)
4. World Bank's Landscape Approach to Forest Restoration and Conservation (LAFREC)
5. International Fund for Agriculture Development (IFAD)'s Post Harvest and Agribusiness Support Project (PASP)

## Lessons learned

- It was difficult to implement the Strategic Plan due to absence of the institution's Organisational Structure.
  - The no existence of the Institutional framework limited the recruitment an optimum number of trained personnel to execute the Strategic Plan, and their stability.
  - It was realised that the Government funds alone were not adequate for executing most activities in the Strategic Plan and that is why we found necessary to seek alternatives from external sources.
  - Acquisition of modern meteorological infrastructure led to the realisation of improved weather and climate products, their timely dissemination and access.
  - Increased collaboration with other National Meteorological and Hydrological Services within the region improved skills of our forecasters in production and verification of forecasts.
  - Introduction of the Enhanced National Climate Services (ENACTS) revealed that the quality of our climate data need to be improved though appropriate training and acquiring of necessary data management tools
- The monitoring and evaluation process of the 2013-17 Strategic Plan was not adequately performed as expected. Under the new Plan, and related to the Results Based Management (RBM) system, a monitoring and evaluation (M&E) process must be implemented, with regular reports both to staff and to the Board of Directors and Sector Stakeholders Group, as well as the relevant authority specified under RBM.
- Due to restructuring process we lost some skilled staff, we learned that job specifications formulation that do not fully support already acquired knowledge and skills can lender loss of skilled personnel.
  - Because the aviation meteorological services are done in RCAA, there is irregular remission from data returns and climatological summaries at Kigali International Airport.

## Service Delivery

At the heart of the Mission of Meteo Rwanda lies Service Delivery<sup>3</sup>.

To be effective, services should possess these attributes:

- **Available and timely:** at time and space scales that the user needs;
- **Dependable and reliable:** delivered on time to the required **user** specification;
- **Usable:** presented in user specific formats so that the client can fully understand;

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<sup>3</sup> A key reference for service delivery is WMO's Service Delivery Strategy: [http://www.wmo.int/pages/prog/amp/pwsp/documents/WMO\\_Strategy\\_for\\_Service\\_Delivery.pdf](http://www.wmo.int/pages/prog/amp/pwsp/documents/WMO_Strategy_for_Service_Delivery.pdf)

- **Useful:** to respond appropriately to user needs;
- **Credible:** for the user to confidently apply to decision-making;
- **Authentic:** entitled to be accepted by stakeholders in the given decision contexts;
- **Responsive and flexible:** to the evolving user needs;
- **Sustainable:** affordable and consistent over time; and,
- **Expandable:** to be **applicable** to different kinds of services.

Service delivery, then, is a continuous, cyclic process for developing and delivering user-focused services.

Services can be categorised into three broad types:

*1. Multi-hazard warnings and advice during disasters*

- Forecasts in advance of high-impact weather events
- Forecasts and information during the response and recovery phase
- Forecasts and information for disasters which are not initiated by the weather e.g. chemical spills, wild-fires, volcanic eruptions

*2. Routine forecasts and information services*

- Daily weather forecasts for the Public e.g. TV, Radio, Newspapers, SMS and social media, Meteo Rwanda Website
- Tailored forecasts for users in economic sectors, e.g. Aviation, Agriculture
- Routine data services e.g. monthly summaries and annual summaries, Seasonal forecasts

*3. Long-term Risk and Impacts data and analysis*

- Climate data and analyses for e.g. Agriculture, Risk analysis, Flood design, infrastructure requirements and design, environmental impact assessments, hydro-power and solar energy.
- Climate change impacts and modelling.

At the time of writing, Meteo Rwanda provides the following products and services:

*1. Multi-hazard warnings and advice during disasters*

- Planning forecast given 6 hourly to 4 Districts in Western Province

- Briefing for joint services operation;
2. *Routine forecasts and information services*
    1. Daily TV bulletins (Kinyarwanda, English and French);
    2. Daily Radio bulletins on 10 Local radio stations
    3. Twitter feed and Website with daily forecasts and updates.
    4. 5-day, 10 day rainfall summary and Outlook;
    5. Monthly and seasonal forecast
  3. *Long-term Risk and Impacts data and analysis*
    1. Data archiving, education and research.

### **Socio-economic benefits of weather and climate services**

Increasingly, NMHS are starting to build the evidence for the socio-economic benefits that their services provide. Indeed, such a study has been commissioned for Meteo Rwanda as part of the FONERWA project.

A user obtains value from a weather or climate service when the outcome of a decision made is improved by the use of relevant information provided by the service. The quantity of value will depend on the circumstances of the user. It could vary from the trivial (“Shall I carry an umbrella today?”) to very large, such as the decision to evacuate people from an area at risk. Note that the benefit of routine services is accrued over time – no weather forecast is completely accurate, so on some occasions an event happens that has not been forecast (“The forecast said it would be dry, and I got wet!”) therefore monitoring, evaluation and improvement of routine services is important.

Monetising these benefits is not easy. For disasters, the benefit of forecasts and warnings is in the achievable reduction in the cost of a disaster, not the total cost of the disaster, such as the number of lives which were saved by receiving and acting on a forecast or warning. Also it is not appropriate to attribute all the savings to the meteorological service, because there are many other actors involved in disaster risk reduction. However, the impact of disasters on citizens, their families and societies can be huge and long-lasting. Floods destroy both public and private capital. Droughts destroy private capital. Avoidable deaths can have an impact on families for a generation.

For routine services to the general public, one can use the usual methodology of cost-benefit studies; one can multiply the small value of individual benefit by the number of people potentially reached, and obtain a guidance figure

For commercial services, the user would evaluate their own willingness to pay based on their perception of value – this implies that a service which is directly tailored to the user need and the decisions to be made will have much higher value. This is the basis for the aviation cost-recovery model agreed by IATA. The aviation weather services are essential for commercial aviation; the services are specifically tailored to the user requirement, and a fixed percentage of the landing and transit fees are allocated for these services.

There are many commercial enterprises which can use weather information for better decision-making. The user benefit of these services will often be only a minor part of the decision-making chain, and aggregated for routine services, but taken together can make a useful difference to the marginal costs of doing business. There is some evidence that such improvements in marginal costs can have a multiplier effect on GDP.

The economic benefit of consultancy services for planning and design is easier to evaluate. The design of infrastructure projects are adjusted to the climate normals and extremes expected during the design life, thus keeping costs to a minimum, while ensuring that the structure does not fail prematurely.

## **3. ENVIRONMENTAL SCAN**

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An environmental scan was done by gathering facts and analyzing trends to give an objective picture of where Meteo Rwanda stands in the business of providing weather and climate services. There has been an examination of the external and internal pressures and factors likely to affect its future and the achievement of its goals and objectives; this analysis is set out in the following sections of this Strategic Plan.

### **3.1. SWOT ANALYSIS: Assessment and Analysis of Organization's Strengths, Weakness, Opportunities and Threats**

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A SWOT analysis was carried out by Meteo Rwanda top managers. This analysis was reviewed and enhanced in the refresh of the Strategic Plan and the results are presented below.

**Table 1: SWOT Analysis**

<b>INTERNAL</b>	
<b>Strengths</b>	<b>Weaknesses</b>
<ul style="list-style-type: none"> <li>▪ Being an autonomous Agency meaning that the agency with a legal identity, Meteo Rwanda can approve and defend the budget directly without a third party</li> <li>▪ Meteo Rwanda’s core function is mandated in gazetted Rwandan law</li> <li>▪ Having in place basic infrastructure of meteorological stations</li> <li>▪ Having in place senior experienced professionals in the management</li> <li>▪ Participation in regional and international exchange of meteorological data and products.</li> <li>▪ Being with sister environmental related Agencies in the Ministry of Environment helps to work directly with them</li> <li>▪ Governance structure with the Board of Directors to provide strategic direction and support</li> <li>▪ Having the monopoly of being the custodian of Rwanda’s national weather and climate database.</li> <li>▪ Having the qualified workforce</li> </ul>	<ul style="list-style-type: none"> <li>▪ Newly recruited inexperienced staff who lack the technical skills.</li> <li>▪ Limited mechanisms through which to motivate and retain staff</li> <li>▪ Sub optimal meteorological infrastructure and observational network</li> <li>▪ Inadequate maintenance and calibration of sensors and instruments due to limited staff.</li> <li>▪ Irregular transmission of observation data from the field due to existing manual system</li> <li>▪ Lack of modalities to implement cost recovery for the services provided due to delayed approval of Meteorological data policy</li> <li>▪ Inability to package and market our products</li> <li>▪ Internal and external communication not well structured</li> <li>▪ Small number of subject matter experts</li> <li>▪ Lack of an overview and coordination of projects resulting in duplication and missed opportunities to target gaps</li> <li>▪ Inadequate capacity to quickly respond to technological changes</li> </ul>

	<ul style="list-style-type: none"> <li>▪ Inability to keep up with the changing demands of society</li> <li>▪ Lack of regular staff training/capacity needs assessment, staff development strategy and sufficient training for all staff members.</li> <li>▪ Weakness in the current online staff performance management system</li> <li>▪ Inadequate researches to facilitate decision making on technical matters and absence of research unity</li> <li>▪ Lack of study tours in other countries to learn the best practices related weather and climate services</li> </ul>
<b>EXTERNAL</b>	
<b>Opportunities</b>	<b>Threats</b>
<ul style="list-style-type: none"> <li>▪ Political stability, security and favourable socio-economic development</li> <li>▪ Political and financial support from government, international institutions and development partners</li> <li>▪ Presence of several stakeholders and their interest in weather and climate services.</li> <li>▪ Potential for new products and services to meet the needs of existing and new users, especially within different sectors</li> <li>▪ GoR understands and is seeking to mitigate the challenge presented by climate change: climate change is a cross-cutting theme in EDPRS</li> <li>▪ Opportunity to establish legal instruments that will allow Meteo Rwanda to generate funds from its products and services</li> <li>▪ Being co-opted as key stakeholder among other Government institutions which provides opportunity for collaboration</li> <li>▪ Having a mission that is cross-cutting enabling Meteo Rwanda to serve many Sectors and end users</li> <li>▪ Membership of WMO and other regional bodies and institutions such as East African Community (EAC) and affiliation with IGAD Climate Prediction and Applications Centre (ICPAC) for benchmarking and training purposes.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Weakness of enforcing law establishing Meteo Rwanda resulting in third parties encroaching on Meteo Rwanda mandate</li> <li>▪ External competitors in provision of meteorological observation and forecast</li> <li>▪ Budgetary limitations to pay some expenditure such as the media to regularly disseminate weather and climate information and products in a lead time</li> <li>▪ Reliance on few projects to supplement core funding from the Government in order to deliver routine services and develop capacity and capability</li> <li>▪ Overlapping mandates between Meteo Rwanda and other institutions cause confusion over which should be leading and/or responsible</li> <li>▪ RCAA is managing Meteorological stations and has its own and independent Meteo service that offers</li> </ul>



