

WORLD METEOROLOGICAL ORGANIZATION

REPORT OF THE 2nd MEETING OF THE STEERING COMMITTEE OF THE INDIAN OCEAN
DATA RESCUE INITIATIVE (INDARE)



19– 20 October 2015

Ebène, Mauritius

Date of Publication: February 2016

Table of Contents

1. Opening
2. Organization of the Meeting
3. Report of the Chair and Co-Chair of the INDARE Steering Committee
4. Recap of the Work Plan for November 2014 to October 2015 and progress on the implementation of the activities.
5. Progress in the establishment of the INDARE web portal
6. Report on International Collaboration and Networking: INDARE Working Group III Progress Report
7. Data Rescue initiatives at National, Regional and International levels
8. Status of Data Rescue project proposals submitted to WMO
9. Financing in WMO for Development Projects
10. Consideration and endorsement of the Work Plan of INDARE for November 2015 to October 2016
11. Consideration of proposal of expanding the Scope of INDARE
12. Future Structure: Consideration of establishing a Management Committee of INDARE
13. Election of Chair and Co-Chair for November 2015 to October 2016
14. Next Steering Committee meeting

1. Opening

Ms Gina Bonne, on behalf of the Secretary General of the Indian Ocean Commission (IOC), welcomed the participants to the 2nd meeting of the Steering Committee of the Indian Ocean Data Rescue initiative (INDARE) that was being hosted by the Secretariat. She informed the participants that this meeting was being hosted by the IOC within the framework of the Memorandum of Understanding (MoU) signed between the IOC and the World Meteorological Organization (WMO) at the 3rd International Conference on Small Island Developing States (SIDS) that was held in Samoa in September 2014. This MoU provided opportunity to strengthen collaboration in support of capacity development with regards to climate and meteorology in the Western Indian Ocean region. She, further, informed the participants that the Indian Ocean Commission is a regional intergovernmental organization which was institutionalized in 1984 with the aim of promoting regional cooperation amongst its member states on matters of common interest to support sustainable development. The islands are known to be vulnerable and exposed to a number of factors that threaten their growth and development amongst which are the climatic events that may impact severely on the economy and lives of the population.

She stated that recent weather events in this region, that have caused damage to properties and brought grief to many families, is a manifestation that much is yet to be done to better understand the climatic factors especially in our region. The meteorological services, therefore, have a crucial role to play to ensure that appropriate information is made available to the population and the decision makers in order to continuously raise preparedness at the national level and reduce the impacts of the climate induced disasters. However in order to ensure that adequate information is provided, the meteorological services would need to be equipped with the appropriate tools and capacity to collect and analyze the data, understand the trends and to disseminate the appropriate information to the end users. She emphasized that the whole exercise of generating adequate climate information is dependent upon the availability of historical climate data stored in a manner that facilitates easy access. However, it is a known fact that most Meteorological Services still have huge amounts of data on paper. Consequently, the Indian Ocean Data Rescue Initiative provides the opportunity for the meteorological services to share information and expertise amongst the participating countries on matters of data rescue and Data Management. This exchange and interactions will help to build capacity at national and regional levels and improve data availability and enhance generation of climate information in this region.

Mr Omar Baddour on behalf of the WMO Secretary General welcomed the participants to the meeting. He thanked IOC for hosting the meeting and recalled that WMO and IOC enhanced their collaboration since they signed the MoU at the occasion of SIDS conference in Samoa in September 2014. He further noted that the participation of UNDP at this opening ceremony was, therefore, a wonderful example of UN System working together to contribute to this initiative from their respective agenda and plans. He also thanked the international and regional institutions which provided their support in carrying out the activities under INDARE. He emphasized that INDARE is an initiative that will support the implementation of the Global Framework for Climate Services (GFCS) in the Indian Ocean rim countries and islands. In this regard, he underlined that recovering and digitizing climate records is of a paramount importance for developing solid data foundation for climate services with the quality that is required. He urged the participants to take advantage of the collaboration spirit amongst the involved institutions in INDARE as well as from the international climate expertise to accelerate the recovery, digitization and the management of climate data.

Dr Simon Springett expressed his appreciation to IOC and WMO for inviting him to this opening ceremony of the INDARE Steering Committee meeting. He noted that the coming day is the international day on Statistics, so that it is a good time to reflect on the importance of Data and Statistics in various economic and societal matters. He pointed out that the work being carried out through INDARE is very important in the context of Disaster Risk Reduction, and it goes beyond the Meteorological Service arena and should reach the right policy makers. He expressed his appreciation to the sponsors of the initiative, WMO, IOC and others and that he was looking forward to support it.

2. Organization of the Meeting

The meeting was chaired by **Mr Peter Ambenje** in his capacity as the Chair of the Steering Committee for the period running November 2014 to October 2015. The agenda of the meeting was adopted without any amendments. It is attached here as Annex IV. The meeting was attended by participants from 16 countries of the Indian Ocean RIM as well as representatives from regional and international organizations. The list of participants is presented in Annex V.

3. Report of the Chair and Co-Chair of the INDARE Steering Committee

Mr Peter Ambenje presented the report of the Chair and Co-Chair of the Steering Committee (SC) for the period November 2014 to October 2015. The report generally and broadly summarized the achievements that had so far been made in implementing the activities and recommendations during the first year. The report proposed for endorsement, an option of adopting a more flexible operational working structure.

The report indicated that the Working Groups (WGs) were at different levels of implementing their activities due to various factors that include lack of sufficient resources at WMO to organize face-to-face meetings of the WGs. Some of the WGs had made tremendous progress while others were lagging behind. This reiterated the importance of engaging with donors and international stakeholders for funding some of the pending activities.

Reference was also made to the interest created by the establishment of INDARE and the proposal to expand the scope of the INDARE initiative to other countries that are affected by the Indian Ocean and those that are members of the Tropical Cyclone Committee.

The Chair and Co-Chair appreciated the honor that had been bestowed on them to steer the Committee in the first year of its operation. They also expressed appreciation to everyone who had, in one way or another, contributed to the achievements that had been made so far in implementing the activities. They thanked WMO for closely following up on the recommendations of the committee.

The meeting adopted and endorsed the report of the Chair and Co-Chair with only a few inputs. The full report is attached here as Annex I.

4. Recap of the Work Plan for November 2014 to October 2015 and progress on the implementation of the activities.

Mr Omar Baddour, Chief of the Data Management Applications Division of WMO, provided the background of the process that led to the establishment of INDARE. He pointed out that the year cycle for INDARE is November to October of the next year. He reminded members that the Implementation Plan of INDARE initiative is an official WMO document that has been posted on the web. He presented the general structure of INDARE that was basically made up of Technical and Policy components. He took the members through the Terms of reference of the SC that are:

- a) Advise on the needs and priorities in the domain of Data Rescue and digitization of climate records and related techniques and data management systems;
- b) Develop annual work-plans and monitor their undertaking;
- c) Promote useful linkages and collaboration with regional and international projects and initiatives having interest in Data Rescue and Climate Data Management;
- d) Assess project proposals and provide suggestions and advice on resource mobilization;
- e) Monitor INDARE implementation and oversee the work of the INDARE Working Groups; Make adjustment in the structure and work plans as deemed appropriate; and
- f) Review and adopt reports provided by the Chair and the Co-chair

He briefed members on progress made in implementing the activities for the first year cycle. These activities were developed and detailed in a Work Plan in the first meeting of the SC. The progress is summarized in Table 1 below.

