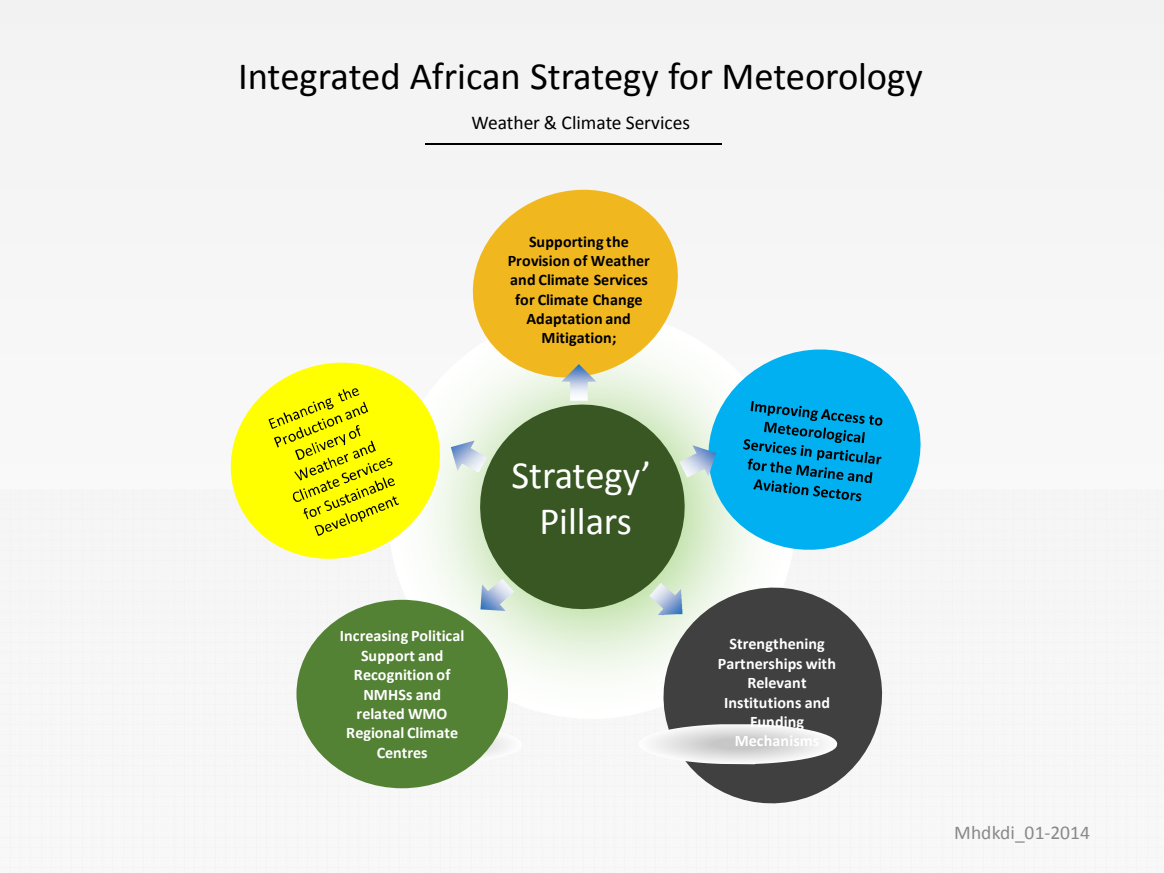
DRAFT IMPLEMENTATION PLAN

THE INTEGRATED AFRICAN STRATEGY ON METEOROLOGY (WEATHER AND CLIMATE SERVICES)

AFRICAN MINISTERIAL CONFERENCE ON METEOROLOGY



Preamble

In the past decade, many projects and programs promoting sustainable development in Africa have explicitly integrated climate variability and climate change adaptation as core elements when developing such plans.

However, we must recognize that the key institutions (National Meteorological and Hydrological Services and Regional Climate Centres, among others) mandated to provide this information are still weak in terms of capacity and resources as highlighted by policy makers and knowledgeable expert's statements:

(i) "In many areas of the world, national meteorological and hydrological services lack the necessary capacity and resources, and sometimes even the political recognition; they need to deliver on their critical tasks of protecting lives and livelihoods. Our global system for monitoring weather and climate is suffering as a result," WMO Secretary-General Michel Jarraud said in a statement.

(ii) "Investment in strengthening national meteorological and hydrological agencies is...urgently needed to reduce the impact of weather-related disasters," said Francis Ghesquiere, Head of the GFDRR Secretariat and Manager of Disaster Risk Management Practice at the World Bank. "Although costs for modernizing and sustaining these services are not negligible, it's well worth the investment in terms of lives saves and economic losses averted."

These are some of the rationale on the establishment of the African Ministerial Conference on Meteorology (AMCOMET). African countries at high level recognized that unless the capacity of national and regional weather and climate institutions to produce, disseminate weather and climate information substantially improves and stakeholders to effectively make use of it, sustainable development in Africa will remain under threat, poverty will dominate and disasters' impact will be harder on local communities.

No more debate is needed except the one on how and with whom should the Integrated African Strategy on (Weather and Climate Services) be implemented.

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INTRODUCTION AND CONTEXT

1.1 Main Considerations

It is well known and repeatedly expressed: Multiple stresses make Africa particularly vulnerable to environmental changes, and climate change is likely, if not already increasing this vulnerability. Desertification, sea level rise, reduced freshwater availability, cyclones, coastal erosion, deforestation, loss of forest quality, woodland degradation, coral bleaching, the spread of malaria and impacts on food security are some of the impacts the continent is experiencing.

Beyond that, the continent is vulnerable because it does not have the necessary capacity to produce and deliver accurate weather and climate services that meet end-user needs nor does it have the required infrastructure and mechanisms to adequately and effectively manage weather and climate related disasters.
Underlying this inability/incapacity to adequately manage the weather and climate disasters is the weakness of the National Meteorological and Hydrological Services (NMHSs) and the other relevant Regional Climate Centres (RCCs). These institutions that are tasked to produce warnings at different time scale to different users, ranging from decisions makers to farmers, often lack capacity and resources to produce, maintain and develop the required services and the framework to integrate them in National and Regional Development Plans. Many reports have highlighted the multi-faceted issues most African NMHS and RCCs face.

Recalling that:

(i) Many initiatives and programmes promoting Africa's sustainable development have explicitly integrated climate risk management and climate change adaptation as core elements in developing such plans. However, we must recognize that of the central institutions NMHS and associated Regional Climate Centers tasked to provide the required weather and climate services have not been adequately capacitated.

(ii) The most important consideration in developing the ClimDev Africa program in 2005 was:
"Good observations & climate services fundamental for climate risk mgmt & thus to achieving the MDGs (all national priority development sectors which are/could become Climate Sensitive)"
"But climate observing networks weak &/or deteriorating in Africa. Also, climate & environmental data are not well used locally in Africa (much more room for progress)"
"Improved communication of climate info needed at all levels, from government ministers to communities in the field…"
"NMHSs have a major role to play in providing & disseminating climate info & thus in contributing to the development agenda now and forever ….."(GCOS meeting, Addis Ababa May 2006)

(iii) Furthermore, since the beginning of 1990's, numerous programmes and projects were undertaken, international governmental organisations were created and tasked to address aspects of weather and climate services and frameworks put in place – however, these have not been adequately coordinated.

Despite all efforts made over the last three decades, the goal to strengthen basic meteorological infrastructure as a key component to reduce risk and improve adaptive capacity, very little has changed. Its challenges have been continually highlighted over the years yet the same gaps still

exist and the mainstreaming of weather and climate services in national and regional development plans is still not systematically undertaken.
Recently in 2012, while preparing the Integrated African Strategy for Meteorology (Weather and Climate Services), the experts representing stakeholders noted:

"The current status of the National Meteorological and Hydrological Services in Africa is concerning, as it is far below the required level of basic operation. Most of them lack basic weather infrastructure network, telecommunication facilities, databases, human resources and computational capability to run numerical models, strategic plans, operational budget and specialized training. These challenges limit their ability to deliver on their mandates, in particular to provide and disseminate weather and climate services useful for socio-economic development."
Meanwhile, in the context of climate variability and change, "African National Meteorological and Hydrological Services are required to produce and apply efficient weather, climate, water and related environmental services to enable societies to reduce the associated risks."

This reflects the reality of the challenges ahead, and the need to mobilize resources and take action now.
The African Member States, through the Nairobi Ministerial declaration and the Integrated African Strategy for Meteorology (Weather & Climate Services), already agreed that weather and climate are central to the socio-economic development of any country and that action has to take place now if we are to avoid the worst fears that climate variability and climate change will bring to Africa.
Thus as expressed by the commitments of African ministers in charge of Meteorology, aware of the high societal and economic significance of weather, water and climate information and services for climate resilience and disaster reduction, and of the importance of making National Meteorological and Hydrological Services (NMHSs) the center of this support is no more a debate. NMHSs are the backbone of the global weather and climate enterprise and thus the key player as they are tasked to be the authoritative source of weather, climate and water information, providing timely input to emergency managers, national and local administrations, the public and critical economic sectors.
The strategy developed by the African Ministers Conference on Meteorology, in partnership with the World Meteorological Organization (WMO), which was engaged in the preparation of the Strategy through consultations with the African Union Commission (AUC), Regional Economic Communities (RECs), Member States, Regional Climate Centres, and other relevant stakeholders.

1.2 Brief on the Integrated African Strategy on Meteorology (Weather & Climate Services) – (IASM-WCS)

To overcome the challenges experienced for the last three decades (in ensuring that the socioeconomic benefits of weather and climate services effectively contribute to Africa's development and provide a more comprehensive and targeted response, while facilitating technology transfer and development of meteorology and hydrology) the African countries agreed on a more structural and systematic approach: the establishment of the African Ministerial Conference on Meteorology (AMCOMET) as a high level mechanism for the development of weather and climate services and applications in Africa to support economic development.

The AMCOMET developed a strategy that articulates the strategic direction for Africa development to beneficiate from weather and climate services. It represents a long-term vision on weather and

climate services and reflects the political will of the region. It is one of the first regional strategies drafted in developing nations, joined by a common purpose to face the climate variability and climate change challenges.
The process of developing the Integrated African Strategy on Meteorology (Weather and Climate Services) IASM WCS started just after the first meeting of in Nairobi in April 2010, following consultation between WMO and AUC and was approved by the second minister's session held in Victoria Falls in October 2012 and endorsed by AU Summit of Heads of State in January 2013.

The Integrated African Strategy on Meteorology (Weather and Climate Services) positions weather and climate services as essential component in national and regional development frameworks in Africa.
It aims enhancing cooperation between African countries and strengthening the capabilities of their National Meteorological and Hydrological Services (NMHSs) and the related WMO Regional Climate Centers (RCC).
The Strategy also serves as a key mechanism for the implementation of a structured Global Framework for Climate Services in Africa and provides key support and guidance to other major initiatives, in particular the ClimDev Africa Programme.

1.3 The IASM' Strategic Pillars

To achieve its main goals, the Integrated African Strategy on Meteorology (Weather and Climate Services) or IASM-WCS is built on five (5) interrelated strategic pillars.
The table below gives the potential correspondence between the set goals and the five strategic pillars, tough those are interrelated:

Objectives/Goals	Strategic Pillars
Positioning NMHSs and WMO related RCCs as key element in the development	1. Increasing Political Support and Recognition of NMHSs and related WMO Regional Climate Centres
Contribute to security (Protection of life and property) and sustainable development	2. Enhancing the Production and Delivery of Weather and Climate Services for protection of life and property and Sustainable Development
	3. Improving quality and access to Meteorological Services in particular for the Marine and Aviation Sectors
Enhance cooperation between African Countries	4. Supporting the Provision of Weather and Climate Services for Climate Change Adaptation and Mitigation
	5. Strengthening Partnerships with Relevant Institutions and Funding Mechanisms

Table 1: Goals and strategic pillars of the Integrated African Strategy for Meteorology

1.4 Brief on the outline of the Implementation Plan

The development of this Implementation Plan is the next step towards making the Integrated African Strategy for Meteorology a reality.
The implementation plan lays out a roadmap and methodology that will drive policy makers to consider the weather and climate services as a central component of the development of Africa

through effective mainstreaming into operational activities and development plans at national, regional and African level.

To achieve the implementation of the strategic pillars, it is proposed:

(i) To effectively integrate weather and climate services into operational activities and socio-economic planning
(ii) to develop and put in place regulatory frameworks to improving the legal status of the institutions and enable them to perform their duties properly according to the rules by transforming from totally public to semi autonomous agencies and provide adequate funding
(iii) to Strengthen and build their capacity and capability to ensure the provision of quality weather and climate services to dependent socio-economic sectors
(iv) to Organize and strengthen partnership with concerned stakeholders
(v) to Enhance and better articulate collaboration among countries

It also lay out the necessary conditions for successful implementation and set up a coordinating mechanism, identifies stakeholders and their potential roles.

It addresses the issues of monitoring, evaluation and risk management and proposes options for communication strategies and approaches to resource mobilization.

Beyond adequate funding and positioning of weather and climate institutions at National and Regional levels, the implementation of the Integrated African Strategy for Meteorology implies effective and proactive coordination of the many institutions, programs and initiatives targeting mainstreaming weather, climate and water services for climate risk management and climate change adaptation in Africa.

Some of the most important initiatives and programmes are described in paragraph……

2. IMPLEMENTING THE STRATEGIC PILLARS

After explaining some of the strategy and some of its preconditions for success, let us proceed to the main pillars to sustain/in support of its progressive implementation: The Implementation Plan!!!!

2.1 Guiding Principles and other considerations for the implementation

2.1.1 Guiding Principles

The Guiding Principles for the Implementation of the Integrated African Strategy on Meteorology (Weather and Climate Services) are as follows:

- Principle 1: Consistency with the IASM' principles, in particular "Be collectively owned by Africa"; indeed success requires full ownership and commitment of African countries / institutions at the national, regional and continental levels.
- Principle 2: Building political will and commitment for the implementation of this strategy and other complementary framework such as GFCS
- Principle 3: Promoting Empowerment of Africa in reducing disasters risks and adapting to climate change by supporting the efforts for the IASM implementation and fulfilling responsibilities and commitments towards society.
- Principle 4: Ensuring broad, informed and timely participation of relevant stakeholders in the implementation, monitoring and evaluation of the strategy;
- Principle 5: Maximizing synergy and complementarities among existing and planned initiatives aiming disaster risk reduction and climate change adaptation;
- Principle 6: Encouraging the development and implementation of nationally-designed and resourced activities that address the specific needs and priorities of each country;
- Principe 7: Considering holistic approaches: Bringing an effective institutional change, requires that holistic approaches in implementing the strategy should be adopted and seeking sustainable results
- Principle 8: Promoting inter - African cooperation and collaboration between African countries and all partners (involved stakeholder)
- Principle 9: Promoting free data and information exchange and strong cooperation between all stakeholders.

2.1.2 Other important considérations

The above stated principles are supported by other considerations such as:

(a) Positioning the NMHSs & RCCs as key elements of the sustainable development implies their empowerment by improving their infrastructure and building their capacity: a condition to effectively implement the strategy, integrate weather and climate services into operational activities and development plans and processes and ultimately reduce the vulnerability of the countries' to extreme weather event and minimizing the impact of disasters and climate change

(b) Enhancing resilience to increasing climate variability and climate change requires availability of high quality Weather and Climate services and high capacity to mainstream into national and regional operational activities & development processes. To provide effective weather and climate services including warnings and achieve success for the strategy and enable efficient coordination, legal and regulatory framework need to be adopted with a broad engagement across government department and weather dependant institutions.

(c) Availing high quality weather & climate services, as key element for human security and sustainable development, require bold public institutions in terms of infrastructure, human capacity and efficient funding mechanisms to reduce threat on people's lives and development

(d) The political support is mandatory to enable NMHSs and RCCs to be in position to adequately fulfill their mandate at the level of service required and considered as a key element to sustainable development. Strengthening the institution' capacity to implement the strategy will ensure that tailored quality weather and climate services are delivered and used in operational activities and integrated into and development plans and processes; thus ultimately reducing the countries' socioeconomic systems vulnerability to weather extreme, improve food security, water resources management and public health

(e) The funding should first come from national and regional funding African mechanisms. The needed Multilateral or bilateral donors will always be assisting when the will of national budget is demonstrated.
If huge investment is needed to enable the strategy attaining its goals, it has however a role of taking advantage for the numerous investments already made through ongoing or planned initiatives/project and intend to strengthen their effectiveness and coordination.

(f) To increase the sustainability of the gains of the strategy and collectively address the challenges of weather and climate services, all African countries should take the required measures at the same time. The occurrence of Weather systems and their development/extension do not depend on political borders; most of the threats (Disasters due to severe weather, low frequency events, and spread of diseases to previously-disease-free areas …) cannot be addressed at National level; it requires strong collaboration between countries and key organizations to be partners in the implementation, monitoring and evaluation. Partners including development partners have a vital role in maximizing the impact of the program, building alliances, frameworks and partnership.

(g) While addressing the underlying causes of poverty and under development, the implementation should use approaches that ensure programs to result in lasting and fundamental improvements in providing the quality and pertinence of services to reduce disasters risks and improve quality of life for all. Providing such quality services implies making investment for the five interdependent pillars.

(h) Free exchange of weather and climate data, products, services and best practices need to be encouraged as successful activities in any institution (at national or regional level) will strengthen all weather and climate African institutions and the Implementation Plan should give a special attention to free exchange of data and encourage full compliance to international recommendations in the matter. It will encourage free access by all to this public good as positive feedback on a wide range of economic and socio sectors and knowledge is expected. Thus, **full and open exchange** of data, metadata and products will be shared within the implementation plan, recognizing relevant international instruments and national policies and legislation, and made available with minimum time delay (taking into account the perishable nature of some of them) and at no or minimum cost in particular for research and education.

(i) AMCOMET should be leveraged and used a coordination platform to harmonize pan African iniatives/activities related to weather and climate. The implementation of the strategy should set up and provide an African framework within which all countries and partners collaborate to coordinate their strategies and investments. It will implement effective linkages under working mechanisms between the key climate and weather services (NMHSs , RCCs), the many sectors weather and climate dependant and policy makers as well as with partners supporting development at national, regional and continental level

(j) Working mechanism between providers and users of weather and climate services will be developed to ensure effective implementation of the GFCS / Africa and in particular an extended user platform and ….. Involvement of users in: creating appropriate mechanisms for coordinating user requirements, reviewing and assessing requirements, utilizing data/information delivery systems; and capturing user feedback on a permanent and regular basis.

Furthermore, the implementation of the strategy will use / encourage the concept of user community of practices, as it is the standard within several institutions and program, to enable active partnerships among and within the broad range of partners

2.2 Building an Action Plan for Weather and Climate Services within a structured coordination mechanism

Implementing the five strategic pillars requires and executing the associated activities defined for each pillar requires setting up a structured coordinating mechanism composed of all stakeholders. This coordinating mechanism should develop an adopt an Action Plan for Weather and Climate Services at National, Regional and African levels as a bidding document between weather and climate institutions and their users partners and supporting partners.

This Action Plan for Weather and Climate Services, proposed to be developed would adopt an equivalent approach on which were built and developed the PANAs.

Example of Guidelines for the Development of national and/or regional Weather & Climate Services action plan can be draws on the material contained in the US Country Studies Report: *Steps in Preparing Climate Change Action Plans: A Handbook (Benioff and Warren, 1996).*

It will, concentrate on description of the tailored needs for weather and climate services of each socio economic sector; pre-conditions for their production, delivery …, evaluation, feedback as global MoU between SNMHs and the weather and climate dependant national sectors (users community).
It will be based on an extended GFCS taking into account all component/pillars of Meteorology and climate.

2.3 Implementing the 5 pillars

2.3.1 Selection process for IP Actions

This draft of the implementation plan has been developed during the period from December 2013 to March 2014. Consultations with the secretariat and the AMCOMET designated task team extended to stakeholders have been undertaken to better evaluate state of art and identify those actions required to be undertaken within the time frame of the strategy (2014-2017). The activities described and contained in the flagship programmes deduced, to deliver the strategic elements and goals of the Strategy are drawn from these consultations and other reference documentation made available by the secretariat.
It should be noted that actions proposed in this implementation plan are based on the area of actions identified in the strategic pillars that were derived from the SWOT analysis and a stakeholder analysis. Issues that have not been adequately covered in this draft IP should be covered after *the stakeholder meeting*.
A number of priority challenges and actions have been identified and presented here. They, together with those actions which could be started in the next 2 years if funding or another capacity constraint can be overcome, provide the immediate focus for achieving the strategy's goals.
The priority challenges and actions, which cover the five pillars / components program (institutional and coordination framework, capacity strengthening) are considered in the next section.
Each SNMH and each RCC will need to context these generic challenges and actions against the specific priorities in each country.

2.3.2 Majors' common issues:

Complying with the strategic pillars of the IASM-WCS, the implementation plan proposes a set of actions / activities to overcome the stated challenges outlined in the strategy, namely the streamlining of meteorology and its applications in national development agendas, the effective delivery to sector specific weather, climate and water services, and to improve the density of the observation network in Africa through capacity building efforts and technology transfer. This will help promote cooperation, sustainable development, and poverty eradication as well as improve food security, water resource management, disaster risk reduction and better health.