<ul style="list-style-type: none"> <li>▪ ICT development; fibre optic cable, mobile phone technology that could be utilised to facilitate the attainment of Meteo Rwanda mandate</li> <li>▪ Increasing demand of seasonal and sub-seasonal forecasts and downscaling.</li> <li>▪ Results Based Management System being implemented as tools which will aid future management of organisational and personal objectives once aligned with the Strategic Plan</li> <li>▪ Availability of third party meteorological observation installations</li> </ul>	<p>Aeronautical information.</p> <ul style="list-style-type: none"> <li>▪ Government processes make it difficult to restructure and change staff complements or job descriptions to respond to changing needs.</li> <li>▪ Increasing new ways of committing cyber crimes that can disrupt the flow of data and information.</li> </ul>
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## 3.2. PESTLE Analysis

A PESTLE analysis of the external environment was carried out in relation to the QMS manual of January 2017, so this has been re-done, with each of the factors considered in turn, namely: political, economic, socio-cultural, technological, legal and environmental (ecological)

**Table 2: Pestle Analysis**

PESTLE ANALYSIS	
Political Factors	Economic Factors
<ul style="list-style-type: none"> <li>• Meteo Rwanda is mandated by law</li> <li>• Meteo Rwanda is now within MINIRENA</li> <li>• Government awareness of the importance of weather and climate to sustainable development, the Green Growth, with climate change identified as a cross-cutting issue in EDPRS 2</li> <li>• Vision 2020: to become a middle income country</li> <li>• Rwanda is pursuing the data revolution agenda of the UN, in that regard, Meteo Rwanda's Data Policy is under development</li> </ul>	<ul style="list-style-type: none"> <li>• High inflation (7.4% as of January) leading to increased operating costs</li> <li>• Unemployment at... %85% population dependent on rain-fed agriculture</li> <li>• Economic growth is among others focused on tourism and private sector growth which may lead to increased demand for weather and climate services</li> <li>• Low income means low purchasing power and/or willingness to pay for meteorological services</li> <li>• Global economic issues reducing donor funding</li> <li>• Fluctuations in exchange rate impact international financial transactions and value for money</li> </ul>
Socio-cultural Factors	Technological Factors

<ul style="list-style-type: none"> <li>• Increased awareness of the impact of severe weather events</li> <li>• Concerns over prevalence of diseases affected by weather and climate e.g. malaria</li> <li>• Improving levels of education across the country</li> <li>• Increased awareness due to introduction of climate change in the national curriculum and a new course relating to climate and climate change at University of Rwanda</li> <li>• Increased uptake of the mobile technology</li> <li>• Limited application of meteorological information</li> <li>• Rwanda is Africa’s most densely populated country</li> <li>• Dependency on rain-fed agriculture</li> <li>• Poor understanding of Meteo Rwanda products at the grass roots level</li> </ul>	<ul style="list-style-type: none"> <li>• Dense mobile network provides opportunities for remote sensing observations</li> <li>• Increased use of smart phones</li> <li>• Increased use of social media</li> <li>• Increased demand for SMS (but associated costs need to be borne)</li> <li>• Sub-optimal operation of observations network</li> <li>• Lack of skills, spares and equipment to maintain infrastructure</li> <li>• Need for good internet connectivity to produce and disseminate products</li> <li>• New weather radar covering the country</li> <li>• New Automatic Weather Stations</li> <li>• High capacity computers with advanced softwares</li> </ul>
<b>Legal Factors</b>	<b>Environmental (ecological) Factors</b>
<ul style="list-style-type: none"> <li>• WMO policies and regulations...</li> <li>• Low Level of corruption</li> <li>• Meteo Rwanda mandated by law</li> <li>• Inadequate laws and regulations related to weather and climate services</li> <li>•</li> </ul>	<ul style="list-style-type: none"> <li>• Vulnerability to the effects of climate change – expectation of increased temperatures and likelihood of associated increased rainfall</li> <li>• Rwanda has already experienced increasing temperatures, changes to seasonal patterns and increased frequency and impact of severe weather events</li> <li>• Rwanda is known as the land of a thousand hills and has the same number of microclimates making forecasting a challenge and down-scaling important</li> <li>• Risk Atlas provides national overview of environmental risks</li> <li>• Rwanda is developing its capability for Integrated Water Resource Management through the Rwanda Environment and Natural Resources Sector</li> <li>• An Early Warning System is in place</li> </ul>

### 3.3. Stakeholders Analysis

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The Customers and Users of products and services from Meteo Rwanda come from a wide range of actors, including other Government Ministries, the functional Agencies and Boards under these Ministries, parastatal organisations (such as TVR), NGOs and private sector organisations.

Meteo Rwanda provides services without cost to the users but it has the plans to recover the costs for the services that it delivers and recent engagement with stakeholders as part of the FONERWA project suggested a willingness to pay for specific services and where an improvement in quality (especially accuracy) is delivered.

A stakeholder analysis was carried out in the 2013-2017 Strategic Plan and this was taken as a starting point for the refresh. The stakeholder analysis in Table 3 overleaf has been carried out using the sectors defined in GoR’s EDPRS II. In terms of expectations of the NMHS, in the analysis, this focuses on long term (LT), short term (ST) and events based (Events) services.

**Governance**

Separate to the main stakeholder analysis, the governance of Meteo Rwanda is as follows: Ministry-Board of Directors-Director General)

Other government bodies have supervising roles (e.g. policies, standards, processes) and/ or provide services to Meteo. Where they are recipients of services, this is captured in the main stakeholder analysis matrix.

**Technical Working Group (TWG)**

There is a continuing need for the TWG to provide expertise and fundraising for Meteo Rwanda’s. Effectively the Technical Working Group will act as an “intelligent customer” of Meteo Rwanda, separately from the “Ownership” of Meteo Rwanda.

**Table 3: Stakeholder Analysis Matrix**

Stakeholders	Interests	Expectations	Potential
<b>MIDIMAR</b> <b>RED Cross</b> <b>Police</b> <b>Army</b> <b>MINALOC</b> <b>REMA</b>	<b>For saving lives by setting preventive and/or rescue actions</b>	Early warnings of specific extreme events (floods, drought, dry spells, strong winds, Lightning) sent in led time.	Partnership in the effective operationalisation of the Early Warning System.

<b>Air navigation</b>			
<b>Media</b>	<b>Public information related to short term forecasts</b>	Regular, timely and frequent daily forecasts	Dissemination of information to a wider population, provision of feedback
<b>All Ministries, Government institutions and Private sector</b>	<b>Economic/Planning</b>	Provision of Short and long term weather projections.	Collaboration and mobilisation of resources,  Enforce the application of forecasts in real time.
<b>Academic and research Institutions</b>	<b>Research</b>	Historical climate data for analysing climate trends	Partnership in production of reports and publications,  Partnership in capacity building and expertise
<b>Specific requirements</b>			
Ministry of Natural Resources (MINRENA)	Provide Environmental Policies on natural resources management: We avail accurate climate information to Government institutions and stakeholders to improve environmental management and	<b>LT:</b> Planning/ design/ construction <b>ST:</b> Operation/ management/ maintenance <b>Events:</b> (Early) warnings e.g. floods (fluvial/ pluvial), landslides and responses to accidents (including consultancy)  Climate information and advisories at different timescales	<ul style="list-style-type: none"> <li>Specialist sector knowledge that can be combined with meteorological information to produce new and improved products</li> <li>Support Meteo Rwanda to acquire capacity of delivering weather and climate information to stakeholders, e.g. seasonal</li> </ul>

	reduce vulnerability to climate change		forecasts to farmers. Funding for meteorological infrastructure and services, especially through projects
<b>Rwanda Mines, Oil and Gas Authority</b>	Weather events that can affect Mining and quarry activities	High impact weather warnings to prepare against hazards	Contribution to cost recovery
<b>Rwanda Land Management Authority</b>	Established an additional partnership with stakeholders to issue rainfall and wind data	Close collaboration with other stakeholders to establish local networks of precipitation measurements and topographical and geological information, including hazard maps. Meteo Rwanda Based collaboratively issues landslide alert information on the combined information collected.	Possible focus sector for the development of paid for commercial weather and climate services
<b>Rwanda Water and Forestry Management</b>	Want to know when to plan trees, which varieties	Rainfall, temperature, changes in precipitation, drought duration	Partnership in Maintenance of Weather stations
Rwanda Environment Management Authority (REMA)	Environment protection –build resilience to climate change Floods-early warning forecasts Air pollution-winds,	<b>Climate change trends</b> Heavy rainfall and landslides which could affect mining/ quarrying operations, especially in terms of water pollution into watercourses (from seepage, tailings etc.) Strong winds in relation to air pollution	Partnership in installation of equipment for needed parameters

	(direction&speed) Climate information for adaptation&mitigation projects		
<p><b>Energy</b></p> <ul style="list-style-type: none"> <li>Ministry of Infrastructure (MININFRA)</li> <li>Power distribution companies</li> </ul>	<p>Hydropower – operation, capacity (water volume and temperature)</p> <p>Lightning-weather forecasts of thunderstorms to protect workers on pylons</p> <p>Light levels/ temperature for demand</p>	<p><b>LT:</b> Planning/ design/ construction</p> <p><b>ST:</b> Operation/ management/ maintenance</p> <p><b>Events:</b> (Early) warnings e.g. floods (fluvial/ pluvial), landslides and responses to accidents (including consultancy)</p>	<p>Specialist sector knowledge that can be combined with meteorological information to produce new and improved products</p> <p>Funding for meteorological infrastructure and services, especially through projects</p> <p>Possible focus sector for the development of paid for commercial weather and climate services</p>
<p><b>Private sector</b></p> <ul style="list-style-type: none"> <li><b>Crop Insurance Companies</b></li> </ul>	<p>Water availability</p> <p>Rainfall, temperature data</p>	<p><b>LT:</b> Information/ projections relating to climate change to inform investment decisions</p> <p><b>ST:</b> Forecasts and warnings to inform local decision making relating to operations, supply chain management, supply/ demand</p> <p><b>Events:</b> (Early) Warnings of flood, drought/</p>	<p>Specialist sector knowledge that can be combined with meteorological information to produce new and improved products</p> <p>Support weather observations infrastructure</p> <p>Funding for meteorological infrastructure and services,</p>

		famine, strong winds, landslide affecting logistics, access to market, availability of resources (including human resources)	especially through projects  Possible focus sector for the development of paid for commercial weather and climate services
<ul style="list-style-type: none"> <li>• <b>Government Ministries and Agencies</b></li> <li>• Ministry of Trade, Industry and East Africa Community (MINEACOM)</li> <li>• MINAFFET</li> <li>• Ministry of East African Community (MINEAC)</li> <li>• Ministry of Finance and Economic Planning (MINICOFIN)</li> <li>• Rwanda Development Board (RDB)</li> <li>• Construction</li> </ul>	<p>Ecosystems/ environmental management</p> <p>National security</p> <p>Transport (international, regional, national and local)</p> <p>Disease prevalence (e.g. yellow fever, malaria, cholera)</p> <p>Expansion plans e.g. Congo-Nile trail; Lake Kivu belt</p> <p>Private sector investment</p> <p>Availability/ accessibility of tourism activities, especially those sensitive to</p>		