Table 1: Status of implementation of the 2014 to 2015 Work Plan

Activity	Deliverable	Who	Status
Activity 1. Countries' nominations for the WGs	Constitution of 4 WGs	WMO Secretariat, INDARE Chair and Co-Chair	Completed
Activity 2. Meeting of WG-2, July 2015	Assessment of the feasibility of implementing an INDARE web portal Recommendations for its development and hosting	WG-2, WMO Secretariat, MEDARE, ACRE ICA&D	Completed
Development of the INDARE web portal	Development of the INDARE web portal prototype		Near completion

Activity 3. Data Rescue Project Proposals	DARE Project Compendium	WMO Secretariat, INDARE members	Bangladesh, Madagascar, Mozambique, Kenya and Sri-Lanka proposals received.
Activity 4. Meeting of WG-1 Tools and software to be made available for undertaking DARE	<ul style="list-style-type: none"> • Recommendations on useful tools and software • Recommendations on Demonstration projects 	WG-1, WMO Secrétariat, ET-DARE, ET-CDMS, ICA&D, ET-CCDI	Workshop on Capacity Development is planned in November 2015 (ET-CCDI tools will be promoted and used)
Activity 5. International Collaboration and Networking	Recommendations on international projects and initiatives that INDARE will be associated with	WG-3, International Experts	Two online meetings were held. Recommendations will be presented at the INDARE-SC2 meeting
Activity 6. Meeting of WG-4 Strategy for communication and resource mobilization	<ul style="list-style-type: none"> • Development of communication material (poster, leaflet, brochure) • Identification of funding sources 	WG-4, WMO Secretariat, INDARE Chair and Co-Chair	

Regarding the constitution of the Working Groups (Activity 1), the meeting agreed and endorsed additional membership in the WGs as follows:

- WG1: add South Africa, Pakistan (Co-lead), Myanmar and Réunion. Letters to be send to PRs for nomination
- WG2: Add ICPAC member (Letter to be send to Director ICPAC for nomination)
- WG4: Add Comoros (Letter to be send to PR of Comoros)

The SC reiterated the need to enhance the flow of information between the WGs

Action: WMO Secretariat to circulate the list of the names of the WG members

5. Progress in the establishment of the INDARE web portal

Mr Jaumil Achyar Situmeang briefed the SC on the progress so far made in establishing the INDARE web portal. The web portal was meant to assist in the coordination of Data Rescue activities within the members of INDARE and also offer the possibility to generate and share metadata and useful data products for a common use in the INDARE geographic domain. Phase I of the web portal development mainly dealing with data was basically complete. It entailed developing the web functionalities and creating templates for metadata. The team

developing the web portal had been constituted and a work plan drawn to carry out the activities. It was envisaged in the work plan that Phase II of the development dealing with generation of climate information products would be completed by October 2016.

INDARE-SC appreciated the great achievement in developing the INDARE portal prototype. It thanked Indonesia and India for volunteering to co-host the web portal and for making available their expertise and infrastructure for its development and maintenance.

Action: INDARE-SC members were asked to quickly review the current version of the portal and provide comments preferably by end of October 2015.

INDARE-SC reviewed and endorsed WG2 recommendations (Annex-II). Nevertheless as for the two issues concerning the minimum Data sharing and the levels of authorized access and use of INDARE portal, INDARE-SC requested sending a letter to INDARE Member countries with a clear guidance as well as to request their formal view on these two issues.

Action: WMO to send a letter to INDARE Member Countries

Recommendation: INDARE-SC recommended developing a policy document on data sharing on the INDARE-portal by WGs 2, 3 and 4.

6. Report on International Collaboration and Networking: INDARE Working Group-3 Progress Report

Mr Geoffrey Gooley, Leader of Working Group 3 presented the progress so far made by the Working Group. This is despite the Group not having had a face to face meeting. The Group had adopted use of teleconferencing and out of session emails to carry out its activities. There were linkages across multiple Regional Climate Centres (RCCs) such as ICPAC & SADC as well as and regional/national programs such as MESA and RIMES but with varying levels of networking & collaboration. The Working Group attended the meeting of Working Group II in Mauritius to manifest the inter-dependence of all the groups. The broad interest in considering regional (collaborative) approach to capacity development was reiterated. There were also key learning experiences that INDARE may learn from the Pacific-Australia Climate Change Science Adaptation Planning program (PACCSAP).

The INDARE-SC appreciated the efforts made by the WG-3 despite there not being a face to face meeting. It thanked the leader and co-leader of the WG-3 for providing a platform for discussions for the SC and recommendations. INDARE-SC reviewed and endorsed the proposed recommendations by WG3 (ANNEX-II)

7. Data Rescue initiatives at National, Regional and International levels

7.1 Status of National Data Rescue initiatives

The members made brief presentations on the status of the Data Rescue and Data Management initiatives that were being implemented at the National Level. The INDARE SC noted with appreciation these on-going initiatives that were aimed at ensuring that climate data at risk of being lost is rescued and digitized. This will foster ease of access to these data sets for different applications such as climate monitoring, climate change detection and enhancing generation of user specific products, among others.

The INDARE-SC further appreciated the countries' reports on data rescue and data management and the support that a number of the countries were getting from development partners in undertaking Data Rescue. The SC noted that a number of challenges still remain to be solved at country levels. In particular a great amount of work remain to be done in rescuing and digitizing climate records still on paper or on obsolete electronic media (micro-fiches magnetic tapes, floppy disks, etc.) in most of the countries. It also emerged that archival of already rescued and digitized data needs to be supported in a number of countries.

The SC emphasized the need for NMHSs to quickly adopt a migration strategy to avoid losing already digitized records. This is an aspect that is normally overlooked and yet it is very critical. INDARE-SC took note of the continuous need for capacity building on Climate Data Management Systems (CDMSs)

INDARE-SC appreciated the ongoing efforts at Réunion for recovering and digitizing climate records. Many of them belong to several countries that are members of INDARE. However, concerns were raised that some of these historical climate records from the former Indian Ocean French colonies were in basement of the building of the French National Archives whose walls were crumbling and the building could collapse. Consequently, the boxes were inaccessible since 2014 because it is absolutely forbidden to enter in the building. Countries are invited to formally request to have access to these archives. A project proposal can be developed by Réunion for rescuing and digitizing these archives.

