

# **WORLD METEOROLOGICAL ORGANIZATION**

## **EXPERT TEAM ON COMMUNICATION, OUTREACH AND PUBLIC EDUCATION ASPECTS OF PUBLIC WEATHER SERVICES (ET/COPE)**

**Havana, Cuba**

**16-20 November 2009**



**FINAL REPORT**



## EXECUTIVE SUMMARY

A meeting of the Expert Team on the Communication, Outreach and Public Education Aspects of Public Weather Services (ET/COPE), was held in Havana, Cuba, from 16 to 20 November 2009, and was chaired by Mr Jon Gill (BoM, Australia). Under its Terms of Reference (TORs), the Expert Team covered issues relating to communication, public education and outreach aspects of Public Weather Services (PWS), including the needs of developing countries, partnerships with media organizations, user education, communicating uncertainty and confidence in forecasts, media attribution, and communication with stakeholders.

The key outcomes from the main areas of the Terms of Reference of the Expert Team are summarized below.

### TOR (a)

- The Team reviewed progress on initiatives of ET-COPE since the last meeting (Croatia, 2006). It noted the publication of 'Guidelines on Communicating Forecast Uncertainty' and 'Examples of Best Practice in Communicating Weather Information'. Following the last meeting, a set of criteria to be used to help identify appropriate trainers and trainees for communication courses on Public Weather Services was developed; it was agreed by the Team to expand these criteria to include public education and outreach aspects.
- The Team noted that there is a great deal of valuable information contained in the various *Guidelines* and *Reports* that the Team have published over the years and that it would be useful to prepare short 'How-To Guides' (1-2 pages) that summarise and readily communicate the key principles and information contained therein.

### TOR (b)

- Communication, public education and outreach are cross-cutting aspects of PWS, and the Team continues to seek opportunities to support major activities of WMO related to public weather services. The Team was updated on developments regarding the various activities and contributions of the PWS Programme for the World Expo 2010 in Shanghai. These included the World Expo Nowcasting Services (WENS) Demonstration Project undertaken by an international group from the Australian Bureau of Meteorology (BoM), Hong Kong Observatory (HKO), Beijing Meteorological Bureau (BMB) and Shanghai Meteorological Bureau (SMB); a Symposium on Service Delivery and Disaster Reduction; role of WWIS (World Weather Information Service) in the WMO/CMA Pavilion; the Forecast Office of the Future; the Future Family and its Relationship to Weather, also to be displayed in the Pavilion.
- The Team was also briefed on the International Symposium on Public Weather Services held in Geneva in December 2007, highlighting key relevant themes that arose from the Symposium. Team members had delivered presentations at the Symposium on communication skills and media training, service delivery from a developing country perspective, and communicating forecast uncertainty.

### TOR (c)

- The Team noted that many National Meteorological and Hydrological Services (NMHSs) in developing countries suffer low visibility related to low government funding and poor communication skills. The former may be attributable to lack of awareness on the central role of NMHSs, and in particular PWS, in socio-economic development. There is therefore a need for NMHSs to put in place PWS communication, outreach and public education systems that not only target the general public, but also policy makers, and in addition establish partnerships with the media and other stakeholders.

- The Team agreed to develop a 'How-To Guide' to help NMHSs in developing countries address some of these issues.

#### **TOR (d)**

- The Team discussed some of the key strategies that NMHSs should consider to ensure that they develop and maintain effective media relationships. These strategies include the establishment of a media capability to provide PWS information to TV, radio, newspaper and Internet providers; regular press conferences on current weather and climate conditions at which PWS concepts can also be explained; and regular forums and workshops attended by both media and NMHS staff.
- The Team recognized the valuable role played by surveys in improving weather services and agreed to develop a 'How-To Guide' to help NMHSs develop such surveys.

#### **TOR (e)**

- The Team also discussed some of the emerging new technologies for communicating forecasts and warnings. Internet-based 'social media' such as Facebook, Twitter and blogs were noted for their widespread penetration and popularity and their ability to disseminate information very rapidly. The Team recognized that a range of opportunities and issues for NMHSs were presented by these media. The Team agreed that it would be useful to develop an "issues paper" to assist NMHSs with any issues that they should consider when implementing these and related technologies.