<p>companies</p> <ul style="list-style-type: none"> <li>• Manufacturing companies</li> <li>• Retail companies</li> <li>• Cooperatives e.g. craft, carpentry, sewing/ knitting</li> <li>• Rwanda Tours and Travel Operators (RTTA)</li> <li>• Tour operators (local, national, regional and international)</li> <li>• Hotels and guesthouses</li> <li>• Kigali Convention Centre</li> <li>• African Parks (Akagera Park)</li> <li>• National Parks (Nyungwe, Volcanoes, Gishwati)</li> <li>• Tea/ coffee plantations e.g. Pfunda, Sowarthe</li> </ul>	<p>weather and climate</p>		
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<ul style="list-style-type: none"> <li>• Retail</li> <li>• Ministry of Sports and Culture (MINISPOC) and related institutions e.g. museums, stadiums etc.</li> </ul>			
<ul style="list-style-type: none"> <li>• <b>Transport sector</b></li> <li>• MININFRA</li> <li>• Ministry of Internal Security (MININTER)</li> <li>• Ministry of Foreign Affairs and Cooperation (MINAFFET)</li> <li>• Rwanda Civil Aviation Authority (RCCA)</li> <li>• Rwanda Traffic Police</li> <li>• RwandAir and other international carriers (especially Brussels Airlines, KLM, Kenya Airways, Ethiopian Airlines and Qatar Airways)</li> </ul>	<p>Roads</p> <p>Aviation</p> <p>Local weather/ climate</p> <p>Regional weather/ climate</p> <p>International weather/ climate (for areas of operations)</p> <p>Disaster management/ response</p> <p>Logistics</p>	<p><b>LT:</b> Planning/ design/ construction</p> <p><b>ST:</b> Operation/ management/ maintenance</p> <p><b>Events:</b> (Early) warnings e.g. floods (fluvial/ pluvial), landslides and responses to accidents (including consultancy)</p> <p>For aviation:</p> <p>Good quality (and good continuity) aviation weather service (observations, forecast etc.)</p>	<p>Specialist sector knowledge that can be combined with meteorological information to produce new and improved products</p> <p>Funding for meteorological infrastructure and services, especially through projects</p> <p>Possible focus sector for the development of paid for commercial weather and climate services</p>

<ul style="list-style-type: none"> <li>• Other aircraft operators e.g. Akagera</li> </ul>			
<ul style="list-style-type: none"> <li>• <b>Education</b></li> <li>• Ministry of Education (MINEDUC)</li> <li>• University of Rwanda</li> <li>• Private universities, including Institut d'Enseignement Supérieur de Ruhengeri (INES) and Carnegie Mellon University (CMU)</li> <li>• Publically funded schools</li> <li>• Private schools</li> <li>• British Council</li> <li>• Nurseries</li> </ul>	<p>National curriculum – information and training resources relating to weather and climate</p> <p>Data</p> <p>Assessment</p> <p>Infrastructure – buildings, services (including internet)</p> <p>Logistics – especially transport connections and roads</p>	<p><b>LT:</b> Future areas of education and research in the context of climate change e.g. new academic programmes, changes to national curriculum</p> <p><b>ST:</b> Forecasts and warnings to inform local decision making relating to safe operation of education facilities, including access to sites</p> <p><b>Events:</b> (Early) Warnings of severe weather events that could affect operations and safety of staff/ students</p>	<p>Specialist sector knowledge that can be combined with meteorological information to produce new and improved products</p> <p>Opportunities to mainstream weather and climate change through education of the population</p> <p>Links with MIT’s Climate Change Observatory, Mt Mugogo</p> <p>Research opportunities</p> <p>Opportunities to collaborate on research./ technical/ scientific papers</p> <p>Professional development for Meteo Rwanda staff</p> <p>Exchange of data, information and</p>

			knowledge
<ul style="list-style-type: none"> <li>• <b>Youth sector</b></li> </ul>	As for other sectors but for Youth	Services designed for Youth Embracing new technology e.g. smart phones, social media etc.	Insights into user requirements for youth to inform future plans
<ul style="list-style-type: none"> <li>• <b>Decentralization</b></li> </ul>	As for other sectors but at a local level	As for other sectors but with a focus on the products and services being locally relevant	Local information about the impact of weather and climate  Local representatives to aid dissemination of information  Frameworks for community observations and management/ maintenance/ security of observations infrastructure
<ul style="list-style-type: none"> <li>• Media High Council (MHC)</li> <li>• Rwanda Broadcasting Agency (RBA)</li> <li>• National TV</li> <li>• Independent (private sector) TV</li> <li>• National radio</li> </ul>	<p>Weather forecasts</p> <p>Warnings of severe events</p> <p>Information about weather/ climate (e.g. El Nino, future climate)</p> <p>Performance of communications networks (affected by</p>	<p><b>LT:</b> Information/ projections relating to climate change to inform investment decisions</p> <p><b>ST:</b> Forecasts and warnings to inform local decision making e.g. planting, harvesting – needs local observations, downscaled forecast (especially rainfall and temperature but also wind speed/ direction – the latter especially with respect to pests/ disease, appropriate communication (content, quality, format, language, timeliness, frequency) – can be routine or reactive (and also interactive e.g.</p>	<p>Specialist sector knowledge that can be combined with meteorological information to produce new and improved products</p> <p>Improved telecommunications networks</p> <p>Opportunities for push/ pull services (e.g. SMS for push and *number#</p>

<ul style="list-style-type: none"> <li>• Community radio</li> <li>• Independent (private sector) radio</li> <li>• Online media e.g. Igihe</li> <li>• Print media e.g. New Times</li> <li>• Social media</li> <li>• Telecomms e.g. MTN, Tigo, Airtel</li> <li>• Members of the public</li> </ul>	<p>moisture in the air)</p> <p>Communication requirements – language, format, content, timeliness, frequency, editorial line</p> <p>Data</p> <p>Assessment</p> <p>Improvements in technology</p> <p>3G/ 4G networks</p>	<p>call in on radio, chat show on TV)</p> <p><b>Events:</b> (Early) Warnings of flood, drought/ famine, strong winds, landslide</p> <p>Also, expectations of Meteo Rwanda to embrace improvements in technology e.g. networks, penetration of personal devices (e.g. smartphones), applications, connectivity etc.</p>	<p>for pull)</p> <p>Partnerships to develop content and dissemination mechanisms (e.g. app development; posting weather/ climate data on websites etc.)</p> <p>Funding for meteorological infrastructure and services, especially through projects</p>
<ul style="list-style-type: none"> <li>• <b>Agriculture sector</b></li> <li>• Ministry of Agriculture (MINAGRI) and its agencies, including Rwanda Agricultural Board (RAB)</li> <li>• Farmer-promoters (Twigire Muhinzi)</li> <li>• Agricultural extension workers</li> <li>• Other national institutions, including:</li> </ul>	<p>Food security</p> <p>Agricultural intensification programmes</p> <p>Post harvest losses</p> <p>Pests and diseases</p> <p>Commercial agriculture</p> <p>Access to markets – transport</p> <p>Market sensitivities/ vulnerabilities</p>	<p><b>LT:</b> Planning e.g. crops, seeds, locations, agricultural calendar, prevalence of pests and disease, risk analysis, productivity analysis, insurance against losses, post harvest losses, infrastructure (buildings, irrigation, washing stations, storage) etc. and the impact of climate change/ seasonal forecast on all of this</p> <p><b>ST:</b> Local decision making e.g. planting, harvesting – needs local observations, downscaled forecast (especially rainfall and temperature but also wind speed/ direction – the latter especially with respect to pests/ disease, appropriate communication (content, quality, format, language,</p>	<p>Specialist sector knowledge that can be combined with meteorological information to produce new and improved products</p> <p>Funding for meteorological infrastructure and services, especially through projects</p> <p>Social networks (e.g. farming cooperatives) that can be used to improve reach of Meteo’s services</p>

<ul style="list-style-type: none"> <li>• International organisations (and their projects), including:</li> <li>• International Fund for Agricultural Development (IFAD and the PASP Project)</li> <li>• International Centre for Tropical Agriculture (CIAT and the Rwanda Climate Service for Agriculture project)</li> <li>• Insurance companies e.g. Africa Risk Capacity</li> </ul>	<p>Intermediaries</p> <p>Community engagement/ empowerment</p> <p>Insurance</p> <p>Communications</p>	<p>timeliness, frequency)</p> <p><b>Events:</b> Early Warnings of flood, drought/ famine, strong winds</p> <p>Additional for insurance: Observations – satellite and terrestrial (especially rain gauges)</p> <p>Additional for communications: Services that reach farmers e.g. SMS, radio</p>	
<p><b>JRLO sector</b> (Justice, Reconciliation, Law and Order)</p> <p>(including Defence/ Security)</p> <ul style="list-style-type: none"> <li>• Ministry of Defence (MINADEF) <ul style="list-style-type: none"> <li>• RDF</li> </ul> </li> </ul>	<p><b>See also under private sector/ ICT</b></p> <p>Local weather/ climate</p> <p>Regional weather/ climate</p> <p>International weather/ climate (for areas of active operations)</p> <p>Aviation</p>	<p><b>See also under private sector/ ICT</b></p> <p><b>LT:</b> Future projections on climate to inform expectations with respect to defence/ security e.g. food/ water security issues, migration, conflict over natural resources, hot spots</p> <p><b>ST:</b> Forecasts relating to areas of interest linked to operations, especially land, air (including</p>	<p>Specialist sector knowledge that can be combined with meteorological information to produce new and improved products</p> <p>Funding for meteorological infrastructure and services, especially through projects</p>

