

# **WORLD METEOROLOGICAL ORGANIZATION**

## **MEETING OF THE COMMISSION FOR BASIC SYSTEMS OPEN PROGRAMME AREA GROUP ON PUBLIC WEATHER SERVICES (PWS) EXPERT TEAM ON COMMUNICATION, OUTREACH, AND PUBLIC EDUCATION ASPECTS OF PWS DELIVERY (CBS/OPAG-PWS ET/COPE)**

**NANJING, CHINA, 28 OCTOBER - 1 NOVEMBER 2013**



***FINAL REPORT***

## 1. INTRODUCTION

The China Meteorological Administration (CMA) kindly hosted the “Meeting of the Commission for Basic Systems Open Programme Area Group on Public Weather Services (PWS) Expert Team on Communication, Outreach and Public Education Aspects of PWS Delivery (CBS/OPAG-PWS ET/COPE)” at the WMO Regional Training Centre, situated in the Nanjing University of Information Science and Technology, in Nanjing, China, from 28 October to 1 November 2013.

The Meeting was chaired by Mr Jon Gill (Bureau of Meteorology, Australia), who welcomed the participants to the meeting. Professor Li Lianshui, President, Nanjing University of Information Science and Technology, and Director, WMO Regional Training Centre Nanjing, also welcomed the participants to the University and the RMTTC. Ms Haleh Kootval, Chief, Public Weather Services Programme (World Meteorological Organization (WMO)) concluded by welcoming the participants on behalf of the WMO Secretary-General. The Chair drew attention to the Team’s Terms of Reference (TORs) as approved by the Fifteenth Session of the Commission for Basic Systems (CBS-15, Jakarta, Indonesia, September 2013). The TORs are as follows:

- (a) Examine, report and advise on how best to measure the needs of users regarding communication, public education and outreach aspects of PWS delivery;
- (b) Identify ways to meet the needs of NMHSs in their communication, outreach and public education relating to PWS delivery, with a view to ensuring more effective use of PWS and enhancing the usefulness of new products and services;
- (c) Examine, report and recommend how best to foster partnerships with national and international media organizations, and of assisting NMHSs to improve relations with the media;
- (d) Examine, report and advise on the application to PWS delivery of new developments in communication, public education and outreach;
- (e) Promote awareness of the benefits to the image, visibility and attribution of NMHSs through effective delivery of high-quality and well-communicated public weather services;
- (f) Monitor, report and advise on communication, outreach and public education aspects of service delivery that relate to other WMO activities, Programmes and priority areas, including collaboration with other PWS Expert Teams, CBS OPAGs, WMO Technical Commissions (TCs) and Regional Associations (RAs); and
- (g) Monitor and report on the progress and effectiveness of earlier initiatives of ET/COPE and make recommendations as appropriate to the ICT/PWS.

The “List of Participants” is given in Appendix I. The “Meeting Agenda” is contained in Appendix II.

## 2. ORGANIZATION OF THE MEETING

The Meeting adopted the agenda and agreed on its working hours. Appropriate time was allowed for coffee and lunch breaks.

### **3. REVIEW OF RELEVANT DECISIONS OF CBS-15 AND EC-65**

The Meeting was informed by Ms Kootval of some of the decisions of the CBS and the WMO Executive Council (EC) which were relevant to the work of the Expert Team. These included issues relating to: dissemination of Multi-Hazard Early Warning Systems (MHEWS), through PWS programmes and channels of National Meteorological and Hydrological Services (NMHSs); competency framework for Public Weather Services (PWS); communication of multi-hazard impact-based information and warnings; strengthening the link between NMHSs and media; popularization of meteorology through outreach activities; assistance to humanitarian organizations; strengthening the PWS component of the Severe Weather Forecasting Demonstration Project (SWFDP); the use of multiple communication channels including traditional and emerging media; and promoting the use of Common Alerting Protocol (CAP) technology as a means of harmonizing all hazards warnings. The Meeting noted that these issues were relevant to its TORs and agreed to address them in its work programme.

### **4. REPORT OF THE CHAIRPERSON OF THE ET/COPE**

#### **4.1 Review of the current Terms of Reference (TORs) of the ET**

The Team reviewed its TORs which had been modified at its last meeting in Mombasa, Kenya in 2011, and subsequently adopted at CBS-15 in Jakarta in 2012. The Team agreed that the TORs continued to adequately represent the areas of work under the responsibility of the Team and that they would continue to be kept under review.

#### **4.2 Review of the deliverables from the 2011 meeting of the ET (Mombasa, Kenya)**

The Meeting reviewed the deliverables which had been agreed to during the Mombasa meeting in 2011. It took note of the actions that were still outstanding and agreed on how to proceed with them, including whether they should be maintained and completed or be dropped from the work plan of the Team. The list of the Deliverables and their status is given in Appendix III to this report.

##### ***DELIVERABLE 1: Completion of Guidelines on communicating the socio-economic benefits of PWS***

The Team noted that only limited progress had been achieved on this deliverable, due in part to the challenges associated with developing simple information relating to this complex area of social science. The Team agreed to refocus their efforts in this area by giving particular emphasis to the need for guidance information for senior NMHS managers on how to interact with Government decision-makers and promote the visibility and value of NMHSs. It was agreed that Mr Ivan Čačić, in his role as President of Regional Association (RA) VI (Europe), would engage with the WMO Executive Council Working Group on Strategic and Operational Planning to examine opportunities to develop guidance in this area. The Team also noted the opportunity to tie this work to the online “WMO Guide on the Role and Operation of NMHSs”.

##### ***DELIVERABLE 2: Completion of Guidelines on the use of social media by NMHSs***

The Team noted with satisfaction the publication of these Guidelines, as well as the “Guidelines on Strategies for use of Social Media by National Meteorological and Hydrological Services” (WMO-No. 1086, PWS-24) in the series of PWS guidelines and published on the WMO PWS Website ([http://library.wmo.int/opac/index.php?lvl=etagere\\_see&id=41](http://library.wmo.int/opac/index.php?lvl=etagere_see&id=41)), and that they have been productively utilized by several NMHSs in the development of their own Social Media strategies and programmes.