Action: Réunion and INDARE-SC Chair and Co-chair and WMO Secretariat to work on project proposal on Réunion DARE project

Recommendation: To document the good experiences and show-cases of Data Rescue by INDARE Members to be shared through the INDARE portal

The SC specifically noted the following needs (Table 2 below) expressed during the discussions of countries project presentations:

Table2: Specific Data Rescue and Data Management needs of the countries

NO	COUNTRY	NEED
1	Kenya	Support to purchase equipment to accelerate the recovery / imaging on and archiving of old archives as well as proper shelving for archival
2	Madagascar	Still needs assistance in setting up a DARE project and to get Microfiches from Belgium DARE project
3	Maldives	Support to recover and restore data from the UK Met Office Archive spanning the period 1943-1976 and also for equipment to digitize hard copy data books
4	Mozambique	Has submitted a request to be assisted to acquire a new CDMS and train staff on the system
5	Pakistan	requires to acquire relevant technology for imaging the paper form data and improvement of the environmental conditions where data on paper are being preserved;
6	Seychelles	Support to locate and recover Records of Seychelles that are available in UK, Kenya, India and Mauritius and also implement the use of a reliable CDMS using e.g. CLIMSOFT when the new version comes out;
7	Mauritius	Requires support to acquire a proper Climate Data Base Management System (CDMS) since the data is just stored in Excel worksheets to date;

8	Tanzania	Still needs support for equipment for imaging records and also to complement the efforts of digitizing the huge amounts of data still on paper;
9	Myanmar	Needs support mainly for to continue with the quality check, that is proving to be a slow process, for the remaining stations;
10	Sri Lanka	Needs technical and financial support to: preserve and store the records on paper in well-organized manner; rescue and digitize (or imaging) the remaining climate records/charts and acquire a proper data-base management system;
11	Comoros	Requires support to image all historical data on paper and standardize the data to provide a solid base and modern data.

7.2 Regional and International Data Rescue initiatives

7.2.1 Data Rescue under the PREPARED Programme

Ms Fortunata Lubega, the Data Management Expert at the IGAD Climate Prediction and Applications Centre (ICPAC), made a presentation on the regional initiative on Data Rescue under the Planning for Resilience in East Africa through Policy Adaptation, Research, and Economic Development (PREPARED) Programme which is a USAID funded project currently piloting DARE through collaboration with ICPAC. The formulation of this project on data rescue was informed by the fact that there has been found to be poor temporal and spatial resolution of data within the five East African Community countries (Burundi, Kenya, Rwanda, Tanzania and Uganda) where PREPARED intended to strengthen climate information generation within ICPAC and NMHSs by gridding the Climate datasets using GeoCLIM software at 5km resolution.

The project is being implemented at national level based on needs assessment that was carried out by ICPAC under PREPARED that revealed that the needs for member countries were different as far as Data Rescue was concerned. The needs assessment facilitated the prioritization of the countries so that the very needy ones are top on the list. The project was therefore to be started in Burundi as a priority but due unavoidable circumstances, the Directors of Meteorological Services of the EAC Partner States meeting in Arusha in April 2015 endorsed to pilot DARE activities in Tanzania as an alternative. ICPAC in collaboration and support of the PREPARED Project are implementing the Piloting of Data Rescue activities at Tanzania Meteorological Agency (TMA).

The planned activities of the project include:

- A Training Workshop for EAC Data Management experts on climate Data Management and Data rescue techniques;
- Pilot Data Rescue starting with Tanzania to elongate usable climate data series;
- Support Data Rescue and QC at regional (ICPAC); and
- Document and share the experiences gained from the pilots with other NMHSs.

The SC appreciated this initiative and hoped that it would eventually benefit all the five Partner States of the EAC. It noted the opportunity of organizing a Capacity building on Data Rescue and Climate indices akin to the one planned in Arusha in November 2015.

7.2.2 Enhancing climate resilience in the Island Developing States of RIMES countries

The SC was informed about a project proposal titled “**Enhancing climate resilience in the Island Developing States of RIMES countries**” that had been formulated with the objective of strengthening data foundation and human capacity in Weather/climate Early Warnings. This 18-month project would benefit the Islands developing States of the Indian Ocean.

The project, if it gets funded, will contribute with other efforts to address existing gaps that need to be bridged in terms of climate data, including its digitization and quality to facilitate fast access of near error free series. The necessary infrastructure involving the equipment and software for constituting adequate climate data bases and software for the analysis of climate extremes will be acquired. Capacity building is also envisaged for the producers and users of climate information from the four GFCS priority sectors of Water Resources Management, Agriculture, Health and Disaster Risk Reduction (DRR).

7.2.3 DARE Related Activities in Eastern and Southern Africa

Dr Elijah Mukhala made a presentation on the DARE Related Activities in Eastern and Southern Africa. Related to the importance of historical data, he quoted Mr Patrick Henry, a US Orator, Patriot and Politician in American Revolution that “***I know of no way of judging the future but by the past***”. Reference was also made to the 5th Assessment Report of the Inter-Governmental Panel on Climate Change (IPCC) that indicates lack of sufficient observational data in most of continental Africa to draw conclusions on trends in rainfall and temperature. Some of the DARE projects being undertaken or planned in the region include:

- Support by the Africa Development Bank to the tune of 400,000 Euro for 4 Countries in Eastern and Southern Africa (Kenya, Uganda, Malawi and Zambia) in Capacity building, procurement of IT equipment, scanners and Computers;
- DARE activities initially to be implemented in Burundi but shifted to Uganda due to unavoidable circumstances courtesy of WMO through the Korea Meteorological Authority (KMA) GFCS funding with USAID complimenting funds for Data rescue
- A bigger project is under development for the entire RA I region to the tune of more than 10 million USD

It was noted that DARE activities should be implemented hand in hand with proper CDMSs in place. In this connection, WMO is undertaking the upgrading of the CLIMSOFT CDMS through UK Met Office funding under VCP. Commendable progress has been made in this upgrade process and it is planned that the new version 4 of CLIMSOFT will be completed by end of November 2015 upon which testing will start. WMO members will be informed when the new version is made available. This Version 4 will have features that support DARE activities such as archiving of scanned copies. A number of countries are already lined up for installation.

INDARE-SC noted the increasing interest in using open source CDMSs. However, in many cases NMHSs face a challenge of keeping the CDMS operational, maintain it and solving software problems. Therefore some NMHSs revert back to the obsolete CLICOM or use Excel for keying their climate data.

7.2.4 Report on the DARE project under the Atmospheric Circulation Reconstructions over the Earth (ACRE) and the Commission of Climatology / Expert Team of Data Rescue (CCI/ET-DARE)

INDARE-SC was informed on ongoing plans and projects of ACRE and CCI Task Team on Data Rescue by Mr Robert Allan through Skype. Three project proposals made by ACRE as part of GFCS were particularly reviewed. These three projects are:

- i. Data Rescue in the INDO-South Asia region;
- ii. Recovering old Portuguese climate archives at the University of Lisbon; and
- iii. Data Rescue for old Mauritius climate records which are available at the Mauritius National Archives authority.

Recommendation: The INDARE-SC endorsed these three projects to be undertaken within the INDARE work-plan in 2015-2016 and beyond. It recommended that these three projects to be proposed as GFCS contributing projects.

8. Status of Data Rescue project proposals submitted to WMO

Mr Omar Baddour briefed the meeting on the status of the Data Rescue Project proposals that countries had submitted to WMO to seek for support. He reminded the meeting that he had circulated the template that the countries were to use to submit their proposals by February 2015. So far only five countries namely: Bangladesh, Madagascar, Mozambique, Kenya and Sri Lanka had submitted their proposals. Proposals from three of these countries namely: Bangladesh, Madagascar and Mozambique had attracted support from different sources while those for Kenya and Sri-Lanka were still pending as summarized in Table 3 below.