At this stage, we have to note that if the strategy is built around five (5) interrelated pillars, whereby Strategic Pillars 1 and 2 are the most critical: As noted by WMO and the World Bank in a recent paper:

"The massive under funding of NMHSs has led to (a) a deterioration of meteorological and hydrological observation networks and outdated technology, (b) a lack of modern equipment and forecasting methods, (c) poor quality of services, (d) insufficient support for research and development, and (e) an erosion of the workforce (resulting in a lack of trained specialists). As a result, substantial human and financial losses have occurred, which could have been avoided if weather and water agencies were more developed. Climate-resilient development requires stronger institutions and a higher level of observation, forecasting and service delivery capacity. In addition, successful adaptation to the existing and future weather and climate variability is impossible without reliable and well-functioning NMHSs".

Previous multi-donor programmes have not achieved the expected impacts because there has not been sufficient focus on investing in strengthening weather and climate institutions, infrastructure, filling the data gaps. While it is important to highlight the benefits of various products and services, the benefits can only be an image of the quality of the products themselves – which will remain inferior if capacity is low and data gaps not filled.

Furthermore, within ClimDev it has been expressed: "*In order to be sustained at an operational level through government funding, a national meteorological office in a developing country must contribute substantially to the national development agenda, and be seen to offer value for money. Previous refurbishments of observation networks with external funds but without engagement of the met office in development failed to produce useful and sustainable information services.*"

But how can we expect an institution like NMHSs or RCCs in non-sustained situation to deliver?

Building on such experiences, it is critical to highlight that science is central to many aspects of modern life and that an appreciation of the scientific dimension is a pre-requisite to wise policy-making. This view already underpins the work of many academies at national level. Meeting needs for data and information requires the development of climate service networks at regional and country levels.

2.3.3 Implementing the Pillars: Highlight on structural Framework and infrastructure

If implementation of the strategic pillars requires holistic approach, **only bold** institutions can achieve. Within one of its assessments of SNMHs and RCCs, the mother organization of meteorological & hydrological services (World Meteorological Organisation) concluded that: "there are widespread deficiencies in hydro-meteorological observing networks, telecommunications, and informatics systems in Africa and very limited … capacities in data management and product customization. [NMHSs] hazard warning capacities are uneven, even non-existent in some countries, while warning programmes often do not address all significant meteorological and

hydrological hazards"[1] The same survey shows too that many NMHSs have limited financial resources to sustain their operations and a weak legal mandate, which may not allow them to generate revenues or provide revenue-generating services.
This is why; we conclude that it is of most urgent to deal in priority with the two first pillars to:

a) review the current policy / legal frameworks and regulatory processes within governments and weather & climate dependant sector / institutions and identify areas for improvement to NMHS and associated RCC to position them as key element in development
b) Strengthening institutional capacity to deliver and use high quality weather and climate services

To achieve this, requires policy reviews and policy dialogues held at high level of government, to identify and analyze of policy options/ Climate sensitive policy options and scenarios developed and analyzed with regard to impacts and benefits of weather and climate services on sustainable development and disasters risk reduction.

Developing and implementing national policies that effectively integrate weather and climate services would require, **along with the climate change action plan**, that government bolsters an equivalent 'Weather and Climate Action Plan". Such action Plan, based on this proposal, would combine in a bidding document the two GFCS' pillars: *the Climate Services Information Systems (CSIS) and User Interface Platforms (UIP) of the GFCS*.
There is obviously need for a comprehensive assessment of the existing policies and legal framework related to integration of weather and climate services into national operational activities and development plans at national level and regional level.

National policy frameworks play a crucial role in enabling adaptation interventions and attracting financial flows and investments. Thus, national policies (including sectoral, cross-sectoral and subnational policies) will be instrumental in mobilizing financial resources and directing them into weather and climate services for disasters risks reduction and adaptation to climate change.
Therefore, sectoral policies and national development plans are instrumental in creating such an enabling environment for integration of weather and climate services.
The next paragraph 3 details the expected results and priority activities under each pillar.

[1] Capacity Assessment of National Meteorological and Hydrological Services in Support of Disaster Risk Reduction: Analysisof the 2006 WMO Disaster Risk Reduction Country-Level Survey. Geneva, Switzerland WMO 2008)

3. EXPECTED RESULTS AND ACTIVITIES[2] UNDER EACH STRATEGIC PILLAR

3.1 Strategic Pillar 1: Increase Political Support and Recognition of NMHSs and related WMO Regional Climate Centres

As stated above and in the strategy: "In many African countries, the Ministers responsible for meteorology have a virtually hands-off approach to and have little interaction with their NMHSs. This is one of the main reasons for the low level of visibility and funding of NMHSs.
This pillar aims to increase the recognition of the role of National Meteorological and Hydrological Services (NMHS) within the political decision-making arena through the integration of meteorological services' contribution to various economic sectors and in national development programmes. It further aims to increase the active participation of relevant inter-governmental officials and other stakeholders in establishing adequate weather and climate services, both at the national and regional levels, aligned with policies that address development challenges and opportunities.
Positioning NMHSs and WMO related RCCs as key element in the development

3.1.1 Expected results 1 (ER1):Legislation and policies formulated and Implemented for coherent integration of weather and climate services in National, Regional and Continental (NRC) development programmes and agenda

3.1.1.1 ER1 Activities

1. **Establish a mechanism (National Framework or Plan of Action) for mainstreaming weather and climate services into national development plans and programmes**
2. **Review and improve the legislative and regulatory framework (including fiscal frameworks and incentives) to increase the integration / use of weather and climate services in all weather and climate dependent sectors at national and regional levels**
3. Develop and establish, at the required level, mechanisms such as MoU/Agreements to ensure the support of policy bodies (AUC, RECs) to Governmental / inter-governmental organization (NMHSs, RCC, R/LBOs, Observatories) in implementing the Integrated African Strategy on Meteorology (Weather and Climate Services) for sustainable development
4. **Establish within each REC and each National Government a High-Level Committee to create/spearhead an enabling environment for sustaining, promoting and supporting climate and weather systems**
5. Establish the User Interface Platform of the GFCS at the National and Regional level to engage with users and enhance the application of meteorological services for areas such as agriculture, disaster risk reduction, water, health, transport, environment, among others.
6. Develop guidelines and support the development of Strategic Plans and related Action Plans for NMHSs and RCCs in alignment with government development agenda

3.1.1.2 ER1 Key Performance Indicators

[2] All planned activities are listed from 1 to 72. The considered priority activities are in bold

(i) Number of countries and REC with improved legislation that integrate CWS.
(ii) Number of NMHS / RCCs with Strategic Plans
(iii) Number of NMHS & RCC supported by REC or African Institutions
(iv) Number of countries and REC with HLC established

3.1.2 Expected Result 2 (ER2): Visibility and relevance of the NMHSs & RCCs enhanced thereby contributing to sustainable development at the National, Regional and Continental level

3.1.2.1 ER2: Activities

7. Establish Africa Met Week
8. Develop a mechanism for analysis and assessment of benefits of meteorological services to socio-economic development (agriculture, water, health, DRR, tourism, among others) in compliance with the Madrid Plan of Action (2007) on "Secure and Sustainable Living: Social and Economic Benefits of Weather, Climate and Water Services"
9. **Enhance Public Awareness and Education through outreach programmes to the users, policy / decision makers, the public and other stakeholders**
10. Develop a Communication Strategy for the dissemination of weather and climate information to stakeholders, in collaboration with the media
11. Prepare and organize workshops for relevant stakeholders, including policy makers, to enhance the understanding and use of weather and climate services for safety of life, protection of property, conservation of the environment, and adaptation to build resilient communities to cope with climate extremes occasioned by adverse climate change impacts
12. **Prepare and provide policy makers, including parliamentarians and relevant line ministries in governments, with timely relevant well packaged information related to:**
    - **Weather and climate event with quantified impacts on the society and national development**
    - **Yearly Declaration on the Status of Climate**
    - **Summary of pertinent activities and events**

3.1.2.2 ER2 Key Performance Indicator

(i) Number of NMHS / RCCs with Outreach programmes and/or dissemination strategies developed
(ii) Number of workshop targeting policy makers conducted
(iii) Number of NMHSs / RCCs delivering yearly Declaration of "Status of Climate"

3.1.3 Expected Result 3: African weather and climate institutions made sustainable

3.1.3.1 ER3 Activities

13. **Review, map out and / or update existing analysis, related to the legal / financial status of NMHSs and RCCs**

14. **Transform NMHSs into semi-autonomous government agencies / authorities to increase their efficiency and effectiveness in service delivery, to enhance contribution to sustainable development**
15. Develop appropriate funding mechanism at national and regional level to provide the required resources to sustain and further develop NMHSs and RCCs
16. Enhance partnerships through twinning instruments and collaboration between African Meteorological (Weather and Climate) Institutions and those in developed countries for capacity building, knowledge sharing and transfer of best practices
17. Ensure commitment of African governments to support multi-functional RCCs (ACMAD, ICPAC, SADC-CSC, Agrhymet, among others) through an assessed contributions to fulfill their mandates

3.1.3.2 **ER3 Key Performance Indicator**:

(i) Number of NMHS & RCC that statutes to fulfill their mandate are improved: semi-autonomous
(ii) Number of MoU (Twinning instruments) signed
(iii) Number of NMHSs with appropriate funding mechanisms

3.1.4 Expected Results 4 (ER4) : Efficient and Effective management of NMHSs and RCCs

3.1.4.1 ER4 Activities:

18. Prepare and Conduct training in strategic leadership and management for heads of NMHS and RCCs
19. Support the training for NMHS / RCC management staff to develop Strategic Plans and related Action Plans and to formulate and implement project, including a training program to improve their communications skills
20. Organize working visits to advanced Weather & Climate centers

3.1.4.2 ER4 Key Performance Indicator

(i) Number of training sessions and/or managers trained on strategic leadership
(ii) Number of training sessions and/or number of staff trained in strategy building and communications

3.2 Strategic Pillar 2: Enhance the Production and Delivery of Weather and Climate Services for Sustainable Development

Acknowledging that NMHSs are the main providers of weather and climate services in Africa, this pillar aims to improve the effectiveness and efficiency of the production and delivery of such services enabling appropriate responses to the changing needs of government, society and sectoral users through suitable structures and working mechanisms. This pillar further aims to contribute to security (protection of life and property) and sustainable development.

3.2.1 Expected Result 5 (ER5): Enhanced NMHS capabilities to observe, monitor, exchange data, produce and disseminate high quality information and services for sustainable development

3.2.1.1 ER5 Activities:

21. **AMCOMET through RCCs and NMHSs carry out a continental-wide survey on the capacities and capabilities of NMHSs and RCCs, including observing networks (land, water and space), telecommunications infrastructure for data exchange, data processing and forecasting tools, data management tools, product and information dissemination systems, including human capacity**
22. Designate and equip and support centres in Africa that can assemble AWSs and/or fabricate basic meteorological instrument to improve observing network at a cheaper cost
23. **Operationalize the WMO implementation plans related to the GCOS, the Integrated GOS (WIGOS) and the WMO Information System (WIS)**
24. Enhance observation capabilities of NMHSs by introducing or enhancing weather radars network
25. Maintain and enhance capabilities of NMHS and RCC to access existing satellite data and products *(inc. those from the Satellite Application Facilities – SAF)* and to develop added-value satellite derived products based on existing and future satellite programmes.

3.2.1.2 ER5 Key Performance Indicator

(i) Number of NMHSs and RCCs, whose survey are available
(ii) Number of center assembling AWS
(iii) Number of NMHS & RCC with WMO operational plan
(iv) Number of Radar installed and operated

3.2.2 Expected Results 6 (ER6): Strengthened NMHSs and RCCs capability for efficient and effective dissemination and service delivery of customer tailored products to stakeholders, communities, and households

3.2.2.1 ER6 Activities

26. Carry out a continental-wide survey to assess NMHS and RCC current capability to produce and effectively disseminate customer tailored products and services and to engage with users to enhance these products and services
27. Identify and mobilize resources for the necessary improvement of meteorological infrastructure and services, including human capacity development to deliver customer tailored services
28. Build the capacity and capability of NMHSs to support Climate Services Information Systems (CSIS) and User Interface Platforms (UIP) of the GFCS
29. Develop a schedule with the required actions / milestones for the designation of WMO RCCs in Africa in particular;
    a. WMO-RCC in Southern Africa with responsibility for the SADC group of countries, including for the moment the Indian Ocean Community (IOC) Countries
    b. others

30. Support the capacity of appropriate Regional Training Centers to offer training in Climate Data Management Systems to NMHSs

3.2.2.2 ER6 Key Performance Indicators:

(i) Number of NMHSs & RCCs survey make finalized
(ii) Percentage of needed Resources identified and mobilized
(iii) Number of NMHSs and RCCs supporting CSIS and UIP
(iv) Number of RCC evaluated and performing at least three of the mandatory functions
(v) Number of RTC centers offering support and training in CDMS

3.3 Strategic Pillar 3: Improve Access to Meteorological Services in particular for the Marine and Aviation Sectors

The International Civil Aviation Organisation (ICAO) requires that meteorological authorities should supply operators, flight crew members, air traffic service units, search and rescue service units, airport management and related aviation stakeholders with meteorological information that meets the needs of international air navigation. The latest is the deadline for meteorological services to be certified by November 2012 leading to ISO-9000 certification. In addition, competences of personnel for these services should meet international standards by 2016. The equipment should also have calibration certificates and readings be regularly verified. AMCOMET is urgently required to facilitate the availing of national funds to ensure that the countries meet these deadlines and comply with ICAO requirements.

National Meteorological and Hydrological Services should further provide meteorological forecasts and warnings which are critical for safety of life and property at sea, integrated coastal management and societal impacts.

3.3.1 Expected Result 7 (ER7): Enhanced NMHSs to produce and deliver services compliant to International Standards (ISO 9001) in line with Annex 3 of ICAO Convention (1944) and other associated WMO / ICAO guidelines and recommended practices for air navigation

3.3.1.1 ER7 Activities

31. Enforcing a continental wide compliance of QMS (including personnel competencies and equipment calibration certification) for aeronautical meteorology in line with Annex 3 of ICAO Convention (1944) and other associated WMO / ICAO guidelines

32. Implement and operationalize the AMDAR programme for improvement of services for international air navigation

33. Sign MoU between NMHS and Airline Companies for enhancement and provision of AMDAR data

34. Designate, as appropriate, the National Meteorological Service as the weather service provider for aviation industry

35. Undertake regular assessment of the impact of AMDAR data on the quality of forecasts and other weather services provided to air navigation

36. Develop required mechanisms for cost recovery from aviation services

3.3.1.2 ER8 Key Performance Indicator:

(i) All African NMHHs QMS got the ISO-Compliance certificate
(ii) Number of additional NMS with recovery adopted
(iii) Number of NMHS implementing AMDAR programme
(iv) Number of additional NMS designated as the Service Provider for aviation

3.3.2 Expected Result 8 (ER8): Enhanced capabilities of NMHSs to provide oceanographic and marine meteorological services for maritime transport, pollution management, including oil spills, coastal zone ecosystem management and sustainable exploitation of marine resource

3.3.2.1 ER8 Activities

37. Carry out a survey to assess the existing capacities and capabilities of the NMHSs in terms of infrastructure for oceanography and marine meteorology that includes observational network (including the deployment of buoys), telecommunication systems for data exchange, marine forecasts and dissemination services, human capacity, including maritime' users community applications.

38. Implement / enhance the provision of appropriate weather and climate services / information to support

a. Maritime transport and Navigation

b. Coastal zone management and development through for example the prevention of coastal erosion, oil spills and pollution prevention of the destruction of coral reefs and mangrove forests and other marine ecosystems

c. Use of marine resources for sustainable development through legislation

39. Improve data coverage at sea (trough additional voluntary observing ships and buoys) and access to satellite products relevant to marine applications

40. Develop required mechanisms for cost recovery from maritime services

3.3.2.2 **ER8 Key Performance Indicator**

(i) Number of surveys made available
(ii) Number of additional maritime' sectors effectively using weather and climate services
(iii) Number of buoys operational and Number of additional voluntary observing ships
(iv) Number of MoU on cost recovery from marine activities signed

3.4 Strategic Pillar 4: Support the Provision of Weather and Climate Services for Climate Change Adaptation and Mitigation

Africa is one of the most vulnerable regions of the world to the impacts of climate change. The majority of the continent's disasters are meteorological and hydrological related. These disasters pose a serious threat to the continent's ability to attain the Millennium Development Goals and sustainable development. While impacts vary across the continent, it is generally agreed that the climate is becoming more extreme; and as such, the overall future of the African continent is bleak unless adequate preparations are made and sufficient mitigation as well as risk reduction measures are put in place against the anticipated droughts and sea-level rises.
Accordingly, it is crucial that AMCOMET, in collaboration with relevant African institutions, be actively involved in the African communities' position on climate change into the international negotiations, including the African Ministerial Conference on Environment (AMCEN), the African Ministers Conference on Water (AMCOW) and the Conference of African Heads of States and Government on Climate Change (CAHOSCC). In addition, AMCOMET will partner the African Ministerial Conference on Science and Technology (AMCOST) in the research design and operation of appropriate technology.

3.4.1 Expected Result 9 (ER9): Enhanced NMHS capacities and capabilities on climate change monitoring, detection and attribution to promote understanding of climate change science

3.4.1.1 ER9: Activities

41. Assess and evaluate the existing observation network of NMHSs to identify regions least represented in the global observing systems and sparse station network coverage
42. Increase, strengthen and modernize observation network of NMHSs to enhance observation of various atmospheric constitutes

43. Train operational staffs (meteorological technicians, researchers and engineers) to sustain and expand station network coverage

44. Map and describe the existing / current research initiatives, program and projects, databases and the different groups (within NMHSs, RBO, Universities and other research centers

involved in weather and climate research to strengthen collaboration and develop mechanisms in research operations.

45. Strengthen NMHSs and RCCs infrastructure using information communication technology (ICT), new and emerging scientific technology and innovations to enhance operational research and development to improve climate change research, modeling and prediction as a component of GFCS

46. Provide relevant climate information to support policies and activities and mitigate green house gas emissions

3.4.1.2 ER 9 Key Performance Indicator

(i) An evaluation of Atmospheric constituent existing observing capacity is available
(ii) A comprehensive mapping of research activity is available
(iii) Number of NMHS and RCC with GFCS research component
(iv) Number of NMHS and RCC providing regular information on Climate Change

3.4.2 Expected Result 10 (ER10): Established research modeling and prediction and scenario development to facilitate climate change adaptation and resilience building for society, economy and the environment

3.4.2.1 ER 10 Activities :

47. Establish and capacities research unit within NMHSs and RCCs
48. Improve and implement climate modeling and forecasting tools and scenarios production at RCC and NMHSs/Countries
49. Develop a comprehensive approach for strengthening Numerical Weather Prediction, and remote sensing / satellite derived products
50. Implement at short term training program for young scientists in the above domains using the existing capacity and in collaboration with advanced centers)–
51. Encourage collaborative research initiatives and other relevant programmes between RCCs, NMHSs, academia and universities, and other tertiary institutions, including National and Regional Meteorological Societies

3.4.2.2 ER 10 Key Performance Indicators:

(i) Number of NMHSs & RCC with Research unit or group
(ii) All RCCs and at least 1/10th of countries are running climate models
(iii) All RCC and at least 1/10th of NMHS are running NWP at finer resolution
(iv) 5 to 7 junior scientists per country trained in NWP, climate modelling and satellite derived producted
(v) Number of MoU signed with partners

3.4.3 Expected Result 11 (ER 11): Strengthened NMHSs capacity to reinforce coherence for climate change discussions and negotiations and to effectively contribute to Multi-lateral Environmental Agreements (MEAs); including conventions, protocols, and other relevant agreements.

3.4.3.1 ER11 Activities

52. Develop supporting materials (in collaboration with partners) to African group of negotiators (adequate material on Weather and climate services and Climate change adaptation)

53. Encourage NMHSs and RCCs to contribute and provide analysis on climate for the subsidiary bodies

54. Prepare and implement training courses and workshops related to the Synergy on Multilateral Environment Agreements (MEA) in particular the three UN conventions

55. Designated NMHS as national certifying authority for climate scenarios to use in the development plans

3.4.3.2 ER11 Key Performance Indicator

(i) Number of SNMHs and RCCs effectively involved in Climate change negociations
(ii) Number of SNMHs designated as the authority for certifying climate scenarios
(iii) Number of workshop related to Multilateral Environmental Agreement (MEA) organized.

3.4.4 Expected Result 12 (ER12): Mainstreaming of climate services into national economic planning and programmes through the implementation of GFCS at the national and regional level

3.4.4.1 ER12 Activities

56. Implement GFCS at regional and national levels in accordance with GFCS implementation plan as approved by WMO extraordinary Congress (October 2012)

57. Carry out mapping to identify communities that are most vulnerable to the adverse impacts of climate change and adopt appropriate mechanisms to build the resilience of communities to adapt to and cope with impacts of the changing climate occasioned by global warming

58. Improve the ability to quantify the socio-economic benefits of weather and climate services in accordance with the Madrid Plan of Action (2007) on "Secure and Sustainable Living: Social and Economic Benefits of Weather, Climate and Water Services", including benefits to environment and ecological systems

59. Collaborate with pertinent partners to improve climate information communication and dissemination

60. Prepare, organize and conduct simulation exercises and field days on how communities (extension services) can prepare and respond collectively to weather and climate extremes and related livelihood threats in particular droughts, flooding and sea level rise.

3.4.4.2 ER12 Key Performance Indicator

(i) Number of countries with GFCS implemented at the national level
(ii) Number of RCCs capacitated to deliver regional climate services and support implementation of national GFCS
(iii) Number of countries with efficient dissemination systems
(iv) Number of simulation exercises organized

3.5 Strategic Pillar 5: Strengthen Partnerships with Relevant Institutions and Funding Mechanisms

The success of the Strategy is highly dependent on the strength of the partnerships AMCOMET is able to forge, both with existing institutions able to support its mandate as well as funding mechanisms able to provide the necessary financial resources to meet its goals. To be effective, the Strategy must be clearly linked with the work of other government departments and agencies, technical partners, the private sector, and other relevant stakeholders, and work in concerted effort with other global and regional frameworks. AMCOMET plays a vital role in harnessing and developing these relationships.