<ul style="list-style-type: none"> <li>• Rwanda Police</li> <li>• President’s Police</li> <li>• Ministry of Internal Security (MININTER)</li> <li>• Ministry of Foreign Affairs and Cooperation (MINAFFET)</li> </ul>	<p>Disaster management/ response</p> <p>Outdoor operations (land/ air/ marine)– feasibility, trafficability, lake conditions</p> <p>Logistics</p> <p>Effective operation of sensors and weapons</p> <p>Water security</p> <p>Malnutrition</p> <p>Disease – type, prevalence, epidemics (local, national, regional, global)</p> <p>Admissions</p> <p>Disasters/ high impact weather events e.g. flood, drought, strong winds</p> <p>Logistics – access to services and movement of resources (into and</p>	<p>helicopter) and marine (boats on lakes) operations</p> <p><b>Events:</b> (Early) warnings e.g. floods, droughts, famine, strong winds, landslides, earthquakes</p>	<p>Defence is a possible focus sector for the development of paid for commercial weather and climate services</p>
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	<p>around Rwanda)</p> <p>Transport – access to facilities; travel of refugees etc.</p> <p>Women’s health</p> <p>Hygiene</p> <p>Warnings of severe events</p> <p>Information about weather/ climate (e.g. El Nino, future climate)</p> <p>Performance of communications networks (affected by moisture in the air)</p> <p>Communication requirements – language, format, content, timeliness, frequency, editorial line</p> <p>Data</p> <p>Assessment</p> <p>Infrastructure – buildings, services</p>		
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	(including internet) Logistics – especially transport connections and roads		
<p><b>Health sector</b></p> <ul style="list-style-type: none"> <li>• Ministry of Health (MoH)</li> <li>• Public hospitals</li> <li>• Private hospitals</li> <li>• Independent clinics <ul style="list-style-type: none"> <li>• Pharmacies</li> </ul> </li> <li>• NGOs e.g. Partners in Health <ul style="list-style-type: none"> <li>• Health education programmes e.g. Human Resource in Health (HRH, Boston, USA)</li> </ul> </li> <li>• Development partners e.g. DFID, USAID</li> <li>• Ministry of Gender and Family Promotion</li> </ul>	<p>Food security</p> <p>Water security</p> <p>Malnutrition</p> <p>Disease – type, prevalence, epidemics (local, national, regional, global)</p> <p>Admissions</p> <p>Disasters/ high impact weather events e.g. flood, drought, strong winds</p> <p>Logistics – access to services and movement of resources (into and around Rwanda)</p> <p>Transport – access to facilities; travel of refugees etc.</p>	<p><b>LT:</b> Future projections on climate to inform expectations with respect to health in relation to natural disasters, migration, food security, water security, disease etc</p> <p><b>ST:</b> Forecasts relating to areas of interest and for operation of health facilities and programmes for health improvement, disease awareness (especially malaria, cholera, yellow fever), vaccinations etc.</p> <p><b>Events:</b> (Early) warnings e.g. floods, droughts, famine, strong winds, landslides, earthquakes</p>	<p>Specialist sector knowledge that can be combined with meteorological information to produce new and improved products</p> <p>Funding for meteorological infrastructure and services, especially through projects</p> <p>Possible focus sector for the development of paid for commercial weather and climate services</p>



(MIGEPROF)	Women's health Hygiene		
<p><b>Land sub sector</b></p> <ul style="list-style-type: none"> <li>Ministry of Natural Resources (MINIRENA)</li> </ul>	<p>Land use planning (especially relating to flood plains)</p> <p>Policy regulation e.g. pollution</p> <p>Pollution control – including air/ water quality</p> <p>Roads</p> <p>Buildings</p> <p>Built environment</p> <p>Climate change with respect to land use, flooding etc.</p>	<p><b>LT:</b> Planning/ design/ construction</p> <p><b>ST:</b> Operation/ management/ maintenance</p> <p><b>Events:</b> (Early) warnings e.g. floods (fluvial/ pluvial), landslides and responses to accidents (including consultancy)</p>	<p>Specialist sector knowledge that can be combined with meteorological information to produce new and improved products</p> <p>Funding for meteorological infrastructure and services, especially through projects</p> <p>Possible focus sector for the development of paid for commercial weather and climate services</p>
<p><b>Social protection</b></p> <p>(including Disaster Risk Management/ Reduction – DRM/R)</p> <ul style="list-style-type: none"> <li>Ministry of Disaster</li> </ul>	<p>Food security</p> <p>Water security</p> <p>Disease</p> <p>Flood</p> <p>Drought</p> <p>Other high impact</p>	<p><b>LT:</b> Future projections on climate to inform expectations with respect to natural disasters, migration, food security, water security, disease etc</p> <p><b>ST:</b> Forecasts relating to areas of interest and for operation of refugee camps etc.</p> <p><b>Events:</b> (Early) warnings e.g. floods, droughts,</p>	<p>Specialist sector knowledge that can be combined with meteorological information to produce new and improved products</p> <p>Funding for meteorological infrastructure and services,</p>

<p>Management and Refugees (MIDIMAR)</p> <ul style="list-style-type: none"> <li>• Ministry of Local Government (MINALOC) <ul style="list-style-type: none"> <li>• MoH</li> </ul> </li> <li>• UN High Commissioner for Refugees (UNHCR)</li> <li>• Rwanda Defence Force (RDF) <ul style="list-style-type: none"> <li>• Rwanda Police</li> </ul> </li> <li>• International/ NGOs e.g. International Red Cross</li> </ul>	<p>weather events e.g. strong winds</p> <p>Logistics</p> <p>Transport – access to facilities; travel of refugees etc.</p>	<p>famine, strong winds, landslides, earthquakes</p>	<p>especially through projects relating to Early Warning Systems (EWS)</p>
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## **International context**

Meteo Rwanda became a member of the World Meteorological Organization (WMO) in 1963. WMO is a UN Specialized Agency which provides co-ordination, standardisation and advice for its Members.

- NMHSs constitute the "single authoritative" voice on weather warnings in their respective countries, and in many they are also responsible for climate, air quality, seismic and tsunami warnings.
- provision of multihazard warnings and related services, 24 hours a day, seven days a week for 365 days a year
- provide societies with the underpinning information to reduce and mitigate natural disasters
- NMHSs are continuously monitoring the environment through observations of the Earth system and predicting changes in this system.
- contribute essential environmental information and services for urban planning, sustainable energy development, access to freshwater, and food production

The concept of "single authoritative" voice is important in disaster situations to avoid confusion and conflicting advice. This does not mean that other sources of information are excluded, but that responsibility rests with the Government-appointed body.

A multi-hazard framework for disaster planning, warning and response is vital. If individual risk elements are isolated, then the warning and response mechanism for other hazards is less likely to work effectively, particularly for complex emergencies, or for low frequency, high-impact risks.

Numerically, most disaster events are caused by weather, water and climate hazards. Even when weather and water are not the prime causes, weather events may compound the disaster event, and will almost always be a factor in the emergency response and recovery phases. Information on weather and water related events, and the climate information underpinning these is vital in when assessing the risk of natural hazards, and in the scenario planning which is an essential component of disaster preparedness.

The other important service area is services to assist with decision making and planning in a routine context. This covers climate information used in planning and environmental impacts assessments, and the routine services used for decision-making in a wide variety of enterprises and activities.

WMO uses the concept of the PWS to cover those services which are provided as a "Public Good" either direct to the public, or to information intermediaries on behalf of the public. In each nation, there needs to be a debate about the exact scope of the PWS. Typically, the PWS includes the services for safety of life and property and national socio-economic development, the essential infrastructure to gather observation data and to store and make

these available to the public. It will usually include archive and library functions, as well as a core research capability to ensure services are effective and improve. Nations vary on whether they regard services for commercial companies as things which are provided by government or on repayment. Meteorological services for Civil Aviation have a cost-recovery framework in place through IATA.

### **3.4. Baseline Analysis of Institutional, Human and Infrastructure Capacity**

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A baseline analysis was conducted to establish the status of the institution as of July 2016, the start of the refreshed Strategic Plan.

#### **Institutional Framework**

Meteo Rwanda is an autonomous, self-accounting agency whose functions are mandated by the Rwandan law.

Meteo Rwanda is authorised to charge for the services rendered but it has not been implemented because the law guiding cost recovery has not been approved.

Data policy document was developed at Meteo Rwanda waiting for the approval of the relevant authority with aim of streamline the usage and applications of meteorological data

Meteo Rwanda provides data, information and services to a wide range of stakeholders for their social-economic empowerment. Meteo services and products are tailored to the end-users needs in a bid to strengthen economic development of the country. The end users of weather and climate information and products in return gives a feedback which supports the improvement of services and research on changing weather and climate within the country and across the Region.

#### **Funding and financial matters**

Meteo Rwanda receives funding from the Government of Rwanda which is used in its operations. These funds are primarily used for staff remunerations, cover some costs associated with the management and maintenance of network of stations, and infrastructure. The payment of weather and climate services given to the public especially by Short Messages Services (SMSs) is also support by the government funds. The funds from the Government are supplemented by the funds from development partner's projects That support projects which are not funded by the Government.

#### **Quality assurance**

Meteo Rwanda is undergoing implementation of Quality Management System (QMS) and is increasingly putting in place mechanisms for acquiring ISO 9001-2015 certificate. The services and operations offered by Meteo Rwanda should be done according to the required standards of World Meteorological Organization (WMO) and International Civil Aviation Authority Organization (ICAO). The aim of this process is to ensure compliance of Meteo Rwanda products and services with recognised standards and by undertaking the following activities:

- Ensure compliance of meteorological services to the recommended National and International Quality Management Framework requirements and standards;

- Work towards appropriate quality and other required certifications;
- Develop and review standards for staff competence assessment; and
- Work towards a comprehensive QMS for the whole institution, conducting internal and external audits as required.

### Human resources

Meteo Rwanda after acquiring an autonomous status in 2011 was therefore allowed to employ the staffs on permanent and pensionable contract from July 2014. The Agency was required to recruit and to fill the structure with 96 personnel and currently we have reached 61, the existing staff on short-term contracts were laid off. The previous staffs with significant experience were not all offered permanent contracts because the recruitment process favoured academic qualifications than experience and there was a high staff turnover.

Although the gazetted Meteo Rwanda structure allows for 96 staff, the current mandate requires more workforce to become more effective such as in Weather application service, Data Quality Control and in Administration-Planning, M&E.