Table 3: Countries Project Proposals: Status of funding and expected implementation

Countries	Content	Status of funding	Expected implementation
Bangladesh	Expert filed assessment, Training of staff Help design a DARE project	Canada trust funds were obtained	December 2015
Kenya	Support for acquiring equipment for DARE and Servers for digitization,	In prospect with WMO resource mobilization	TBD
Madagascar	CDMS re-installation Training	France WMO-TF Canada	2016
Mozambique	New CDMS	WMO- GFCS	2016
Sri-Lanka	DARE Equipment, assistance in the specifications of a DARE project	In prospect with WMO resource mobilization	TBD

Action: WMO to resend the letter / template by January 2016 to get project proposals by Feb 2016 which were missing in the project compendium compiled as a result of Countries response to WMO letter send in 2014. This would help in contributing to the acceleration of DARE in the countries based on well described needs and funding requests as per WMO project proposal request form.

9. Financing in WMO for Development Projects

Mr Jean-Paul Gaudechoux of WMO made a presentation on financing in WMO for development projects. It was noted that many countries lack the infrastructural, technical, human and institutional capacities to provide high-quality weather and climate services. There are four possibilities of attracting funding by the NMHSs through WMO for development projects. These four possibilities are: Regular Budget; Voluntary Contributions(Extra-Budget); Voluntary Cooperation Programme (WMO-VCP), and Leveraging UN and other Partners.

It was noted with appreciation that the Voluntary Contributions through WMO had shown an increasing trend from CHF 35,300,000 in 2012 to 37,000,000 in 2014. This was attributed to donor confidence and also reflected the increased costs in dealing with the impacts of severe weather and extreme climate events; increased awareness of the role of weather and climate services; and increased acceptance of socio-economic benefits of investing in NMHS. The Voluntary Cooperation Programme was established to encourage collaboration, capacity-building and support among the NMHSs for the development and maintenance of the global observing networks, and enhancement of the scientific/technical capabilities and skills in developing countries. This can be achieved through direct financing and / or Transfer of expertise and technology among members. The Emergency Assistance Fund was established in 1991 to be assisting Members affected by disasters to immediately re-instate basic services including rehabilitation and restoration of essential observing network, data collection and processing facilities.

In all these mechanisms, Strategic Partnerships are paramount in ensuring sufficient resource mobilization for the many development projects of the NMHSs. In this connection, there are many strategic partners that are assisting WMO discharge its mandate especially in terms of assisting developing member states improve their infrastructure. Some of the ongoing projects in different parts of the globe were highlighted.

The SC appreciated all the efforts of WMO in mobilizing resources to support various developmental projects at the national and regional levels.

10. Consideration and endorsement of the Work Plan of INDARE for November 2015 to October 2016

The draft Work Plan of INDARE for the period November 2015 to October 2016 was presented to the SC. The INDARE work-plan is a translation of the INDARE Implementation Plan into activities which will lead to deliverables in a time frame of this second year of the implementation of the INDARE initiative spanning from November 2015 to October 2016. The activities will continue being undertaken through the 4 WGs, with the facilitation role provided by WMO and the technical support of its Commission for Climatology as well as other international stakeholders and experts. Due to limited resources, most of the work will be undertaken through correspondence and web conferencing. However, some face-to-face meetings could be arranged if required and funds are available.

The INDARE-SC adopted the proposed working structure and Work Plan for 2015-2016 with a few amendments. The activities with time lines are described in detail in the attached Annex III and are also summarized in an activity Table 4.

11. Consideration of proposal of expanding the Scope of INDARE

INDARE-SC agreed to the proposal made at the WG-2 meeting that INDARE could be expanded to countries influenced by the Indian Ocean. i.e Burundi, Rwanda, Somalia and Uganda and also to Member States of Tropical Cyclone committee, i.e Botswana, Lesotho, Malawi, Swaziland, Zambia and Zimbabwe. SC also recommended that other memberships can be discussed upon request.

Action: WMO to send a letter to invite the countries to be part of INDARE

12. Future Structure: Consideration of establishing a Management Committee of INDARE

Upon recommendation from Chair and Co-chair to have a more flexible working structure, INDARE-SC decided to restructure INDARE working mechanisms as follows:

- a. Create a Technical Advisory Committee with 5 members to oversee the technical aspects of INDARE and advise the SC accordingly. SC will be charged with deciding on monitoring and evaluation of the implementation of INDARE and develop the Work Plans
- b. Work Plans be developed on biennium basis instead of annual as per current practice
- c. INDARE-SC to meet once each other year (biennium basis)
- d. INDARE-SC membership to be at the level of PR or his alternate mandated to take decisions on behalf the Member.

It was agreed that this new structure will take effect starting October 2016 after the completion of the current Work Plan of 2015-2016.

13. Election of Chair and Co-Chair for November 2015 to October 2016

The SC was unanimous that the Chair and Co-Chair had effectively overseen the activities of the Committee and should continue in the same capacities for the next year. Consequently, **Mr Peter Ambenje** from Kenya and **Mr Pattabhi Rama Rao Eluri** from India were unanimously re-elected respectively as Chair and Co-Chair to steer the Committee for the period November 2015 to October 2016.

14. Next Steering Committee meeting

The next Steering Committee meeting will be held in October 2016 and Pakistan kindly offered to host it.

Annex I: Report of the Chair and Co-Chair

**PRESENTED TO THE 2ND MEETING OF THE STEERING COMMITTEE: 19-20 OCTOBER
2015**

INDIAN OCEAN COMMISSION HEADQUARTERS, EBÈNE, MAURITIUS

1. Introduction

You may recall ladies and gentlemen that an International Workshop on the *“Recovery of Climate Heritage in the Indian Ocean rim countries and Islands”* held in Mozambique in April 2014 recommended the establishment of an Indian Ocean Data Rescue (INDARE) Initiative and developed a draft implementation plan for consideration. The WMO Secretariat took this up and developed a draft structure made up of a Steering Committee where most of you are members and four Working Groups namely:

Working Group I to deal with **“Best Practices and Capacity Development”**;

Working Group II to deal with **“INDARE Infrastructure»** ;

Working Group III to deal with **“International Collaboration & Networking”**; and

Working Group IV to deal with **“Communication and Resource Mobilization”**

The Working Groups were set up to implement the activities of the INDARE initiative under the coordination of the Steering Committee. This report gives a brief summary in broad terms on the achievements so far made in implementing the activities that were formulated in the first meeting of this Steering Committee and were to be implemented in the first one year from November 2014 to October 2015. The report also stresses the need for considering possibilities of adopting a more flexible structure and engaging with donors and international stakeholders for funding of pending activities. The report equally highlights the interest that has developed in Data Rescue activities in countries that are not in the Indian Ocean RIM following the establishment of this initiative.