#### **TOR (f)**

- The Team once again acknowledged the important role that NMHSs play in ensuring that both new and existing PWS products are used effectively. To successfully undertake this role, two key actions NMHSs can take are: (a.) cultivation and maintenance of good working relationships with user and interest groups, and (b.) maintenance of a regular public communication campaign. The Team recalled that WMO/TD Nos. 1409 "Examples of Best Practice in Communicating Weather Information" and 1088 "Guidelines on the Improvement of NMHSs - Media Relations and Ensuring the Use of Official Consistent Information" both contained excellent information on how to undertake these key actions, and agreed to include the main points in one-page 'How-To Guides'. The Team also noted that to engage with users, certain skills and personal qualities are required. The Team agreed to develop a 'job description' to assist NMHSs in identifying staff to do this task.

#### **TOR (g)**

- The Team noted that by failing to promote the high-quality services and products available from NMHSs, those services risk being eroded by other weather service providers. The Team agreed that a strategy of guaranteed public and media accessibility to services could offset this potential for erosion. Furthermore, that once a mutually acceptable, beneficial and "brandable" relationship between the NMHS and their respective media had been attained, this relationship needed to be actively nurtured and protected to guarantee the visibility of the NMHS and to reinforce its image as provider of the highest quality services possible.

#### **TOR (h)**

- The Team noted the publication of the "Guidelines on Communicating Forecast Uncertainty" and that it will be useful to publish a short 'How-To Guide' based on these *Guidelines*.

The Team also identified that it would be helpful to keep abreast of developments on this topic that are occurring within the WMO Forum on Social and Economic Applications and Benefits of Weather, Climate and Water Services set up within the PWS Programme.

**TOR (i)**

- The Team recognized the difficulties faced by NMHSs in ensuring effective attribution and visibility in the media. The Team discussed the important principles to bear in mind when identifying ways to ensure appropriate attribution. This includes the need to provide excellent services so that the NMHS is recognised as the provider of the best available PWS. The need to maintain productive partnerships with the media, government and local authorities was also stressed. The Team agreed to develop a 'How-To Guide' to assist NMHS managers to achieve these goals.

**TOR (j)**

- The Team discussed the fundamental principles behind effective collaboration between NMHSs, the media and emergency managers when it comes to educating and communicating on meteorological aspects of disasters. The discussion focussed on the different arrangements that should be followed before, during and after a hazardous event. The Team agreed to develop a 'How-To Guide' that reflects these concepts to help NMHSs effectively engage in this area.

**TOR (k)**

- The Team noted the value of having a list of available experts in the field that could be called upon to assist with PWS training activities which include communication, outreach and public education aspects. The Team agreed to provide the WMO Secretariat with a list of names and that this list should be reviewed periodically to ensure it is kept up-to-date.

**TOR (l)**

- The Team recognized the importance of coordinating its work with relevant activities within the Commission for Basic Systems (CBS) Open Programme Area Groups (OPAGs) as well as other Technical Commissions (TCs). This includes the Expert Team on Ensemble Prediction Systems within the Data Processing and Forecasting (DPFS) OPAG who is examining the use of probabilistic forecasting. Some of the work of the WMO Forum on Social and Economic Applications and Benefits of Weather, Climate and Water Services is also relevant to the Team.

## 1. INTRODUCTION

1.1 A meeting of the Expert Team on the Communication, Outreach and Public Education Aspects of Public Weather Services (ET/COPE), was held in Havana, Cuba, from 16 to 20 November 2009. The agenda of the meeting is attached as Annex II. The participants were welcomed by Dr José Rubiera, Director of the Cuban National Forecast Centre, on behalf of Dr Tomás Gutiérrez Pérez, the Permanent Representative of Cuba with WMO. The meeting was chaired by Mr Jon Gill (Australia). The list of participants is given in Annex I. Ms Haleh Kootval, the WMO Representative, welcomed the participants on behalf of the Secretary-General, and provided background information on the work programme of the Team including the Terms of Reference (TORs) and the associated deliverables as agreed during the fourteenth session of the Commission for Basic Systems (CBS-XIV).