**DELIVERABLE 3: *Develop a list of experts to assist with training and development activities on communication, outreach and public education aspects of PWS delivery***

The Team was informed that competencies for all areas of PWS, including media and broadcasting, had been drafted and reviewed by CBS and its relevant OPAGs. The latest draft had also been reviewed by the EC Panel of Experts on Education and Training who had provided inputs. The competencies would be finalized for submission to CBS-Ext.(14) in 2014 for approval. The Team agreed that preparation of a list of experts might not be the most useful product since such a list would quickly be outdated. Instead, it agreed that assisting NMHSs on using these competencies in their work was a more useful deliverable.

**DELIVERABLE 4: *Preparation of Summary Guides on: (i) using social media by NMHSs; (ii) communicating socio-economic benefits of PWS; and (iii) conducting PWS outreach activities***

The Team noted that this deliverable had not yet been achieved, but agreed that in view of the success of the previous Summary Guides, this area of work deliverable should be maintained. In discussing social media, the Team recognized the role social media can play during high-impact weather and other real-time events and agreed on the need for the Summary Guide on social media to particularly focus on the use of Twitter. In view of the earlier discussion on socio-economic benefits, and the decision to refocus this work on the NMHSs interactions with senior decision-makers, it was agreed not to pursue the Summary Guide on communicating socio-economic benefits. With respect to PWS outreach, the Team noted the value of promoting PWS in schools and with youth and accordingly agreed that the Summary Guide on PWS outreach activities should particularly focus on youth; such a Guide would be especially timely given that the World Meteorological Day (WMD) Theme for 2014 is "Weather and Climate: Engaging Youth".

**DELIVERABLE 5: *Preparation of Guidelines to assist NMHSs to develop a corporate external communication strategy***

The Team noted that this was a pending item which needed to be followed up. In doing so, it was agreed that the focus of it should be broadened to address the development of communication plans in general, so that it could be used whenever an NMHS has a need to communicate with stakeholders, e.g., to accompany a new product launch or to implement an overall corporate strategy for external communication.

**DELIVERABLE 6: *Develop a template for a Memorandum of Understanding (MoU) between an NMHS and a media organization***

The Team was pleased to note that this deliverable had been completed and that the document had been published as "Guidelines for Creating a Memorandum of Understanding and a Standard Operating Procedure between a National Meteorological or Hydrometeorological Service and a Partner Agency" (WMO-No. 1099, PWS-26). It has been distributed to all NMHSs as well as placed on the WMO PWS Website ([http://library.wmo.int/opac/index.php?lvl=etagere\\_see&id=41](http://library.wmo.int/opac/index.php?lvl=etagere_see&id=41)).

**DELIVERABLE 7: *Determine opportunities for collaboration on communication, outreach and public education aspects of: (i) WMO Integrated Global Observing System (WIGOS) (through the Inter-Commission Coordination Group on the WMO Integrated Global Observing System (ICG on WIGOS); (ii) climate services (through the Commission for Climatology (CCI) and the Global Framework for Climate Services (GFCS) Office)***

The Team noted that GFCS and WIGOS had established their own communication and outreach activities through their respective Offices and thus decided to close this action item. However, following discussions with the Chief of the WMO World Climate Applications and

Services Division, the Team agreed to collaborate with CCI and the relevant WMO Secretariat programmes to pursue a common approach to the communication of weather and climate information and, in particular, uncertainties in such information.

**DELIVERABLE 8: *Liaise with other PWS Expert Teams, CBS OPAGs and Regional Associations (RAs) to identify opportunities for collaboration and sharing of information on areas of mutual interest***

The Team agreed that liaison with RAs was especially important in order to avoid duplication of work between different RAs and CBS Expert Teams. Where there are regional structures in place, such as working groups on service delivery, the results of the work of the Expert Team and its deliverables should be shared with those groups.

**DELIVERABLE 9: *Develop an on-line survey for NMHSs, to be completed by their PWS Focal Points, that measures the usage of different media for PWS delivery***

The Team reviewed the work done so far on this deliverable and proposed revisions to the survey that expanded its scope to address a broader range of service delivery aspects. It agreed that the survey should be conducted as a new deliverable.

**DELIVERABLE 10: *Seek opportunities to organize training courses for senior and executive NMHS managers on working with media, e.g., in association with study tours, meetings of senior and executive managers, RA Sessions, etc.***

While it was recognized by the Team that this was an important item, it was conscious of the fact that opportunities for this type of training were very limited. The Team agreed to roll this deliverable into a new activity related to the development of appropriate eLearning modules.

**5. DISCUSSIONS AND DECISIONS ON THE MAJOR TOPICS TO BE ADDRESSED BY THE ET**

Under this agenda item, the Team discussed the major areas of work to be addressed over the coming period, with particular reference to topics that have been identified by WMO Members as being of high priority and are relevant to the ET's TORs.

**5.1 Development of External Communication Strategy**

Mr Gill gave a presentation on the benefits that can be gained when an NMHS develops a formal communication strategy for external stakeholder engagement. Such strategies can be very helpful in ensuring that the key messages are articulated and the target audience is successfully identified. The Team agreed that there would be value in developing an online toolkit to assist NMHSs that wish to develop such strategies. The toolkit should include simple guidelines, practical templates and checklists to guide the preparation of the strategies, and to accommodate communication initiatives of any size, from the launch of a new product to the establishment of an overall corporate communications strategy for the entire NMHS. It was agreed that it would be useful to engage a communications expert in the preparation of the toolkit and that it should be road-tested prior to formal release.