2. Achievements

The first meeting of this Steering Committee developed a Work Plan with six specific activities to be implemented in the first year. A representative of the WMO Secretariat will lead us through the status of implementation of these activities to date. Generally, however, very commendable progress has been made in many areas. It is prudent that we express our sincere appreciation to every individual, team and institution that has made any sort of contribution towards realizing the achievements to date. The WMO Secretariat has specifically been very keen to follow up on many issues related to the activities of INDARE. Below are just a few highlights on where we are for each Working Group:

2.1 Working Group I:

Most of the activities of Working Group I on **“Best Practices and Capacity Development”** have not really taken off. However, there is a training workshop on “Quality Control and Data Homogenization to Support Climate Assessments and Services in the Indian Ocean Rim

Countries and Islands” in November 2015 that should set the ball rolling. Appreciation goes to the WMO Commission of Climatology and the Centre for Climate Change of the University of RoviraiVirgili in Spain for organizing this workshop in collaboration with the Tanzanian Meteorological Agency. Appreciation is also extended to the Norway project “Global Framework for Climate Services-Adaptation and Disaster Risk Reduction in Africa” for funding this workshop.

2.2 Working Group II:

The strides made by Working Group II on INDARE infrastructure in implementing its activities are quite commendable. Without going into details that will be presented in this meeting, it is worth pointing out that a web portal is already in place and the Working Group has held one meeting in July in Mauritius. Sincere appreciation goes to Indonesia and India for offering to host this web portal as a contribution in kind to the activities of the Global Framework of Climate Services. Gratitude is also extended to the WG II members who helped to define the requirements of this portal and assisted the developers in Indonesia and India to give the portal a good shape in good time. Congratulations to all those who have been involved in this tremendous work under the guidance, commitment and dedication of the Co-Leaders of the WG. Gratitude also goes to Mauritius Meteorological Service for ably hosting the WG meeting in July 2015 in a good environment.

The Working Group has made very useful recommendations that will be tabled for discussion in this meeting.

2.3 Working Group III

Working Group III on **International Collaboration & Networking** has commenced carrying out its activities and formulated some recommendations to be tabled to this meeting for deliberations and endorsement. This Working Group has not held a face to face meeting but thanks to the leadership that has enabled the Group to interact and discuss through Skype / Teleconferencing as well as out of session emails. The Leader of the Group also attended the meeting of Working Group II in July 2015 to foster inter-Group interactions. The Co-Leader of the WG is present here with us in this meeting.

2.4 Working Group IV

The activities of Working Group IV on **Communication and Resource Mobilization** are heavily dependent on the outcomes of the other Working Groups especially in terms of Communication. The progress that has been made by the other WGs should now provide an impetus for this WG to swing into action. It is therefore expected that good progress will be made during this year of November 2015 to October 2016.

2.5 Proposal / Suggestion

It is generally observed that the Working Groups are at different levels of success in implementing their activities. This is due to a number of factors that include lack of sufficient resources by WMO to organize face to face meetings of the Working Groups. It is, however, imperative that each Working Group strives to carry out most of the activities lined up for a particular period. This will ensure that a pile up of pending activities is avoided with time. It is on this basis that a suggestion is put forward for the SC to consider formulating strategies that will

address the said shortcomings. It may be necessary for the SC to consider adopting a more flexible structure that will allow the Working Groups to carry out their activities without having to meet face to face regularly. In addition, engagement with potential donors and international stakeholders to support some of the activities that have so far not taken off should be considered.

3. Scope of INDARE

You recall Ladies and Gentlemen that when the INDARE initiative was proposed, it was meant to cover the Indian Ocean RIM countries only. The establishment of INDARE initiative, however, has generated a lot of interest from other countries that are not RIM countries but are affected by the Indian Ocean. This is may be informed by the fact that all these countries have basically the same problems related to climate data management, availability and access. A recommendation will, hence, be tabled to this meeting to consider expanding the scope of the INDARE initiative to those other countries namely: Burundi, Rwanda, Somalia and Uganda as well as those Member states of the Tropical Cyclone Committee namely: Botswana, Lesotho, Malawi, Swaziland, Zambia and Zimbabwe. The alternative would be duplicating similar initiatives in those regions to ensure that Data Rescue activities are commenced and / or enhanced at national level but coordinated at regional and international levels.

In conclusion, as the Chair and Co-Chair, we wish to express our appreciation for the honor that you bestowed on us to Chair and Co-Chair the Steering Committee for the first year spanning November 2015 to October 2015. It was a great privilege and we hope that we have lived up to the expectations of the members.

We also wish to thank all of you for the support you have provided to the activities of INDARE and for making it to this meeting. The support given by international stakeholders cannot be over-emphasized and is equally recognized.

We wish to recognize the participation of representatives of other institutions who have come to attend and participate in this meeting. The experiences these representatives we will share with the SC members will certainly make positive contributions to the activities of the SC and the WGs.

We want to thank WMO most sincerely for closely following up on the recommendations made during meetings. This is why we are here today.

TO ALL INDARE INITIATIVE SC AND WG MEMBERS

We were given a baby called the Indian Ocean Data Rescue initiative to nurture. Let us all go out of our way and nurture this baby to full maturity.

Let us regard this initiative as our own and strive to the best of our ability to achieve its goal at national level including accelerating data rescue and making use of the data being digitized. Let us be encouraged to take pro-active steps as individuals or groups / teams to be reporting to INDARE-SC on any activities and projects serving the expected outcomes of this initiative. Remember that INDARE-SC is expected to serve as a formidable platform to report successes to Regional Associations in RA-I (Africa), II (Asia) and V (South West Pacific) as well as to high level WMO decision making bodies such as Congress, Executive Council (EC) and GFCS. Enhanced collaboration is the spirit of INDARE that will enlighten the road towards achieving the

goals is very much needed. It is necessary to keep benefitting from each other's experience and from the successful projects being carried out in other regions and internationally.

WE THANK YOU FOR YOUR ATTENTION AND WE SUBMIT FOR DISCUSSION AND ENDORSEMENT

ANNEX II: RECOMMENDATIONS FROM THE WORKING GROUPS

The SC reviewed and endorsed the following Recommendations from WG-2

- 1) Use the GFCS mechanism to submit a contributing project on rescuing and digitizing Portugal paper records from old colonial period that contain records from Africa and elsewhere.
- 2) INDARE is encouraged to benefit from the legacy of PACCSAP project, e.g. good experience and operational tools and its portal.
- 3) Establish synergy with DARE projects that are linked through ICPAC, i.e in Kenya and Tanzania
- 4) WMO helps in conducting the assessment and the inventory of Data Rescue in the SADC region through private partner. Meanwhile WMO will share a guidance document on submitting DARE project proposal.
- 5) Governance of INDARE to be ensured through Regional Associations RA.I RA.II RA.V and the Global Framework for Climate Services GFCS' IBCS and Management committee
- 6) Establishing a list of authorized people for three level of users of INDARE portal:
Level-1: Administrators of the portal at the host countries, they have all the privileges to update the content and monitor the operation of the portal
Level-2: Users that belong to countries contributing to the content of the portal. They will have access to all data and products provided by the portal. They will be granted to upload and modify the content of their contributions (i.e Metadata, Data sets, climate indices, climate monitoring products, etc.)
Level-3: Other users: they have access to basic products that are made available for a wide access. (*)
- 7) A minimum stations for which historical datasets to be made available for INDARE, would include the GCOS-GSN/GUAN and RBCN network, with the standard Meteorological parameters: Temperature (Tx, Tn, Tave), pressure, humidity, wind, precipitation, sunshine duration and intensity, Sea surface temperature, upper air data, (*)
- 8) Consider extending INDARE membership to countries affected by the Indian Ocean i.e Burundi, Rwanda, Somalia and Uganda and also to Member States of Tropical Cyclone committee, i.e Botswana, Lesotho, Malawi, Swaziland, Zambia and Zimbabwe.
- 9) Establish protocols between WMO and the relevant governance of ICPAC and SADC-CSC