Terms of Reference (TORs) for the Expert Team on Communication, Outreach and Public Education Aspects of PWS (ET-COPE) (formerly Expert Team on Communications, ET-COM) are as follows:

- a. Monitor and report on the progress of earlier initiatives of ET-COM and make recommendations as appropriate to ICT-PWS;
- b. Monitor and report on communication, outreach and public education aspects of PWS that relate to support of major WMO activities, including the relevant Shanghai 2010 World Expo demonstration project components;
- c. Identify ways to meet the needs of developing countries in their efforts to improve their communication, outreach and public education relating to PWS products and services;
- d. Examine, report and recommend on how best to continue the development of positive partnerships with national and international media organisations, and of assisting NMHSs to improve relations with the media;
- e. Examine, report and recommend on the use of emerging new technologies for the communication of early warnings and other public weather services products and services;
- f. Report and advise on ways of assisting NMHSs to enhance outreach and public education with a view to ensuring more effective use of PWS and enhancing the usefulness of new products and services;
- g. Promote awareness of the impact of high-quality, well-communicated and well-delivered public weather services on the image and visibility of NMHSs;
- h. Study and report on how best to educate end-users on the concepts of forecast uncertainty in a manner which enhances the usability of PWS products and services and strengthens the credibility of the service provider;
- i. Examine how to ensure improved media attribution of the role of NMHSs in providing basic services and infrastructure which support weather presentations to the public;
- j. Continue to advise on how NMHSs might more effectively educate, and communicate with, emergency managers, the media and the public on meteorological aspects of disasters;
- k. Develop and maintain a list of experts in Communication, Outreach and Public Education who are willing to contribute to PWS training activities; and,

- I. Report and advise on collaborative activities with other CBS OPAGs and with other WMO Technical Commissions.

1.2 Each TOR was led by an expert who introduced and reported on the TOR.

## **2. BACKGROUND**

2.1 The meeting was informed by Ms Kootval that the fourteenth session of the Commission for Basic Systems (CBS-XIV, Dubrovnik, Croatia, 25 March – 2 April 2009) had approved the Terms of Reference of the Open Programme Area Group (OPAG) on PWS, which had been proposed by the Implementation Coordination Team on PWS. The work of the Public Weather Service Programme (PWSP) continues to be coordinated through three expert teams and an implementation and coordination team. These are the Expert Team on Services and Products Improvement (ET/SPI); the Expert Team on the Communication, Outreach and Communication Aspects of PWS (ET/COPE); the Expert Team on PWS in Support of Disaster Prevention and Mitigation (ET/DPM); and the Implementation / Coordination Team (ICT) on PWS. The Terms of Reference of all the teams had been modified by CBS-XIV to reflect the areas of work still outstanding or those which needed emphasis in each team. The subsequent changes in the membership of each team were based on the areas of expertise required accordingly.

2.2 The results of work under the various TORs of the Expert Team are summarized below.

## **3. EXPERT TEAM WORK PROGRAMME**

### **3.1 Progress on earlier initiatives of ET-COPE (TOR (a))**

3.1.1 The Team reviewed progress on initiatives of ET-COPE since the last meeting held in Dubrovnik, Croatia in 2006. The Team noted that all outstanding deliverables have been completed, including the publication of "Guidelines on Communicating Forecast Uncertainty" and "Examples of Best Practice in Communicating Weather Information". Following the last meeting, a set of criteria to be used to help identify appropriate trainers and trainees for communication courses on Public Weather Services was developed. It was agreed by the Team to expand these criteria to include public education and outreach aspects.

3.1.2 The Team was briefed on the outcomes of two meetings of PWS ICT that were held since the last meeting of the Team. The most significant change has been the addition of public education and outreach aspects of PWS to the Team's scope. Additional Terms of Reference for the Team have been included and the existing ones re-drafted. These changes were ratified at CBS-XIV.

3.1.3 The growing importance of understanding the social and economic impacts and benefits of PWS was discussed by the Team, and it was recognised that there exists an opportunity to inform senior managers within NMHSs and key stakeholders, including Governments, about these benefits. The Team agreed that a set of *Guidelines* on how to communicate this information would be a useful tool to help NMHSs promote their visibility and relevance to society.