3.5.1 **Expected Result 13 (ER13) : Established partnerships to strengthen capacities of NMHSs, RCCs and other WMO weather and climate institutions in effectively and efficiently produce and deliver services that support sustainable development**

3.5.1.1 ER13 ACTIVITIES

61. Establish and organize coordination committees/ platforms at required level (National, Regional/REC, African/Continental) for oversight of the implementation

62. Develop at required level (National, Regional/REC, African/Continental) Action Plan on Weather and Climate Services to foster closer collaboration and working relations between stakeholders

63. Establish AU and other Regions/Countries Partnerships on Meteorology (Weather and Climate Services).

64. Design and Develop a web portal, as a node and ensure that weather and climate services information is readily available and friendly accessible to all stakeholders

3.5.1.2 ER14 Key Performance Indicator:

(i) Number of countries & RECs establishing coordination mechanisms
(ii) Number of MoUs, agreements signed at each level
(iii) Number of visits to the portal

3.5.2 **Expected Result 14 (ER14): Established funding mechanisms, including donor support programs on regional and continental scale aimed at strengthening NMHSs and improvement of hydromet services delivery**

3.5.2.1 ER 14 Activities

65. Prepare and organize a donor round table to support implementation plan and/or create a weather and climate facility

66. Improved information exchange on the ongoing or planned donor projects/operations including access to donor project documents supporting NMHSs & RCCs

67. Agreements between donors on coordination of activities on national and regional level

68. National governments to commit themselves through budgetary allocations to support the infrastructure of the NMHSs to produce basic public good services

69. Mobilize regional institution funding to invest in NMHSs to further modernize and improve service delivery in tailor made products for different clientele

70. Enhance partnerships with bilateral and multi-lateral development institutions to mobilize resources
71. Develop and submit projects proposals for modernizing NMHSs, especially in Least Developed and Land-locked Countries to relevant funding mechanisms
72. Develop and submit Capacity building projects to Development/Cooperating Partners in Africa and other Regions.

3.5.2.2 ER14 Key Performance Indicator:

(i) Number of NMHSs & RCCs adequately supported by National and regional funding
(ii) Number of donors supported projects and programmes
(iii) Percentage of Total amount of funding received

4. FLAGSHIP PROGRAMMES

These 14 expected results (ER), are declined in a set of 72 activities each with a given priority (1, 2 or 3). The selected priority activities among the defined 72 activities are embedded into five (5) flagship programmes. Annexe 12.3 (column 1 & 2) list the activity number and its corresponding programme

Programme title	Broad objectives
Programme1: Improving Policies to integrate Weather & Climate Services into Development	Mainstreaming weather and climate issues into development policies, strategies and programmes in Africa at national regional and continental levels.
Programme2: Addressing Disaster Risk Reduction & sustainable development	Capacity Development by Strengthening weather and climate institutions capacity and capabilities to produce and deliver adequate services at the user required level **(**for addressing disaster risk reduction and climate change impacts)
Programme3: Supporting Climate Change adaptation & mitigation	Improving knowledge through enhanced observations and specific Weather & climate services to support Climate Change adaptation and mitigation including Africa's common climate change negotiating position
Programme4: Sciences and emerging Technology as carrying vector	Keeping abreast of technology and sciences, the carrying vectors of knowledge that are essential to improve weather and climate services.
Programme 5: Partnership & cooperation	To effectively recognized and consider the important role of all stakeholders and develop and maintain the relationship with Donors and other Development Partners, essential to WCS.

5. COORDINATION / ENABLING AND IMPLEMENTATION MECHANISMS

Building a New Generation of NMHS and RCC, with a clear legal framework , and adequate position in development plan and funding to fulfill their mandate to deliver high quality weather & Climate services, requires changes to go beyond the "business as usual" and an effective mobilization of resources that may seem scares.
The scale of challenges ahead requires an integrated approach and strong coordination across Africa, the regions (REC) and within each of the Member States to develop and implement a coherent weather and climate services plan of actions and to embed into all policy setting and decision-making.

5.1 High level coordination mechanism / platform at National, Regional and African level

NMHSs and their associated regional organizations and (AMCOMET Secretariat) are already under-resourced resulting in non-performing adequately their mandate, thus, in developing the coordinating mechanisms one should take into account these constraints.

5.1.1 Coordinating mechanism at the national level:

Under the overall guidance and leadership of the department in charge of the meteorology, it is recommended that the co-coordinating mechanism or the national platform for weather & climate services, encompass all ministerial departments at highest level and the weather dependant institutions, organized in two groups reflecting its double role.

1) The legislation and funding group should include departments best placed (National strategic planning, economy, public administration and finance) in partnership with all other department and organizations, to :
   - Develop or complete the legal framework as required
   - Advocate and provide (manage) financial resources from national budget and taking advantage of the external funding opportunities.

2) The technical group will have the critical role of overseeing, guiding and leading the implementation and monitoring of the actions that leads to deliver / use of high quality weather and climate services within a coherent a National weather and Climate Service Action Plan(NW&CS-AP)

   This technical group will include all ministers and all weather and climate dependant institutions as well as concerned stakeholders, is organized in 5 thematic committees,

   i) Basic networks system (integrated observing system, telecom, data management including national data catalogue and national data policy, telecommunication
   ii) W&C Services for Sustainable development & GFCS national platform
   iii) Transports, Infrastructure and Energy
   iv) Financial services & private sector (in terms of users of weather and climate services)
   v) R&D and training in W&CS and W&CS in support to MEA

The National Platform will consider improvement required in institutional co-ordination (legislation) to improve disasters risk management and adaptation to climate change within each sector weather and climate dependent.

The Platform will assess and define and detail the need for data, tailored services (in terms of content, frequency and mode of access), the training required and research for each sector and develop/adapt new legislation leading to mainstream these services in their operational activity as well as within their development plan to reduce / manage weather and climate risks and adapt to climate change.

It will also evaluate the capacities needed for the meteorological services (in terms of data, tools and infrastructure, methods) to respond to the needs of all sectors. It will ensure oversight of the different thematic.

5.1.2 At the sub regional level

It is recommended that the coordinating committee of each REC under the leadership of the ….. include a core group of commissionaires in charge of planning, development and finance to ensure efficiency for resource mobilization, co-ordination, planning and monitoring with the RCC and regional representative of AMCOMET serving as secretariat.

It will include the representative of the regional development bank, the representative of insurance association, sub regional institutions weather and climate dependant , the development partners agencies, WMO sub regional office and the association of NMHS,

The Sub Regional Coordinating Mechanism will provide guidance to the region Heads of Governments or the ministerial council on the changes and improvements required in the area of policy/legislation, finance and investments and other areas (such as capacity building, research …) to improve resilience of the socio economic sectors to weather extremes, climate variability and change

The Sub Regional Coordinating Mechanism, based on its evaluation and monitoring and briefings received from national coordination mechanism, will take measures for an efficient implementation of the strategy at regional and/or national level.

5.1.3 At the Regional Level

It is recommended that the coordinating committee at the regional level (African) under the leadership of the REA Department will include a core group of commissionaires in charge of planning, development and finance, and REA, Infrastructure and Energy, HRRT and Peace and Security: areas impacted by weather extremes, climate variability and change and driving forces for AU.

This coordination committee will include AfDB , the WMO /Africa Division , the ACPC, NEPAD, CAADP, the chair of AR1 and representative from Regional offices of UN agencies (UNISDR, UNEP, WFP, FAO,… with the AMCOMET secretariat serving as secretariat for the coordinating mechanisms. It will deal with resource mobilization, co-ordination, planning and monitoring for the

implementation plan within the framework of the Regional Action Plan for weather and climate services.

This Coordinating Mechanism, based on needs expressed by the different area, briefs from regional and national coordination mechanisms, will provide guidance to the Heads of States on changes required to mainstream weather and climate services to contribute to achieve resilience to climate variability and climate change in the areas policy, finance and investment, and foreign relations.

5.2 Links to the existing initiatives /programs

5.2.1 Existing African initiatives /program

The strategy provides a roadmap for action over the period 2014-2017, while building on the groundwork laid by existing weather and climate institutions and the numerous initiatives at national, regional, including the ClimDev_Africa program.

Indeed, several initiatives have been executed and others are being conducted by African Institutions in collaboration with technical and funding partners. These institutions are stakeholders of the strategy and some of them are considered of the core implementation agencies. The IASM implementation should beneficiate from the results produced and those planned from these initiatives. A set of these initiatives, are described in appendix.

The table clearly shows that the initiative' objectives range from collecting information, developing products and tools to access and/or disseminate this information, capacity building and research to improved knowledge / observation and forecasting capabilities and instruments to improve the institution' legal framework, and cooperation with advanced partners.

As it is the table, contains important gaps as it doesn't include countries' initiatives and we can easily deduce that activities related to the basic network infrastructure, the maritime sector needs and the QMS are not addressed and that the initiatives are structured more on generating information not on their use and usefulness and obvious lack of coordination among neither the institutions nor the initiatives undertaken.

Nevertheless and while addressing these gaps, the activities, the services, the coordination mechanism developed within these initiatives will be considered by the implementation plan of the AMCOMET Strategy as an asset that need to be enhanced. The implementation plan will focus to develop the strongest coordination and collaboration across all concerned stakeholders at all levels as shown in the figure below

5.2.2 African Frameworks

Under the sponsorship of African Union and UN organizations, thematic frameworks has been created and are operational for years: that is the case of:

AMCEN: The African Ministerial Conference on the Environment (AMCEN) was established in December 1985,

AMCOW: The African Ministers' Council on Water (AMCOW) was established in 2002

CAMET : Conference of African Ministers of Economy and Finance

5.2.3 The World Meteorological Organisation and the Global Framework for climate Services initiatives

The World Meteorological Organisation, jointly with the African Union Commission is of the most important sponsor of the AMCOMET. WMO has since its creation supported the development of NMHSs in all regions. It has recently assisted in developing regional implementation plan for:

- The Regional Association strategy based on the WMO strategy
- The Global Climate Observing System
- The WMO Integrated Global Observing System
- The WMO Information System
- The WMO Service Delivery

The Global Framework of Climate Services, through its defined implementation plan, has already launched some actions in support of climate services in Afica that are ver complementary to this plan.

5.2.4 Other UN international programs (UNISDR, GEO, FAO, UNEP,UNESCO,….)

These institutions play already an important role as the do run specific programmes on monitoring, applications and research in climate matters in particular Disaster Risk Reduction and climate Change adaptation in support of human security and sustainable development.
Their regional (for Africa) activities and program should be taken into account

5.2.5 AFRICAN DEVELOPMENT BANK AND WORLD BANK PROGRAMS

This two development funding agencies (at African and world level respectively) are partners in "building resilience of Africa" and have already important programmes to strengthening institutions' capacity, supporting development of tools to reduce disasters risks and adapt to climate change.

Both institutions are currently engaged in initiatives to support weather and climate services in Africa.
The relations developed by these two partner with African Government and their involvement in very important weather and climate programmes in Africa, their own technical expertise and capacity to mobilise is of a great support in convincing national government and regional political bodies to support the National Weather and Climate Services and their modernisation.

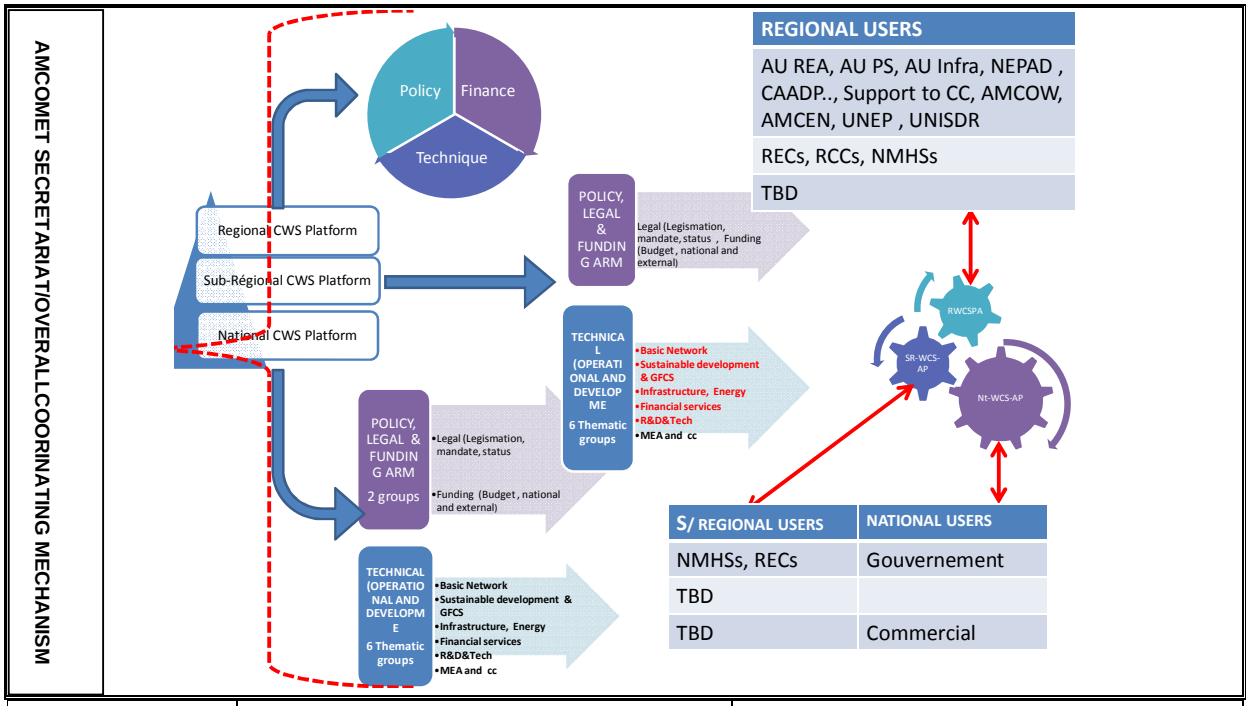
They should play an important role in supporting directly the implementation of the strategy and its activities.

5.2.6 Multilateral Environment and International Agreement and Conventions UN FCCC, UNCBD, UNCCD)

5.3 AMCOMET as Overarching Framework for coordination / monitoring

The overall potential coordinating mechanism for implementing the goals of the strategy will be oversight by AMCOMET.

However for efficient implementation AMCOMET need to set an operational management mechanism to support and manage the implementation of the plan and its coordination at the continental, regional and national level African capacities in weather and climate.



Three interrelated platforms	Three coordinating mechanism	Three Management/implementation structure
National	• Minister in charge of Meteorology • Line Ministers (Development, finance • Ministers & Institutions weather and climate dependant • National User' Committee • Partners Committee	SNMH
Sub-Regional / REC	• REC (commissioner in charge) • Regional Users Committee • Partners committee	• REC designated representative • RCC representative • WMO regional representative
Regional/African	• AUC (REA, Security, Infrastructure, Research) • WMO • ECA • ADB, World Bank • Partners committee	• AMCOMET Secretariat • WMO Africa Director • Team of 3 to 4 Experts • Continental RCC / WMO

<u>Management and Implementation teams:</u>

Ensuring effective and permanent coordination among all participating organizations at all levels and efficiently managing operational daily activities requires, beside coordination structures, dedicated staff somehow a governance/ managment structure for AMCOMET at the three levels (National, Regional and Continental).

Such governance, organized around the AMCOMET Secretariat at African Level should be constituted as follow:

- **At African level (AUC)** : at least two to three AMCOMET experts supported by the Continental RCC
- **At the Regional (REC)**, one AMCOMET' permanent representative, supported by the RCC.
- **At the country level (SNMH):** under the general supervision of the minister in charge of meteorology member of the AMCOMET, the Permanent Representative to WMO and the representative for Hydrology with 2 to 3 experts should be designated as the national coordination unit for the implementation.

Responsibilities and roles for such entities are indicated in the next chapter

6. STAKEHOLDERS AND THEIR ROLES / RESPONSIBILITIES

Through their national expressed needs and their international commitments, African Governments have from long through the mechanisms in place have addressed with a certain efficiency the issue of weather and climate services (mainly in saving lives, security of infrastructure, and development) and somehow in supporting climate change adaptation.

NMHSs have been created, mandated and supported to provide at a certain level these services. A number of regional climate centers have been created to deal with regional aspects and efforts mutualism in developing and sharing products, services and organizing and managing data. Several project have been developed and implemented jointly with partners for the benefits of the countries in particular during the last two decades (RANET, PUMA, …,CLIMDEV-Africa).

Political commitments (though not strong enough in some cases) of national governments to, for example the GFCS at the global level but more importantly to the AMCOMET are clear expressions of the political support of national governments to weather & climate services and the organizations mandated to provide (NMHSs , RCCs ..)

Governments, regional organizations, academic institutions and civil society, and from outside the continent, multi-lateral agencies and institutions, and donors have participated in and supported the weather and climate services efforts.

The Integrated African Strategy for Meteorology (Weather & Climate Services) and its Implementation Plan have been developed with the participation of governments and stakeholders.

6.1 National Entities

National institutions are those on which the strategy relies to drive its implementation.

6.1.1 Role of Government: Lead Department in charge of Meteorology

The national governments through the minister in charge of Meteorology and concerned ministers, departments and agencies are the instruments through which many of the national level actions will be supported, executed/implemented.

These national entities will be particularly responsible for the execution of actions aiming to mainstream and integrate the weather and climate services in the national development plan and operational activities of all concerned economic and social sectors.

They will be working through and with the national coordinating mechanism as set in paragraph ……
The priority task (but not limited to) of these entities will include:

(i) National development planning and budgeting and in particular
(ii) Institutionalize the participation of all government entities in the proposed " National Weather and climate Services Framework or coordinating mechanism", the development and adoption of the National Weather and Climate Plan of Actions"
(iii) Adoption of specific measures in response to identifies needs and gaps in mainstreaming weather & climate services in the development agenda and operational activities
(iv) Undertake concrete actions to ensure Weather and Climate Services are mainstreamed into the development processes in particular in national development plans and all operational activities weather and climate dependant
(v) Develop an adequate legal framework, funding mechanisms and enforcement of the Governance of the National entities (NMHSs) and
(vi) ensure allocation of adequate annual budget to support NMHS and its related bodies to support actions described in the implementation plan
(vii) Assist in mobilization of additional resources from bi-lateral and multilateral sources to contribute to support the implementation plan at national level
(viii) Take appropriate actions to reduce gaps in services delivery by NMHS (and RCCs) to end " serious disruptions in the operation of meteorological chain"
(ix) Enforcement and governance in the public institutions
(x) Provide an appropriate political, legal and administrative environment (through the proposed mechanism : National Framework for Weather & Climate services) for the implementation of the actions set in this plan (including monitoring and evaluation)
(xi) Encourage international cooperation and clear and efficient participation of NMHSs in the Multilateral Environment Agreement and in particular the UNFCCC, UNCCD, UNCBD)
(xii) Mandate and Encourage universities and research entities to undertake research in meteorology and climate
(xiii) Encourage the private sector emergence in the domain of Weather and climate issues
(xiv) Promote partnership and develop opportunities for a greater cooperation with private sector , NGOs and seek
(xv) Private sector including (financial – Banking and insurance) to integrate WCS in their planning and operational activities as well as to undertake climate risk assessments as part of their normal activities

- ✓ Explore business opportunities arising from promoting use of weather and climate services in development plan (technologies, insurance, training and best practices) and operational activities

- ✓ Sharing data and information to create a win-win situation by in which private sector could play (within legal framework) a role in providing specialized services to businesses.

Building National resilience and adapting to climate change cannot be achieved without embedding weather and climate services into all government and institutions including private sector policies and decision making

6.1.2 Specific Role of National Meteorological & Hydrological Services

The NMHS as the National organization mandated to provide weather and climate services, NMHSs, should

i) First and foremost assume the leading role at national and regional level in the implementation plan under the leadership of the ministerial department.
ii) Ensure an efficient coordination and the leadership of the defined thematic groups in the national coordination platform.
iii) Ensure the leadership in resources mobilization and provide the required human resources and facilities to the coordination and implementation teams
iv) Executed the funded activities of the plan at national level and ensure the tasks related to monitoring and evaluation and communication.

6.1.3 The Specific Role of Development Partners at National level

Development partners

6.2 Sub Regional Entities / Stakeholders at REC level

At this point it is suggested that the AMCOMET designates or appoints (through an MoU) a representative within each REC.
The Regional African entities (RECs, ECA/RO, AMCOMET' representative and Regional IGOs in particular the RCC jointly with the WMO regional office and the Regional association of SNMHs) must play an active and vital role in the execution, monitoring, and review of the Implementation Plan at the levels and in the manner described below.