**5.2 On-line survey on the usage of different Media for PWS delivery and to gather feedback on such delivery**

The Team discussed the merits of undertaking an NMHS benchmarking survey to evaluate the way in which WMO Members are undertaking PWS service delivery. It was agreed that such a survey would be very helpful in better understanding the areas of service delivery that the Team should focus on in the future. Included in the survey should be questions that identify the

preferred channels for providing PWS products and services and to establish what roadblocks might be affecting the use of newer systems and technologies.

### **5.3 Communicating the socio-economic benefits of NMHSs to senior Government decision-makers**

Mr Čačić provided a summary of a recent survey of RA VI (Europe), including key findings regarding the issues and priorities facing the Association's Members. The Meeting noted the significant challenges facing most of the NMHSs, including funding pressures, reduced staff numbers and the lack of flexibility for new staff recruitment. Consequently, NMHSs are often being challenged to deliver more with the same or reduced levels of resources. The Team agreed that one strategy to assist an NMHS to address this issue is to utilize the information obtained from socio-economic benefit studies, which can be used to demonstrate to Government decision-makers the value of investment in the NMHS. Benefits to NMHSs would include improved visibility, increased demand for services and alignment of the mission and performance of the NMHS with the overall strategic priorities of its Government.

The Team further agreed that some guidelines should be developed that can assist NMHS managers to communicate effectively with Government. It was recognized that such guidelines fall outside the scope of the Team's mandate and that the issue could be better taken up by a high-level WMO body such as the Executive Council Working Group on Strategic and Operational Planning (ECWG-SOP). Mr Čačić, in his role as President of RA VI, agreed to pursue this further through the ECWG-SOP and in collaboration with other RAs and the relevant Programmes of WMO.

### **5.4 Design guidance for presentation of warnings online**

Ms Claire Morehen Martin gave a presentation regarding the possible use of standardized graphics for online presentation of warnings information, including information returned by the most commonly used search engines, such as Google. The proposal was developed by the WMO team implementing the Common Alerting Protocol (CAP), which has invited the Expert Team to provide guidance on the best way such information can be presented, including the use of standardized colours and icons, where appropriate.

The Team expressed reservations with this proposal, noting that the responsibility for defining the graphical style and format of warnings graphics should be the responsibility of WMO Members, who have the national mandate for warning delivery in their own countries. Whilst it was acknowledged that there is enormous value in search engines giving priority to the official warnings provided by NMHSs through linking to the NMHS websites, this was different from the search engines themselves being the deliverer of such warning information. It was agreed that individual Members might wish to utilize sites such as Google to display their warnings, however efforts to globally standardise the way such information is displayed could significantly interfere with existing national approaches to presentation. In addition, arrangements for the presentation of warnings have been established at the national level by Members in collaboration with disaster management agencies, the media and other partners, which makes global standardization significantly complex, both politically and in practice.

### **5.5 Communication training for NMHS staff**

The Team discussed the importance of training for NMHS staff, including senior managers, on PWS communication and presentation. Mr Ayub Shaka Mwadali gave a presentation on the experiences in Kenya regarding training and emphasised the benefits of training senior managers, as well as more junior staff who may one day become directors in the future. A particular area of importance is how to handle challenging media interviews on issues such as NMHS performance, forecast uncertainty and climate change.

The Team reflected on how it can continue to assist NMHSs in this area and Ms Melanie Harrowsmith offered the assistance and expertise of the United Kingdom Met Office in the preparation of relevant eLearning modules. It was noted that the CMA also have significant capabilities in this area and the Team therefore agreed to implement a new deliverable on this subject.

## **5.6 Role of Social Media in operational work of NMHSs**

The Team reflected on the continuing growth in importance of Social Media as a channel for service delivery. The value of using platforms such as Twitter during real time events was highlighted and the Team agreed that a short Summary Guide for NMHSs on how to utilize Twitter during high-impact weather would be helpful. Such a Guide should include tips on how to utilize Twitter for instant, real-time messaging and for keeping informed of current conditions by interacting with the affected community. The Team therefore decided to prepare a deliverable to address this.

## **6. WORK RELATED TO THE ET/COPE IN MEMBER COUNTRIES**

The Team Members shared information on the work related to ET/COPE that is occurring in their individual countries, include challenges and future opportunities regarding PWS communication, outreach and public education.

### ***Hong Kong, China***

Hong Kong, China, makes use of evolving communication technology to provide public weather forecasts and warnings via a wide range of dissemination channels, including Internet, mobile applications, social media, e.g., Twitter, Youtube, Weibo, in addition to traditional channels (e.g., television, radio, newspapers). The access to weather information via the mobile application “MyObservatory” developed by Hong Kong, China, in 2013 (up to September 2013) reached a record high of over 23 billion page views, which has already doubled the total number of the previous year, indicating a great increase in the popularity of using mobile phones to obtain weather information anywhere, anytime and specific to a user’s location. According to the latest public opinion survey conducted in April 2013, the access to weather information in Hong Kong via Internet and mobile apps has become the third most popular channel used by the public to access weather information.

Some current major challenges were highlighted in communication with the public, including: (a) communication of forecast uncertainty; (b) communication of climate information in an easily understandable way; (c) limitations of threshold-based deterministic forecasts for decision-makers; (d) the apparent decreasing awareness of the public of the impact of severe weather; and (e) the use of social media as a two-way communication channel with the public.

The potential of moving from a threshold-based deterministic forecast service towards impact-based risk management information for decision-makers could help address item (c). Public education would also be an essential component of addressing items (a), (b) and (d). In 2013, Hong Kong, China, organized an historical exhibition on past severe event cases, with a view to raising public awareness of the impacts of weather. A TV documentary series is being prepared to promote public awareness on climate change and severe weather.