3.1.4 The Team was briefed on the ongoing work and future plans within the PWS Programme to implement 'Learning by Doing' pilot projects that demonstrate, in an end-to-end process, the concept of working with key sector stakeholders to develop new products and services, delivering them, and then measuring their impacts and benefits.

3.1.5 The Team noted that there is a great deal of valuable information contained in the various *Guidelines* and *Reports* that the Team have published over the years and that it would be useful to prepare short (1 to 2 pages) 'How-To Guides' that summarise and readily communicate the key principles and information contained therein. It was recognized that these *Guides* provided very useful approaches and structure to related PWS training activities. The following subjects were

chosen for the first series of these 'How-To Guides' and the Team commenced work on their development during the meeting:

- Effective NMHS / Media / Disaster Management partnership;
- Improving NMHS visibility and attribution;
- PWS service evaluation and surveys;
- Strategies for effective public education and outreach;
- Improving PWS communication, outreach and public education – a developing countries perspective;
- Best practice in communicating weather information;
- Communicating forecast uncertainty; and,
- Weather broadcasting.

### **3.2 Communication, outreach and publication aspects of PWS in support of major WMO activities (TOR (b))**

3.2.1 The Team was updated by Ms Kootval of the latest information concerning the World Expo to be held in Shanghai in 2010 and the responsibilities assigned to the PWS Programme and its various expert teams. The plans for the Expo have evolved since the meeting of the ICT in Shanghai in May 2008 when the role of PWS in the Expo programme was first discussed. The various areas of responsibility of PWS Programme are highlighted below.

3.2.2 A major task undertaken by the PWS Programme relates to the World Expo Nowcasting Services (WENS) Demonstration Project initiated in 2008 in the framework of PWS 'Learning Through Doing' initiative. This international project, being implemented with the participation of the Australian Bureau of Meteorology (BoM), Hong Kong Observatory (HKO), Beijing Meteorological Bureau (BMB) and Shanghai Meteorological Bureau (SMB), will provide nowcasts to the SMB and consequently to the Expo organizers in the case of hazardous weather, especially thunderstorms and typhoons during the period of Expo. Given that the Expo will run from 1 May to 31 October 2010, a wide range of weather hazards can be expected to affect Shanghai. An implementation plan was drawn up at a meeting of the Science Steering Group of WENS in November 2008. A mid-term review meeting of the Project in October 2009, indicated that the Project is progressing smoothly according to plans. The Project will enter its operations phase prior to the opening of the Expo to ensure any trouble shooting and adjustments that need to be carried out by the participating centres.

3.2.3 A second major role for the PWS Programme concerns the WMO/CMA Pavilion at the Expo site. Plans for the Pavilion include display of the world city forecasts at the entrance of the Pavilion. This has been discussed with the coordinators of the WWIS at the Hong Kong Observatory and an agreed plan has been made between the HKO and SMB on the display of WWIS for the visitors to the Expo. The WWIS is currently undergoing a face lift by HKO and is expected to attract visitors through an interactive display system.

3.2.4 A centre piece of the WMO/CMA Pavilion, Chapter Five, concerns the "Weather Forecast of the Future and the Future Family and its Relationship to Weather". The future forecast office will essentially display to the public how a Public Weather Service will provide forecasts and information to citizens in the year 2030. A number of NMHSs were contacted through the PWS Programme and some very interesting and innovative ideas were kindly contributed. These ideas have been shared with SMB to be incorporated into the creation of a story board to depict such an office. Ideas are also being pursued between the PWS Programme, the Chairperson of OPAG on

PWS and the SMB on how to display the life of a family in 2030 in relation to weather and climate. The Team agreed to review these ideas when they become more developed and to provide further guidance and advice for their improvement.

3.2.5 The Team was also informed of plans for an international symposium on Service Delivery and Disaster Risk Reduction, to coincide with the Honour Day for WMO/CMA Pavilion on 9 May 2010. The symposium will be directed at an audience of Permanent Representatives from about 20 Members of WMO. A preliminary plan for the symposium has been drawn up by the PWS Programme and the Chairperson of the OPAG on PWS, and is being discussed within CMA. It is envisaged that communication skills will be included in the programme of the symposium. The Team agreed to contribute to the symposium within its mandate once the programme has been further firmed up.