6.2.1 Role of the Regional Economic Communities

At this level, whether it is the head of governments or council of Planning & Development ministers, there is a clear leadership role in effectively accelerating the implementation of the Integrated African Strategy on meteorology at sub-regional level.
Under the proposed coordinating mechanism, REC should ensure that the goals of the IASM are taken into account in their development plans, strategies and processes as well as those of the related/dependant regional institutions or bodies. They should:

i) Develop and reviews policy and legal framework to better position NMHSs and RCC in the Regional Development Plans
ii) Support and oversee the actions listed in the paragraph 4.1 above and remedy in case of failure

iii) Strengthen its regional advocacy role in providing adequate funding resources for NMHS and RCCs
iv) Develop legal framework and legislation to ensure that private sector can play a dynamic role in implementing the strategy (IAMS).
v) Support the participation of NMHS s and RCCs in MEA activities at regional and continental levels as well as their effective support to participate to climate change negotiation issues
vi) Encourage and review integration of Climate and Weather Services into development plans and regularly evaluate their impacts or benefits to society

6.2.2 Role of Sub regional Institutions at REC level (RCC, RBO, … Training)

The ability of most countries individually is limited in facing the challenges of the strategy and builds an efficient Plan of actions of Weather and Climate Services.
Working collectively through a regional support structure allows countries to maximize their resources and technical expertise to the benefit of all.
With support from the Regional/African RCC, the regional (sub) regional RCC, beyond coordinating ad supporting the NMHSs to implement actions at national level, will have the responsibility of implementing the actions at the REC level.
The African Regional Climate Center should lead the other regional climate center in driving technically the strategy.
The sub regional institutions weather & climate dependant

6.2.3 The Role of the RCC at African Level

In this context, it is proposed that the RCC in coordination with the AMCOMET and the WMO representative take the responsibility for coordinating the implementation of the IASM in collaboration with the relevant regional and national institutions, and providing technical support and guidance as required by the respective implementing agencies (NMHSs).
The RCC

6.3 Regional (African) and Global entities

6.3.1 Central Role of AUC ,WMO and AfDB

- Guidance and monitoring role of African Union Commission and World Meteorological Organisation

  WMO, as a sponsor of this initiative, should ensure a very close collaboration be established between the implementation of this strategy and that of GFCS. It is important that the players see a complementary and not a duplication still less concurrency (for access to funding and partners)

- The Specific Role of the African Development Bank:

  Since the time when AfDB identified climate change as a cross cutting issue that can affect its goal of supporting poverty reduction and sustainable development in Africa, it has accumulated large experience in conducting and implementing projects that address Climate Risk management and Adaptation Strategy.

The skills developed by the bank in implementing such projects complement its experience in domains such as poverty reduction or capacity development.
Taking into account the best practices obtained in projects implementation, the African Development Bank will be of a great support in implementing the IASM.
Its role in mobilizing and managing dedicated funds would be determinant

6.3.2 Role of the international development Community at all levels

6.4 Role of AMCOMET Secretariat

AMCOMET secretariat should play the driving force role: the most important role of overall coordination and oversight of the implementation plan at continental/African, Regional/REC and National/Country level.
It bears the responsibility of monitoring and evaluation (through the ME/WG) of the implementation, the review and update of the plan if required.
AMCOMET will rely on existing capacity within African Institutions.

If more efficient and detailed management scheme/framework needs to be developed, with supported (funded), AMCOMET secretariat will need to ensure that coordinating platform at National , regional and continental level are continuously monitoring the execution of the implementation plan.

The AMCOMET secretariat jointly with the coordination platform at Continental should ensure that all African capacity at all level is mobilize

These critical tasks to be performed by AMCOMET Secretariat require a minimum of dedicated staff at different levels (National, Regional and continental/African). An indication for such staff at the three coordination/implementation platform level is given in paragraph *"Mobilisation of human resources for Coordination, oversight of the implementation plan'"* being aware that execution of programmes and projects should be undertaken by the available capacities at Country/National (SNMHs...), REC/Regional (RCCs), Continental/African (African RCC) in a dynamic collaboration with their partners.

The institutions member of the coordination platforms should form, a technical and scientific advisory committee or a Steering Committee (SC) .

7. RESOURCE MOBILIZATION

The current level of the financing for the implementation of the Integrated African Strategy for Meteorology (Weather and Climate Services) AMCOMET appears to be grossly inadequate, as the current financial flows to the national and regional weather and climate institutions in Africa that are abysmally low. Most African National Meteorological Services (NMHSs) and Regional Climate Centers (RCCs) are under-funded from national budgets and are highly dependent on donor projects which are under budget pressures and constraints.

In response to this situation, an aggressive resource mobilization plan is required, with contributions expected from a variety of partners at the international, regional and national levels in order to ensure effective and successful implementation of the Strategy.

7.1 Resource mobilization objectives

The overall objective of this Resource Mobilization Plan is to put in place an enabling environment for resource mobilization efforts and mobilize adequate resources required for the implementation of the Integrated African Strategy for Meteorology (Weather and Climate Services) through to 2017. The immediate objectives are to:

- Provide a strategic framework on how AMCOMET can mobilize resources for activities planned under the present Implementation Plan;
- Achieve adequate, predictable and sustainable voluntary contributions that fully support the implementation of the Integrated African Strategy on Meteorology (Weather and Climate Services);
- Attract and raise necessary resources for implementation of the priority activities and collaborative programmes identified in the Implementation Plan;
- Supplement and complement WMO and AMCOMET Secretariat's efforts in mobilizing resources for implementation of the strategy;
- Enhance investment in the weather and climate services in Africa;
- Leverage development partnership and technical cooperation to support the mainstreaming of weather and climate services into development assistance in Africa.

7.2 Challenges in resources mobilization

Although resource mobilization is critical for the implementation of the Strategy, a number of challenges need to be overcome for successful resource mobilization efforts, include among others:

- Lack of funding information: Information relating to donors and donor profiles, and funding opportunities need to be readily available or easy to access.
- Current scarcity of resources from traditional donors and competition to existing resources in the context of donor budget pressures.
- Limited capacity from recipient countries, when resources available, to get access and utilize resources, including insufficient skills or capacity to capture and optimize opportunities as they arise. This can be achieved through training and support for applying newly acquired skills and capacity at the national and regional levels.
- Complexity of donor requirements.
- Donor dissatisfaction and fatigue about the final outcomes of their contribution

7.3 Mapping potential funding sources and Resource partnerss

As an initial step to support resource mobilization efforts for the present Implementation Plan, there is a need to map out potential funding sources and resource partners. To ensure a sustained

implementation of the Strategy, it is critical that a wide range of development funding sources be targeted, building on existing international, regional and national development mechanisms, including:

- National budgets and funding instruments;
- Bilateral development mechanisms through Overseas Development Assistance programmes and in-country budgets of overseas missions and embassies;
- Multilateral development financing mechanisms, including development banks and agencies' financing windows, United Nations System initiatives;
- Climate financing resources, including in particular the Global Environment Facility, the Adaptation Fund, Climate Investments Funds (CIFs) and the Green Climate Fund;
- Private Sector Finance and other innovative funding mechanisms.

7.3.1 National Budgets and Government Funding

As part of their upmost responsibility to ensure protection/security of their population and their own investments and those financed by development partners from weather and climate disasters, National Governments should consider funding their NMHS within the framework of their national development planning processes and development cooperation programmes. In committing national funds to their NMHS operational budget and meeting their commitments in contributing to the budget of RCCs, national governments in Africa will greatly contribute to implementing the Integrated African Strategy for Meteorology at national level.

National Climate Fund (NCF) (reference vv)

A Guidebook for the Design and Establishment of National Funds to Achieve Climate Change Priorities has been developed and published by the UNDP: **Blending Climate Finance Through National Climate Funds**(September 2011)

"NCF is a mechanism that supports countries to direct finance toward climate change projects and programmes by facilitating the collection, blending, coordination of, and accounting for climate finance. NCFs provide a country-driven system that can support climate change goal setting and strategic programming; oversee climate change project approval and implementation, measure performance, offer policy assurance and financial control of climate change funds, and assist with partnership management"

Countries may use the UNDP proposed approach to constitute such National fund as support to the implementation plan of the IASM. The Mali has created one such fund in 2012 and Sweden has made a contribution to it, in December 2013.

7.3.2 Regional and Multilateral development financing mechanisms

- **African Development Bank – ClimDev-Africa Special Fund (CDSF)**

As an important financier of Africa's development, the African Development Bank has over the recent years increased its investments on climate change and climate services. From its core

development financing instruments in particular the African Development Fund (ADF), the Bank is providing significant resources for climate change. Moreover, by creating the ClimDev-Africa Special Fund, the Bank is committed to strengthen national and sub-regional institutional capacities to overcome the lack of necessary climate information, analysis and options required by policy and decision makers at all levels within the context of threats of climate change.

Therefore, the African Development Bank would constitute one of most important potential funding sources for the Integrated African Strategy on Meteorology (Weather and Climate Services), as strongly recommended during the 3rd Session of AMCOMET and .

- **World Bank**

In recent years, the World Bank has increased its hydromet project portfolio, focusing on the modernization of National Meteorological and Hydrological Services (NMHSs) in different parts of the world, including Southeast Europe, Central Asia and Western & Central Africa. The Bank, through the Global Facility for Disaster Risk Reduction (GFDRR) and the Pilot Programme for Climate Resilience (PPCR) is playing an important role in support to NMHSs and RCCs. Currently, as part of the Sahel Initiative, the World Bank is assisting some Sahelian countries of West Africa and regional institutions in the areas of water resources and hydro meteorological services in support to climate resilience.

Given the Bank growing interest in weather and climate services, it can be an important resource partner for the implementation of the Integrated African Strategy on Meteorology (Weather and Climate Services) through well coordinated and structured efforts between AMCOMET and WMO.

- **Arab Bank for Economic Development in Africa (BADEA)**

BADEA financed projects submitted in priority by recipient countries and within the framework of their development plans as well as regional projects that contribute to the integration of African economies. BADEA also provides technical assistance in the form of grants. It is important to approach and raise awareness of BADEA on the need to mainstream weather and climate Services into national and regional development plans thereby ensuring commitments for the implementation of the Integrated African Strategy on Meteorology (Weather and Climate Services).
Other resource potential funds from the Arab world that may be targeted are:

- ✓ Islamic Development Bank (IsDB)
- ✓ Arab Gulf Program for United Nations Development Organizations (AGFUND):
- ✓ OPEC Fund for International Organization (OFID)
- ✓ Abu Dhabi Fund
- ✓ Kuwait Fund for Arab Economic Development

- **Other Multilateral or international funding agencies**

Other international funding sources for some specific activities of the strategy are the UN Agencies such as the following:

- ✓ International Fund for Agricultural Development (IFAD)
- ✓ Organization for Economic Co-operation and Development (OECD)

- ✓ United Nations Children's Fund (UNICEF)
- ✓ United Nations Development Programme (UNDP)
- ✓ United Nations Environment Programme (UNEP)
- ✓ World Food Programme (WFP)
- ✓ World Health Organization (WHO)
- ✓ World Meteorological Organization

7.3.3 Bilateral development mechanisms an Overseas Development Agencies

There are a number of bilateral agencies that have experience in Africa, some of them with solid programmes on climate change and climate services, including:

- Australia - Australian Agency for International Development (AusAID)
- Austria - Austrian Development Agency - ADA [www.ada.gv.at]
- Belgian Technical Cooperation - BTCCTB
- Canada - Canadian International Development Agency (CIDA) and International Development Research Centre (IDRC)
- Denmark - Danish International Development Agency (DANIDA)
- European Union - EuropeAid Development and Cooperation
- Finland- Department for International Development Cooperation (FINIDA)
- France - French Development Agency (AfD)
- Germany - Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)
- Greece - Ministry of Foreign Affairs
- Italy - Ministry of Foreign Affairs: Italian Development Cooperation Programme
- Japan - Japan International Cooperation Agency (JICA/TICAD-V),
- Korea - Korea International Cooperation Agency
- Kuwait - Kuwait Fund for Arab Economic Development [www.kuwait-fund.org]
- Luxembourg - Lux-Development
- Norway - Norwegian Agency for Development Cooperation (NORAD)
- Spain - Spanish Agency for International Development Cooperation (AECID)
- Sweden - Swedish International Development Cooperation Agency (Sida)
- United Kingdom - Department for International Development (DFID)
- United States - United States Agency for International Development (USAID)

7.3.4 Existing AU privileged partnership

Through the African Union, the continent of Africa has privileged and strategic bilateral partnerships with a number of developed countries. These can serve as an enabling mechanism to access available bilateral funding opportunities. These include, among others:

- Tokyo International Conference on African Development (TICAD V):
- Africa-EU (EDF/ACP, Pan-African Initiative)
- Forum on China Africa Cooperation (FOCAC)
- Africa-Arab Cooperation:
- Africa-South America
- Africa-US (AGOA)
- Africa-Korea

- Africa-Turkey
- Africa-India

- **Tokyo International Conference on African Development (TICAD V):**

  Recently, as part of the negotiations under the Tokyo International Conference on African Development (TICAD V), the African Union and WMO have initiated the process for inclusion of the Integrated African Strategy on Meteorology (Weather and Climate Services) into the financing planning process of TICAD V, resulting in the inclusion of the Strategy as one of focus areas and Africa's efforts to be supported by TICAD V, under the Yokohama Action Plan 2013-2017.
  This ongoing effort needs to be pursued and sustained in order to mobilize TICAD V resources for the implementation of the Strategy, with the objective to tap into TICAD V funds in a short term period.

- **European Development Fund (EDF)**

  The negotiations for the 11th European Development Fund (EDF) for a seven-year period from 2014 to 2020 have already started, with climate services being considered.
  Partnerships with the European Commission and other entities such as EUMETSAT are therefore required to mobilize resources from the EDF-11 for the implementation of the Integrated African Strategy on Meteorology (Weather and Climate Services) and the GFCS in Africa.
  Funding from the EDF-11 would come from different windows, including the Intra-ACP funds, the Pan African Programme being established. Based on actions identified in the Implementation Plan, AMCOMET Secretariat, with support from AUC and WMO will need to programme projects to be submitted for support by EDF-11

7.3.5 Climate financing instruments

In the recent years, climate finance has become an important focus of the international community. While several funds are operational, the delivery of resources to address climate services is still very low. These funds are broadly focused on climate change without clearly targeting climate services. This situation needs to be improved with a greater focus on, and access to, these climate-related funds for climate services. Climate change financing provides a major opportunity for greater long-term investment in climate services, including the newly-established Green Climate Fund.
Climate financing instruments need to be viewed as opportunities for the implementation of the Integrated African Strategy on Meteorology (Weather and Climate Services), including the following mechanisms that are operational:

- Adaptation Fund for which WMO, AfD B, OSS and other have been designated as Reg ional Implementing Entities
- Climate Investment Funds, in particular the Pilot Program for Climate Resilience (PPCR)
- Global Environment Facility
- Green Climate Fund

Coordination between National and Regional levels is imperative to prepare and submit project proposals that meet the various requirements under those funding instruments.

7.3.6 Private Sector Finance

- ~~Aircraft Meteorological Data Relay (AMDAR) initiative~~
- **Weather Information of All (WIFA) Initiative**: This initiative launched in 2009 by Kofi Anan was about to have some success and potentially drained fund that could at least fill the gaps in the African observing network.
- **Other private funds**:

7.4 Need for a dedicated Facility for Weather and Climate Services in Africa

Learning from the existing efforts to support the development of weather and climate services in Africa by various partners, and taking into account the need for increased resources to support the implementation of the Integrated African Strategy on Meteorology, there is a need to envisage the development of a dedicated facility for weather and climate services in Africa. Given the efforts being made by the AfDB to make operational the ClimDev-Africa Special Fund (CDSF) and in order to avoid the duplication of efforts, the CDSF can be prioritized and reinforced to become an important financing arm for support to weather and climate services in general, and particularly the Strategy, with contribution from a variety of resource partners.

To facilitate the resource mobilization of the Strategy, and based on the specific needs of different regions of Africa, it becomes critical to identify through the present Implementation Plan, flagship programmes that can further developed for resource mobilization process.

A joint Resource Partner Round Table by AMCOMET Secretariat and CDSF will need to be organized in a near future to raise awareness and advocate about the resource needs for the implementation of the Integrated African Strategy on Meteorology (Weather and Climate Services).

7.5 Mobilisation of human resources for Coordination, oversight of the implementation plan

In terms of resources, human potential is the other face of the same coin. The coordination of the implementation of the strategy, its monitoring and evaluation will require to equally mobilizing adequate number of human resources. Especially during the start phase (2015-2016) of implementation, the process should not suffer from inadequately resourced implementation in term of human resources.

Thus, the secretariat should engage stakeholders at different level to commit to support needed staff and / or secondment of experts in programme/project management and ensure coordination at continental and regional level. Indeed, the need for a minimum staff within the secretariat, the AU, the REC should be dedicated. At the country level, in addition to the Minister in charge of Meteorology representative within the AMCOMET, the country should appoint and support beside the PR and expert in charge of hydrology a third expert as the executive officer of the implementation plan.

As regards to the infrastructure and logistic needed for these experts to perform their tasks, this should be provided by the institution hosting the AMCOMET representative/expert designated.

7.6 Concluding remark on resources mobilization

The ability to mobilize adequate financial, human and technical resources in a predictable manner and on a sustainable basis will be critical to the successful implementation of the Strategy. In this regard, Countries (SNHSs), RECs (RCCs), AUC (AMCOMET) should develop and implement

national/regional strategies for resource mobilization and exchange information on the experiences, good practices and lessons learned.
National Governments should be encouraged to identify and maximize opportunities for technical assistance and cooperation from regional and international sources (technical partners) for the implementation of the Strategy.

8. MONITORING, EVALUATION AND RISK ASSESSMENT

8.1 Monitoring and evaluation issues

To achieve a successful implementation of the strategy requires setting measures and / or criteria that evaluates its progress continuously with reviews at regular milestones.
Most common monitoring and evaluation scheme relies on an implementation body: in this case the proposed structures for coordination and oversight at the three levels (National, Regional and Continental) should have this responsibility though AMCOMET has already agreed to form a Monitoring & Evaluation Working Group (M&E-WG) to establish such process.

A process of tracking the implementation of the recommendations and activities in the plan and to report on a regular basis (six, twelve months) with corrective measures should be put in place and The AMCOMET Bureau, serving as the conference of the Ministers, through M&E Working Group will oversight the whole process.

Thus, monitoring and evaluation of the implementation of the Strategy will be executed by the M&E-WG in relation with the AMCOMET Secretariat and will prepare periodical reports, as agreed, on the basis of submissions of national/regional reports by all implementing parties (SNMHs, RCCs and other stakeholders (such as WMO, ACPC, AUC..)).

The implementing bodies (national, regional and stakeholders) will submit their reports on the status of implementation plan of their area or program of concern (country, region, ..) and on how the coordination/ oversight framework are being used by members (Governments representative, SNMHs, relevant organizations) in the planning, implementation and monitoring of their activities or in supporting or financing projects.

The M&E-WG' report will be submitted to the AMCOMET Bureau meeting for its consideration and guidance on measures for improvement at its annual meeting.

The reports on the status of implementation Plan of the Strategy will outline the activities implemented and the key results achieved in order to provide a clearer sense of the overall progress made at different levels. In this regard, governments, SNMHs and relevant organizations would be requested to make submissions on both their activities and the results achieved.
This would serve as a measure of the outcomes for the defined Expected results of the Strategic pillars or the flagship programmes.

The implementation plan has already provided some indicators (so called "Key performance indicators" in the document) for the Expected results that will be used to monitor and evaluate the progress made. A more elaborate monitoring framework, describing, the indicators and the data collection methodology, sources and forms of data, collection or transmission methods, will be

developed by the M&E-WG in relation with AMCOMET Secretariat. A review of the current M&E frameworks in use to ensure consistency, avoid duplication and use of common baselines would be necessary.

The Key Performance Indicators include notably measures reflecting that Weather and climate service are part of development planning, capacitated weather and climate institutions and enhanced collaboration….

1) Number of countries and REC with improved legislation that integrate CWS,
2) Number of NMHS & RCC that statutes to fulfill their mandate are improved: semi-autonomous
3) Number of NMHSs and RCCs, whose capacities and capabilities are improved
4) Percentage of needed Resources identified and mobilized
5) Number of NMHSs and RCCs supporting CSIS and UIP
6) Number of NMHHs QMS got the ISO-Compliance certificate
7) Number of additional NMS with recovery framework adopted
8) Number of additional maritime' sectors effectively using weather and climate services
9) Number of MoU signed with partners
10) Number of SNMHs and RCCs effectively involved in Climate change discussions
11) Number of SNMHs designated as the authority for certifying climate scenarios
12) Number of countries with GFCS implemented at the national level
13) Number of countries with efficient dissemination systems
14) Number of donors supported projects and programmes
15) Percentage of Total amount of funding received

At a longer term the success of the strategy will be measured in line with its goals in reducing risks and adapting to Climate Change: The M&E process should then focus on delivering through delivery of the strategic elements and goals; and recently in an analysis (reference) suggested a" risk reduction index" as much a tool for advocacy as for practice.

8.2 Risks Assessments

The implementation of the Integrated African Strategy for meteorology remains a challenge. This challenge requires the support and active participation of all African countries and their development partners *concerned, within and outside the continent,*
How favorable is the "political, financial and social" environment to take this opportunity to invest in a preventive action such as "improving weather and climate services" to built and strengthen the countries' resilience, contribute to poverty reduction and sustainable development.

How ready are the African countries to work collectively and have a common position on an effective funding mechanism and engage with partners/donors community?