Noting the importance of corporate communication and that social media is becoming a more popular channel for communicating with the public, Hong Kong, China, has set up a dedicated committee to formulate strategies for enhancing public communication, including the possible expansion of the use of Social Media platforms. In view of the popularity of the Internet,

Hong Kong, China, will commence trials of online surveys to gather public feedback in addition to traditional telephone survey methods.

### ***Kenya***

The Kenya Meteorological Department (KMD) PWS Unit is one of the most visible in the Department because it deals with the public more often than its other Units. The responsibilities are mainly to disseminate meteorological products, enhance awareness of available meteorological services and their benefits to the public and policy/decision-makers, and to deliberately work towards correct public understanding, interpretation, access and use of meteorological information.

Broadly speaking, the services offered can be put in the following categories: public forecasts and warnings; aviation services; marine services; agrometeorological services; hydrological services; and tailored services for specific economic sectors.

These services are disseminated to users in various modes, including the media, in the form of bulletins and press conferences or interviews on various topical climate issues (the bulletins are also translated into the national language (Kiswahili) for wider readership) and through participation in civil society committees, including provision of updates on weather/climate to Disaster Managers. Outreach on KMD roles is achieved through lectures to colleges, schools, public gatherings, sectoral workshops, shows and exhibitions and organized groups.

There are several challenges affecting service delivery but most important of all is the issue of accessibility of services. Users are adopting rapidly changing technology faster than the Department can cope with and are subsequently demanding services in those modes. Another challenge is in explaining uncertainties in local language to users in a manner that avoids ambiguity. Inadequate personnel resources is also a critical issue that has not been helped by the global economic situation which is forcing governments to cease recruitment.

In an effort to cope with the above challenges, the KMD PWS Unit has commenced using Social Media and increased its interaction with Non-Governmental Organizations (NGOs) to manage the huge dissemination demands at grassroots levels where meteorological services have not been reaching. The education of stakeholders on the use of climate information in planning activities has been an important element of this, with KMD staff working directly with stakeholders in remote areas.

### ***United Kingdom***

PWS initiatives implemented in the last few years in the UK have included:

- developing the National Severe Weather Warning Service from a threshold based warning service to an impact-based warning service;
- increased use of the Met Office Web pages and Social Media, including Twitter, YouTube and blogs, to engage with the general public and the development of the website and Apps to be compatible with different technological platforms;
- launching Hazard Manager; a web portal for emergency responders containing warnings, guidance and additional information generated by the Met Office and partners; and
- launch of WOW (Weather Observations Website), which allows the general public to upload weather observations from around the UK. This platform is being expanded to allow impact information to be sourced from the general public in times of high-impact weather.



The challenges facing PWS in the Met Office are similar to those of other NMHSs. Managing customer expectations in times of austerity adds another dimension to this otherwise constant challenge. Understanding customer's needs and working with customers to find their requirements, as new risks become incorporated into emergency response, is also an ongoing activity to ensure service delivery is maintained and enhanced.

Keeping abreast of technological advances and how this will affect the manner in which the general public accesses weather information is also an important activity of work. Staying ahead of these trends and advances to maintain optimum service delivery is a challenge.

### ***Greece***

In order to address the challenges of PWS service delivery, a good communication framework is necessary to understand how user needs change and in what way. In this way, effective communication with users can be developed, implemented and evaluated. With this in mind, the Hellenic National Meteorological Service (HNMS) has spent the last ten (10) years enhancing its infrastructure (e.g., installation of new radar and supercomputer, additional automated weather stations, lightning detection system) which has increased its capabilities, together with improvements in quality of forecasts and how they are communicated to users, especially those from other public agencies such as Civil Protection Agencies, Fire Departments and Prefectures. Meetings have been organized with these users, along with other outreach activities such as school visits to HNMS Headquarters and public events on WMD.

The manner in which weather forecasts are presented to the public has also changed, both in the technology used (e.g., Internet, social media) and also in response to financial influences. The HNMS is not the only weather service provider for the media, unlike the situation 15 years ago. One way to respond to this challenge is the launch by HNMS in 2014 of a new, totally redesigned Website.

### ***China***

The CMA is focussing its PWS communication efforts on key target groups such as youth, rural residents, policy-makers, urban residents and workers, to raise their awareness of, and capability for, meteorological disaster prevention. There are more than 1,000 schools across the country that have set up 'Young Pioneer' meteorological stations and on-campus observatories. Since 2007, hundreds of thousands of CDs and over 1.5 million books have been issued to primary and middle schools to popularize meteorological knowledge. More than 1.4 million books on meteorological knowledge have been given to tens of thousands of Village Book Houses across the country. Meteorological knowledge and guidelines for meteorological disaster prevention are collected and spread through 45,000 rural meteorological stations, nearly 550,000 weather information collectors, tens of thousands of display screens and self-service information terminals. Academicians and experts are invited to give lectures on how to respond to climate change to state-level government departments. Eight (8) seminars had been held and nearly 300 policy-makers at various levels have taken part, significantly enhancing their capability in preventing and alleviating meteorological disasters in a scientific manner, and for taking appropriate countermeasures against climate change and to improve the level of scientific policy-making.

The CMA has also launched popularization activities at every opportunity in order to establish a well-known brand. This includes activities and lectures during specific events, such as on WMD, Disaster Prevention and Mitigation Day, during the 2008 Beijing Olympic Games, on the 60<sup>th</sup> anniversary of the founding of the People's Republic of China, the World Expo 2010 in Shanghai, and so on.

The CMA Center for Communication and Outreach was established in 2012 with the responsibility for planning and implementation of national meteorological publicity and science outreach work, managing and organizing meteorological science popularization, basic research and product R&D, as well as media liaison, both at home and abroad.

Amongst the challenges facing CMA with regard to communication, outreach and public education of PWS service delivery are:

- how to effectively communicate uncertainty in forecasts to the partner agencies and the public, including the need for materials for use by senior managers;
- public understanding and acceptance of the concept of probabilistic forecasts;
- how to respond to early warnings and take correct action to prevent disaster;
- difficulties in sharing data and information with other departments; and
- the ability of CMA's PWS programme to meet all the demands of the public.

