Building Regional Resilience through Strengthened Meteorological, Hydrological and Climate Services in the Indian Ocean Commission (IOC) Member Countries[1]

Rationale and Pathway for establishing National Climate Information and Early Warning System (CIEWS) Funds

1. Rationale

Since early stages of project development, there was a clear understanding among the four target countries in the South-west Indian Ocean (SWIO) region (namely Comoros, Madagascar, Mauritius and Seychelles) that additional resources are required to support the operation and maintenance (O&M) associated with the modernization and upgrade of the National Meteorological and Hydrological Services (NMHSs). In this sense, within the project design, a strategy/plan to support O&M was developed (see Annex 21, O&M Plan), wherein mechanism will be put in place to support O&M in the four target countries. This mechanism includes the implementation of:

a) Value-added services
   i. Cost recovery of meteorological services
   ii. Commercial services
b) Public-Private Engagement (PPE)
c) Engagement with the UN and other international partners working on the ground in the four countries
d) Business Planning and Hydromet Law
   i. Business Plan
   ii. Revenue generation
   iii. License fee

Alongside with leveraging the support of the Systematic Observations Financing Facility/Global Basic Observing Network (SOFF/GBON).

Throughout the project development process, it was assessed whether the NMHSs have a reglementary framework and if so, whether this includes the provision of NMHSs capability to perform 'commercial services' and 'generate revenues' (including through receiving direct grants from developing partners), as well as any ability to work with the private sector. The results of this assessment (also confirmed at the WMO Country Profile Database, WMO/CPDB[1]) are described in Annex 2 (Feasibility Study) and summarized below for easy reference:

- Comoros – the NMHS is a government or state owned institutional, providing Public Weather Service (PWS) or other services to the state or to the public only (commercial activities not allowed in the legislation). The primarily legislative Act determining the NMHS functions is the *'Code de l'Aviation Civile et de la Météorologie',* which does not have any provisions concerning the private sector. There is no consultative platform for the public sector, private sector, and academia and civil society to foster regular cooperative dialogue. There are other sources of funding (i.e. from international

[1] https://cpdb.wmo.int

agencies) for improving the hydrometeorological infrastructure, etc., but no specific Trust Fund that supports the NMHS' activities. [2]

- Madagascar – the NMHS is a government institution with commercial activities. The primarily legislative Act determining the NMHS functions is the Decree 2019-066 of 21 February 2019. There is a consultative platform for the public sector, private sector, and academia and civil society to foster regular cooperative dialogue through the *'Groupe de Travail Climat et Santé'*, which is a partnership of the NMHS and the Ministry of Agriculture, Aquaculture and Fisheries. The legislation does not allow any participation of non-NMHS entities in the provision of information and services. There are other sources of funding (i.e. from national and international agencies) for improving the hydrometeorological infrastructure, etc., but no specific Trust Fund that supports the NMHS' activities.[3]
- Mauritius – the NMHS is a government or state owned institutional, providing Public Weather Service (PWS) or other services to the state or to the public only (commercial activities not allowed in the legislation). The primarily legislative Act determining the NMHS functions is an Administrative Decree. There is no consultative platform for the public sector, private sector, and academia and civil society to foster regular cooperative dialogue. There is no specific legislation concerning the provision of information and services by the private sector. There are other sources of funding (i.e. from national agencies) for improving the hydrometeorological infrastructure, etc., but no specific Trust Fund that supports the NMHS' activities.[4]
- Seychelles – the NMHS is a government or state owned institutional, providing Public Weather Service (PWS) or other services to the state or to the public only (commercial activities not allowed in the legislation). The primarily legislative Act determining the NMHS functions is the Meteorological Act 2015. There is no consultative platform for the public sector, private sector, and academia and civil society to foster regular cooperative dialogue. The legislation allows private sector participation in the delivery of information and services along the value chain, under certain conditions, such as licensing; NMHS has a well-defined role including a sole provider of warning services. There are other sources of funding (i.e. from international agencies) for improving the hydrometeorological infrastructure, etc., but no specific Trust Fund that supports the NMHS' activities.[5]

In addition, the Geneva Declaration – 2019: Building Community for Weather, Climate and Water Actions stresses on the importance of the engagement of all sectors in addressing the societal needs through weather, climate, water and other environmental information and services.[6] The summary of WMO questionnaire on the status of the Public-Private-Engagement (PPE), including in the four target countries who responded to the survey as part of the WMO Regional Association I (RA I, Africa), indicate[7]:

- Most of the NMHSs have not established internal structures to deal with private sector;
- That there is a growing participation of the private sector in hydromet during the last 3 years;

[2] https://community.wmo.int/members/com
[3] https://community.wmo.int/members/mdg
[4] https://community.wmo.int/members/mus
[5] https://community.wmo.int/members/syc
[6] https://ane4bf-datap1.s3-eu-west-1.amazonaws.com/wmocms/s3fs-public/ckeditor/files/Design_of_Geneva_Declaration_PDF_Flyer_2019-10-02_A4_EN.pdf?TRACAlYONNYSK1_Y5hNcx2lmtyG2ji9p
[7] https://ane4bf-datap1.s3.eu-west-1.amazonaws.com/wmod8_ppe/s3fs-public/ppe_survey_2018_results_for_all_ras.pdf?8FbP8jC7MsqsP_DJOHdn1YKTWDBM6cLF=

- Most of the countries have no legislation and/or regulations that determine the roles and relationships of public and private sectors with regard to the provision of hydromet information services;
- Current level of commercial services has low impact (less than 10%) on the NMHS budget;
- The need to define clear roles and responsibilities, and process for engagement between public and private sectors.