8.2.1 Strategy' Risks

AMCOMET strategy has put forward some overall associated risks (R) and assumptions (A) to consider

(i) Risks: Political disturbances in African countries (R) and Political realignment with the development partners (R) as some donor aid comes with political strings as pre-requisites; and HIV/ Aids and epidemics like malaria, typhoid and cholera (R) and High staff turnover, en-mass retirement and frequent staff changes (R);
(ii) Assumptions: Appropriate skilled human resource is available (A), particularly in weather forecasting, data warehousing and data mining as well as quality control and climate modelling; and Environment for recruitment of women is conducive (A), more so in the context of adaptation and mitigation to climate change and National resource allocations to national meteorological services are sufficient (A);

To these risks and assumptions, while implementing the strategy, we should consider other risks that could be in three categories:

8.2.2 Risks linked to policy and coordination:

- Lack of clear and effective engagement of policy makers and other stakeholders
- Weak willingness of National Governments to drive the implementation and provide required funding and regulatory framework
- Lack of well established and resourced regulator – legal provisions uncertain
- Not highly-skilled and not committed secretariat and implementing entities at national and regional levels
- Difficult and complex coordination of the stakeholders involved (within and outside Africa, the REC and the countries.
- Working rules not fully binding and Regulations only in force for a short period compared
- Inconsistency Regional, national, international rules and regulations in conflict
- Multiple project types in multiple countries and/or employing multiple technologies
- Lack of appropriate methodologies for reporting and verification

8.2.3 Risks linked to capacity and capability

There are risks directly linked to the existing capacity (minimum infrastructure and human resources to conduct and implement projects' activities) of agencies (SNMHs & RCCs) to access to funding and implement projects while applying required procedures as well as its experience with the supporting institutions. Among these risks:

- Lack of well-trained and operational staff to implement projects
- Poor physical infrastructure to absorb investment and respond to technology (access to internet, power availability)
- General shortage of funding
- Too complex financial instruments and funding sources
- Knowledge and familiarity of the "agency NMHS" with applicable donor regulations
- Variety of complexity of the programs being funded
- Results of previous experience of each NMHS
- Not bankable projects

- Extent of 'negative' information about the agency from donors and other international NGOs, UN agencies and donors
- Capacity of NMHS to conduct its own procurement

8.2.4 **Risks linked to projects and activities**

The risks that may negatively impact the implementation of projects and that need to be

- Physical Natural hazards, including (machinery breakdown and other material damage)
- Technology is not efficient and/or too complex
- Lack of experience in program implementation
- Strength of Internal control
- Effectiveness of an entity's program implementation, as well as its internal control system in preventing and detecting malfunctioning.
- Significant turnover in the project's or implementation' personnel,
- A change in the quality or timeliness of required reports, or information received from other sources, may all necessitate a review to determine if a revised risk assessment is warranted

Identifying risks is not enough: the trade-offs and obstacles to risk management must also be identified, prioritized, and addressed.

9. COMMUNICATION STRATEGY

Development and implementation of a comprehensive communication strategy for the implementation of the IASM should end with the establishment of strong communication activity/function within the implementing institutions (NMHSs & RCC) promoting weather and climate services for the development of African countries.

The communication strategy must equally, be developed to meet the objectives the Integrated African Strategy for Meteorology is seeking and which include, (i) Positioning weather and climate services as a key element in national and regional development processes, (ii) Contribute effectively to security (Protection of life and property) and sustainable development and (iii) enhance cooperation between African Countries.

It should present and explain the AMCOMET strategy, its objectives, goals, and benefits to society, its partners, its means of implementation and monitoring and evaluation. Such presentation will inform on the nature of the strategy and give it a reputation of credible, transparent and authoritative scientific support to development.
Through the activities, the targeted audiences and the tools used, the communication strategy should::

- Develop and maintain a high reputation of the strategy and its partners and have it efficiently owned by all concerned stakeholders.
- Allow better educating and informing policy makers, by demonstrating the usefulness of weather and climate services for the development of Africa by helping society adapt to climate variability and climate change
- Mobilize required resources to perform its own implementation and support its members' operations and development.

The communication strategy should be dynamic, as it will evolve and reviewed in the course of the implementation on the basis of the monitoring and evaluation reports and others challenges identified.

9.1 What are the audiences?

Ultimately, the communication strategy will improve the understanding and awareness of the public and decision/policy of the goals IASM is seeking to improve resilience to climate variability and climate change.
Thus, the audiences targeted by the communication strategy go well beyond the one listed in the strategy document.
They include all stakeholders concerned and involved in sustainable development such as government sectors weather and climate dependant, government sectors in charge of development and other development partners at international and regional and national level, international organizations, inter-governmental organizations, NGOs and policy and decision-makers, the universities and research, the media, communities at large and hence a broader public.

Outreach activities should be tailor-made and communications should be conveyed through the appropriate means/media selected from the existing wide range (traditional methods to new social medias) that meets the needs of the targeted audiences.

Such communications material should also be provided in suitable languages and should be pertinent to the targeted audience when and where necessary. It needs to articulate the economic and social benefits of integrating weather and climate services (based on scientific data) in decision making and planning at different time scale ranging from six hours (Satellite and Radar information) to seven days, month, seasons and decades ahead (using climate models).

9.2 Communications methods and tools:

The communications related to the implementation of the Strategy should be carried out professionally and pro-actively in a timely and appropriate manner to ensure effectiveness.
Focal Points at national and regional level can play an important role in relaying and disseminating the material prepared.

The communications should use the range of tools that allow stakeholders to receive and/or access timely to the required information as per above statement.
Beneficiaries' (implementing stakeholders) institutions at national and regional level should play the role of focal point in relaying, disseminating material produced through the strategy. Most of these stakeholders have already built network and use tools such as newsletter electronically distributed, websites, planned events … These tools and means should be use already have their should highlighting its successes and achievement.

The current tools in use to communicate on the integrated strategy such as the WMO website, new social Medias, presentation brochure and other information materials (brochures, fact sheets, etc) would probably need to be populated more.

These tools should be completed by a regular e-newsletter, strong direct participation to events, and presentation with booths … use the communications capacity exiting within implementing agencies and other partners to further disseminate the message from the IASM

The website to be developed within the implementation plan should have a design and architecture of an African Weather and Climate Services Portal, aiming to ensure that weather and climate related information is readily accessible to users in a coordinated and user-friendly manner. It should be built based on stakeholder's needs and requirements and its content periodically be reviewed.

The proposed activities under expected result 2 of the implementation plan constitute opportunities not only to enhance the visibility of the weather and climate institutions but also of the Strategy.

9.3 Communications activities

Beside the activities proposed under the expected result 2 of the first pillar (Africa Met Week; analysis and assessments of benefits, workshops for relevant stakeholders, well packaged information) other activities include:

- The day to day communications related to weather and climate services such as conception, production and dissemination of communication material to specific stakeholders including private sector
- Building and maintaining the network of focal points
- Building the relations with all Africa Medias network (TV, Radio ….)
- Launching of big events directly related to the strategy (such as the funding agencies round table, signing of important contract), bi annual meeting of the conference of ministers
- Participation to other majors conferences and event (Related International celebration days & Weeks)

9.4 Resource for communications

Except for the activities related to communications and planned under the implementation plan, most of the communications activities should be funded with the available resources in the beneficiaries budget (National Budget)..

Additional funds could come from other sources that the AMCOMET Secretariat can secure, especially for an exceptional communication event

10. CONCLUSION AND WAY FORWARD

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12. Annexes

12.1 LOGICAL FRAMEWORK TABLES FOR THE IMPLEMENTATION PLAN OF THE IASM-WCS

(i) Goals, Strategic Pillars and Expected Results

Objectives/Goals	Strategic Thrust / Pillars	Expected Results / ER	
Positioning NMHSs and WMO related RCCs as key element in the development	SP1: Increasing Political Support and Recognition of NMHSs and related WMO Regional Climate Centres;	ER1:	Expected results 1 (ER1): Legislation and policies formulated and Implemented for coherent integration of weather and climate services in National, Regional and Continental (NRC) development programmes and agenda
		ER2:	Expected Result 2 (ER2): Visibility and relevance of the NMHSs & RCCs enhanced thereby contributing to sustainable development at the National, Regional and Continental level
		ER3:	Expected Result 3: African weather and climate institutions made sustainable
		ER4	o Expected Results 4 (ER4) : o Efficient and Effective management of NMHSs and RCCs
Contribute to security (Protection of life and property) and sustainable development	SP2: Enhancing the Production and Delivery of Weather and Climate Services for protection of life and property and Sustainable Development;	ER5	Expected Result 5 (ER5): Enhanced NMHS capabilities to observe, monitor, exchange data, produce and disseminate high quality information and services for sustainable development
		ER6	Expected Results 6 (ER6): Strengthened NMHSs and RCCs capability for efficient and effective dissemination and service delivery of customer tailored products to stakeholders, communities, and households
	SP3: Improving quality and access to Meteorological Services in particular for the Marine and Aviation Sectors	ER7	Expected Result 7 (ER7): Enhanced NMHSs to produce and deliver services compliant to International Standards (ISO 9001) in line with Annex 3 of ICAO Convention (1944) and other associated WMO / ICAO guidelines and recommended practices for air navigation
		ER8	Expected Result 8 (ER8): Enhanced capabilities of NMHSs to provide oceanographic and marine meteorological

			services for maritime transport, pollution management, including oil spills, coastal zone ecosystem management and sustainable exploitation of marine resources
Enhance cooperation between African Countries	SP4: Supporting the Provision of Weather and Climate Services for Climate Change Adaptation and Mitigation;	ER9	Expected Result 9 (ER9): Enhanced NMHS capacities and capabilities on climate change monitoring, detection and attribution to promote understanding of climate change science
		ER10	Expected Result 10 (ER10): Established research modeling and prediction and scenario modeling to facilitate climate change adaptation and resilience building for society, economy and the environment
		ER11	Expected Result 11 (ER 11): Strengthened NMHSs capacity to reinforce coherence for climate change discussions and negotiations and to effectively contribute to Multi-lateral Environmental Agreements (MEAs); including conventions, protocols, and other relevant agreements.
		ER12	Expected Result 12 (ER12): Mainstreaming of climate services into national economic planning and programmes through the implementation of GFCS at the national and regional level
	SP5: Strengthening Partnerships with Relevant Institutions and Funding Mechanisms.	ER13	Expected Result 13 (ER13) : Established partnerships to strengthen capacities of NMHSs, RCCs and other WMO weather and climate institutions in effectively and efficiently produce and deliver services that support sustainable development
		ER14	Expected Result 14 (ER14): Established funding mechanisms, including donor support programs on regional and continental scale aimed at strengthening NMHSs and improvement of hydromet services delivery

(ii) Table 2: Strategic pillars, expected results, outcomes & key performance indicators and activities

activity Number	corresponding Program	Description of the activity	Level / Scale (N, R, C) & Priority	Implementing Partners	Timeframe (Years) 1	2	3	4	Existing initiative / project	Estimate cost (10^6 US$)	Potential funding agency or programmes
Strategic Pillar 1 (SP1) : Increase Political Support and Recognition of NMHSs and related WMO Regional Climate Centres;											
Expected results 1 (ER1): Legislation and policies formulated and Implemented for coherent integration of weather and climate services in National, Regional and Continental (NRC) development programmes and agenda											
ER1: Outcomes 1. Legislation for integrating WCS in national & regional development plans is formulated / implemented 2. High level coordination committee at N,R and C level established 3. Mechanism and MOU are establish to support NMHS & RCC WCS to implement the IASM 4. UIP/GFCS are implemented			**ER1 Key Performance Indicators** 1. Number of countries and REC with improved legislation that integrate CWS. 2. Number of NMHS / RCCs with Strategic Plans 3. Number of NMHS / RCC supported by REC or African Institutions 4. Number of countries and REC with HLC established								
1)	P1	Establish a mechanism (National Framework or Plan of Action) for mainstreaming weather and climate services into national & regional development plans and programmes	**N,R,C**	Ngov, Partners					NAPAs	0,025	National budgets,
2)	P1	Review and improve the legislative and regulatory framework (including fiscal frameworks and incentives) to increase the integration / use of weather and climate services in all weather and climate dependent sectors at national and regional levels	N,R,C	AMCOMET, REC, NGov					From :* Survey & known Country' with best Practices	0,025	Ongoing Projects on Building Resilience
3)	P1	Develop and establish, at the required level, mechanisms such as MoU/Agreements to ensure the support of policy bodies (AUC, RECs) to Governmental / inter-governmental organization (NMHSs, RCC, R/LBOs, Observatories) in implementing the Integrated African Strategy on Meteorology (Weather and Climate Services) for sustainable development	N,R,C						Mali National Climate Fund (UNDP)	0,025	EC
4)	P1	Establish within each REC and each National Government a High-Level Committee to create/spearhead an enabling environment for sustaining, promoting and supporting climate and weather systems	N,R,C						Existing National examples NAPAs document	0,025	
5)	P5	Establish the User Interface Platform of the GFCS at the National and Regional level to engage with users and enhance the application of meteorological services for areas such as agriculture, disaster risk reduction, water, health, transport, environment, among others.	N,R	NGov, NMHSs REC, RCCs						0,025	
6)	P1	Develop guidelines and support the development of Strategic Plans and related Action Plans for NMHSs and RCCs in alignment with government development agenda	N,R	AMCOMET WMO					To be completed from survey	0,05	
Expected Result 2 (ER2): Visibility and relevance of the NMHSs & RCCs enhanced thereby contributing to sustainable development at the National, Regional and Continental level											

activity Number	corresponding Program	Description of the activity	Level / Scale (N, R, C) & Priority	Implementing Partners	Timeframe (Years) 1	2	3	4	Existing initiative / project	Estimate cost (10^6 US$)	Potential funding agency or programmes
ER2: Outcomes 1. Relevance of NMHSs & RCC WCS is regularly demonstrated and profile raised 2. Communication materials that showcase successful projects highlighting impact / benefits developed and disseminated 3. Policy makers are trained and regularly informed			**ER2 KEY PERFORMANCE INDICATORS** 1. Number of NMHS / RCCs with Outreach programmes and/or dissemination strategies developed 2. Number of workshop targeting policy makers conducted 3. Number of NMHSs / RCCs delivering yearly Declaration of "Status of Climate"								
7)	P1	Establish Africa Met Week	N,R,C	**Ngov** AU, REC,						0,20	ECA-AUC-AfDB
8)	P2	Develop a mechanism for analysis and assessment of benefits of meteorological services to socio-economic development (agriculture, water, health, DRR, tourism, among others) in compliance with the Madrid Plan of Action (2007) on "Secure and Sustainable Living: Social and Economic Benefits of Weather, Climate and Water Services"	N,R,C	**RCC,** WMO NMHS,					Examples from WMO and advanced met Services	0,05	WMO UN Agencies
9)	P1	Enhance Public Awareness and Education through outreach programmes to the users, policy / decision makers, the public and other stakeholders	N,R,C	**RCC,** NMHS WMO AUC						0,05	
10)	P1	Develop a Communication Strategy for the dissemination of weather and climate information to stakeholders, in collaboration with the media	N,R,C							0,05	
11)	P1	Prepare and organize workshops for relevant stakeholders, including policy makers, to enhance the understanding and use of weather and climate services for safety of life, protection of property, conservation of the environment, and adaptation to build resilient communities to cope with climate extremes occasioned by adverse climate change impacts	N,R,C						ADF CCDA **WCS & Dev**	0,025	Bilateral-ACPC WMO – UN Agencies
12)	P1	Prepare and provide policy makers, including parliamentarians and relevant line ministries in governments, with timely relevant well packaged information	N,R,C	NMHS					WMO , World Bank,AfDB & Partners reports	0,025	National budgets,
Expected Result 3 (ER3): African weather and climate institutions made sustainable											
ER3 Outcomes: 1 NMHSs status is improved 2 NMHS & RCC statutes to fulfill their mandate are improved & stand the test of time 3 Funding mechanisms to support NMHS are in place			**ER3 KEY PERFORMANCE INDICATORS:** 1 Number of NMHS & RCC that statutes to fulfill their mandate are improved: semi-autonomous 2 Number of MoU (Twinning instruments) signed 3 Number of NMHSs with appropriate national funding mechanisms								
13)	P1	Review, map out and / or update existing analysis, related to the legal / financial status of NMHSs and RCCs	N,R	NMHS,RCC					From	0,05	National Budgets

activity Number	corresponding Program	Description of the activity	Level / Scale (N, R, C) & Priority	Implementing Partners	Timeframe (Years) 1	2	3	4	Existing initiative / project	Estimate cost (10^6 US$)	Potential funding agency or programmes
14)	P1	Transform NMHSs into semi-autonomous government agencies / authorities to increase their efficiency and effectiveness in service delivery, to enhance contribution to sustainable development	N	NGov NMHSs					* Survey * Best Practices from African NMHSs	0,05	REC AUC
15)	P5	Develop appropriate funding mechanism at national and regional level to provide the required resources to sustain and further develop NMHSs and RCCs	N,R	NGov , REC, AUC						0,05	
16)	P5	Enhance partnerships through twinning instruments and collaboration between African Meteorological (Weather and Climate) Institutions and those in developed countries for capacity building, knowledge sharing and transfer of best practices	N,R,C	AUC					INM – Tunis project with EU	0,10	EU,AfDB Bilateral Agency
17)	P1	Ensure commitment of African governments to support multi-functional RCCs (ACMAD, ICPAC, SADC-CSC, Agrhymet, among others) through an assessed contributions to fulfill their mandates	R,C	AUC RCCs					Resolution from AUC, RECs	?	
Expected Results 4 (ER4) : **Efficient and Effective management of NMHSs and RCCs**											
ER4 Outcomes: 1 Head of NMHSs are skilled in strategic planning **2** NMHs & RCCs management staff are skilled in strategy building and communications			**ER4 KEY PERFORMANCE INDICATORS** 1 Number of training sessions and / or managers trained on strategic leadership **2** Number of training sessions and/or number of staff trained in strategic building and communications								
18)	P4	Prepare and Conduct training in strategic leadership and management for heads of NMHS and RCCs	N,R	WMO,AUC						0,10	BADEA AfDB Worl Bank WMO
19)	P4	Support the training for NMHS / RCC management staff to develop Strategic Plans and related Action Plans and to formulate and implement project, including a training program to improve their communications skills	N,R	AUC,REC,RCC						0,10	
20)	P2	Organize working visits to advanced Weather & Climate centers	N,R,C	AUC, WMO,						0,10	
Strategic Pillar 2 (SP2): **Enhancing the Production and Delivery of Weather and Climate Services for protection of life and property and Sustainable Development;**											

activity Number	corresponding Program	Description of the activity	Level / Scale (N, R, C) & Priority	Implementing Partners	Timeframe (Years) 1	2	3	4	Existing initiative / project	Estimate cost (10^6 US$)	Potential funding agency or programmes
Expected Result 5 (ER5): **Enhanced NMHS capabilities to observe, monitor, exchange data, produce and disseminate high quality information and services for sustainable development**											
ER5: Outcomes: 1. Capacities and capabilities of RCCs and NMHSs are assessed 2. Centres in various geographical regions to assemble AWSs are designated 3. WIGOS and WIS activities are undertaken (for operationalize WMO Implementation Plan) 4. Capabilities of NMHS and RCC to access existing satellite data and products enhanced			**ER5 KEY PERFORMANCE INDICATORS** 1. Number of NMHSs and RCCs, whose surveys are available 2. Number of center assembling AWS 3. Number of NMHS & RCC with WMO operational plan 4. Number of Radar installed and operated								
21)	P2	AMCOMET through RCCs and NMHSs carry out a continental-wide survey on the capacities and capabilities of NMHSs and RCCs, including observing networks (land, water and space), telecommunications infrastructure for data exchange, data processing and forecasting tools, data management tools, product and information dissemination systems, including human capacity	N,R,C	RCC NMHS					WMO	0,01	
22)	P4	Designate and equip a few centres (one center per sub region) in Africa that can be used to assemble AWSs; to improve observing network at a cheaper cost.	C	AUC						5	
23)	P2	Operationalize the WMO implementation plans related to the GCOS, the Integrated GOS (WIGOS) and the WMO Information System (WIS)	N,R	NMHS RCC, WMO, Partners					→	60 (??)	All potential funds to be sollicitated
24)	P2	Enhance observation capabilities of NMHSs by introducing or enhancing weather radars network	N,R	NMHS RCC, WMO, Partners					"AMMA" Best Pratices from NMHSs	1	All potential funds to be sollicitated
25)	P2	Maintain and enhance capabilities of NMHS and RCC to access existing satellite data and products *(inc. those from the Satellite Application Facilities – SAF)* and to develop added-value satellite derived products based on existing and future satellite programmes.	N,R						AMESD, MESA SAF	0,5	
Expected Results 6 (ER6): **Strengthened NMHSs and RCCs capability for efficient and effective dissemination and service delivery of customer tailored products to stakeholders, communities, and**											

activity Number	corresponding Program	Description of the activity	Level / Scale (N, R, C) & Priority	Implementing Partners	Timeframe (Years) 1	2	3	4	Existing initiative / project	Estimate cost (10^6 US$)	Potential funding agency or programmes
households											
ER6 Outcomes: 1. Continental-wide survey related to production and dissemination carried out 2. Resources for improvement of meteorological infrastructure and services are identified and mobilized 3. Capacity and capabilities of NMHSs and RCCs to support CSIS and UIP are enhanced 4. WMO RCCs in Africa are fully developed & operational 5. Climate Data Management Systems training are supported			**ER6 KEY PERFORMANCE INDICATORS:** 1. Number of NMHSs & RCCs survey make finalized 2. % of needed Resources identified and mobilized 3. Number of NMHSs and RCCs supporting CSIS and UIP 4. Number of RCC evaluated and performing at least three of the mandatory functions 5. Number of RTC centers offering support and training in CDMS								
26)	P2	Carry out a continental-wide survey to assess NMHS and RCC current capability to produce and effectively disseminate customer tailored products and services and to engage with users to enhance these products and services:	N,R	WMO/GFCS NMHS RCC					WMO example	0,05	
27)	P2	Identify and mobilize resources for the necessary improvement of meteorological infrastructure and services, including human capacity development to deliver customer tailored services	N,R	WMO RCC, NMHS					GFDRR planned projects ADB / CDSF projects	?? 10 à 50	ADB World Bank
28)	P2	Build the capacity and capability of NMHSs to support Climate Services Information Systems (CSIS) and User Interface Platforms (UIP) of the GFCS		NMHS WMO/GFCS					Mali case (?)	0,020	National Budget, WMO Bilateral BADEA PARTNERS
29)	P2	Develop a schedule with the required actions / milestones for the designation of WMO RCCs in Africa in particular a) WMO-RCC in Southern Africa with responsibility for the SADC group of countries, including for the moment the Indian Ocean Community (IOC) Countries b) others designated RCCs	R, C	WMO REC RCCs					ISACIP, MESA	10	
30)	P4	Support the capacity of appropriate Regional Training Centers to offer training in Climate Data Management Systems to NMHSs	R,C	RTC, RCC						10	
Strategic Pillar 3 (SP3):											