(*) INDARE-SC requested to send a letter to the PRs with clear guidance and to request their view on 6) and 7)

The SC reviewed and endorsed the following Recommendations from WG-3

Based on WG3 activities, discussions and observations to date, the following conclusions and recommendations are provided for consideration of the INDARE Steering Committee:

- 10) WG3 to continue to facilitate international networking and collaboration for support of climate data rescue and digitization through its INDARE membership and through the INDARE Steering Committee and other national and regional partner and associate agencies/centres as appropriate, including SADC and ICPAC

- 11) INDARE-SC to advise on INDARE participation at and liaising through the forthcoming GFCS Regional Consultation on Climate Services in the Indian Ocean Islands, with relevant WMO , GFCS and Indian Ocean Commission and other relevant bodies participating at this consultation on synergies, collaboration and projects, around the following INDARE subject of interest: :
 - a. A collaborative, regional programming approach aligned with GFCS implementation for supporting INDARE initiative and development of CIS knowledge and capacity more broadly at national/sub-national scale within western Indian Ocean, and
 - b. A possible development of a joint (Full and/or Readiness) funding proposal to be 'implemented' with support from potential national regional and international 'execution' partners for consideration by the Green Climate Fund, with emphasis on:
 - i. initial stakeholder engagement, strategic planning and analysis of CIS and associated capacity gaps and needs
 - ii. Support the implementation of identified projects to improve INDARE Members capabilities in rescuing and managing climate records with the required quality to meet practical climate risk management and adaptation needs of key stakeholders including policy-makers, planners and associated decision-makers, and thereby to enhance sustainable, climate resilient outcomes for local communities

Annex III: Work Plan for 2015 - 2016

Activity 1.INDARE Portal

WG-2 met in July in Mauritius and discussed the design, content and governance of the INDARE portal. This WG has basically accomplished phase I of the activities in having the web portal in place in Indonesia. The design of this web portal was submitted to the 2nd meeting of the SC for endorsement. The WG will now embark on activities in phase II. The offers by Indonesia and India in the hosting of the web portal should be recognized officially by WMO as a contribution in kind of the implementation of Global Framework for Climate Services (GFCS).

At the WG-2 meeting other issues were raised including fostering collaboration with IGAD Climate Prediction and Applications Centre (ICPAC) and South African Development Cooperation Climate Services Centre (SADC-CSC) to be supporting the Data portal with the regional products and capacity building activities in the African domain.

WG-2 should strategize on duplicating / mirroring the same portal in both Indonesia and India for ensuring data recovery and continuity of operations. Metadata to be developed using guidelines such as contained in WMO / WCDMP-53 and WIGOS metadata. Appropriate indexing of scanned / imaged files to be developed using existing experience in this process from ICPAC and National climatic Data Center (NCDC).

Activity 2.DARE projects proposals

Guidance for project proposal was discussed and adopted at the 1st SC meeting in Geneva. It was further refined by the CCI Expert Team on Data Rescue at its meeting in November 2014. The WMO Secretariat sent the guidance to INDARE members to enable them submit their DARE project proposals in the format shown in the guidance. However, only 5 members namely: Bangladesh, Kenya, Madagascar Mozambique and Sri-Lanka submitted their proposals. The projects are supposed to be formulated in a manner that they may be eligible for international funding. WMO has compiled the submitted project proposals into an INDARE project compendium and made it available to the donors and funding agencies. Funding has been secured for project proposals for Bangladesh, Madagascar and Mozambique. Support is being sort for the proposal for Kenya and Sri-Lanka. INDARE Members who have not submitted their proposals based on the guidance should do so, preferably by February 2016 to enable the WMO Secretariat update the Compendium and resubmit to donors for possible support.

There is also an ongoing dialogue between WMO and RIMES Secretariat in Bangkok for a potential funding by the United Nations Social and Economic Commission for Asia and the Pacific (UN-ESCAP) under a project dubbed "**Enhancing climate resilience in the Island Developing States of RIMES countries**". The proposal has not yet been finalized; however a preliminary description of the project was elaborated, which includes Data Rescue and Data Management aspects among other aspects. The SC is requested to recommend a follow-up mechanism for liaising with the Secretariat on RIMES, considering that only Maldives and Sri-Lanka from the INDARE community are in the scope of this proposal.

Mr Robert Allan (ACRE) provided an update on an Indian-South Asian Data Recovery project involving several Members of INDARE as well as other countries in the region: Afghanistan, India, Pakistan, Myanmar, Bhutan, Bangladesh, Sri-Lanka, Nepal and Maldives)

It has also been noted that there is a large mass of archives in Portugal handled by the University of Lisbon. The archives would include pre-independence climate records of nations in

Africa and elsewhere. The GFCS mechanism could be used to submit a contributing project proposal on rescuing and digitizing these paper records.

Activity 3. Tools and Software to be made available for undertaking DARE

Working Group (WG-1) on DARE best practices and capacity development will work in close interaction with CCI Expert Team on Data Rescue and CCI Expert Team on Climate Data Management as well as with ET-CCDI and ICA&D experts. The WG should assess the existing tools in these areas of expertise that can quickly be implemented at National Meteorological and Hydrological Services (NMHSs) and start using them for the generation of products and services. A meeting for this Working Group can be decided when some progress is made in the preliminary assessment work. Nevertheless few online meetings can be arranged by the WMO secretariat. Demonstration projects seeking the implementation of a full set of Data tools, i.e DARE, CDMS, PREPARED and ICA&D software would be useful to carry out during the Year.

In support of Capacity Development, WMO and the Centre for Climate Change (C3) in Spain have planned a workshop on ***“Quality Control and Data Homogenization to support Climate Assessments and Services in the Indian Ocean Rim Countries and Islands”*** to take place from 9 to 14 November 2015 in Arusha Tanzania. The countries invited are Comoros, Kenya, Madagascar, Maldives, Mauritius, Mozambique, Seychelles, Sri-Lanka and Tanzania.

Activity 4. International collaboration and networking

With the help of the international experts participating in INDARE activities, the Working Group on international collaboration and networking (WG-3) will work through correspondence and teleconferences to investigate collaboration mechanisms, including the identification of regional and international data platforms and projects. The group will liaise with the existing RCCs in the region that would be used to contribute in undertaking tasks that support INDARE objectives and implementation plan. The group should also carry out an analysis and make an inventory of the projects related to DARE in the Member Countries that are being funded by Development Partners.