3.2.6 The Team recalled that previously some ideas regarding the participation of International Association of Broadcast Meteorology (IABM) in the activities related to the Expo had been discussed. One idea had been to involve broadcasters from around the world to broadcast live from Shanghai as well as to participate in a training workshop for a number of international participants. Although the involvement of international broadcasters is still very attractive to SMB, the duration of broadcasting from Shanghai may be limited to one week involving about four broadcasters from well known media organizations. The same broadcasters may also take part in the symposium (Paragraph 5). This aspect is being pursued by the Chairperson of the OPAG on PWS.

3.2.7 The Team was also briefed on the WMO International Symposium on PWS that was held in Geneva, Switzerland, in December 2007. A number of presentations were made by Team members at this Symposium, including presentations on communication skills and media training, service delivery from a developing country perspective, and communicating forecast uncertainty. Some of the key recommendations and themes arising from the Symposium are of direct relevance to ET-COPE, including the importance of effective communication of forecast uncertainty, ensuring usability and credibility of NMHS services, the need to seek out best-practice examples in the communication of forecasts and warnings by NMHSs, and devising ways of spreading the knowledge of such examples to other NMHSs for adoption. The Symposium also noted the need to address social and economic aspects of public services including taking advantage of new science and technology and 'new media'.

3.2.8 The importance of understanding the social and economic benefits of PWS was discussed by the Team, and it was recognised that there is a significant amount of work being undertaken in this area. It was recognised that the results of these studies will be of great interest and value to NMHSs when dealing with key stakeholders, including Governments. Accordingly, the Team agreed to commence development of a set of *Guidelines* on communicating the social and economic benefits of PWS, with the purpose of providing information to NMHS managers in particular, on how to inform their key partners and Government officials about the value of PWS to communities and the economy.

### **3.3 Meeting the needs of developing countries (TOR (c))**

3.3.1 The Team noted the problems experienced by developing countries in the communication of PWS services and products including lack of communications skills; the high-cost of airtime and space in electronic and print media respectively; and media requirements for presentation techniques, content, format, choice of presenter and language.

3.3.2 Workshops for the media have a greater chance of success if they are attended by senior managers and editors from those organizations. The role of the Kenya Network of Journalists and Meteorologists (KENJOM) and the Network of Climate Journalists in the Greater Horn of Africa (NECJOGHA) in spearheading the education of journalists on climate issues and meteorologists on climate information presentation without using meteorological jargon were cited.

3.3.3 The Team was of the opinion that the most effective methods are not necessarily expensive or technologically complicated. The success of Regional Climate Outlook Forums (RCOFs) was highlighted as an example.

3.3.4 Internet is becoming the 'common market' of choice for most 'shoppers'. More than a quarter of the world's population (1.9 billion) was using the Internet by the end of 2009. In East Africa, Internet penetration in urban areas was about 50%, an indication of the potential of Internet as a communications tool in developing countries. The Team stressed the benefits of maintaining professionally designed and updated websites; and the training of producers and communicators of PWS products and services on the proper use of the Internet.

3.3.5 Mobile telephony has been the most rapidly adopted technology in history, and is the most popular and widespread personal technology to date. Mobile broadband subscriptions have overtaken fixed broadband subscribers. By the end of 2009, there were about 4.6 billion mobile telephony subscriptions globally. Solar mobile phones are gaining popularity in rural areas without electricity supply. Mobile telephony has been widely exploited by banks, media houses, and money transfer services among others. Some developed countries were already using Short Message Services (SMS) to communicate PWS products and services. The Team agreed that the use of mobile technology could make access by the population to PWS services and products in developing countries more affordable.

3.3.6 Radio and Internet for the Communication of Hydro-Meteorological Information for Rural Development (RANET) is a good example in developing countries of collaboration between NMHSs, Non-Governmental Organizations (NGOs), local communities and other stakeholders to make PWS products and services available to rural and remote populations. The Team also noted the benefits of collaboration with health, agriculture and other sector-specific stakeholders.