A significant number of new staff have been recruited in recent years; which was done in phases because of lack of enough budget for their salaries. The comprehensive induction process, the Vision, Mission and core values of Meteo Rwanda, QMS and of how their jobs contribute to the success of the organisation have been developed. The availability of specialist training is also an issue for new and incumbent staff. The national/local training and other high level trainings are provided outside the country which require reasonable support for funding.

### Status of current staff

Education	Gender		Total
	Men	Women	
<b>Total</b>	<b>48</b>	<b>13</b>	<b>61</b>

### Infrastructure and equipment

Meteo Rwanda requires adequate infrastructure (office accommodation, equipment and instruments) in order to monitor the weather and climate, data processes, products and services. Meteo Rwanda is obliged to fully comply with national and international recommended standards and practices in establishing, operating and maintaining meteorological infrastructure in the country.

Infrastructure	Current status	Usage
Meteorological stations network	1 Doppler weather Radar	Used to capture real time weather parameters for early warning and short range information provision
	41 Full Automatic Weather stations which send	Capturing and transmitting at least 7 on-site weather parameters each 30

	data in real time	minutes in the centralised database.
	100 Automatic rain gauges which send data in real time	Used in forecasts verification
	4 Synoptic stations	Manned by permanent staff/24 hours/7, Collect and submit data on synoptic hours that are exchanged world wide
	9 Agro Met Stations	Manned by permanent staff 16 hours/7, collect and submit data that are used during the forecasts preparation
	68 rainfall, 65 climatological all are manual stations	Manned by volunteer observers who collect morning and evening data and transmit them occasionally.
Systems	Data management (CLIMSOFOT ver. 4, MS Excel)	An updated version of CLIMSOFOT was installed and helps to manage weather data.
	Data analysis and modelling (Cluster computer, SYNERGY, MESA, PUMA, Maproom).	Used in the interpretation of weather data from Satellites.
Weather Studio	Equipped with basic installations but requires more resources to exploit it.	Should be used to produce TV weather presentation
Buildings	Meteo Rwanda has buildings at 3 sites, however there is a need to build 3 provincial offices and shelter for 6 sites for agro Met stations.	These stations collect data which Forecasters use to predict weather site specific
ICT and Office equipment	Meteo Rwanda has computers and servers (used for at least 2 years); office desks for all staff	All are tools to help staff to perform their duties

### 3.5. Emerging Issues

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#### The WMO Strategic Plan 2016-2019

The WMO Strategic Plan sets the directions and priorities to guide the activities of Members and all WMO constituent bodies to enable all Members to improve their core information, products and

services, maintain necessary infrastructures, and to directly benefit from advancements in science and technology. The WMO Strategic Plan emphasizes the following **key priorities**, which outline the benefits and improvements to the capacity of all Members:

- Disaster Risk Reduction (DRR);
- WMO Integrated Global Observing System (IGOS);
- Global Framework for Climate Services (GFCS);
- Aviation meteorological services; and
- Capacity Development and Governance

These are all relevant to the future strategy of Meteo Rwanda.

### **The AMCOMET Integrated Strategy for Africa**

The African Ministerial Conference on Meteorology (AMCOMET) was established as a high-level mechanism for the development of meteorology and its applications in Africa. It is committed to strengthen and sustain NMHS by providing them with the necessary resources and adequate institutional frameworks to enable them to fully perform their roles as a fundamental component of national development infrastructures.

As a key joint initiative of the African Union and the WMO, AMCOMET leads the planning and response efforts, through *the Integrated African Strategy on Meteorology (Weather and Climate Services)* (the Integrated African Strategy), to ensure that NMHS in Africa can better address climate variability and change.

### **National strategy planning after EDPRS 2**

GoR will soon embark on planning for a new National planning strategy to set the framework for Rwanda's progress from Vision 2020 to its 2050 vision for green growth and climate resilience. Climate change has already been identified as a cross-cutting theme in EDPRS2. Meteo Rwanda and its sister agencies within MINIRENA can be expected to contribute to the planning in process through providing information relating the context of climate change and as a participant in the planning process as an agency of GoR.

### **Data**

“Data Revolution” is a policy being developed by the Government of Rwanda. This uses the concept of “big data” in order to drive the development of innovative services. This fits with the Vision 2020 aim to move to a knowledge-based economy with a vibrant IT and services sector. Since Meteo Rwanda is the custodian of the national climate database, the data controlled by Meteo Rwanda should be part of this project. There are significant advantages in terms of organisational visibility and funding if Meteo Rwanda offers to become part of this drive at an early stage. However it is also important that Meteo Rwanda continues to control and manage the climate data directly, and the public access to these data should be through a suitable portal, which references the actual climate database, and not a copy stored elsewhere.

In the light of the national policy, Meteo Rwanda has drafted a new data policy; this will need to be regularly reviewed to keep pace with changes in technology, sources of data (including that from competitors) and the increased demand for data and information from the user community.

Now that the Meteo Rwanda radar is operational, the action envisaged under the EAC Meteorology strategy for networking and data exchange of information from radars in the region (especially with TMA Mwanza radar) should be started.

The Weather Observations Website (see <http://wow.metoffice.gov.uk/>) has been re-built. It would be opportune to request development of a Rwanda-specific portal to this data store, which can be embedded within the Meteo Rwanda website. This would give a significant increase in capability to manage observations provided by third-party operators of AWSs in the country, as well as improving the availability of these data to the meteorologists in Meteo Rwanda, and the ability to visualise data from other sites in neighbouring countries.

## **Research**

The HIWeather project<sup>4</sup> of WMO World Weather Research Programme is being implemented. This envisages implementing a 1.5Km modelling capability over the Lake Victoria basin. It would be timely and appropriate for Meteo Rwanda to explore involvement in this project, and especially how to get access to the model products.

The MESA project is now in operation <http://rea.au.int/mesa/> and has delivered PUMA2015 forecaster workstations. In addition, the project aims to increase access to and use of earth observation data, so future work will enable better exploitation of the data feeds using other tools. Particular aims should be to enable data feeds to other users both internally and externally, and implement data-driven products and services.

## **3.6. Conclusions from Environmental Scan**

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Meteo Rwanda is a public institution mandated to provide weather related information and advices to every user for the safety and better planning.

In order to serve the purpose, Meteo Rwanda contribute to various strategies that the Government set or adopted such as the EDPRS, the Vision 2020 and SDGs.

Therefore, to carry the tasks, Meteo Rwanda has Basic Technical infrastructure, the minimum workforce and budget.

While performing the mandate, Meteo Rwanda faces various obstacles of having limited funding, staff effective, capacity and capabilities, uptake of products by users and straggling to working in manual system in weather data collection and transmission.

To satisfy to these and other needs, Meteo Rwanda has set a number of priorities and has concentrated its actions to serve Rwandans and all the interested parties as per the Log frame shows.

## **4. ORGANIZATIONAL VISION, MISSION AND CORE VALUES**

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<sup>4</sup> [http://www.wmo.int/pages/prog/arep/wwrp/new/high\\_impact\\_weather\\_project.html](http://www.wmo.int/pages/prog/arep/wwrp/new/high_impact_weather_project.html)



The vision and mission for Meteo Rwanda have not been changed in the refresh of this Strategic Plan, neither has the organisational mandate, which is gazetted in Rwandan law. However, a set of organisational values had not previously been defined, so these have now been included.

## 4.1. Vision

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### **Vision Statement**

*To be a Meteorological Service that is highly efficient and effective, customer and employee focused*

## 4.2. Mission

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### **Mission Statement**

To provide accurate, timely weather and climate information and products for the general welfare of the peoples of Rwanda

### 4.3. Organizational Mandate

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Meteo Rwanda's mandate is gazetted in Rwanda law, with 14 core roles, as summarised in the box below. The full gazette is at Annex 1.

**EXTRACT from: *Official Gazette n° 04 of 23/01/201218***

**LAW N°54bis/2011 OF 14/12/2011 ESTABLISHING RWANDA METEOROLOGY AGENCY (METEO RWANDA) AND DETERMINING ITS MISSION, ORGANISATION AND FUNCTIONING**

**CHAPTER II: MISSION OF METEO RWANDA**

**Article 4: Mission of METEO RWANDA**

The mission of METEO RWANDA shall consist of implementing the Government policy in relation to meteorology using modern methods of study, research, coordination and promotion of programmes in the field of meteorology.

METEO RWANDA shall be particularly responsible for the following:

- 1° to establish meteorological stations across the country to identify each climatic zone, monitor such characteristics of and use them towards national development;
- 2° to collect, gather and access data of meteorological elements from around the country, and exchange related informations to ensure the security of people and the property in accordance with international agreements to which Rwanda is signatory;
- 3° to approve weather and climate change data;
- 4° to establish a special communication network to be used in collecting and disseminating meteorological elements in accordance with the rules of the World Meteorological Organisation;
- 5° to publish and disseminate meteorological data for short and long term weather forecasts towards national development activities;
- 6° to provide advance information on unusual weather conditions that may cause disasters, provide advice and educational information through the medias and provide meteorological information to any interested person;
- 7° to monitor, analyze and advise on global climate change;
- 8° to encourage and assist initiatives to install meteorological stations;
- 9° to collect and analyse meteorological data to preserve the meteorological nature;
- 10° to ensure the implementation of international agreements that are ratified by Rwanda and relating to meteorology;
- 11° to make meteorological study and research and implement the outcome of the research;
- 12° to make a partnership with other regional or international agencies that have the same mission in relation to the meteorology in accordance with International Agreements on Meteorology;
- 13° to advise the Government on Meteorological policy;
- 14° to monitor and develop science, training and advocacy on Meteorology.