activity Number	corresponding Program	Description of the activity	Level / Scale (N, R, C) & Priority	Implementing Partners	Timeframe (Years) 1	2	3	4	Existing initiative / project	Estimate cost (10^6 US$)	Potential funding agency or programmes
Improving quality and access to Meteorological Services in particular for the Marine and Aviation Sectors											
Expected Result 7 (ER7): **Enhanced NMHSs to produce and deliver services compliant to International Standards (ISO 9001) in line with Annex 3 of ICAO Convention (1944) and other associated WMO / ICAO guidelines and recommended practices for air navigation**											
ER7: OUTCOMES 1. All NMHSs compliance of QMS is finalized 2. AMDAR program are implemented and data availability is increased 3. Mechanisms for cost recovery are in place 4. Regular assessment of the impact of AMDAR data disseminated			**ER7 KEY PERFORMANCE INDICATORS:** 1. All African NMHHs QMS got the ISO-Compliance certificate 2. Number of additional NMS with recovery adopted 3. Number of NMHS implementing AMDAR programme 4. Number of additional NMS designated as the Service Provider for aviation								
31)	P2	Enforcing a continental wide compliance of QMS (including personnel competencies and equipment calibration certification) for aeronautical meteorology in line with Annex 3 of ICAO Convention (1944) and other associated WMO / ICAO guidelines	N	NMHS WMO OACI					Best Practices from African NMHSs & Advanced NMH WMO Best Practices and recommendations	1	National Budgets ICAO
32)	P4	Implement and operationalize the AMDAR programme for improvement of services for international air navigation	N							2	
33)	P5	Sign MoU between NMHS and Airline Companies for enhancement and provision of AMDAR data	N	NMHS WMO						0,01	
34)	P1	Designate, as appropriate, the National Meteorological Service as the weather service provider for aviation industry	N	NGov						0,01	
35)	P2	Undertake regular assessment of the impact of AMDAR data on the quality of forecasts and other weather services provided to air navigation	N	NMHS						0,25	
36)	P1	Develop required mechanisms for cost recovery from aviation services	N	NGov, NMHSs						0,01	National Budgets
Expected Result 8 (ER8): **Enhanced capabilities of NMHSs to provide oceanographic and marine meteorological services for maritime transport, pollution management, including oil spills, coastal zone ecosystem management and sustainable exploitation of marine resources**											

activity Number	corresponding Program	Description of the activity	Level / Scale (N, R, C) & Priority	Implementing Partners	Timeframe (Years) 1	2	3	4	Existing initiative / project	Estimate cost (10^6 US$)	Potential funding agency or programmes
ER8: OUTCOMES 1. Capacities and capabilities of NMHSs to provide necessary information to monitor marine activities undertaken 2. Safety of life and property at sea, integrated coastal management and societal impacts are improved 3. Data coverage through buoys and ships to improve monitoring and services for security at sea is enhanced				**ER8 KEY PERFORMANCE INDICATORS** 1 Number of surveys made available 2 Number of additional maritime' sectors effectively using weather and climate services 3 Number of buoys operational and Number of additional voluntary observing ships 4 Number of MoU on cost recovery from marine activities signed							
37)	P2	Carry out a survey to assess the existing capacities and capabilities of the NMHSs in terms of infrastructure for oceanography and marine meteorology that includes observational network (including the deployment of buoys), telecommunication systems for data exchange, marine forecasts and dissemination services, human capacity, including maritime' users community applications.	N,R	NMHS RCCs					GCOS, GEO UNESCO	0,2	WMO UNESCO National Budgets
38)	P2	Implement / enhance the provision of appropriate weather and climate services / information to support a. Maritime transport and Navigation b. Coastal zone management and development through for example the prevention of coastal erosion, oil spills and pollution prevention of the destruction of coral reefs and mangrove forests and other marine ecosystems c. Use of marine resources for sustainable development through legislation	N,R,C	NMHS RCCs JCOMM					Best Practices from JCOM & SNMHs	???	Africa' Partnership African Bank National Budget
39)	P4	Improve data coverage at sea (trough additional voluntary observing ships and buoys) and access to satellite products relevant to marine applications	N,R	WMO NMHS					GEO, GCOS JCOM	??	Bilateral
40)	P1	Develop required mechanisms for cost recovery from maritime services	N,R	OMM, NGov					Best Practices from SNMHs	,1	National Budgets

Strategic Pillar 4 (SP4):

Supporting the Provision of Weather and Climate Services for Climate Change Adaptation and Mitigation

Expected Result 9 (ER9):

activity Number	corresponding Program	Description of the activity	Level / Scale (N, R, C) & Priority	Implementing Partners	Timeframe (Years) 1	2	3	4	Existing initiative / project	Estimate cost (10^6 US$)	Potential funding agency or programmes
Enhanced NMHS capacities and capabilities on climate change monitoring, detection and attribution to promote understanding of climate change science											
ER 9 Outcomes 1. Climate change quality observation/information through improved capacities (station network and human) is increased 2. A comprehensive map of the current research activity is undertaken 3. Climate Change knowledge as component of GFCS is improved 4. Greenhouse gas emissions are mitigated				**ER 9 KEY PERFORMANCE INDICATORS** 1. An evaluation of Atmospheric constituent existing observing capacity is available 2. A comprehensive mapping of research activity is available 3. Number of NMHS and RCC with GFCS research component 4. Number of NMHS and RCC providing regular information on Climate Change							
41)	P3	Assess and evaluate the existing observation network of NMHSs to identify regions least represented in the global observing systems and sparse station network coverage	N	NMHS, WMO					WMO-GAW projects	0,01	National Budget Bilateral UNEP UNFCCC
42)	P3	Increase, strengthen and modernize observation network of NMHSs to enhance observation of various atmospheric constitutes	N	NMHS						??	
43)	P3	Train operational staffs (meteorological technicians, researchers and engineers) to sustain and expand station network coverage	N	NMHSs					WMO/RTC	0,02	
44)	P4	Map and describe the existing / current research initiatives, program and projects, databases and the different groups (within NMHSs, RBO, Universities and other research centers involved in weather and climate research to strengthen collaboration and develop mechanisms in research operations. (*)	R,C	NMHS, RCC, WMO					WMO/ R&D programs GFCS ROA	0,1	Existing initiatives
45)	P4	Strengthen NMHSs and RCCs infrastructure using information communication technology (ICT), new and emerging scientific technology and innovations to enhance operational research and development to improve climate change research, modeling and prediction as a component of GFCS	N,R						GFCS EUMETSAT	?	Bilateral African Bank TICAD V
46)	P3	Provide relevant climate information to support policies and activities and mitigate green house gas emissions	N,R,C	NMHSs, RCC					NAPA	0,01	UNFCCC UNEP
Expected Result 11 (ER11):											

activity Number	corresponding Program	Description of the activity	Level / Scale (N, R, C) & Priority	Implementing Partners	Timeframe (Years) 1	2	3	4	Existing initiative / project	Estimate cost (10^6 US$)	Potential funding agency or programmes
Established research modeling and prediction and scenario modeling to facilitate climate change adaptation and resilience building for society, economy and the environment											
ER 11 Outcomes : 1. Tailored climate scenarios are produced 2. A comprehensive approach for NWP and satellite derived product is developed and implemented 3. Capacity building for young scientists is in place **4.** Weather and Climate research activity is developed and promoted in the academic community			**ER 11 KEY PERFORMANCE INDICATORS:** 1. All RCCs and 1/10th of countries are running climate models 2. All RCC and 1/10th of NMHS are running NWP at finer resolution 3. 5 to 7 junior scientists per country trained in NWP, climate modelling and satellite derived producted **4.** Number of MoU signed with partners								
47)	P4	Establish and capacities research units within the NMHSs and RCCs	N,R	RCCs, NMHSs					ISACIP, MESA	10	Nat Budgets, UN bodies Bilateral & Multilateral
48)	P3	Improve and implement climate modeling and forecasting tools and scenarios production at RCC and NMHSs/Countries	R,C	RCC					MESA ISACIP Other	0,2	ClimDev_Fund WMO Developed SNMHs Partners (Bilateral)
49)	P4	Develop a comprehensive approach for strengthening Numerical Weather Prediction, and remote sensing / satellite derived products		NMHSs RCC, WMO, GFCS						0,2	
50)	P4	Implement at short term training program for young scientists in the above domains using the existing capacity and in collaboration with advanced centers)								0,05	
51)	P4	Encourage collaborative research initiatives and other relevant programmes between RCCs, NMHSs, academia and universities, and other tertiary institutions, including National and Regional Meteorological Societies	N,R,C	RCC NMHSs					NMHs RCCs	0,02	National Budgets
Expected Result 11 (ER 11): **Strengthened NMHSs capacity to reinforce coherence for climate change discussions and negotiations and to effectively contribute to Multi-lateral Environmental Agreements (MEAs); including conventions, protocols, and other relevant agreements.**											
ER11 Outcomes			**ER11 KEY PERFORMANCE INDICATORS**								

activity Number	corresponding Program	Description of the activity	Level / Scale (N, R, C) & Priority	Implementing Partners	Timeframe (Years) 1	2	3	4	Existing initiative / project	Estimate cost (10^6 US$)	Potential funding agency or programmes
1. Material related to WCS to support negotiators and contribute to UNFCCC subsidiary bodies is produced 2. More synergy on UN MEA and UN Conventions 3. National Meteorological Services is designated a certifying institution			1. Number of SNMHs and RCCs effectively involved in Climate change discussions 2. Number of SNMHs designated as the authority for certifying climate scenarios 3. Number of workshop related to Multilateral Environemental Agreement (MEA) organized.								
52)	P3	Develop supporting materials (in collaboration with partners) to African group of negotiators (adequate material on Weather and climate services and Climate change adaptation)	N,R,C	NMHSs RCCs WMO/GFCS			→		NAPAs NMHSs existing best Pratices	0,1	UNEP UNFCC CDSF BADEA
53)	P3	Encourage NMHSs and RCCs to contribute and provide analysis on climate for the subsidiary bodies	N,R	NMHSs RCCs			→			0.1	
54)	P3	Prepare and implement training courses and workshops related to the Synergy on Multilateral Environment Agreements (MEA) in particular the three UN conventions		RTCs			→		WMO	0,2	
55)	P1	Designate NMHS as national certifying authority for climate scenarios to use in the development plans	N,R	Nt GOV UNFCCC					NMHSs Best Practises	0,05	National Budget
Expected Result 12 (ER12): **Mainstreaming of climate services into national economic planning and programmes through the implementation of GFCS at the national and regional level**											
ER12 Outcomes 1. GFCS at national and regional level is implemented with stakeholders involvement 2. Mechanisms to building resilience of communities are developed 3. Dissemination of information is improved 4. Socio economics benefits of WCS quantified and disseminated to policy makers			**ER12 KEY PERFORMANCE INDICATORS** 1. Number of countries with GFCS implemented at the national level 2. Number of RCCs capacitated to deliver regional climate services and support implementation of national GFCS 3. Number of countries with efficient dissemination systems 4. Number of simulation exercises organized								
56)	P2	Implement GFCS at regional and national levels in accordance with GFCS implementation plan as approved by WMO extraordinary Congress (October 2012)	N,R	NMHS,RCC, GFCS					RCOFs, GFCS on going projects	0,1	CDSF National

activity Number	corresponding Program	Description of the activity	Level / Scale (N, R, C) & Priority	Implementing Partners	Timeframe (Years) 1	2	3	4	Existing initiative / project	Estimate cost (10^6 US$)	Potential funding agency or programmes
57)	P3	Carry out mapping to identify communities that are most vulnerable to the adverse impacts of climate change and adopt appropriate mechanisms to build the resilience of communities to adapt to and cope with impacts of the changing climate occasioned by global warming	N,R	NMHS NGOs					NAPAs	0,25	UNFCCC UNEP NAPAs
58)	P3	Improve the ability to quantify the socio-economic benefits of weather and climate services in accordance with the Madrid Plan of Action (2007) on "Secure and Sustainable Living: Social and Economic Benefits of Weather, Climate and Water Services", including benefits to environment and ecological systems	NRC	WMO RCC Advanced SNMHs					WMO World Bank Advanced NMHs	0,20	CDSF World Bank Bilateral & Partnership
59)	P5	Collaborate with pertinent partners to improve climate information communication and dissemination	N,R	NMHS RCC					ISACIP, RCOFs Other	0,20	
60)	P3	Prepare, organize and conduct simulation exercises and field days on how communities (extension services) can prepare and respond collectively to weather and climate extremes and related livelihood threats in particular droughts, flooding and sea level rise.	R,N						World Bank RCOF / UNSDR NCOF	0,20	

Strategic Pillar 5 (SP5):
Strengthening Partnerships with Relevant Institutions and Funding Mechanisms.

Expected Result 13 (ER13) :

Established partnerships to strengthen capacities of NMHSs, RCCs and other WMO weather and climate institutions in effectively and efficiently produce and deliver services that support sustainable development

ER13 Outcomes:

1. Coordination mechanism at all levels are operational
2. MoUs, program implementation agreements to facilitate implementation of projects and programmes in partnership with relevant institutions are signed by AMCOMET, RCCs and NMHSs.
3. Information on program implementation is available and Stakeholders are informed
4. An African Weather & Climate Services Web Portal is developed

ER13 KEY PERFORMANCE INDICATORS:

1. Number of countries & RECs establishing coordination mechanisms
2. Number of MoUs, agreements signed at each level
3. Number of visits to the portal

activity Number	corresponding Program	Description of the activity	Level / Scale (N, R, C) & Priority	Implementing Partners	Timeframe (Years) 1	2	3	4	Existing initiative / project	Estimate cost (10^6 US$)	Potential funding agency or programmes
61)	P5	Establish and organize coordination committees/ platforms at required level (National, Regional/REC, African/Continental) for oversight of the implementation of the Strategy and its monitoring and evaluation.	NRC	NMHS RCC RCCc						0,10	National & REC Budgets
62)	P5	Develop at required level (National, Regional/REC, African/Continental) Action Plan on Weather and Climate Services to foster closer collaboration and working relations between stakeholders	NRC						NAPA	0,20	National Budget
63)	P5	Establish AU and other Regions/Countries Partnerships on Meteorology (Weather and Climate Services).	C	AUC					AUC	0,05	AU budget
64)	P4	Design and Develop a web portal, as a node and ensure that weather and climate services information is readily available and friendly accessible to all stakeholders	C	RCCs					**AFRIMET** **Partners exp** **Web Prevent AfClix**	0,25	Existing initiatives WMO AfDB
Expected Result 15 (ER15): **Established funding mechanisms, including donor support programs on regional and continental scale aimed at strengthening NMHSs and improvement of hydromet services delivery**											
ER 15 Outcomes: 1. funding mechanisms at national and regional level to support basic meteorological infrastructure that generates basic services for Public Good are developed 2. International funding, mechanism, through partnership is accessed 3. Countries to fabricate meteorological equipment are designated				**ER15 KEY PERFORMANCE INDICATORS:** 1. Number of NMHSs & RCCs adequately supported by National and regional funding 2. Number of donors supported projects and programmes 3. % of Total amount of funding received							
65)	P5	Prepare and organize a donor round table to support implementation plan and/or create a weather and climate facility	C	AfDB, WB AUC					CDSF Climdev-Africa	0,20	Bilateral AfDB
66)	P5	Improved information exchange on the ongoing or planned donor projects/operations including access to donor project documents supporting NMHSs & RCCs	NRC	NMHSs RCCs AUC						0,05	Nat Budget Partnership

activity Number	corresponding Program	Description of the activity	Level / Scale (N, R, C) & Priority	Implementing Partners	Timeframe (Years) 1	2	3	4	Existing initiative / project	Estimate cost (10^6 US$)	Potential funding agency or programmes
67)	P5	Agreements between donors on coordination of activities at national and regional level	NR	NMHSs RCCs					On going projects		Nat & Reg Budget
68)	P5	National governments to commit themselves through budgetary allocations to support the infrastructure of the NMHSs to produce basic public good services	N	Nt Gov					Best Practices existing	?	National Budget
69)	P5	Mobilize regional institution funding to invest in NMHSs to further modernize and improve service delivery in tailor made products for different clientele	N,R	Nt Gov AUC					ISACIP World Bank program Word Bank	?	All Potential funding
70)	P5	Enhance partnerships with bilateral and multi-lateral development institutions to mobilize resources	N,R,C	SMHSs, AUC RCCs/ WMO						?	Bilateral Multilateral
71)	P	Develop and submit projects proposals for modernizing NMHSs, especially in Least Developed and Land-locked Countries to relevant funding mechanisms	N,C	NMHS,RCCsWMO						?	
72)	P4	Develop and submit Capacity building projects to Development/Cooperating Partners in Africa and other Regions.	N,R	NMHS, RCC WMO					available Best Practices	?	BADEA BAD, World Bank

Legend:

1	2	3	4	5	6	7	8	9
activity Number	corresponding Flagship Program	Description of the activity	N : National R: Regional C: Continental Red: very High Priority Orange: Priority 2 Light Green: Priority 3	Implementing Partners	Timeframe (Years)	Existing initiative / project	Estimate cost (10^6 US$)	Potential funding agency or programmes

12.2 Schematic representation of the structure of WMO , RA1

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

Three Global Societal Needs	Five Strategic Thrusts	Eight Expected Results
Improved protection of life and property (related to the impacts of hazardous weather, climate, water and other environmental events, and increased safety of transport on land, at sea, and in the air)	Improving service quality and service delivery	1. Enhanced capabilities of Members to deliver and improve access to high-quality weather, climate, water and related environmental predictions, information, warnings and services in response to users' needs, and to enable their use in decision-making by relevant societal sectors.
		2. Enhanced capabilities of Members to reduce risks and potential impacts of hazards caused by weather, climate, water and related environmental elements.
Poverty alleviation, sustained livelihoods and economic growth (in connection with the Millennium Development Goals), including improved health and social well-being of citizens (related to weather, climate, water and environmental events and influence)	Advancing scientific research and application, as well as development and implementation of technology	3. Enhanced capabilities of Members to produce better weather, climate, water and related environmental information, predictions and warnings to support in particular disaster risk reduction and climate impact and adaptation strategies.
		4. Enhanced capabilities of Members to access, develop, implement and use integrated and interoperable Earth- and space-based observation systems for weather, climate and hydrological observations, as well as related environmental and space weather observations, based on world standards set by WMO.
		5. Enhanced capabilities of Members to contribute to and draw benefits from the global research capacity for weather, climate, water and the related environmental science and technology development.
	Strengthening capacity-building	6. Enhanced capabilities of NMHSs, in particular in developing and least developed countries, to fulfil their mandates.
Sustainable use of natural resources and improved environmental quality	Building and enhancing partnerships and cooperation	7. New and strengthened partnerships and cooperation activities to improve NMHSs' performance in delivering services and to increase the value of the contributions of WMO within the United Nations system, relevant international conventions and national strategic issues.
	Strengthening good governance	8. An effective and efficient Organization.