3.3.7 Over 70% of the global population now have access to a television (TV) at home, making it still among the most popular PWS channels of communication. There is therefore a need for developing countries to put in place mechanisms for ensuring quality through training and partnerships with the media.

3.3.8 The Team noted that under-funding and lack of visibility of NMHSs was a problem in developing countries. It emphasized the need for sensitisation and awareness creation for policy makers, on the central role of NMHSs, and, in particular, PWS products and services in enhancing socio-economic development.

#### **3.4 Developing positive partnerships with media (TOR (d))**

3.4.1 The Team discussed some of the key strategies that NMHSs should consider to ensure that they develop and maintain effective media relationships. Some of these strategies are reflected in activities undertaken by the China Meteorological Administration (CMA) and were discussed by the Team in terms of their applicability to other NMHSs.

3.4.2 One strategy that might be considered by an NMHS, if funds are sufficient, is to establish its own media agency which supplies PWS information via TV, radio, the Internet and / or newspapers. This is a useful method to maintain positive relationships with the media by supplying them with the information content they require, be it in audio, video or print format. This also helps the media to spread weather services information more effectively and correctly.

3.4.3 Another strategy includes holding press conferences periodically, to issue information and advice on current weather and climate conditions. In addition, these occasions can be used to communicate disaster prevention and mitigation information, to propagate concepts of forecast uncertainty and confidence, to help users use weather information correctly, and to explain any severe weather phenomena that may have occurred.

3.4.4 It is also a good practice for an NMHS to invite media weather presenters and programme producers to regular forums with NMHS staff who provide weather services. Through such forums, which may include desk-top exercises and simulations, all aspects of mutual NMHS-media weather service provision can be addressed.

3.4.5 The Team noted that there are many kinds of new communications technologies that can be utilised to issue public weather services and products. Short Message Services (SMS) is especially effective in alerting the population of severe weather through issuing warnings in a timely fashion.

3.4.6 The use of surveys for understanding public needs and enhancing public weather services was discussed by the Team. The Team noted that the scope of the surveys can be quite small and still yield important information that can be used to improve the service. Such surveys can also be used to educate the public on key weather services concepts. The Team agreed to develop a 'How-To Guide' on developing user surveys that NMHSs can use to guide their activities in this area.

### **3.5 Using emerging new technologies for communicating services (TOR (e))**

3.5.1 The Team discussed some of the emerging new Internet-based services that are widely used to share information. Usage of 'social media' such as Facebook, Twitter and blogs have grown enormously in recent years and their usage is widespread. Other technologies such as enhancements and add-ons that download and display forecasts on the status bar of a web browser also make accessing PWS information very easy.

3.5.2 Opportunities therefore exist for NMHSs to use these new technologies to communicate forecast and warning services, as well as other relevant information such as climate briefings, media releases or general interest stories. Already it is possible for users of Facebook and Twitter to subscribe to weather information that is delivered automatically.

3.5.3 The Team recognised that there are a number of significant issues associated with the use of these technologies, including attribution of services and the importance of using official information. It was agreed that the World Weather Information Service (WWIS) was a logical source of official information for use by social networks. The Team will examine this further in collaboration with the ET-DPM.

3.5.4 Other issues that were discussed include the relative ease with which new accounts can be established using social media and that NMHSs who become involved in this area will need to have strategies to ensure that their account is recognised as official.

3.5.5 The Team also considered some of the developments that have occurred with existing technologies, such as the rise of the Internet TV, digital TV, digital radio and mobile telephony. It re-affirmed that NMHSs should keep abreast of all advances in communications technologies to ensure that any new opportunities are recognised and utilised where appropriate.

3.5.6 Given the range of opportunities and issues that arise from these new systems, the Team agreed to prepare an "issues paper" for NMHSs that highlighted some of the things that need to be considered when exploiting these new technologies.

### **3.6 Enhancing outreach and public education (TOR (f))**

3.6.1 The Team agreed they had a role in assisting Public Weather Services Programme to ensure that there was wide appreciation and optimal use of PWS products and services. To this end, the Team recognised once again the value of raising and maintaining at a high-level, the consciousness of the public with regards to PWS products and services.