## 4.4. Core Values

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### **Values Statement**

*Team Work, Integrity, Customer Focus and Innovation (TICI)*

## 5. STRATEGIC FRAMEWORK

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### 5.1. Strategic Goals, Objectives and Strategies

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#### 5.1.1. Goal

##### Goal

Goals that Meteo Rwanda has determined to focus on are:

- Strategic Goal #1: Better application of weather and climate warnings and forecasts to improve safety of life and property through
- Strategic Goal #2: Better use of weather and climate products and services to improve socio-economic sustainable development
- Strategic Goal #3: Improve availability and accessibility of quality weather and climate data and information services for research, planning and decision making

#### 5.1.2. Objectives

1. Provide timely and quality sector based weather and climate information through Multi Hazard Early Warning System (MHEWS) Provide warnings of high-impact weather events to the public
2. Provide weather and climate risk analyses to inform disaster risk management and reduction
3. Develop innovative products and services to meet the needs of EDPRS priority sectors
4. Improve reach of products and involvement with users and stakeholders, including to community level and through social media
5. Improve availability, accessibility and exchange of weather and climate data and information locally, nationally, regionally and globally
6. Improve use of weather and climate data and information for planning, design and operational decision making
7. Actively manage National Climate Database which meets current and future need for weather and climate information

### 5.1.3. Strategies

**Table 4: Strategies**

<b>Goal 1: Better application of weather and climate warnings and forecasts to improve safety of life and property through</b>				
<b>Objectives</b>	<b>Strategies</b>	<b>Outputs</b>	<b>Timeframe</b>	<b>Responsibilities</b>
<b>Objective 1.1:</b> Provide timely and quality sector based weather and climate information through Multi Hazard Early Warning System (MHEWS)	Empower the 24/7 EWS	Timely and quality sector based weather and climate information Provide through Multi Hazard Early Warning System (MHEWS)	From 2017 to 2019	DRR involved institutions
<b>Objective 1.2:</b> Provide warnings of high-impact weather events to the public	Improve the efficiency of the Doppler Weather Radar	Warnings of high-impact weather events provided to the public	From 2017 to 2019	Meteo Rwanda
<b>Objective 1.3:</b> Provide weather and climate risk analyses to inform disaster risk management and reduction	Collaboration with academic and research institutions	Weather and climate risk analyses provided to inform disaster risk management and reduction	From 2017 to 2019	Meteo Rwanda and University of Rwanda
<b>Goal 2: Better use of weather and climate products and services to improve socio-economic sustainable development</b>				
<b>Objectives</b>	<b>Strategies</b>	<b>Outputs</b>	<b>Timeframe</b>	<b>Responsibilities</b>
<b>Objective 2.1:</b> Develop innovative products and services to meet the needs of EDPRS priority sectors	Collaboration with user sectors	Innovative products and services developed to meet the needs of EDPRS priority sectors	From 2017 to 2019	Meteo Rwanda
	Involvement of experts			

<b>Objective 2.2:</b> Improve reach of products and involvement with users and stakeholders, including to community level and through social media	Increase awareness campaigns and user training	Improved reach of products and involvement with users and stakeholders, including to community level and through social media	From 2017 to 2019	Meteo Rwanda
	Collaboration with Media houses and use available social media			
<b>Goal 3: Improve availability and accessibility of quality weather and climate data and information services for research, planning and decision making</b>				
<b>Objectives</b>	<b>Strategies</b>	<b>Outputs</b>	<b>Timeframe</b>	<b>Responsibilities</b>
Improve availability, accessibility and exchange of weather and climate data and information locally, nationally, regionally and globally	<b>To integrate all sources of data into one system</b>	Improved availability, accessibility and exchange of weather and climate data and information locally, nationally, regionally and globally	From 2017 to 2019	<b>Meteo Rwanda</b>
Improve use of weather and climate data and information for planning, design and operational decision making	Produce reliable climate data and information	Improved use of weather and climate data and information for planning, design and operational decision making	From 2017 to 2019	Meteo Rwanda
Actively manage National Climate Database which meets current and future need for weather and climate information	<b>Put in place a secure system for real time data flow, archiving and retrieval</b>	Actively managed National Climate Database which meets current and future need for weather and climate information.	From 2017 to 2019	<b>Meteo Rwanda</b>





## 5.1.1. Logical Framework

Version 1: Format as per WMO Figure 1

<b>Impact: Environmental management improved and vulnerability to climate change reduced by providing accurate, timely weather and climate information and products for the general welfare of the Republic of Rwanda</b>							
<b>Outcome 1:</b> Improved safety of life and property through better application of weather and climate warnings and forecasts			<b>Outcome 2:</b> Improved socio-economic sustainable development through better use of weather and climate products and services		<b>Outcome 3:</b> Improved availability and accessibility of quality weather and climate data and information services for research, planning and decision making		
<b>Output 1.1:</b> Timely and quality sector based weather and climate information Provide through Multi Hazard Early Warning System (MHEWS)	<b>Output 1.2:</b> Warnings of high-impact weather events provided to the public	<b>Output 1.3:</b> Weather and climate risk analyses provided to inform disaster risk management and reduction	<b>Output 2.1:</b> Innovative products and services developed to meet the needs of EDPRS priority sectors	<b>Output 2.2:</b> Improved reach of products and involvement with users and stakeholders, including to community level and through social media	<b>Output 3.1:</b> Improved availability, accessibility and exchange of weather and climate data and information locally, nationally, regionally and globally	<b>Output 3.2:</b> Improved use of weather and climate data and information for planning, design and operational decision making	<b>Output 3.3:</b> Actively managed National Climate Database which meets current and future need for weather and climate information.

**Activities:**

Activity 1.1.1: Improve information supply to a comprehensive Multi Hazard Early Warning System (MHEWS)

Activity 1.2.1: Put in place a proper system to produce and channel all weather warnings

Activity 1.3.1: Disaster planners develop their plans taking account of improving skills of available forecasts on all timescales.

Activity 2.1.1: Monitor usage of weather and climate information in plans, design and operation of infrastructure facilities, including climate change impacts

Activity 2.2.1: Engage different communities to use weather and climate products by using different measures

Activity 2.2.1: Engage different communities to use weather and climate products by using different measures

Activity 3.1.1: Improve observations and data exchange for national and global timely use

Activity 3.2.1: Promote greater awareness of the benefits of Meteorological services, information and products

Activity 1.3.1: Control and manage the climate data directly, and the public access to these data should be through a suitable portal based on National Climate Database.

**Inputs:** financial, human, material resources used

**Assumptions:**

Outcome 1: Preventive measures to save lives are taken on time

Outcome 2: Capacity of Meteo Rwanda to produce innovative products

Outcome 3: Users' plans and decision making are informed by Meteo Rwanda information

**External Factors:** Sufficient funds, Availability of Expertise, Political will to develop Meteo services

## 5.1.2. Risk Assessment

RISKS TO PROGRAMME/PROJECT AND POLICY INITIATIVES						
Programme/Project/Policy Initiatives	Risks	Impact	Probability	Mitigating Measure/Response	Year 1	Year 2
					2020	2021
Weather data archives	Crash of the weather databank	Loss data and not serving users	Medium	Avoidance	Backup	
				Reduction		
				Sharing	Subscribe to cloud computing	
				Acceptance		
Product and dissemination of weather and climate information	Availability of expertise to develop product	Unsatisfied users	Medium	Avoidance		
				Reduction	Meeting with high level Authorities	
				Sharing		
				Acceptance		
ORGANIZATIONAL RISKS						
Programme/Project/Policy Initiatives	Risks	Impact	Probability	Mitigating Measure/Response	Year 1	Year 2
					2020	2021
Organisational structure	Delay to aligning the structure to the institutional need	Inefficiency in service delivery	Medium	Avoidance		
				Reduction	To hire contractual staff paid through projects	
				Sharing		
				Acceptance		
Human resource retention	Staff turnover	Loss of experienced workforce	Medium	Avoidance		
				Reduction	Establishment of retention policy	
				Sharing		
				Acceptance		

## 5.2. Communicating the Strategic Plan

One of the values of Meteo Rwanda is team working. For proper ownership of the Strategic Plan at all levels, there is need for engagement of the workforce.

Communicating the Strategic Plan will be done through different channels such as: Departmental meetings, posting it on the website, bearing in mind that employees have different learning styles. Therefore, it requires to use a mixture of various avenues such as social media, video, audio, visual and written formats.

To ensure that the Strategic Plan is effectively implemented, regular follow up and status reporting shall be done at all levels. This may involve Top level and mid management staff training.

Meteo Rwanda shall organise periodic reviews of the strategic plan to stay in tune with what is and isn't working properly, to improve result based planning and budgeting.

### 5.3. Financing the Strategic Plan

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This plan is expected to be funded by the Government budget at 10% and remaining should come from development partners.

The Government normally pays total salaries for permanent staff, some running expenses and some capital expenditure.

**Table showing the source of Funds**

Activity	Funder	% of total budget
Pay salaries for permanent staff	Government of Rwanda	100%
Pay of office consumables,	Government of Rwanda	30%
	Project	70%
Sponsor staff for short and long term training	Government of Rwanda	30%
	Projects	70%
Technical activities	Government of Rwanda	30%
	Projects	70%

## 6. MONITORING AND EVALUATION

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The Monitoring and Evaluation this strategic plan will guide Meteo Rwanda management to Plan and manage all Monitoring and Evaluation activities throughout planning period.

It keeps track of what you should monitor, when you should monitor, who should monitor, and why you should monitor. Meteo Rwanda is using a monitoring and evaluation system to measure the progress being made towards the achievement of expected results defined in the Meteo Rwanda Strategic Plan. It is expected that results-based management (RBM) will assist Meteo Rwanda to take timely, remedial action when and where it is needed, in order to achieve the expected results of its Strategic Plan (SP) and its associated Single Action Plan (SAP). **The Timing of the M&E process**

Since the plan consist of a variety of activities with different gestation periods, different monitoring schedules are required. What is critical in all cases is the need to define the specific period for the M&E exercise and to stick to it consistently. This will be done on a continuous basis through management meetings and reports will be produced on a quarterly basis with a comprehensive review every quarter.

### **The M&E actors**

Actors responsible for monitoring and evaluation of activities are heads of units who are in charge of implementing those activities. However, it is important to stress that the participatory approach that involves many stakeholders in the M&E process should be adopted. This will ensure that the various dimensions of outputs will be fully and objectively assessed. The planning officer will continuously assist in coordinating all activities necessary to monitor and evaluate all outputs and activities and with a view to advising the management, implementing teams and stakeholders on the implementation status as well as offer feasible strategic alternatives.

## 6.1. Monitoring

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The monitoring action of Meteo Rwanda is monitor the key outcomes that are the likely to be achieved, short-term and medium-term effects of accomplished deliverables/outputs related to programme areas that define the parameters for the unique contribution by Meteo Rwanda in the progress to achieve expected results. There are several outcomes for each expected

result. For each outcome, there are a set of KPIs to measure the achievement of the outcome. These are listed in the Meteo Rwanda action Plan.

The following are the key Outcomes to be achieved by the institution:

**Outcome 1:** Environmental management improved and vulnerability to climate change reduced

**Outcome 2:** Improved productivity through use of weather and climate information

**Outcome 3:** Increased local and worldwide confidence to Meteo Rwanda's products and services through ISO 9001 certification

The following Key performance indicators

KPIs for outcome 1 are:

- Number of customers served annually through dissemination channel
- Proportion of weather and climates products and services timely disseminated for general use
- Rate of accuracy of disseminated weather and climate products and services

KPIs for outcome 2 are:

- Total number of users in sectors requesting for data that factoring weateher and climate information in their planning and decision making

KPIs for outcome 2 are:

- ISO 9001:2015 Quality Management System (QMS) certification status
- Number of actions done for awareness promotion
- Level of integration of Meteo Rwanda.