12.2.2 Table 2: Expected Results, Key Outcomes and Key Performance Indicators for RA I (2012- 2015)

Global Societal Need 1**:** Improved protection of life and property (related to impacts of hazardous weather, climate, water and other environmental events and increased safety of land, sea and air circulation and transport)

WMO Strategic Thrust (ST1) Improving service quality and service delivery			
WMO Expected Results (ER)	**RA I Expected Results (ER)**	**RA I Key Outcomes (KO)**	**RAI Key Performance Indicators (KPI)**
1.0 Enhanced capabilities of Members to deliver and improve access to high quality weather, climate and water and related environmental predictions, information and services in response to users' needs and to enable their use in decision-making by all relevant societal sectors	1.1 Enhanced capabilities of NMHSs of Africa to access, produce, and deliver high quality weather, climate and water related products and services in response to users' needs and to enable their use in decision making by all relevant societal sectors.	1.1.1 All NMHSs have migrated to Table Driven Code Format (TDCF) 1.1.2 Ensemble weather forecasts and products easily available from appropriate and designated Global Centres.	• 53 NMHSs in Africa implementing the TDCF 53 NMHSs utilizing NWP products
2.0 Enhanced capabilities of Members to reduce risks and potential impacts of hazards caused by weather, climate and water and related environmental elements	2.1. Enhanced capabilities and capacities with respect to disaster risk reduction and environmental management in Africa.	2.1.1 Meteorological and hydrological early warning systems are in place in all RA I Member States 2.1.2 Agreements, where appropriate, between NMSs and related agencies on disaster risk reduction with respect to data and information exchange.	• Number of NMHS incorporated and having specific roles in national disaster risk reduction agencies. Number of working arrangements between NMSs and NHSs
3.0 Enhanced capabilities of NMHSs to produce better weather, climate, and water information, predictions and warnings to support in particular climate impact and adaptation strategies	3.1 Enhanced capabilities of NMHSs in Africa to provide better climate predictions and assessments for climate change mitigation and adaptation.	3.1.1 Appropriate internet facilities and websites installed at all NMHSs 3.1.2 Guide to hydrological practices in place	• All 53 NMHSs have appropriate internet facilities and websites • Number of manual on hydrological practices • Number of workshops conducted on hydrological practices

4.0 Enhanced capabilities of Members to access, develop, implement and use integrated and inter-operable Earth- and space-based systems for weather, climate and hydrological observations, based on World standards set by WMO, as well as related environmental observations	4.1 Enhanced environment and capabilities of NMHSs of Africa to access and apply earth and space based observing products for use by stakeholders.	4.1.1 The requirements, in the form of a manual, for migration from GTS to WIS in place 4.1.2 Appropriate ICT facilities in place to support GTS and WIS installed at all NMHS	• Number of WIS workshops held • Manual on WIS prepared • All 53 NMHSs have appropriate ICT facilities in place

Global Societal Need 2: Poverty alleviation, sustained livelihoods and economic growth (in connection with the Millennium Development Goals) including improved health and social well-being of citizens (related to weather, climate, water and environmental events and influence)

WMO STRATEGIC THRUST (ST2) - Advancing scientific research and application as well as development and implementation of technology; (ST3)- Strengthening capacity building;

WMO Expected Results (ER)	RA I Expected Results (ER)	RA I Key Outcomes (KO)	RAI Key Performance Indicators (KPI)
5.0 Enhanced capabilities of Members to contribute to and draw benefits from the global research capacity for weather, climate, water and environmental science and technology development	5.1 Enhanced capabilities and enabled environment for appropriate research institutions in Africa to contribute to and access global research products on weather, climate, water and environmental science and technology development	5.1.1 Five sub-regional databases in standard format available for research and education in support of NMHSs upgraded 5.1.2 Internet facilities and websites to support local access to regional and global research products installed at all NMHSs 5.1.3 Increase in the No of professionals trained in RA I centres of excellence such ACMAD, RTCs and universities	• Number of sub-regional data bases • All 53 NMHSs have internet facilities and websites to support local access to regional and global research products installed at all NMHSs • 5% increase in the number of graduates from RTCs • 15% increase in fellowships awarded by WMO to RA I
6.0 Enhanced capabilities of NMHSs, in particular in developing and least developed countries, to fulfil their mandates	6.1 Enhanced capabilities of NMHSs of Africa, particularly those in LDCs, to fulfil their mandates	6.1.1 At least 5 NMHS (one in each sub-region) in the LDC category upgraded to WMO and ICAO standards 6.1.2 Five NMHSs of RAI from the LDCs have adequate and qualified human resources by 2015 6.1.3 Increased visibility of NMHSs through support in advocacy and awareness of national authorities and other stakeholders	• Situational reports from NMSs in Least Developed Countries (LDC) • Number of LDCs with adequate and qualified human resources measured against the WMO reference databases • Number of trained personnel in each of the identified 5 NMSs • Number of NMHSs with enhanced national budget • Number of appropriate legislations put in place or augmented in support of the status • Number of countries with upgraded infrastructure • No of workshops held for high-level policy makers

Global Societal Need 3: **Sustainable use of natural resources and improved environmental quality**

WMO STRATEGIC THRUST : (ST4): Building and enhancing partnerships and cooperation; (ST5): Strengthening good governance			
WMO Expected Results	**RA I Expected Results (ER)**	**RA I Key Outcomes (KO)**	**RAI Key Performance Indicators (KPI)**
7.0 New and strengthened partnerships and cooperation activities to improve NMHSs' performance in delivering services and to increase the value of the contributions of WMO within the UN System, relevant international conventions and national strategies	7.1 New and strengthened partnerships and cooperation activities to improve NMHSs' performance in delivering services and to increase the value of the contributions of RA I within the relevant international agreements and national strategies in Africa.	7.1.1 Agreements between relevant actors to facilitate cross-boundary warning systems drafted and negotiated 7.1.2 Partnerships developed between NMHSs and their local communities with communities adopting strategies to cope with climate variability and climate change. 7.1.3 A framework for collaboration between RA I and other Regions established to enhance the development of NWP products 7.1.4 NMHSs actively participate in inter-governmental activities and those related to internationally agreed multilateral conventions such as IPCC, UNFCCC and UNCCD;	• No of NMHSs with operational working arrangements finalised • Number of community **stakeholder** workshops and training seminars held. • Number of scientists exchanged • Number of joint workshops and projects • Number of NMHSs actively involved in national committees All NMHSs attending internationally agreed multilateral conventions such as IPCC, UNFCCC and UNCCD;
8.0 An effective and efficient Organization	8.1 An effective and efficient Governance system for running RA1.	8.1.1 NMHSs transformed into agencies or implementing cost recovery increased 8.1.2 Results-based Management (RBM) and Results- based Budget (RBB) adopted by all NMHSs and RTCs in RA I 8.1.3 Codes of conduct/ ethics have been established by NMHSs and RTCs in the Region 8.1.4 Oversight mechanisms are in place at all RTCs and WMO sub-regional offices of the Region 8.1.5 Implementation of Strategic Plan by	• Number of NMHSs transformed into agencies or implementing cost recovery increased • Number of NMHSs implementing RBM and RBB • Number of RA I Member States with Codes of conduct in place • Oversight mechanisms in place • No of successes of compliance on governance as audited by the

		RA I management	President

12.3 Table of some Existing initiatives

Col 1	Col2	Col 3	Col 4	Col 5
RCC	Provide multifaceted services at Regional and sub regional level regional services	2	A,B	Institutions
ACPC	Arm force for Climdev implementation	2	A,B,C,D	Climdev
AfDB CDSF	Climdev Special Fund	1	A,B,C,D	AfDB + International
CLIMDEV-ISACIP	Strengthening 4 RCC	1	A,B	AfDB
RCOF/ NCOF	Regular Producers and Users dialogue based on Seasonal Forecasting	2	A,B	Institutions
ClimdeX	Produce and Update Climate Change Indices	2	B	
RANET	Use satellite,radio - internet & mobile phone technology to disseminate information to local communities	2	A	
MESA, AMESD, PUMA	Specific products for Africa wide & sub regions by 7 regional implementing centers	2	A,B,C	
AMMA,	Improve knowledge on Monsoon	2	A,C	
WASCAL	Doctorate School for West Africa			
CCAFS				
SWFDP				
AEWACS/ ACMAD				
GFDRR Project 1				
2				
3				
WMO/UKMO - DBMS				
WMO/AR1 SATELLITE WG				
THORPEX				
CCDA				
CLIVAR				
CORDEX				
MEDARE				
NWP				
SAF / Now casting				
GWP (Drought and	IDMP supports regions and countries to develop more proactive drought management policies and plans, and better predictive mechanisms, IDMP/HOA and IDMP WAF launched			
METAGRI		2	A	
		2		
Morrocco	Business plan Development	2	D	
Tunisia	Development of a twinning instrument	2	D	
Ethiopia	Change management	2	D	

COUNTRIES RUNNING NUMERICAL WEATHER MODELS							
South Africa							
Morocco							
Tunisia							
Algeria							
Kenya							
Senegal							
ACMAD							
ICPAC							
AGRHYMET							
INSTITUTIONAL MAPPING							
CCAFS / ACMAD	**Users & Producers of services for Agriculture**						
UNEP	**Climate Change Institutions**						
CLIVAR	**Climate Research Institutions**						
UNISDR	**Prevention WEB**						
http://www.afclix.org							

LEGEND FOR THE ABOVE TABLE	
Column	specification
1	ACRONYM
2	Brief description of objectives
3	Indicate whether it is 1) a project, 2) a structure or a 3) partnership framework or any combination
4	A) Indicate if aims concern building Observing network
	B) Developing/ implementing weather and climate services
	C) Research
	D) Legislation framework
5	Funding institution or mechanisms

12.4 Inputs to AMCOMET Implementation Plan

12.4.1 Integrated Drought Management Programme (IDMP)

WMO/GWP Integrated Drought Management Programme (IDMP) supports regions and countries to develop more proactive drought management policies and plans, and better predictive mechanisms, provides policy and management guidance for drought risk reduction and shares scientific information, knowledge and best practices for integrated drought management.

The IDMP's results are expected to be policy relevant and tailored to specific regional and national needs. Based on the principles of integrated water resources management, they focus on better scientific understanding of, and inputs for, drought management; improved knowledge base, with better access to information and products; drought risk assessment, monitoring, prediction and early warning; policy and planning for drought preparedness and mitigation across sectors; and drought risk reduction and response.

Two regional programmes of the WMO/GWP Integrated Drought Management Programme (IDMP) are being developed and will start implementation during 2014. One is in the Horn of Africa (IDMP HOA) and the other one in West Africa (IDMP WAF). The programmes will enhance capacity as well as partnership and collaboration for drought management connecting climate information users with providers, support governments, farmers and water managers to improve drought management plans, strategies and policies. The programmes will improve the resilience of countries, communities and ecosystems to drought. They will be implemented by the regional secretariats of GWP together with the GWP partnerships in the countries and supported by WMO.

Backing from the African Ministerial Conference on Meteorology (AMCOMET) is sought to enable an effective link of the IDMP HOA and IDMP WAF with the National Meteorological and Hydrological Services in the programmes and provide a connection between the providers and the users of weather and climate services.

12.4.2 METAGRI OPERATIONAL Project

The first METAGRI (Meterorology and Agriculture) project started in 2008 as a request from the Conference of Directors of Western Africa National Hydrometeorological Services to develop information and services aimed to increase food security, food production, risk reduction and poverty alleviation into rural areas and evolved to METAGRI OPERATIONAL in late 2011 after a final evaluation meeting. About 160 Roving Seminars, 7300 farmers and other 1000 persons were trained and total expenditure was around 1 Million Euros provided by the Spanish AEMET Trust Fund at WMO.

The current project is called METAGRI OPERATIONAL (or METAGRI OPS) and is an evolution towards the provision of weather and climate services to the agricultural users (including livestock management, forest, traditional fisheries and rangelands) by the NMHS in close cooperation with other national institutions that have a mandate on food production or food security.

The project is articulated around five main components that take care of the overall processes involved into the improvement of decision making in agriculture by the use of climate and weather information. The final objective is to ensure that the food producers understand this information and use it in an effective way to take decisions that secure food production, increase their wealth and strength rural communities.

The project includes the following Western Africa countries: Mali, Niger, Burkina Faso, Senegal, Mauritania, Cape Vert, Gambia, Guinea-Bissau, Guinea, Togo, Benin, Nigeria, Liberia, Sierra Leone, Ghana, Côte d'Ivoire plus Chad.

The first component aims to improve the Roving Seminars by provision of guidance documents on aspects related with basic seminar organization, identification of climate and weather risks in relation with food production, integration of traditional knowledge practices into the seminars. Another important aspect is the simple plastic raingauge performance evaluation in relation with other "professional" raingauges and the provision of standards for those simple "famers raingauges" to allow the integration in data bases and full use of the records taken by the farmers.

The second component is devoted to improve technical skills on the provision of products and services by training agrometeorologists in crop modeling, use of remote sensing data, products and tools and development capabilities in the GIS use. The third component aims to improve the all communications aspects between the NMHS, final users and institutional users/partners. The fourth component is devoted to evaluate the impacts of those measurements but also to provide feed back information to close the information circle and to improve the quality of the products and services delivered.

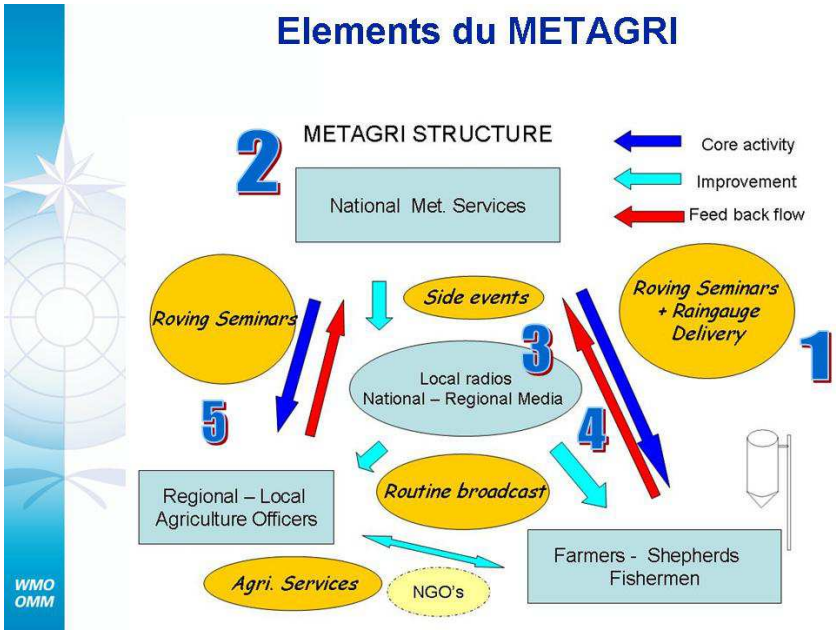
The fifth component takes advantage of the Interdisciplinary Working Group (or Groupes de Travail Pluridisciplinary) that were developed in the Sahelian countries during the past decade. This also matches very well with the development of a National Framework of Climate Services devoted to Agriculture and Food Security by promote the partnership between national institutions and the provision of joint products and services for rural users but also for governmental and non governmental institutions and UN Agencies.

Specific Inputs expected from NMHS are weather numerical and crop models, statistical outputs data and techniques, seasonal climate models, remote sensing data and products, ground based observation networks and expertise on databases and data process.

Expected Outcomes of the overall scheme are Improved decisions at local level in relation with food production management in agriculture, livestock, forestry, artisanal fisheries, rangelands use, feed back information about weather & climate at local level, poverty reduction and food insecurity reduction and finally, institutional strengthening. Other outcomes are to incorporate NMHS on Climate Change adaptation at national, regional or international level, reduction of vulnerability against natural disasters (drought, floods), participation in the development and implementation of the Global Framework for Climate Services, promotion of International cooperation among the NMHS and WMO with other international and regional institutions in Africa.

These institutions include AGRHYMET with its tasks in agriculture and hydrology in Western Africa, ACMAD as a Pan-african centre for development of climate applications, ICPAC in Eastern Africa and other institutions that could be potential Regional Climate Centres. Other institutions include institutions as IGAD and ECOWAS, African Union and donor institutions.

Funds for the implementation of METAGRI OPS have been provided mainly by the Norway Trust Fund at WMO with additional substantive cooperation from Greece and minor contributions from Spain, EUMETSAT and the WMO regular budget.



12.4.3 Input From EUMETSAT

INPUT FROM EUMETSAT

Rappel de quelques étapes et résultats fondamentaux de renforcements des Services Météorologiques Nationaux africains (SMN) et de leurs centres régionaux :

EUMETSAT a joué un rôle central d'une part en favorisant la mobilisation de fonds Européens pour environ 70 M€ en une dizaine d'années et d'autre part en structurant les approches technologiques et thématiques autour des SMN africains. On peut citer :

- **le projet PUMA** réalisé de 2002 à 2005 qui a permis pour la première fois en Afrique un accès cohérent et coordonné de tous les SMN africains aux données METEOSAT SECONDE GENERATION d'EUMETSAT par l'installation de stations de réception EUMETCast complètes (antennes, ordinateurs et logiciels spécialisés) et de formations technique et thématiques spécifiques d'environ 300 cadres des SMN africains ; Ces stations permettent également l'accès opérationnel à d'autres données météorologiques, tel les donnée du GTS et les sortie des modèles numériques de prévisions du temps)
- **le projet AMESD** réalisé de 2007 à 2012 qui a permis plusieurs avancées capitales en Afrique:

o l'émergence et le renforcement de Centre Régionaux dans des domaines thématiques de développement connexes au climat et à la météorologie et la création de réseau régionaux ad hoc ;
o la consolidation des acquis du projet PUMA par une mise à jour du parc des stations de réception EUMETCast PUMA accompagné de nouvelles formations spécifiques ;
o le renforcement de partenaires nationaux des SMN en stations EUMETCast et en formations thématiques en vue de faciliter les synergie nationales et régionales autour des SMN ;
o la formation technique et thématique de plus de 1000 cadres africains sur les données EUMETSAT et autres issus des Stations EUMETCast.

- **le projet MESA** en cours de réalisation de 2013 à 2017 qui sera une étape ultérieure de consolidation des acquis du projet AMESD en renforçant significativement à nouveau les SMN et leurs partenaires thématiques nationaux et régionaux et en favorisant en particulier la production et la diffusions de Services Climatiques spécifiques par la participation pleine de l'ACMAD comme centre régional continental en collaboration étroite avec les centres climatique sous-régionaux existants (AGRHYMET, ICPAC et SADC-CSC)

Comme on peut le constater, ces trois projets ont tous le souci du renforcement des SMN et de leurs centre régionaux, tant au niveau des infrastructures, de l'augmentation des capacités structurelles et des thématiques (météorologie, suivi de l'environnement et services climatologiques).

Lors de ces trois projets, le CICOS et la CEMAC ont joué un rôle primordial en Afrique centrale. Par son mandat sur l'hydrologie et l'environnement (intrinsèquement lié au climat), la CICOS est chargé de la mise en œuvre dans la sous-région de la thématique MESA sur la gestion des eaux. La CEMAC est la structure politique et économique

régionale, qui a depuis le début du projet PUMA, soutenus financièrement les trois programmes précités les considérant comme capital pour les activités économiques découlant de son mandat régional: les transports fluviaux et aériens.
S'il avait existé, un Centre régional climatique (RCC) en Afrique centrale aurait déjà pu prétendre à des fonds du projet MESA pour certaines activités de mise en œuvre, en étroite coopération avec la CICOS et l'ACMAD.

Dans l'approche proposée par la Déclaration d'Addis Abeba (déclaration qui est intégralement reprise dans la Stratégie Africaine pour la météorologie), les RCC devraient jouer un rôle majeur. Ceci explique l'indication explicite de soutien dans la Déclaration de la création de RCC en Afrique Centrale qui est en déficit d une telle structure. Il va sans dire que l'existence d'une structure régional pour le Climat en Afrique Centrale, permettra à votre sous-région de participer pleinement et de manière structurée à l'élaboration et la mise en œuvre des projets qui soutiendront la mise en place des services climatologiques (tant régionaux que nationaux) dans la région.
Dans ce contexte global, EUMETSAT peut confirmer le soutien suivant, dans le cadre de la création d'un « Centre Climatologique Régional » en Afrique Central :

- son engagement sur le long terme, en cohérence avec sa politique de diffusion de ses données, de la mise à disposition de données satellitaires (MSG, METOP, JASON) via le réseau EUMETCast aux centres régionaux africains et aux pays;
- son appui aux formation via les centre d'excellence OMM pour la formation des météorologues et climatologues exploitant les données satellites d'Observations de la Terre d'EUMETSAT et autres ;
- son appui à la définition et à la mise en place de projets et programmes africains impliquant la météorologie et la climatologie ;
- son appui à la mobilisation de fonds européens pour l'implémentation de ces projets et programmes.

Nous entendons fournir au nouvel RCC un soutien cohérent sur le long terme tant sur les aspects technologiques, thématiques et de renforcement des capacités que sur les l'interface et liens stratégiques Nord-Sud en matière météorologique et climatologique.
En vous remerciant de votre contact, nous restons à votre disposition pour de plus ample information, et vous assurons de notre appui à votre étude. Nous serions heureux de vous accueillir à EUMETSAT à Darmstadt pour que vous puissiez constater les aspects concrets de notre engagement et en vue d'approfondir la relation d'EUMETSAT avec cette initiative.

12.4.4 Some aspects of Services to Aviation

SELF TEST TO ASCERTAIN READINESS BEFORE THE ICAO DEADLINE OF

15TH NOVEMBER 2012: By Selayo (WMO)

The meaning of a Certified service is found on para 2.2.3 of ICAO Annex 3 which is merely a recommended practice (**RP**) and **NOT** a standard and is likely to remain for at least 5 more years (it is not included in Amd 76 which is already out) and I quote:

BEST PRACTICE: AN EXAMPLE OF BASIC APPROACH TO QMS

The Malaysian Meteorological Service (MMS) has implemented a processbased QMS at the Kuala Lumpur International Airport (KLIA) Forecast Center as a means of institutionalizing effective service delivery. MMS implemented a QMS to improve the provision of consistent products and services that meet customer requirements; to improve customer satisfaction through continuous process improvement; and to establish quality metrics to measure, review, and control the forecasting processes.

The top management of the MMS is responsible for the QMS processes and is constantly upgrading its effectiveness through:· Identifying customer needs and ensuring customer/client satisfaction through questionnaires, feedback, and reviews;· Regular communication with Regional Forecast Offices to ensure and fulfil customer satisfaction achieved through various avenues like meetings, staff discussions, training, etc.;

2.2.3 Recommendation.- The quality system established in accordance with 2.2.2 should be in conformity with the ISO 9000 series of quality assurance standards and should be certified by an approved organization

ICAO further states that demonstration of compliance should be by an audit. This is contained in para 2.2.6 which is also a recommended practice and NOT a standard and is likely to remain for at least 5 more years (it is not included in Amd 76 which is already out) and I quote:

2.2.6 Recommendation, - Demonstration of compliance of the quality system applied should be by audit. If non-conformity of the system is identified, actions should be initiated to determine and correct the cause. All audit observations should be evidenced and properly documented.

Both **2.2.3** and **2.2.6** being RP means that a country may choose one, therefore making 2.2.7 also a correct solution.

What we would consider as adequate and sufficient evidence for the implementation of "properly organized QMS" in the absence of an ISO-Compliance certificate?