3.6.2 Engaging user / interest groups was discussed as being an effective way to enhance outreach. Such activity can be conducted for considerably less effort and financial cost than, for example, a nation-wide public education campaign. While the latter clearly has benefits, the engagement of specific user / interest groups enables a "viral" spread of appreciation among the community.

3.6.3 It was agreed by the Team that members of specific user / interest groups are usually good judges of the value of PWS products, will probably seek a good relationship with the PWS because they stand to gain from it, and have a vested interest in learning about PWS products and services because they may manage a weather-related risk.

3.6.4 In maintaining both good working relationships with specific user / interest groups and a good public profile, the Team appreciated (as noted also in the Final Report of the ET-COM, Dubrovnik, Croatia, 2006) the importance of regular, clear, authoritative and professional communication. To achieve this, the Team agreed that valuable strategies included regular releases to the broadcast and social media (for example, weather blogs and other Internet channels) and meetings with key influencers.

3.6.5 Also discussed by the Team was the importance of ensuring that those PWS staff who work with the media and key influencers have both the appropriate skills and a clear understanding of their NMHSs communications policy. Accordingly, the Team drafted one-page 'How-To Guides' on 'Strategies for Effective Public Education and Outreach for NMHS Managers of Forecast Operations' and 'Weather Communication for NMHS Forecasters and Spokespeople'.

3.6.6 The Team also noted that to undertake outreach effectively, certain skills and personal qualities are required. These are quite different from those required to forecast the weather and include an ability to engage with customers and understand their needs. The Team agreed to develop a 'job description' to assist NMHSs in identifying staff to do this task.

### **3.7 Promoting awareness of the impact of high quality, well-communicated and well-delivered PWS on the image and visibility of NMHSs (TOR (g))**

3.7.1 Consistent with previous work done by the Team, it was noted that for an NMHS to develop and maintain a positive image and strong visibility, it is essential to have on a strong, mutually respectful relationship with the media community as a whole. The Team recognised that a high-quality NMHS fulfils its role and mandate to the public when it acts as a consistently accessible resource for the media.

3.7.2 Productive partnerships between the media and the NMHS are fostered by the NMHS employing and utilizing staff with strong communication skills. To train, and then to retain these staff, there should be ongoing professional training provided by the NMHS (possibly even in conjunction with similar classes offered by the media) to further the skills of these communicators.

3.7.3 The Team noted that NMHSs having the most productive and mutually cooperative relationships tend to foster one-to-one associations between individual NMHS spokespeople and journalists. Where NMHSs have centralised the media communication into a 'help desk' arrangement, the media may become frustrated with the responsiveness of the NMHS and the success of the mutual partnership may be undermined. In addition, if the NMHS fails to be accessible during times of high-impact weather, then the visibility of the NMHS will be reduced and other providers may step into the gap. In the longer term, such arrangements may threaten the relevance and viability of the NMHS.

3.7.4 The concept of branding in the rapidly evolving world of "new media" was discussed at length. Again, it was noted that after several years of experience, most NMHSs had well established contracts with media clients containing clearly stated branding and attribution clauses. However, 'policing' or monitoring the use of NMHS logos was often not occurring. It was recommended that individual NMHSs periodically monitor secondary providers' web pages,

newspapers and other information to ensure that logos and other marks of attribution are being actively employed.

3.7.5 The Team recognised that the relationship between an NMHS and the media was evolutionary in nature. During day-to-day “quiet” times, there is an opportunity to consolidate the relationship through on-going dialogue. This strategy of strengthening the relationship pays off when, during times of severe weather, the media is sensitive to the NMHS environment and the duties now required for the emergent situation.

### **3.8 Educating end-users on the concepts of forecast uncertainty (TOR (h))**

3.8.1 The most significant deliverable of the Team under this TOR has been the publication of “Guidelines on Communicating Forecast Uncertainty”. A ‘How-To Guide’ version of these *Guidelines* will provide a readily accessible summary version of the key information.