The following table 5 gives the measurement framework.



**Table 5: NMHS Performance Measurement Framework**

Expected Results	Indicators	Baseline	Targets	Data Source	Data Collection Methods	Frequency	Responsibility
<b>Impact:</b> Increased resilience of households, communities, businesses, sectors and society to climate variability and climate change	Proportion of poor people supported by Government to cope with the effects of climate change	10%	50% by 2023	Survey of Living conditions	Document Review	Every 2 years	NMHS
<b>Outcome 1:</b> Improved delivery of effective weather, climate and hydrological services and processes	Level of citizen's satisfaction with weather, climate and hydrological services and processes	30%	At least 60%	Survey findings	Survey	Every 2 years	NMHS
<b>Outcome 2:</b> Strengthened partnerships among global, regional and national actors to improve NMHSs' performance	Proportion of new collaborations with businesses at global, regional and national levels contributing to the implementation of NMHS's programmes	10%	50%	MOU	Document Review	Annually	NMHS, Private Sector entities
<b>Output 1.1:</b> Multi-hazards early warning systems implemented	Number of EWS	3	6	Annual Report	Document Review	Every 2 years	NMHS
<b>Output 1.2:</b> Accurate forecasts and warnings delivered from the Regional Centre	Number of forecasts or warnings issued	6 issued daily	15 issued daily	Weather and climate reports	Document Review	Annually	NMHS

## 6.2. Evaluation

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Evaluation of the strategic plan involves three major questions: how evaluation will be done, when it will be carried out and the responsible person or unit.

### 6.2.1: How evaluation of Meteo Rwanda's Strategic plan will be done

One key aspect of Strategic planning is the evaluation of your implementation of the strategic plan and your program activities. Your program develops evaluation questions and collects data to inform the annual work plan for the coming year. Evaluation data are used to monitor how the five-year strategic plan is progressing. The products of the Evaluation step are evaluation findings, summaries of how the strategic plan is progressing, and description of changes to program activities based on evaluation findings. Evaluation of the strategic plan requires ensuring that you have established a good set of questions:

What happened?

Were the activities successful?

What could be done better?

What lessons were learned?

6.2.2: Frequency of evaluation of Meteo Rwanda's Strategic plan

Meteo Rwanda will be carrying out evaluation activities twice every year

6.2.3: Responsible department/unit

Meteo Rwanda has different departments that will carry out different activities. The evaluation

## 6.3. Reporting

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Reporting is one of the cornerstones of the M&E process. It comprises of method of reporting, channels of communication and the feedback system. The appropriate specific methods of reporting selected by the board of directors, director general and heads of units for the M&E exercise are verbal and written methods.

Rwanda Meteorology Agency shall produce the following reports:

a) A monthly report which will cover all the activities undertaken during the month and will be aligned with units' work plans to ensure that institutional annual action plan is translated into daily tasks and thus reduce ad hoc activities.

b) A quarterly progress report which will indicate both the level of achievements of scheduled activities during the quarter, the explanations on shortcomings and the corrective measures taken to address them as well as plans for the next quarters. The implementing

units should prepare quarterly progress reports and the Planning officer should assist in completing and coordinating the reports prior to their presentation. Reports should describe actions taken by units toward achieving specific outcomes and outputs of the plan and may include costs, benefits, performance measures and progress to date.

c) A semester report that summarizes performance achievements in all areas will be submitted to the board of directors. It will also provide the basis for reporting to the parent Ministry of Natural resources (MINIRENA).

d) An annual report, which will combine all reports, produced during the year. The annual monitoring reports from each unit will be merged into this annual report to be used to assess progress towards the attainment of the organizational outcomes and targets.

The channels through which the M&E information should reach the authorities are consultative meetings and mailing systems.

Following the review of the M&E report, the reactions of the authorities and other stakeholders should be conveyed back to the implementing actors through a feedback system. Where necessary, the feedback will be used to fine-tune the implementation process. Where this feedback system is lacking, the M&E process is of little or no value. The processes outlined above should be followed at all levels of the implementation process.

This will ensure effective implementation of this strategic plan. The board of directors should take active role in the monitoring and evaluation of the plan implementation process.

### **Progress assessment meetings**

In order to ensure quality and timeliness of expected outputs, the following meetings are proposed to be held:

- Management monthly meeting: where the management committee assesses the progress of implementation of the annual action plan during the ending month and plan for the coming month.
- Quarterly meeting: Progress monitoring meetings will be held quarterly to discuss and review achievements, where the staff members present their achievements and with the help of the management, they assess collectively the level of everyone's target achievement. All senior officers will attend this meeting.

## 7. ANNEXES

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# ANNEX 1: OFFICIAL GAZETTE

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*Official Gazette n° 04 of 23/01/201218*

**LAW N°54bis/2011 OF 14/12/2011 ESTABLISHING RWANDA METEOROLOGY AGENCY (METEO RWANDA) AND DETERMINING ITS MISSION, ORGANISATION AND FUNCTIONING**

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**LAW N°54bis/2011 OF 14/12/2011 ESTABLISHING RWANDA METEOROLOGY AGENCY (METEO RWANDA) AND DETERMINING ITS MISSION, ORGANISATION AND FUNCTIONING**

**We, KAGAME Paul,**

President of the Republic;

**THE PARLIAMENT HAS ADOPTED AND WE SANCTION, PROMULGATE THE FOLLOWING LAW AND ORDER IT BE PUBLISHED IN THE OFFICIAL GAZETTE OF THE REPUBLIC OF RWANDA**

**THE PARLIAMENT:**

The Chamber of Deputies, in its session of 05 October 2011;

The Senate, in its session of 7 September 2011;

Pursuant to the Constitution of the Republic of Rwanda of 04 June 2003 as amended to date, especially in Articles 62, 66, 67, 88, 89, 90, 92, 93, 94, 95, 108, 113, 118, 183 and 201; to Organic Law n° 06/2009/OL of 21/12/2009 establishing general provisions governing public institutions;

**ADOPTS:**

**CHAPTER ONE: GENERAL PROVISIONS**

**Article One: Purpose of this Law**

This Law establishes Rwanda Meteorology Agency referred to by the abbreviation “METEO RWANDA”. This Law also determines its mission, organization and functioning.

METEO RWANDA shall have legal personality, administrative and financial autonomy and shall be managed in accordance with general provisions governing public institutions.

**Article 2: Definitions of terms**

In this Law, the following terms shall be defined as follows:

- 1° **meteorological stations:** facility observing atmospheric conditions to provide information for weather forecast and to study the weather and climate in accordance with World Meteorological Organisation;
- 2° **weather:** state of the atmosphere as defined by the various meteorological elements;
- 3° **meteorological element:** atmospheric variable or phenomenon which characterize the state of the weather at a specific place at a particular time;
- 4° **weather forecasting:** statement of expected meteorological conditions for a specific period and for a specific area or portion of air space;
- 5° **climate change:** significant change in the mean values of a meteorological element in ten years or more.

### **Article 3: Head office of METEO RWANDA**

The head office of METEO RWANDA shall be located in Kigali City, the Capital of the Republic of Rwanda. It may be transferred elsewhere on the Rwandan territory, if deemed necessary.

METEO RWANDA may, in order to fulfil its mission, have branches elsewhere in the country if deemed necessary upon approval by the Order of the Prime Minister.

## **CHAPTER II: MISSION OF METEO RWANDA**

### **Article 4: Mission of METEO RWANDA**

The mission of METEO RWANDA shall consist of implementing the Government policy in relation to meteorology using modern methods of study, research, coordination and promotion of programmes in the field of meteorology.

METEO RWANDA shall be particularly responsible for the following:

- 1° to establish meteorological stations across the country to identify each climatic zone, monitor such characteristics of and use them towards national development;
- 2° to collect, gather and access data of meteorological elements from around the country, and exchange related informations to ensure the security of people and the property in accordance with international agreements to which Rwanda is signatory;
- 3° to approve weather and climate change data;
- 4° to establish a special communication network to be used in collecting and disseminating meteorological elements in accordance with the rules of the World Meteorological Organisation;
- 5° to publish and disseminate meteorological data for short and long term weather forecasts towards national development activities;
- 6° to provide advance information on unusual weather conditions that may cause disasters, provide advice and educational information through the medias and provide meteorological information to any interested person;
- 7° to monitor, analyze and advise on global climate change;
- 8° to encourage and assist initiatives to install meteorological stations;
- 9° to collect and analyse meteorological data to preserve the meteorological nature;
- 10° to ensure the implementation of international agreements that are ratified by Rwanda and relating to meteorology;
- 11° to make meteorological study and research and implement the outcome of the research;
- 12° to make a partnership with other regional or international agencies that have the same mission in relation to the meteorology in accordance with International Agreements on Meteorology;
- 13° to advise the Government on Meteorological policy;
- 14° to monitor and develop science, training and advocacy on Meteorology.

## **CHAPTER III: SUPERVISING AUTHORITY OF METEO RWANDA AND ITS CATEGORY**



### **Article 5: Supervising authority of METEO RWANDA and its category**

A Prime Minister's Order shall determine the supervising authority of METEO RWANDA and its category.

There shall be concluded between the supervising authority of METEO RWANDA and its decision-making organ a performance contract indicating competence, rights and obligations of each party in order for METEO RWANDA to fulfill its missions.

Such a contract shall be valid for a period equal to the term of office of members of the decision-making organ of METEO RWANDA.

## **CHAPTER IV: ORGANISATION AND FUNCTIONING OF METEO RWANDA**

### **Article 6: Management organs of METEO RWANDA**

METEO RWANDA shall be comprised of the following two (2) management organs:

- 1° the Board of Directors;
- 2° the General Directorate.

A Prime Minister's Order may determine other relevant organs in order for METEO RWANDA to fulfill its missions.

### **Section One: Board of Directors**

#### **Article 7: Board of Directors of METEO RWANDA**

The Board of Directors of METEO RWANDA shall be the governing and decision-making organ. The competence, responsibilities and functioning of the Board of Directors as well as the duties and the term office of its members shall be determined by a Prime Minister's Order.

A Presidential Order shall appoint members of the Board of Directors including the Chairperson and the Deputy Chairperson. Members of the Board of Directors shall be selected on the basis of their competence and expertise.

At least thirty percent (30%) of the members of the Board of Directors shall be females.

#### **Article 8: Sitting allowance for members of the Board of Directors**

Members of the Board of Directors present in its meetings shall be entitled to sitting allowances determined by a Presidential Order.