These results reinforce the need for the revision or establishment of the Hydromet Laws, alongside with the mechanism to manage revenues and more broadly, other funds than those provided by the government. In particular, both Madagascar and Seychelles have recent Meteorological Acts, with some reference to the public-private engagement; however, there are no specific activities (i.e. joint activities such as co-production of services) nor Trust Fund created to receive revenues from such activities (and others), and the legislation in Seychelles does not allow commercial services by the NMHS; and therefore revision will be required, alongside with the definition of the Trust Fund, goals, governance, etc. (see the pathway to establish the Trust Fund, that we call CIEWS Fund hereafter, in section 3 below). Comoros and Mauritius will need to start from scratch in the development of specific Hydromet Laws including all the required provisions to allow commercial services, engagement with the private sector, and establishment of a CIEWS Fund.

2. International Practice

The national legal instrument establishing a NMHS is an important element for its successful operation. It helps to define its mission and mandate; ensure clarity in the definition of its responsibilities; provide legal authority for certain responsibilities; gain recognition of its contribution to society; and facilitate allocation of adequate resources (WMO, 2017)[8]. The legal instrument is also a means of demonstrating how governments will meet their obligations under various international agreements, including the WMO Convention (WMO, 2015)[9]. Rogers et al (2019)[10] explains that:

(1) Policy, legal, and institutional frameworks should be established to clearly define the roles and responsibilities of the NMHS and other organizations within the central and local governments, and to enhance collaboration with stakeholders;

(2) To facilitate effective early warning services, it is important to establish a legal framework that makes NMHS the single authoritative voice for warning services, along with the efficient communication and dissemination mechanisms for end-users;

(3) Policy, legal, and institutional frameworks help building government (ministries of finance, economy, and planning), stakeholders and development partners understanding of the importance of NMHSs, with the hope of leading to a legally binding commitment fixed in credit or a grant agreement to increase budget support and allocations for O&M costs.

The establishment of a CIEWS draws upon the experience and information from the UNDP work on the establishment of National Climate Funds (NCFs) to support countries to collect,

[8] WMO, 2017. *Guidelines on the Role, Operation and Management of National Meteorological and Hydrological Services*, 2017 Edition, WMO-No. 1195.
[9] WMO, 2015. *Basic Documents*, 2015 Edition, WMO-No. 15.
[10] *Rogers et al, 2019. Weathering the Change : How to Improve Hydromet Services in Developing Countries?. World Bank, Washington, DC. © World Bank. License: CC BY 3.0 IGO.*

coordinate, blend and account for climate finance[11]; as well as on the WMO and WB activities to strengthen the Hydrometeorological Laws and policies in the countries by defining the roles of NMHSs in the climate area, and supporting and securing sustainable budgetary resources for their operations. The latter relies on well-documented business cases and revised Hydromet reglementary and policy documents to be put in place by the respective governments throughout the project implementation – this approach is successfully being implemented under the WB Hydromet project in Myanmar[12], and being replicated in other South Asia countries.

3. Pathway for establishing National Climate Information and Early Warning System (CIEWS) Funds in the four countries

Goal and Functions

The main goal of establishing a National Climate Information and Early Warning System (CIEWS) Funds in the four countries is to collect/raise sources of funds and direct them towards (i) sustainability of investments done through projects and other activities, (ii) life cycle / replacement of equipment required to monitor and forecast the weather and climate, particularly the extreme events as part of the early warning system (EWS); and (iii) capacity development of NMHS staff to keep up-to-date with the world-wide developments and apply them at the national level.

When CIEWS at each National level are established, countries through public and private sector investments, as well as development partners (national and international, such as from IFRC, WFP, among others working on the ground in these countries), will be the main contributors to the fund and the financing mechanism should be set at national level based on the countries specificities (i.e. nationally-driven) to achieve their climate change priorities, especially those associated with early warning systems (EWS) and climate resilience. This approach is aligned with the international developments and has been applied in many countries to ensure climate resilience and sustainability of investments.

The CIEWS will provide a mechanism for managing partnerships by clearly addressing the requirement of various climate change stakeholders. The CIEWS can complement and support the management of relationships with other financing mechanisms, such as those with multilateral, bilateral, public and private sources. Further, by facilitating regular discussions and stakeholder engagement on national climate issues, the CIEWS will serve as a central body for discussion and decision-making about how the CIEWS will support further investments in NMHSs in support of climate change-dependent sectors, including disaster risk management.

Steps Towards the Establishment of the CIEWS

As indicated above, the Hydromet Law is a critical instrument in the process of establishing the CIEWS. The first step is to review and revise the Hydromet Law of each target country to allow commercial services, revenue generation, public-private engagement, and the establishment of a Trust Fund (the CIEWS) with clear indication of its goals. The Hydromet project will support this activity.

At the same time, the Hydromet project will also support the step-by-step process of the development of the regulations (and their implementation) that define the CIEWS components and structure. Designing and establishing a CIEWS include:

[11] https://www.undp.org/content/undp/en/home/librarypage/environment-energy/low_emission_climateresilientdevelopment/blending_climatefinancethroughnationalclimatefunds.html

[12] https://projects.worldbank.org/en/projects-operations/project-detail/P146482

1) Defining the programmatic and management objectives
2) Identifying capitalization, i.e. potential sources of funds linking with the objectives – this would require discussions with stakeholders, national and international partners and others
3) Defining effective governance – typically a Steering Committee is established with clear Terms of Reference, chaired by the Minister in charge for the NMHSs, the Director-General of the NMHS (who usually acts as the Secretariat), and with the participation of stakeholders / user sectors and partners
4) Defining fiduciary and implementing arrangements
5) Describing monitoring, reporting and verification processes

End.