### ***Croatia***

As a result of the global economic crisis, the Croatian Meteorological Service (DHMZ), as well as most NMHSs in RA VI (Europe), is facing significant challenges relating to insufficient recognition of its mission and priorities. This is reflected by a lack of adequate financial support and is increasing the risk of a 'poverty trap' by slowing down and occasionally even blocking necessary capacity development. Such a situation is resulting in insufficient high-quality staff and technical resources as well as inadequate levels of development in meteorological, hydrological and environmental monitoring networks. This in turn is weakening the potential for adequate NMHS recognition and service delivery.

On the other hand, a lot of effort has been made towards enhancement of automated, effective and end-user orientated service delivery, based on professional and visually acceptable presentation. Such an approach is considered vital for ensuring reliability, visibility, and high-quality service delivery status and for nurturing an effective user relationship. DHMZ has a long tradition in educating the public through different kinds of media, public lectures and stakeholder roundtables with different audiences. Recently, it has focused in particular on issues related to extreme weather and climate change and variability. Communication, including on forecast uncertainty, is an important part of the DHMZ education strategy, both to the experts and to general users of weather and climate services. DHMZ is steadily increasing its provision of unrestricted official meteorological, hydrological and related information to the public, in particular via the DHMZ Website.

Significant efforts are being made to enhance nowcasting, short-term and seasonal forecasting, as well as on investment in specialized software tools for editing meteorological and hydrological data and forecasts. DHMZ is frequently involved in public outreach campaigns such as for health advisories against severe heat (or cold) periods or ultraviolet (UV) index warnings. DHMZ is constantly investing in service delivery promotion to the civil protection community. Stronger efforts have been taken regarding post-graduate education and regular national and international training, including networking for forecasters and also on active participation in international scientific projects and programmes.

**7. IDENTIFICATION OF CLEAR DELIVERABLES RELATED TO THE MAJOR TOPICS CORRESPONDING TO THE ET TORS**

Based on the forgoing discussions, the Meeting agreed to a set of activities for the implementation and finalization of the deliverables. The Action Sheet related to the deliverables and the agreed timeline is attached as Appendix IV.

The Team dedicated the remainder of the meeting to the commencement of work on these deliverables.

**8. WORK ON DELIVERABLES**

The Meeting agreed to continue work on the deliverables as given in Appendix IV.

**9. PREPARATION OF THE REPORT OF THE MEETING AND THE EXECUTIVE SUMMARY, INCLUDING DECISIONS FOR CONSIDERATION BY CBS-EXT.(14)**

The Secretariat representative agreed to compile the report of the Meeting based on the discussions of the main points in the agenda and to circulate it to the team members for review and further input prior to its adoption and posting on the Meeting Website.

**10. CLOSING**

The "Meeting of the CBS/OPAG PWS ET/COPE" closed at 1500 hours on Friday, 1 November 2013.

---

**LIST OF APPENDICES TO THE FINAL REPORT OF THE “MEETING OF THE  
COMMISSION FOR BASIC SYSTEMS OPEN PROGRAMME AREA GROUP ON  
PUBLIC WEATHER SERVICES (PWS) EXPERT TEAM ON COMMUNICATION,  
OUTREACH AND PUBLIC EDUCATION ASPECTS OF PWS  
(CBS/OPAG-PWS ET/COPE) ”  
(NANJING, CHINA, 28 OCTOBER - 1 NOVEMBER 2013)**

**Appendix I:** List of Meeting Participants

**Appendix II:** Meeting Agenda

**Appendix III:** Status of deliverables from last meeting

**Appendix IV:** Action Sheets of the Nanjing meeting indicating the Team Deliverables

---

## LIST OF PARTICIPANTS

NO.:	COUNTRY:	NAME AND TITLE(S):	ADDRESS:
1.	Australia	<b>Mr Jonathan Paul GILL</b> <b>Chairperson, and Member of the CBS/OPAG-PWS ICT/PWS</b>  <b><u>National Function:</u></b> <b>Manager, International Affairs, Executive and International Branch, Australian Bureau of Meteorology</b>	Strategy, Parliamentary, International and Communications Branch Bureau of Meteorology GPO Box 1289, MELBOURNE VIC 3001 700 Collins Street, DOCKLANDS VIC 3008 Australia Tel.: +61 3 9669 4219 Fax: +61 3 9669 4473 E-mail: <a href="mailto:j.gill@bom.gov.au">j.gill@bom.gov.au</a>
2.	Canada	<b>Ms Claire MOREHEN (MARTIN)</b> <b>Co-Chairperson</b>  <b><u>National Function:</u></b> <b>Senior Meteorologist, CBC News Weather Centre</b>	CBC News: Weather Centre P.O. Box 500, Station A TORONTO, ON M5W 1E6, Canada Tel.: +1 416 205 7031 Fax: +1 416 205 8749 E-mail: <a href="mailto:Claire.Martin@cbc.ca">Claire.Martin@cbc.ca</a>
3.	China	<b>Dr LV Minghui</b>  <b><u>National Function:</u></b> <b>Senior Engineer, Public Meteorological Service Center, CMA</b>	Public Meteorological Service Center China Meteorological Administration 46, Zhongguancun Nandajie BEIJING 100081, China Tel.: +86 10 5899 5825 Fax: +86 10 5899 3507 E-mail(s): <a href="mailto:lvminghui@cma.gov.cn">lvminghui@cma.gov.cn</a> <a href="mailto:lvminghui@126.com">lvminghui@126.com</a>
4.	China	<b>Mr MAO Hengqing</b>  <b><u>National Function:</u></b> <b>Deputy Director-General, CMA, Public Weather Service Center</b>	China Meteorological Administration Public Weather Service Center 46 South Zhongguancun Street Haidian District BEIJING 100081, China Tel.: +86 10 6840 9903 Fax: +86 10 5899 3215 E-mail: <a href="mailto:maohq@cma.gov.cn">maohq@cma.gov.cn</a>
5.	Croatia	<b>Mr Ivan ČAČIĆ</b> <b>President of Regional Association VI (Europe), and Permanent Representative of Croatia with WMO</b>  <b><u>National Function:</u></b> <b>Director of the Meteorological and Hydrological Service</b>	Meteorological and Hydrological Service Grič 3 HR-10000 ZAGREB, Croatia Tel.: +385 1 4565 693 Fax: +385 1 4851 901 E-mail: <a href="mailto:cacic@cirus.dhz.hr">cacic@cirus.dhz.hr</a>