1) Availability of Quality Policy, Quality Manual with quality objectives and complete set of work instructions/ process descriptions at all workplaces, and familiarity of staff with these documents

2) Documented evidence of user consultation and feedback (Publications, questionnaires, records of user meetings, actions stemming from these

3) An internal audit plan, audit reports and documented follow-up actions decided by a Management Review meeting

4) Evidence of corrective and preventive action processes

As a "recommendation", we encourage Members to invite experienced internal auditors from a "mentoring" Met service in the region to take part in their internal audits and countersign the audit report so as to ensure a minimum of neutral, external review of the system

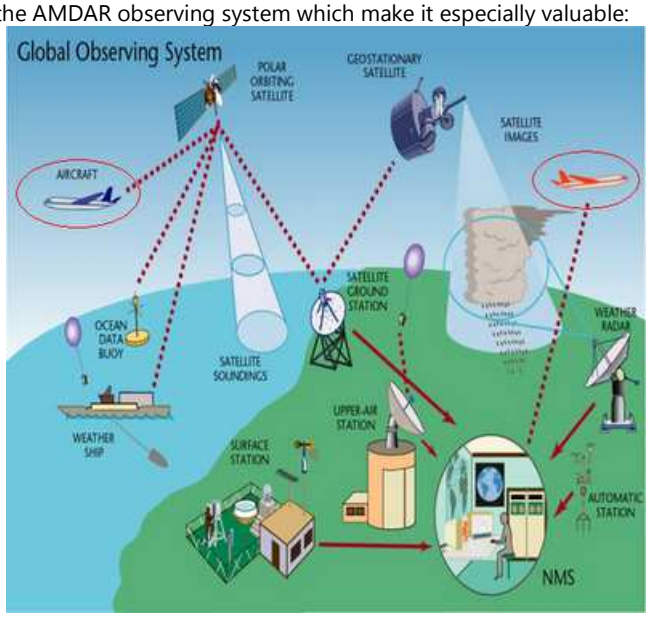
12.4.5 Why Aircraft-based Meteorological Observations are Critical to the Aviation Industry

Like many of the modern public or government-initiated success stories, the development of the Aircraft Meteorological DAta Relay (AMDAR) observing system has relied and thrived on what has come to be known as Public Private Partnerships (PPP) between governmental meteorological and hydrological services (NMHS) and their airline partners.

For these partnerships to happen and to work, there has to be a demonstrable benefit to both parties and, given the government involvement, a benefit also to society and the public.

While the idea of using the aircraft platform as a means for making meteorological and other scientific atmospheric measurements is nearly as old as aviation itself, it has only really been since the late 1980s that the current concept of the AMDAR system has truly flourished as an operational programme sanctioned by WMO. Now producing nearly half a million observations per day of temperature, winds and, increasingly, humidity in support of the WMO Global Observing System - GOS - (see Figure 1 at right), meteorologists that make use of this data, in a range of weather forecasting applications, are fully appreciative of the critical and significant benefit that it provides to meteorology.

The great benefit of AMDAR data in particular to meteorology, is the fact that the data are derived according to specific meteorological requirements, so that the meteorological parameters measured are reported at a high frequency during the take off and landings of participating aircraft. What this means is that the aircraft provides a "meteorological snapshot" of the atmosphere on a vertical trajectory, in a very similar way to which balloons bearing meteorological radiosondes do. This generation of vertical profiles by AMDAR aircraft certainly makes the programme useful; but there are three elements of the AMDAR observing system which make it especially valuable:



1. AMDAR wind and temperature data have been shown to be similar in data quality (i.e. accuracy or uncertainty of measurement) to that of radiosondes;
2. The measurement sensors and systems on the aircraft are able to produce this accurate data at a very high rate or frequency of measurement, thus providing very fine detail within the vertical profiles; and
3. Owing to the frequency at which aircraft are landing and taking off from airports, these vertical profiles can be produced on at least a 3-hourly basis at many airport locations.

It is these features of the AMDAR observing system that have led forecasting meteorologists to provide testimony that these data are very valuable and useful and provide significant improvement to applications for monitoring and prediction of weather systems and phenomena such as:

- Surface and upper air forecasts of wind and temperature;
- Thunderstorm genesis, location and severity;
- Wind shear location and intensity;

- Low cloud formation, location and duration;
- Fog formation, location and duration;
- Turbulence location and intensity;
- Jetstream location and intensity;
- Precipitation amounts and rates; and,
- Conditions leading to aircraft icing.

Pilots and airline flight and dispatch managers will be the first to understand that it is these very phenomena that impact greatly on airline operations, efficiency and safety - each of which are critical to the financial bottom line of the airline! And so it is this improved ability of meteorologists to monitor and predict these weather phenomena that provide the first conclusive evidence that the AMDAR programme provides an extremely valuable benefit to the aviation industry.

In fact, in the USA, a Research, Engineering and Development Advisory Committee; Report of the Weather-ATM Integration Working Group, October, 2007 made the following conclusions from their study:

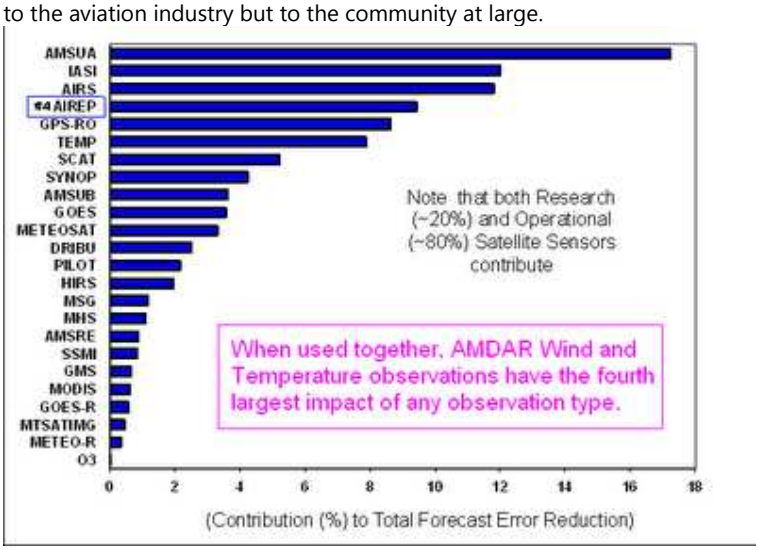
"Weather accounts for 70% of all air traffic delays within the U.S. National Airspace System (NAS)." and

"A key finding, based on an analysis of several 2005-2006 convective events, is that as much as two-thirds of the weather related delay is potentially avoidable."

If we put these findings together with these facts from the Congressional Joint Economic Committee report, *Your Flight Has Been Delayed Again*; May 2008:

1. ***The total cost of domestic air traffic delays to the U.S. economy was as much as $41 billion for 2007.***
2. ***Air-traffic delays raised airlines' operating costs by $19 billion.***
3. ***Delays cost passengers time worth up to $12 billion.***
4. ***Indirect costs of delay to other industries added roughly $10 billion to the total burden.***

We can therefore see that the financial interests of airlines are indeed well-served by their contributing to any efforts to improve weather forecasting ability that can and will reduce these costs - and not only to the aviation industry but to the community at large.



As has been highlighted in a previous article in Volume 4, Summary of Recent Studies on the Impact of AMDAR data in NWP Forecasts (Petersen), meteorologists are able to use modern numerical weather prediction (NWP) systems to precisely quantify the benefits of aircraft-based observations and have determined that these observations are second only to high-volume satellite data in impact on NWP systems (see Figure 2 at right). Quantitatively, AMDAR and other aircraft-based observations generally provide an improvement in forecasting ability through a reduction in NWP forecast error of up to 15-20%.

Figure 4: Impact of various different data sets on accuracy of 24-hour ECMWF forecasts (Based on Radnoti et al, 2010)

So, putting all these facts together, it is very clear that airlines participating in the AMDAR programme are not only benefiting meteorology and, as a result, the public generally, they are also clearly contributing to the efficiency and safety of the aviation industry and their own operations.

In future articles, we will look at how participating airlines can gain even greater advantage through better and more integrated use of AMDAR data and weather information in their flight operations.
For more information on the AMDAR programme and requirements for participation in it, see the WMO Website

12.4.6 TEMPLATE FOR BASIC COMPONENTS OF A SERVICE LEVEL AGREEMENT (Used between Australian Meteorological Office and Air line companies	
I. PARTIES	*Describe the parties involved in the SLA*
II. SCOPE	
2.01 Scope	*Describe the purpose and extent of the SLA*
2.02 Assumptions	*Define any assumptions that underlie the defined scope*
2.03 Goals and Objectives	*Describe what the parties are expecting to accomplish with the SLA*
III. ROLES AND RESPONSIBILITIES	*For all parties involved in the SLA, describes the role of each party and the responsibilities for supporting the SLA and delivering the products and services defined within*
IV. EFFECTIVE DATE AND TERM	*The date the agreement is effective its duration*
V. DELIVERY AND PERFORMANCE	*Describe in detail what each party is responsible for delivering and the key performance indicators to ensure compliance*
VI. REPORTING, REVIEWING AND AUDITING	*Describe oversight and reporting on the agreement; when the agreement should be reviewed, and reporting points of contact*
VII. COST / FUNDING AND PAYMENT	*Document costs associated with the SLA, who is responsible for paying, or funding, and when payment should occur. Cost may be broken down by specific line items, such as labor, supplies, equipment, travel, training, etc.*
VIII. CHANGES AND MODIFICATIONS	*Describe the process by which changes or modifications will be made to the SLA and who is responsible for making changes*
IX. TERMINATION	*Describe terms for termination of the SLA and the process for terminating*

GROUP ON EARTH OBSERVATIONS

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12.4.7 INTERNATIONAL CELEBRATIONS

- **United Nations Decade on Biodiversity** (decade 2011-2020)
- **Decade of Action for Road Safety** (decade 2011-2020)
- **United Nations Decade for Deserts and the Fight against Desertification** (decade 2010-2020)
- **Second United Nations Decade for the Eradication of Poverty** (decade 2008-2017)
- **Decade of Recovery and Sustainable Development of the Affected Regions** (decade 2006-2016)
- **International Decade for Action, Water for Life** (decade 2005-2015)
- **United Nations Decade of Education for Sustainable Development** (decade 2005-2014)
- **Second International Decade of the World's Indigenous People** (decade 2005-2014)

The following is an overview of the days

13 /02	World Radio Day	[UNESCO]	21 /02	International Mother Language Day	[UNESCO]
8 /03	International Women's Day		22/03	World Water Day	
23/03	World Meteorological Day	[WMO]	07/04	World Health Day	[WHO]
22 /04	International Mother Earth Day		12/13 /05	World Migratory Bird Day	[UNEP]
17 /05	World Telecommunication and Information Society Day	[ITU]	05	International Day for Biological Diversity	
5 /06	World Environment Day	[UNEP]	8 /06	World Oceans Day	
17 /06	World Day to Combat Desertification and Drought		25 /06	Day of the Seafarer	[IMO]
19 /08	World Humanitarian Day		16 /09	International Day for the Preservation of the Ozone Layer	
27/09	World Tourism Day	[UNWTO]	29/09	World Maritime Day	[IMO]
4/10	World Space Week		13 /10	International Day for Disaster Reduction	
16 /10	World Food Day	[FAO]	24/10	World Development Information Day	
10 /11	World Science Day for Peace and Development	[UNESCO]	07/12	International Civil Aviation Day [ICAO]	

12.4.8 WMO Service Level

Level of Service	Weather Services	Climate Services	Hydrology Services	Description of capacity needed to meet service level
Category 1 – Basic	➢ Weather observations ➢ Weather Data Management ➢ Interaction with weather data and product users	➢ Climate observations ➢ Climate Data Management ➢ Interaction with climate data and product users	➢ Hydrological observations ➢ Hydrological Data Management ➢ Interaction with hydrology data and product users	➢ Small network of quality controlled observations ➢ Basic data processing, archiving and communication systems ➢ Little or no backup / offsite storage, or contingency options ➢ Rudimentary staff (observers and some meteorologists trained to BIP standards) ➢ No 24 /7 operation ➢ Rudimentary QMS ➢ No R&D
Category 2 – Essential	➢ Medium-range (synoptic scale) forecasts and warnings ➢ Established links with media and DRR communities	➢ Seasonal Climate outlooks ➢ Climate monitoring	➢ Hydrological data products for design and operation of water supply structures ➢ Water level and flow monitoring ➢ Short-term flow forecasts (low flows) ➢ Flood forecasting	➢ Able to integrate and take observations from other parties ➢ Well-established protocols for emergencies, backup of data and minimum offsite facilities ➢ Staff (observers and meteorologists trained to BIP standards) ➢ 24/7 operation. ➢ QMS well established ➢ Access most NWP data/products from other centres ➢ Small R&D ➢ Some partnerships as junior members
Category 3 – Full	➢ Specialized weather products for wide range of sectors ➢ Well integrated into DRR communities and mature links with media	➢ Specialized climate products ➢ Decadal climate prediction ➢ Long-term climate projections	➢ Seasonal stream flow outlooks ➢ Specialized hydrology products	➢ Advanced observation equipment ➢ Runs own NWP suite ➢ R&D ➢ Well educated/trained staff ➢ Own training group ➢ Developed library and information services ➢ Active partnerships with NMHSs taking a leading role
Category 4 - Advanced	➢ Customized weather products ➢ Weather application tools.	➢ Customized climate products ➢ Climate application tools	➢ Customized hydrology products ➢ Hydrology application tools	➢ Advanced observations ➢ Leading R&D ➢ Well developed ETR

ACRONYMS

ACMAD	African Centre of Meteorological Applications for Development
ACPC	African Climate Policy Centre
AEM	Aeronautical Meteorology Division
AeMP	Aeronautical Meteorology Programme
AfDB	African Development Bank, Tunis
AgM	Agricultural Meteorology Division
AgMP	Agricultural Meteorology Programme
AGN	African Group of Negotiators
AGRHYMET	Regional centre for agriculture, hydrology and meteorology, Niamey
AMCEN	African Ministerial Conference on Environment
AMCOW	African Ministerial Council on Water
AMDAR	Aircraft Meteorological Data Relay
AMESD	African monitoring of the Environment for Sustainable Development
AMMA	African Monsoon Multidisciplinary Analysis
ASECNA	Agency for Aerial Navigation Safety in Africa and Madagascar
AU	African Union
AUC	African union Commission, Addis Ababa
AusAID	Australian Agency for International Development
AWF	Africa Water Facility
CAADP	Comprehensive African Agricultural Development Programme
CAeM	Commission for Aeronautical Meteorology
CAgM	Commission for Agricultural Meteorology
CAHOSCC	Conference of African Heads of States and Government on Climate Change
CAS	Commission for Atmospheric Sciences
CBFF	Congo Basin Forest Fund
CBS	Commission for Basic Systems
CCAFS	Climate Change Agriculture and Food Security
CCDA	First Climate Change and Development in Africa Conference
CCDU	Climate Change and Desertification Unit
CCl	Commission for Climatology
CDM	Clean Development Mechanism
CDMS	Climate Data Base Management System
CDSF	ClimDev Special Fund
CEOS	Committee on Earth Observation Satellites
CGIAR	Consultative Group on International Agricultural Research
CHy	Commission for Hydrology
CICOS	International Commission of the Congo-Ubangi-Sangha basin
CIF	Climate Investment Funds
CILSS	Comité Permanent Inter-Etats de Lutte contre la Sécheresse dans le Sahel
CIMO	Commission for Instruments and Methods of Observation
ClimDev-Africa	Climate for Development in Africa: the Programme
CLIPS	Climate Information and Prediction Services
CLIVAR	Climate variability and predictability study (WCRP)
CLW	Climate and Water (Department, WMO)

COF	Climate Outlook Forum
COP	Conference of the Parties of the UNFCCC
DCPC	Data Collection or Production Centre (of WIS)
DfID	UK Department for International Development
DRA	Development and Regional (Department, WMO)
DRR	Disaster Risk Reduction Programme
EAC	East African Community
EC	Executive Council (WMO)
ECA	UN Economic Commission for Africa
ECOWAS	Economic Community of West African States
EU-ACP	European Union-African Caribbean Pacisif
EWS	Early Warning Systems
FAO	Food and Agriculture Organization of the United Nations
FEWSNET	Famine Early Warning Network
GAW	Global Atmosphere Watch
GCN	GLOSS (Global Sea-Level Observing System) Core Network
GCOS	Global Climate Observing System (UNDP project based in WMO
GCW	Global Cryosphere Watch
GDPS	Global Data-processing System
GEF	Global Environment Facility
GEO	Group on Earth Observations
GEOSS	Global Earth Observation System of Systems
GEWEX	Global Energy and Water Cycle Experiment (WCRP)
GFCS	Global Framework for Climate Services
GISC	Global Information System Centre of WIS
GMDSS	Global Maritime Distress and Safety System
GOOS	Global Ocean Observing System
GOS	Global Observing System
GTOS	Global Terrestrial Observing System
GTS	Global Telecommunication System
GUAN	GCOS (Global Climate Observing System) Upper-Air Network
HFA	Hyogo Framework for Action
HFW	Hydrological Forecasting for Water Resources Management
HNRC	HOMS National Reference Centres
HOMS	Hydrological Operational Multipurpose System
HYCOS	Hydrological Cycle Observing System (component of WHYCOS)
HWRP	Hydrology and Water Resources Programme
IACRNA	Inter-Agency Committee on Response to Nuclear Accidents
IAEA	International Atomic Energy Agency
ICAO	International Civil Aviation Organization
ICPAC	IGAD Centre for Climate Applications and Prediction
ICRISAT	International Centre for Research in the Semi-Arid Tropics
ICSU	International Council for Science
ICRISAT	International Centre for Research in the Semi-Arid Tropics
ICSU	International Council of Scientific Unions
IDRC	International Development Research Centre
IFRC	International Federation of Red Cross and Red Crescent Societies

IGAD	Inter-Governmental Authority on Development
IGOS	Integrated Global Observing Strategy
IGWCO	Integrated Global Water Cycle Observations
IMOP	Instruments and Methods of Observation Programme
IMTR	Institute for Meteorological Training and Research, Nairobi
IOC	Intergovernmental Oceanographic Commission (UNESCO)
IPCC	Intergovernmental Panel on Climate Change (WMO/UNEP)
IRI	International Research Institute for Climate and Society
ISCU	International Council for Science
ISDR	International Strategy for Disaster Reduction
ISO	International Organization for Standardization
ITU	International Telecommunication Union
IWRM	Integrated Water Resources Management
JCOMM	Joint WMO/IOC Technical Commission for Oceanography and Marine Meteorology
KP	Kyoto Protocol
LDCs	Least Developed Countries
LoA	Letter of Agreement
MALOF	Malaria Outlook Forum
M&E	Monitoring and Evaluation
MDG	Millennium Development Goal
MDSC	Multi-Disease Service Centre
MESA	Monitoring of Environment and Security in Africa
MMOP	Marine Meteorology and Oceanography Programme
MoU	Memorandum of Understanding
MPERSS	Marine Pollution Emergency Response Support System
NAPA	National Adaptation Program of Action
NASA	US National Aeronautical and Space Administration
NBA	Niger Basin Authority
NEPAD	New Partnership for Africa's Development
NGO	Non-governmental organization
NMHS	National Meteorological and Hydrological Services
NMS	National Meteorological or Hydrometeorological Service
NWP	Numerical Weather Prediction
OCHA	United Nations Office for the Coordination of Humanitarian Affairs
OSCAR	WIGOS Observing Systems Capabilities Analysis and Review tool
OSS	Observatoire du Sahara et Sahel
PPCR	Pilot Program on Climate Resilience
QMF	Quality Management Framework
QMS	Quality Management System
RA	Regional Association
RBOs	River Basin Organisations
RCC	Regional Climate Centres
REC	Regional Economic Community (ECOWAS, SADC, IGAD etc….)
REDD+	Reduced Emissions from Deforestation and Forest Degradation
RIC	Regional Instrument Centre
RSMC	Regional Specialized Meteorological Centre

RTC	Regional Training Centre
SADC-CSC	Southern African Development Community - Climate Services Centre
SBSTA	Subsidiary Body for Scientific and Technological Advice (UNFCCC)
SIDS	Small Island Developing State
SLA	Service Level Agreement
TECO	Technical Conference on Meteorological and Environmental Instruments and Methods of Observation
THORPEX	Hemispheric Observing System Research and Predictability Experiment
TOR	Terms of Reference
UNCBD	United Nations Convention on Biological Diversity
UNCCD	United Nations Convention to Combat Desertification
UNDP	United Nations Development Programme
UNECA	United Nations Economic Commission for Africa
UNEP	United nations Environment programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFCCC	United Nations Framework Convention on Climate Change
UNICEF	United Nations Children's Fund
UNISDR	United Nations International Strategy for Disaster Reduction
UNOOSA	United Nations Office for Outer Space Affairs
UNOSAT	United Nations Institute for Training and Research Operational Programme on Satellite Applications
UNU	United Nations University
UNWTO	United Nations World Trade Organization
VACS	Variability of the African Climate Systems
VCP	Voluntary Cooperation Programme
WAMIS	World Agrometeorological Information Service
WB	World Bank
WCAC	World Climate Applications and CLIP (Division, WMO)
WCASP	World Climate Applications and Services Programme
WCDMP	World Climate Data and Monitoring Programme
WCP	World Climate Programme
WCRP	World Climate Research Programme
WFP	World Food Programme, Rome
WHO	World Health Organisation, Geneva
WHYCOS	World Hydrological Cycle Observing System
WIGOS	WMO Integrated Global Observing System
WIS	WMO Information System
WMO	World Meteorological Organization, Geneva
WMOSP	WMO Space Programme
WSSD	World Summit on Sustainable Development
WWRP	World Weather Research Programme
WWW	World Weather Watch