The Pacific-Australia Climate Change Science and Adaptation Planning Program (PACCSAP) has come to an end but left behind a very rich legacy of tools related to Data Rescue and web portal. The Lead of WG-3 will brief the SC on potential for adopting a similar approach for the INDARE.

Activity 5. Strategy for communication and resource mobilization

This activity by the WG-4 has been delayed because it is dependent on the outcomes and success stories from the other Working Groups. However, it should now take off given that a number of activities are already being implemented by the other WGs.

WMO will assist the WG-4 on communication and resource mobilization in order to develop a communication strategy for resource mobilization. This should lead to the development of a poster and a leaflet. The communication material will be distributed at the WMO Executive Council (EC) in June 2016 and will serve for any side meetings and international conferences dealing with climate data issues. International Experts will assist the WG 4 in identifying a list of

key international projects and initiatives that INDARE can benefit from their funding opportunities. Activity 5 and 6 should be linked to each other

Activity 6. Assessment and the inventory of Data Rescue in the SADC region

The SADC Climate Service Center was represented at the meeting of INDARE WG-2 in July 2015 by Dr Nsadisa Faka. He proposed to help SADC region in inventorying climate archives and assist in resource mobilization to set up a Data Recovery project for the SADC region. The SC is requested to endorse this proposal as part of INDARE work-plan.

Table 4: Work Plan Summary for 2015 - 2016

Activities	Deliverable	Deadline	Who
Activity 1. Development of the INDARE web portal	Development of the INDARE web portal prototype	June 2016	WG-2, WMO Secretariat, MEDARE, ACRE, ICA&D, ICPAC & SADC
	Draft Protocol / MoU between WMO and relevant governance of ICPAC and SADC-CSC	2016-2017	
	Development of a policy document on data sharing for the INDARE web portal	August 2016	WG-2, WG-3 and WG-4
Activity 2. Data Rescue Project Proposals	DARE Project Compendium	Feb 2016	WMO Secretariat: reminder letter(copy to SC members), INDARE members who have not submitted
	Project proposal for rescuing data at the University of Lisbon in Portugal	May 2016	WG-3, WMO Secretariat & International Experts, Robert Allan
	Indo-South East Asia DARE project		
	Mauritius (consultation to be carried out internally in Mauritius)		
Project on rescuing colonial Data records in the French National Archives	Secretariat + Guillaume		
Activity 3. Meeting of WG-1 Tools and software to be made available for undertaking DARE	<ul style="list-style-type: none"> Recommendations on useful tools and software Recommendations on Demonstration projects 	Aug 2016	WG-1, WMO Secrétariat, ET-DARE, ET-CDMS, ICA&D, ET-CCDI
	<ul style="list-style-type: none"> Workshop on Data QC & Homogenization & its Report to promote ET-CCDI tools 	February 2016 (to be confirmed)	WG-1, WMO, ET-CCDI, Members
	<ul style="list-style-type: none"> Draft paper for peer review 	August 2016	

<p>Activity 4. International Collaboration and Networking Liaise with the GFCS regional consultation meeting for the Indian Ocean</p>	<ul style="list-style-type: none"> • Recommendations on international projects and initiatives that INDARE will be associated with and learn from 	<p>Aug 2016 March 2016</p>	<p>WG-3, International Experts</p>
<p>Activity 5. Prior work on achievements Meeting of WG-4 Strategy for communication and resource mobilization</p>	<ul style="list-style-type: none"> • Development of communication material (poster, leaflet, brochure) • Identification of funding sources 	<p>Jointly with WG3</p>	<p>WG-4, WMO Secretariat, INDARE Chair and Co-Chair JP to liaise with chair and co-chair of WG-4</p>
<p>Activity 6. Assessment and the inventory of Data Rescue in the SADC region</p>	<ul style="list-style-type: none"> • Inventory of Data Rescue Activities in SADC 	<p>August 2016</p>	<p>WMO-secretariat (Elijah) Tshikana and Berino</p>
<p>Activity 7. Teleconferencing among the WGs</p>	<ul style="list-style-type: none"> • Share information on status of implementation of activities • Document Cross Cutting issues 	<p>August 2016</p>	<p>Chairs of the 4 WGs</p>

Annex IV: Agenda

SECOND MEETING OF THE STEERING COMMITTEE OF THE INDIAN OCEAN DATA RESCUE INITIATIVE: 19-20 OCTOBER 2015: MAURITIUS

DRAFT AGENDA

DAY 1: Monday 19 October 2015

- 09:15 Official opening and introductions of the participants
- 09:50 Adoption of the agenda
- 10:00 Review, consideration and adoption of the report of the Chair **Peter AMBENJE** , Kenyan Meteorological Department, Kenya and Co-Chair **Pattabhi Rama Rao ELURI**, Indian National Centre for Ocean Information Services, INDIA
- 10:30 Health Break**
- 11:00 Recap of the work-plan for Nov. 2014 to Oct. 2015 and progress on the implementation of the activities, **Omar BADDOUR**, WMO
- 12:30 Lunch Break**
- 14:00 Progress on the establishment of the INDARE web portal , **Jaumil Achyar Dewantoro SITUMEANG**, BMKG Indonesia
- 14:30 Review and endorsement of the recommendations from INDARE-WG-2
- 15:00 Status of National Data Rescue initiatives, SC members to report in 10 mins for each
- 16:00 Health Break**
- 16:30 Status of National Data Rescue initiatives, SC members to report on 10 mins for each
- 18:00 Adjournment**

DAY 2: Tuesday, 20 October 2015

- 09:00 Financing in WMO for Development Projects, **Jean-Paul GAUDECHOUX**, WMO
- 09:20 Status of the national Data Rescue project proposals submitted to WMO **Omar BADDOUR and Elijah MUKHALA**, WMO
- 09:40 Regional initiatives on Data Rescue – PREPARED programme **Ms Fortunata LUBEGA**, ICPAC, Kenya

- 10:00 Report on DARE project under the Atmospheric Circulation Reconstruction over the Earth (ACRE) and Commission of Climatology / Expert Team on Data Rescue (CCI/ET-DARE) - **Rob ALLAN** , Manager of ACRE initiative, Met Office, UK;
- 10:30 Health Break**
- 11:00 Presentation by Meteo-France (Réunion) related to Data Rescue in the region
- 11:30 Report on International Collaboration and Networking, - **Geoffrey GOOLEY**, chair of INDARE WG-3, CSIRO, Australia;
- 11:50 Review and Endorsement of WG-3 recommendations
- 12:30 Lunch Break**
- 14:00 Presentations by IOC (TBD)
- 14:30 Consideration and endorsement of the draft Work Plan for INDARE in 2015-2016.
- 16:00 Health Break**
- 16:30 Discussion and consideration on expanding the scope of INDARE to include other countries (Those affected by the Indian Ocean such as Burundi, Rwanda, Somalia and Uganda and also to Member States of Tropical Cyclone committee, i.e Botswana, Lesotho, Malawi, Swaziland, Zambia and Zimbabwe.
- 16:45 Consideration for the establishment of a Management Committee preferably composed of a maximum of 5 members and the proposal for the SC to be meeting once in 2 years
- 17:00 Election of Chair and Vice Chair of the SC for the Nov. 2015 to Oct. 2016
- 17:15 Next SC meeting and Any Other Business
- 17:30 Closure of the meeting**