6.	Greece	<b>Mr Panagiotis GIANNOPOULOS</b>  <b><u>National Function:</u></b> <b><i>Meteorologist, Hellenic National Meteorological Service</i></b>	Hellenic National Meteorological Service El. Venizelou 14 167 77 HELLINIKO-ATHENS, Greece Tel.: +30 210 969 9171 Fax: +30 210 962 9415 E-mails: <a href="mailto:pgiannop1@yahoo.com">pgiannop1@yahoo.com</a>
6.	Hong Kong, China	<b>Ms Man-Kuen Sandy SONG</b>  <b><u>National Function:</u></b> <b><i>Senior Scientific Officer (Corporate Communications and Tropical Cyclone Studies), Hong Kong Observatory</i></b>	Hong Kong Observatory 134A Nathan Road KOWLOON, HONG KONG Hong Kong, China Tel.: +852 2926 8336 Fax: +852 2311 9448 E-mail: <a href="mailto:mksong@hko.gov.hk">mksong@hko.gov.hk</a>
7.	Kenya	<b>Mr Ayub Shaka MWADALI</b>  <b><u>National Function:</u></b> <b><i>Assistant Director Public Weather and Media Services</i></b>	Kenya Meteorological Department P.O. Box 30259-00100 NAIROBI, Kenya Tel.: +254 020 386 7880 Fax: +254 020 386 7955 E-mail(s): <a href="mailto:mwadali@meteo.go.ke">mwadali@meteo.go.ke</a> <a href="mailto:ayubshaka@ymail.com">ayubshaka@ymail.com</a>
8.	New Zealand	<b>Mr Ramon Rafael Antonius OOSTERKAMP</b>  <b><u>National Function:</u></b> <b><i>Manager, Public Weather Services, Meteorological Service of New Zealand</i></b>	MetService 30 Salamanca Road, P.O. Box 722 WELLINGTON 6140, New Zealand Tel.: +64 4 700 786 Fax: +64 4 471 2078 E-mail: <a href="mailto:oosterkamp@metservice.com">oosterkamp@metservice.com</a>
9.	United Kingdom	<b>Ms Melanie HARROWSMITH</b>  <b><u>National Function:</u></b> <b><i>Senior Met Office Advisor (Civil Contingencies) Met Office (UK)</i></b>	Met Office FitzRoy Road EXETER EX1 3PB United Kingdom E-mail: <a href="mailto:melanie.harrowsmith@metoffice.gov.uk">melanie.harrowsmith@metoffice.gov.uk</a>
<b>WMO SECRETARIAT</b> 7 bis, avenue de la Paix Case Postale No. 2300 CH 1211 GENEVA 2, Switzerland  <b>PWS Website:</b> <a href="http://www.wmo.int/pages/prog/amp/pwsp/eventsexpertmeetings_en.htm">http://www.wmo.int/pages/prog/amp/pwsp/eventsexpertmeetings_en.htm</a>			
10.	WMO HQ, Switzerland	<b>Ms Haleh KOOTVAL</b> <b>Chief, Public Weather Services Division</b>	Public Weather Services Programme Public Weather Services Division Weather and Disaster Risk Reduction Services Department (WDS) Tel.: +41 22 730 8333 Fax: +41 22 730 8128 E-mail: <a href="mailto:HKootval@wmo.int">HKootval@wmo.int</a>

**MEETING AGENDA**

- 1. OPENING**
- 2. ORGANIZATION OF THE MEETING**
  - 2.1 Adoption of the agenda
  - 2.2 Working arrangements
- 3. REVIEW OF THE RELEVANT DECISIONS OF CBS-15 AND EC-65**
- 4. REPORT OF THE CHAIRPERSON OF THE ET/COPE**
  - 4.1 Review of the current Terms of Reference (TORs) of the ET
  - 4.2 Review of the deliverables from the 2011 meeting of the ET (Mombasa, Kenya)
- 5. DISCUSSIONS AND DECISIONS ON THE MAJOR TOPICS TO BE ADDRESSED BY THE ET**
  - 5.1 Development of External Communication Strategy
  - 5.2 On-line survey on the usage of different Media for PWS delivery and to gather feedback on such delivery
  - 5.3 Communicating the socio-economic benefits of NMHSs to senior Government decision-makers
  - 5.4 Design guidance for presentation of warnings online
  - 5.5 Communication training for NMHS staff
  - 5.6 Role of Social Media in operational work of NMHSs
- 6. WORK RELATED TO THE ET/COPE IN MEMBER COUNTRIES**
- 7. IDENTIFICATION OF CLEAR DELIVERABLES RELATED TO THE MAJOR TOPICS CORRESPONDING TO THE ET TORS**
- 8. WORK ON DELIVERABLES**
- 9. PREPARATION OF THE REPORT OF THE MEETING AND THE EXECUTIVE SUMMARY, INCLUDING DECISIONS FOR CONSIDERATION BY CBS-EXT.(14)**
- 10. CLOSURE OF THE MEETING**