#### **Article 9: Incompatibilities with membership on the Board of Directors**

The members of the Board of Directors shall not be allowed to perform any remunerated activity within METEO RWANDA.

They are also not allowed whether individually or companies in which they hold shares, to bid for tenders of METEO RWANDA.

### **Section 2: General Directorate**

**Article 10: Members of the General Directorate of METEO RWANDA**

Members of the General Directorate of METEO RWANDA shall be appointed by a Presidential Order.

The competence, responsibilities and modalities of functioning of members of the General Directorate shall be determined by a Prime Minister's Order.

**Article 11: Statutes governing staff of METEO RWANDA and benefits allocated to members of the General Directorate and the staff of METEO RWANDA**

The staff of METEO RWANDA shall be governed by the General Statute for Rwanda Public Service.

Benefits to members of the Directorate General and staff of METEO RWANDA shall be determined in accordance with legal provisions governing benefits to employees of public institutions.

**Article 12: Functioning, organization and responsibilities of organs of METEO RWANDA**

The functioning, organization and responsibilities of organs of METEO RWANDA shall be determined by a Prime Minister's Order.

**CHAPTER V: PROPERTY AND FINANCE**

**Article 13: Property of METEO RWANDA and its source**

The property of METEO RWANDA shall be comprised of movables and immovable.

The property of METEO RWANDA shall come from the following sources:

- 1° the government budget allocation;
- 2° government or donor grants;
- 3° proceeds of its services;
- 4° incomes from its property;
- 5° loans extended to METEO RWANDA approved by the Minister in charge of Finance;
- 6° donation and bequest.

**Article 14: Use, management and audit of the property**

The use, management and audit of the property of METEO RWANDA shall be carried out in accordance with relevant legal provisions.

The internal audit department of METEO RWANDA shall submit a report to the Board of Directors and with a copy to the Head of the General Directorate of METEO RWANDA.

Audit shall also be performed by the Office of Auditor General of State Finances every year and any other time when necessary.

**Article 15: Approval and management of the budget of METEO RWANDA**

The budget of METEO RWANDA shall be approved and managed in accordance with relevant legal provisions.

**Article 16: Annual financial report**

Within three (3) months following the end of the financial year, the Head of the General Directorate of METEO RWANDA shall submit to the supervising authority of METEO RWANDA an annual financial report after its approval by the Board of Directors, in accordance with legal provisions governing the management of State finance and property.

**CHAPTER VI: TRANSITIONAL AND FINAL PROVISIONS**

**Article 17: Transitional period**

METEO RWANDA shall have one (1) year, from the date of the publication of this Law in the Official Gazette of the Republic of Rwanda to merge all activities that was performed by other institutions.

**Article 18: Drafting, consideration and adoption of this Law**

This Law was drafted in English, examined and adopted in Kinyarwanda.

**Article 19: Repealing provision**

All prior legal provisions contrary to this Law are hereby repealed.

**Article 20: Commencement**

This Law shall come into force on the date of its publication in the Official Gazette of the Republic of Rwanda.

Kigali, on **14/12/2011**

(sé)

**KAGAME Paul**

President of the Republic

(sé)

**HABUMUREMYI Pierre Damien**

Prime Minister

**Seen and sealed with the Seal of the Republic:**

(sé)

**KARUGARAMA Tharcisse**

Minister of Justice/Attorney General



## **ANNEX 2: MEMBERS OF THE STRATEGIC PLANNING TEAM**

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- 1) *Mr. John NTAGANDA SEMAFARA; Director General of Meteo Rwanda*
- 2) *Mr. Livingstone BYANDAGA; FONERWA Project Manager/Meteo Rwanda*
- 3) *Mr. Didace MUSONI; Division Manager of Data Observation, Quality Control and Processing Division/Meteo Rwanda*
- 4) *Mr. Anthony TWAHIRWA; Division Manager of Weather/Climate Services and Applications Division/Meteo Rwanda*
- 5) *Mr. Francois NSENGIYUMVA; Acting Division Manager of Technology and Information Support Services Division/Meteo Rwanda*
- 6) *Ms. Rebecca Venton; FONERWA Project Technical Coordinator/Meteo Rwanda*
- 7) *Mr. Jean MUNYARUGERO; Planning, Monitoring and Evaluation Officer/Meteo Rwanda*
- 8) *Mr. David ASIIMWE, Human Resource and Capacity Development Specialist/Meteo Rwanda*
- 9) *Mr. Steve Palmer; Consultant/Wiser*

## **ANNEX 3: LIST OF PERSONS/ORGANIZATIONS CONSULTED**

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- 1) *Ms. Rebecca Venton; Senior International Development Manager, Met Office, United Kingdom*
- 2) *Mr. Steve Palmer; Wiser Consultant/Met Office, United Kingdom*

# ANNEX 4: ACTION PLAN

Table 7: Action Plan

<p><b>Result Area 1 (Outcome 1):</b> Improved safety of life and property through better application of weather and climate warnings and services</p> <p><b>Key Indicators:</b> <i>Effective disaster planning and response systems are implemented.</i></p>			
Outputs	Activities	Time frame	Persons
<b>Output 1.1:</b> Sector based Multi Hazard Early Warning System (MHEWS) provided with timely and quality weather and climate information	<i>Activity 1.1.1:</i> Improve information supply to a comprehensive Multi Hazard Early Warning System (MHEWS)	July 2016 – June 2019	Weather Service, Application, Management
<b>Output 1.2:</b> Warnings of high-impact weather events provided to the public	<i>Activity 1.2.1:</i> <i>Put in place a proper system to produce and channel all weather warnings</i>	July 2016 – June 2019	Weather Service, Application, Management
<b>Output 1.3:</b> Weather and climate risk analyses provided to inform disaster risk management and reduction	<i>Activity 1.3.1:</i> Disaster planners develop their plans taking account of improving skills of available forecasts on all timescales.	July 2016 – June 2019	Weather Service, Application, Management
<p><b>Result Area 2 (Outcome 2):</b> Improved socio-economic sustainable development through better use of weather and climate products and services</p> <p><b>Key Indicators:</b> <i>Availability of appropriate technology to disseminate information.</i></p> <p><i>Decision-makers and stakeholders are well-sensitised and involved in the cost-benefit balance of information usage.</i></p>			
Outputs	Activities	Time frame	Persons
<b>Output 2.1:</b> Innovative products and services developed to meet the needs of EDPRS priority sectors	<i>Activity 2.1.1:</i> Monitor usage of weather and climate information in plans, design and operation of infrastructure facilities, including climate change impacts	July 2016 – June 2019	Weather Service, Application, Management
<b>Output 2.2:</b> Improved reach of products and involvement with users and stakeholders, including to community level and through social media	<i>Activity 2.2.1:</i> Engage different communities to use weather and climate products by using different measures	July 2016 – June 2019	Weather Service, Application, Management
<p><b>Result Area 3 (Outcome 3):</b> Improved availability and accessibility of quality weather and climate data and information services</p> <p><b>Key Indicators:</b></p>			
Outputs	Activities	Time frame	Persons
<b>Output 3.1:</b> Improved availability, accessibility and exchange of weather and climate data and information locally, nationally, regionally and globally	<i>Activity 3.1.1:</i> Improve observations and data exchange for national and global timely use	July 2016 – June 2019	Weather Service, Application, Management
<b>Output 3.2:</b> Improved use of weather and climate data and information for planning, design and operational decision	<i>Activity 3.2.1:</i> Promote greater awareness of the benefits of Meteorological services, information and products	July 2016 – June 2019	Weather Service, Application, Management

making			Manag
<b>Output 3.3:</b> Actively managed National Climate Database, which meets current and future need for weather and climate information.	<i>Activity 1.3.1:</i> Control and manage the climate data directly, and the public access to these data should be through a suitable portal based on National Climate Database.	July 2016 - June 2019	Data O Quality Process Manag

## ANNEX 5: PERFORMANCE MEASUREMENT FRAMEWORK

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*(See WMO Integrated Strategic Planning Guide, Section 3.6.1: Monitoring using the Performance Measurement Framework, p.61)*

Expected Results	Performance Indicators	Baseline	Targets	Data Sources	Methods	Frequency	Responsibility
Outcome1: Improved safety of life and property through better application of weather and climate warnings and forecasts	Avoided of life, monetary losses, assistance/search & rescue costs	TBA	TBS	Annual Reports	Document Review	Annually	Meteo Rwanda, MIDIMAR
Output 1.1: Sector based Multi Hazard Early Warning System (MHEWS) provided with timely and quality weather and climate information	Number sectors that accessing weather warnings in Lead time	3 Sectors	All Sectors	Reports	Document review	Annually	Meteo Rwanda
Output 1.2: Warnings of high-impact weather events provided to the public	% of occurred high impact weather events that have been warned	60%	80%	Reports	Document review	Annually	Meteo Rwanda



Output 1.3: Weather and climate risk analyses provided to inform disaster risk management	Number of comprehensive weather and climate risk analysis reports	0	2	Reports	Document review	Annually	Meteo Rwanda
<b>Outcome 2:</b> Improved socio-economic sustainable development through better use of weather and climate products and services	Value added	TBD	TBD	Reports	Document review	Annually	Meteo Rwanda, NISR
<b>Output 2.1:</b> Innovative products and services developed to meet the needs of EDPRS priority sectors	New sector based products	0	4 new products	Reports	Document review	Annually	Meteo Rwanda
<b>Output 2.2:</b> Improved reach of products and involvement with users and stakeholders, including to community level and through social media	Number of weather and climate users	250,000 total users	1,000,000 Total users	Reports	Document review	Annually	Meteo Rwanda
<b>Outcome 3:</b> Improved availability and accessibility of quality weather and climate data and information services for research, planning and decision	Annual increase in quantity of annual archived data	TBD	2 % increase	Databank	Check availability of data	Quarterly	Meteo Rwanda

making							
<b>Output 3.1:</b> Improved availability, accessibility and exchange of weather and climate data and information locally, nationally, regionally and globally	Number of data requests served per year	500 requests served per year	1000 requests per year	Request register	Register review	Quarterly	Meteo Rwanda
<b>Output 3.2:</b> Improved use of weather and climate data and information for planning, design and operational decision making	Number of government plans that use weather and climate products in planning and decision making	3 plans (MIDIMAR, MOH, MINAGRI)	10 Plans	Public institutions' plans and reports	Review of Public institutions' plans, reports	Annually	Meteo Rwanda
<b>Output 3.3:</b> Actively managed National Climate Database which meets current and future need for weather and climate information	% of digitised data	TBD	80%	Databank	Check availability of data	Quarterly	Meteo Rwanda

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