Annex V : List of participants

NO	CONTACTS	NO	CONTACTS
1	<p><u>AUSTRALIA</u> Dr Geoffrey GOOLEY CSIRO Mob: +61467766682 Geoffrey.gooley@csiro.au</p>	2	<p><u>BANGLADESH</u> Mr MD Shah ALAM Bangladesh Meteorological Department Meteorological Complex, Agargaon, Dhaka Mob: +88 01714410697 info@bmd.gov.bd</p>
3	<p><u>COMOROS</u> Mr Chakira SAMIL Direction de la météorologie, Agence nationale de l'Aviation Civile et de la météorologie (ANAC) Mob: +269 327 83 44 samilchakira@gmail.com</p>	4	<p><u>INDIA</u> Mr Pattabhi Rama Rao ELURI Indian National Centre for Ocean Information Services Mob: +91 40 238950008 pattabhi@incois.gov.in</p>
5	<p><u>INDONESIA</u> Mr Jaumil Achyar Dewantoro SITUMEANG Agency for Meteorology, Climatology and Geophysics Jl. Angkasa I No.2, Kemayoran, Jakarta 10720 Mob: +6281316210624 jaumil.achyar@bmkgo.go.id</p>	6	<p><u>KENYA</u> Mr Peter AMBENJE Kenya Meteorological Department Mob: +254 722 769 879 ambenje@yahoo.co.uk & pambenje@yahoo.co.uk</p>
7	<p><u>MADAGASCAR</u> Mr Elia Antoine ANDRIANA VOALA Direction Générale de la Météorologie Mob: +261 34 05 560 99 eandrianavoala@yahoo.fr</p>	8	<p><u>MALDIVES</u> Dr Zahid Maldives Meteorological Service zahid@met.gov.mv</p>
9	<p><u>MAURITIUS</u> Mr Dookharansing SEETOHUL Meteorological Services +230 57665175 seetohul_d@yahoo.com</p> <p><u>MAURITIUS</u> Mr Renganaden VIRASAMI Mauritius Meteorological Services meteo@intnet.mu +230 686 1031 / +230 686 1032 / +230 686 1033</p>	10	<p><u>MOZAMBIQUE</u> Mr Berino SILINTO Instituto Nacional de Meteorologia Mob: +258 842263890 berino_s@inam.gov.mz</p>
11	<p><u>MYANMAR</u> Ms Khin MA MA Department of Meteorology and Hydrology Mob: +95943109439 khinmama.dmh@gmail.com</p>	12	<p><u>PAKISTAN</u> Dr Ghulam RASUL Pakistan Meteorological Department Mob: +92 301 5577145 rasulpmd@gmail.com</p>
13	<p><u>LA REUNION</u> Mr Guillaume JUMAUX Météo France guillaume.jumaux@meteo.fr</p>	14	<p><u>SEYCHELLES</u> Mr Marcel BELMONT National Meteorological Services Mob: +248 272 89 36</p>

			m.belmont@meteo.gov.sc
15	<u>SOUTH AFRICA</u> MrTshikana RASEHLOMI South African Weather Service Mob: +27711 758407 tshikana.rasehlomi@weathersa.co.za	16	<u>SRI LANKA</u> Mr Dayananda MALAVIGE DON Department of Meteorology Mob: +94 714293358 daya_md7@hotmail.com
17	<u>TANZANIA</u> Ms Janet Ole Loning'o MOLLEL Tanzania Meteorological Agency Mob: +255754478069 Janet_ole2001@yahoo.com		
REGIONAL AND INTERNATIONAL INSTIUTUTIONS			
1	<u>ICPAC- NAIROBI</u> Ms Fortunata LUBEGA ICPAC Kenya Mob: +705624225 flubega@icpac.net	2	<u>UK</u> Prof. Robert ALLAN International ACRE ProjectManager, Climate Monitoring andAttribution Group, Met Office Hadley Centre. United Kingdom
3	<u>U N D P</u> Mr Simon SPRINGETT UN Resident Coordinator and UNDP Resident Representative simon.springett@one.un.org	4	<u>IOC</u> Ms Gina BONNE Chargée de mission Tel : 230- 402-100 gina.bonne@coi-ioc.org
5	<u>IOC</u> Mr Jean-Baptiste ROUTIER Advisor in SustainableEnvironment&ClimateChange Tel : 230- 402-100 jean.baptiste-routier@coi-ioc.org	6	<u>WMO</u> Mr Omar BADDOUR Chief, Data Management Applications Division DMA/WIS/OBS Suisse Tel: +41 22 730 8268 obaddour@wmo.int
7	<u>WMO</u> Mr Jean-Paul GAUDECHOUX Senior Programme Manager Office for Resource Mobilization and Development Partnerships jpgaudechoux@wmo.int Tel: +41 (0) 22 730 83 11 Mob: +41 (0) 76 297 69 23	8	<u>WMO</u> Mr Elijah MUKHALA WMO Representative for Eastern and Southern Africa emukhala@wmo.int

Annex VI: ACRONYMS

ACRE	Atmospheric Circulation Reconstructions over the Earth
CCDI	Climate Change Detection Indices
CCI	Commission of Climatology
CDMS	Climate Database Management System
CIS	Climate Information Services
CSIRO	Commonwealth Scientific and Industrial Research Organization
DARE	Data Rescue
DRR	Disaster Risk Reduction
EAC	East African Community
ET	Expert Team
ET-CCDI	Expert Team on Climate Change Detection Indices
GCOS	Global Climate Observing System
GFCS	Global Framework for Climate Services
GSN	Global Surface Network
GUAN	Global Upper Air Network
ICPAC	IGAD Climate Prediction and Application Centre
IGAD	Inter-Governmental Authority on Development
INDARE	Indian Ocean Data Rescue
IOC	Indian Ocean Commission
IPCC	Inter-Governmental Panel on Climate Change
KMA	Korean Meteorological Administration
MEDARE	Mediterranean Data Rescue
MESA	Monitoring for Environment and Security in Africa
MoU	Memorandum of Understanding
NCDC	National Climate Data Centre
NMHSs	National Meteorological and Hydrological Services
PACCSAP	Pacific-Australia Climate Change Science Adaptation Planning program
PREPARED	Planning for Resilience
PR	Permanent Representative
QC	Quality Control
RA	Regional Association
RBCN	Regional Basic Climatological Network
RCC	Regional Climate Centre
SADC	South African Development Cooperation
SADC – CSC	South African Development Cooperation Climate Services Centre
SC	Steering Committee
SIDS	Small Island Developing States
TF	Trust Fund
UK	United Kingdom
UN	United Nations
UNDP	United Nations Development Programme
USAID	United States Agency for International Development
USD	United States Dollar
VCP	Voluntary Cooperation Programme
WCDMP	World Climate Data and Monitoring Programme
WGs	Working Groups

WIGOS
WMO

WMO Integrated Global Observing System
World Meteorological Organization