**“MEETING OF THE COMMISSION FOR BASIC SYSTEMS OPEN PROGRAMME AREA GROUP ON PUBLIC WEATHER SERVICES EXPERT TEAM ON COMMUNICATION, OUTREACH AND PUBLIC EDUCATION ASPECTS OF PWS”  
(CBS/OPAG-PWS ET/COPE)”**

*(MOMBASA, KENYA, 5-9 DECEMBER 2011)*

**TEAM DELIVERABLES**

*(Updated as of: 8 July 2013)*

<b><i>Deliverable 1: Completion of Guidelines on communicating the socio-economic benefits of PWS (Related to ToR)</i></b>				
	<b>Action(s):</b>	<b>Lead(s) Responsible:</b>	<b>Due Date:</b>	<b>Status:</b>
1.	All members to gather examples of communicating SEB	Jon Gill and Ivan Čačić	End of January 2012	
2.	Prepare draft Guidelines	Jon Gill and Ivan Čačić	End of March 2012	
3.	Review of draft by the Expert Team	All Members	End of April 2012	
4.	Publish Guidelines and circulate to all NMHSs, Expert Team Members, PWS Focal Points, INTAD members and post to the WMO Website	Haleh Kootval	TBD	<b>No progress</b>
<b><i>Deliverable 2: Completion of Guidelines on the use of social media by NMHSs (Related to ToR)</i></b>				
	<b>Action(s):</b>	<b>Lead(s) Responsible:</b>	<b>Due Date:</b>	<b>Status:</b>
1.	Feedback from members on first draft	Jon Gill and Peter Kreft	End of December 2011	
2.	Collect examples to be included	Jon Gill and Peter Kreft	End of December 2011	
3.	Publish Guidelines and circulate to all NMHSs, Expert Team Members, PWS Focal Points, INTAD members and post to the WMO Website	Haleh Kootval	TBD	<b>Guidelines prepared and published as PWS-24, WMO-No. 1086</b>



<b>Deliverable 3: Develop a list of experts to assist with training and development activities on communication, outreach and public education aspects of PWS delivery (Related to ToR)</b>				
	<b>Action(s):</b>	<b>Lead(s) Responsible:</b>	<b>Due Date:</b>	<b>Status:</b>
1.	Identify and publish names of experts, following completion of list of competencies of PWS forecasters as provided by all ETs	Haleh Kootval	Upon submission of competencies by ET/SPI	<b>Competencies for all areas of PWS including media and broadcasting have been drafted and reviewed by CBS. The latest draft has been forwarded to ETR office for review by EC Panel of ETR prior to submission to CBS-Ext session for approval.</b>
<b>Deliverable 4: Preparation of Summary Guides on: (i) using social media by NMHSs; (ii) communicating socio-economic benefits of PWS (Related to ToR); (iii) conducting PWS outreach activities</b>				
	<b>Action(s):</b>	<b>Lead(s) Responsible:</b>	<b>Due Date:</b>	<b>Status:</b>
1.	Draft each Summary Guides: (i) Social media (ii) Communicating SEB (iii) Conducting outreach	(i) Jon Gill and Peter Kreft (ii) Jon Gill and Ivan Čačić (iii) Joseph Cheruiyot Ego, José Rubiera Torres and Yao Xiuping	End of June 2012 (all Guides)	
2.	Publish guidelines and circulate to all NMHSs, Expert Team Members, PWS Focal Points, INTAD members and post to the WMO Website	Haleh Kootval	TBD	<b>No progress</b>

<b>Deliverable 5: Preparation of Guidelines to assist NMHSs to develop a corporate external communication strategy (Related to ToR)</b>				
	<b>Action(s):</b>	<b>Lead(s) Responsible:</b>	<b>Due Date:</b>	<b>Status:</b>
1.	Develop outline of Guidelines	Peter Kreft and Jon Gill	August 2012	
2.	Prepare first draft of Guidelines	Peter Kreft and Jon Gill (with input from all)	December 2012	
3.	Review and finalize	Peter Kreft and Jon Gill (input from all Members)	March 2013	
4.	Publish guidelines and circulate to all NMHSs, ET members, PWS Focal Points, INTAD members and post to the WMO Website	Haleh Kootval	TBD	<b>No progress</b>
<b>Deliverable 6: Develop template for a Memorandum of Understanding (MoU) between an NMHS and a media organization (Related to ToR)</b>				
	<b>Action(s):</b>	<b>Lead(s) Responsible:</b>	<b>Due Date:</b>	<b>Status:</b>
1.	Finalize template by adding instructive example MoU	Jon Gill (examples from Yao Xiuping and Ivan Čačić)	March 2012	
2.	Send with cover letter to Permanent Representatives, and inform PWS Focal Points, etc.	Haleh Kootval	TBD	<b>The document has been published as WMO-No, 1099, PWS-26, placed on the PWS Websites and all NMHSs informed.</b>
<b>Deliverable 7: Determine opportunities for collaboration on communication, outreach and public education aspects of: (i) WIGOS (through the ICG on WIGOS); (ii) climate services (through CCI and the GFCS Office)</b>				
	<b>Action(s):</b>	<b>Lead(s) Responsible:</b>	<b>Due Date:</b>	<b>Status:</b>

1.	Brief ICG-WIGOS on discussions by Team on project communication	Ivan Čačić	At ICG-WIGOS meeting	<b>Team to be informed</b>
2.	Contribute assistance to WIGOS on project communication as appropriate	Ivan Čačić (with input from all Members)	TBD	<b>Team to be informed</b>
3.	Liaise with GFCS Office on possible collaboration on communication aspects of services	Ivan Čačić and Haleh Kootval	As opportunities arise	<b>PWSP as a lead for the preparation of the Implementation Plan for “The WMO Strategy for Service Delivery” has discussed the User Interface Platform of GFCS</b>
4.	Liaise with Commission for Climatology (CCI) on possible collaboration on communication aspects of services	Ivan Čačić and Haleh Kootval	As opportunities arise	<b>No specific action</b>
<b><i>Deliverable 8: Liaise with other PWS Expert Teams, CBS OPAGs and Regional Associations to identify opportunities for collaboration and sharing of information on areas of mutual interest (Related to ToR)</i></b>				
	<b>Action(s):</b>	<b>Lead(s) Responsible:</b>	<b>Due Date:</b>	<b>Status:</b>
1.	Liaise with Regional Associations (RAs)	Ivan Čačić	As opportunities arise	<b>Team to be informed</b>
2.	Liaise with other PWS Expert Teams	Jon Gill	As opportunities arise	<b>Team to be informed</b>
3.	Liaise with CBS OPAGs	Jon Gill	As opportunities arise	<b>Team to be informed</b>
<b><i>Deliverable 9: Develop an on-line survey for NMHSs, to be completed by their PWS Focal Points, that measures the usage of different media for PWS delivery</i></b>				
	<b>Action(s):</b>	<b>Lead(s) Responsible:</b>	<b>Due Date:</b>	<b>Status:</b>
1.	Develop survey	Peter Kreft, Yao Xiuping and José Rubiera Torres	June 2012	<b>Survey developed by Peter</b>

2.	Place survey on-line and check by Team Leads	Haleh Kootval	July 2012	<b>Survey sent to Secretariat but needs follow up by Peter (or Ramon) to initiate its functioning</b>
3.	Write to NMHSs/PWS Focal Points to complete survey	Haleh Kootval	September 2012	
4.	Prepare short report based on survey results and circulate to PWS community	Haleh Kootval	November 2012	<b>To be discussed by the Team</b>
<b><i>Deliverable 10: Seek opportunities to organize training courses for senior and executive NMHS managers on working with media, e.g., in association with study tours, meetings of senior and executive managers, RA Sessions, etc.</i></b>				
	<b>Action(s):</b>	<b>Lead(s) Responsible:</b>	<b>Due Date:</b>	<b>Status:</b>
1.	Seek opportunities as they arise	Yao Xiuping (CMA study tours) All Members	As opportunities arise	<b>Team to be informed</b>

**“MEETING OF THE COMMISSION FOR BASIC SYSTEMS OPEN PROGRAMME AREA GROUP ON PUBLIC WEATHER SERVICES EXPERT TEAM ON COMMUNICATION, OUTREACH AND PUBLIC EDUCATION ASPECTS OF PWS”  
(CBS/OPAG-PWS ET/COPE)**

*(NANJING, CHINA 28 OCTOBER - 1 NOVEMBER 2013)*

**TEAM DELIVERABLES**

<b><i>Deliverable 1: Development of an on-line toolkit to assist NMHSs develop communication strategies for engaging with external stakeholders</i></b>				
	<b>Action(s):</b>	<b>Lead(s) Responsible:</b>	<b>Due Date:</b>	<b>Status:</b>
1.	Draft material contained in toolkit	Jon Gill and Claire Martin	30 April 2014	
2.	Review draft material	All	30 June 2014	
3.	'Road test' toolkit and modify according to results	All	31 August 2014	
4.	Launch toolkit	Secretariat	30 November 2014	
<b><i>Deliverable 2: Develop NMHS survey on the usage of different media for PWS delivery</i></b>				
	<b>Action(s):</b>	<b>Lead(s) Responsible:</b>	<b>Due Date:</b>	<b>Status:</b>
1.	Prepare draft of survey	Ramon Oosterkamp	31 January 2014	
2.	Review draft survey	All	31 March 2014	
3.	Publish survey and send to NMHSs for completion	Secretariat	30 April 2014	
4.	Analyse results of survey and prepare report	Ramon Oosterkamp	31 July 2014	

***Deliverable 3: Develop guidance material for senior NMHS managers on working with senior Government decision-makers, with a focus on communicating the socio-economic benefits of NMHSs***

	<b>Action(s):</b>	<b>Lead(s) Responsible:</b>	<b>Due Date:</b>	<b>Status:</b>
1.	Request WMO ECWG-SOP to develop guidance material	Ivan Čačić	February 2014	
2.	Request Regional Associations, with the assistance of the Secretariat, to issue guidance material to Members	Ivan Čačić	15 June 2014	

***Deliverable 4: Develop online eLearning training modules on for NMHS staff, including senior managers, on priority areas of PWS communication, including on working with the media, handling difficult interviews and communicating forecast uncertainty***

	<b>Action(s):</b>	<b>Lead(s) Responsible:</b>	<b>Due Date:</b>	<b>Status:</b>
1.	Develop online eLearning module on media training and handling difficult interviews	Melanie Harrowsmith and Mao Hengqing	March 2015	
2.	Develop online eLearning module on communicating forecast uncertainty	Melanie Harrowsmith and Mao Hengqing	March 2015	

***Deliverable 5: Develop Summary Guide for NMHSs on the use of Twitter during real-time events***

	<b>Action(s):</b>	<b>Lead(s) Responsible:</b>	<b>Due Date:</b>	<b>Status:</b>
1.	Draft Summary Guide	Claire Martin and Melanie Harrowsmith	30 November 2013	
2.	Review Summary Guide	All	31 December 2013	
3.	Publish Summary Guide, circulate to WMO Members and publish on WMO PWSP Website	Secretariat	30 April 2014	

***Deliverable 6: Develop Summary Guide for NMHSs on PWS public education activities, with a focus on schools and youth***

	<b>Action(s):</b>	<b>Lead(s) Responsible:</b>	<b>Due Date:</b>	<b>Status:</b>
--	-------------------	-----------------------------	------------------	----------------

1.	Draft Summary Guide	Panagiotis Giannopoulos and Mao Hengqing	31 January 2014	
2.	Review Summary Guide	All	28 February 2014	
3.	Publish Summary Guide, circulate to WMO Members and publish on WMO PWSP Website	Secretariat	30 June 2014	