3.8.2 The Team recognised the work of the WMO Forum on Social and Economic Assessment and Benefits of Weather, Climate and Water Services who have been examining the benefits of forecast uncertainty information and agreed that it will be useful for the Team to keep abreast of these studies.

### **3.9 Improving media attribution of the role of NMHSs in supporting weather presentations to the public (TOR (i))**

3.9.1 The Team noted that NMHSs are facing very demanding and complex requirements when seeking proper media attribution of their role in weather presentations to the public. It is vital that senior managers in the NMHS work to ensure that the NMHS offers excellent services that are recognised as the best available. This, together with productive partnerships with key stakeholders such as the public media, as well as government and local authorities, is the best strategy to maintain visibility and attribution. The Team agreed to develop a ‘How-To Guide’ to assist NMHS managers to achieve these goals.

3.9.2 It was also recognised that having in place adequate legislation and procedural arrangements can help underpin the role and responsibilities of NMHSs. When working with the media, NMHSs should consider formalising some aspects of the relationship to ensure mutually beneficial partnerships and common strategies.

3.9.4 For such arrangements to be effective, the Team noted that NMHS information should not only be accurate, reliable and consistent, but should also closely match the needs of the media and the public they serve. Effective two-way information flow between the media and the NMHS, particularly during severe weather events, mutually benefits the visibility of the NMHS and the credibility of media. From such circumstances, people will learn to look to the NMHS for official information, thereby demonstrating to the government and local authorities that the NMHS is providing a return on investment through its services to the public.

3.9.5 The Team agreed that NMHSs should be very active in monitoring their intellectual property rights. This can be assisted by ensuring that products and services are well labelled, with clear descriptions of the source of the information, including logo and copyright markings as appropriate.

### **3.10 How NMHSs can more effectively educate and communicate with emergency managers, the media and the public on meteorological aspects of disasters (TOR (j))**

3.10.1 The Team discussed the key principles underpinning this TOR, focussing on the fundamental three-way partnership that needs to exist between NMHSs, emergency managers and the media. Meteorological hazards may lead to disasters if not managed in an appropriate way. NMHSs have the function of issuing warnings for the protection of lives and properties, while emergency managers are charged with the duty of enforcing all preventive actions before, during

and after any severe weather event. At the same time, the media should keep people informed of all meteorological information on severe weather and the warnings that have been issued by the NMHS.

3.10.2 To achieve these goals, a real partnership between the NMHS, Emergency Management (EM) and the media, should be fostered. The first step forward in the process of building this partnership can be made by the NMHS. NMHSs should interact in a different way with emergency managers and the media before, during and after any severe weather event.

3.10.3 NMHSs should regularly invite EM officials to training seminars on different types of severe weather; meteorologists should participate in meetings on disasters together with EM staff. Agreements should be reached that are based on a clear understanding of written official procedures to be followed by the NMHS and EM, and these need to be documented in their respective Operational Plans. NMHSs should also regularly invite the media to training seminars on different types of severe weather. Additionally, NMHSs should take advantage of press conferences, such as on the occasion of WMO World Met Day, to talk about severe weather and the importance of maintaining links with the media to better serve the public. Media staff should be received with open doors, as partners. NMHSs should take full advantage of the opportunities provided by the media, as well as employing means of their own, to educate the public in the basics of severe weather and how to better avoid its consequences.

3.10.4 During any severe weather event, NMHSs must have frequent briefings and exchanges of views with EM staff, explaining the expected weather situation in a clear and understandable manner, as well as the expected weather impact and risks with as much detail as possible. NMHSs must also coordinate warnings in advance with EM, so that the EM staff can plan their work. EM advice to the public should also be reflected in the media jointly with the NMHS advisory or warning. Just before the onset of the severe weather event, NMHSs should consider inviting the media to the forecast centre to report what is happening. Senior forecasters should be on the air on radio and TV as frequently as the weather situation demands especially when the severe weather is already impacting an area. Although print media are very good for awareness campaigns before any severe weather, they are too slow in the case of warnings on a severe weather event already in course.

3.10.5 After any severe weather event, NMHSs may still need to maintain services for the affected zone. It is vital that NMHSs exchange views with the EM officials, to help with any relief operations. NMHSs must also assess the impact that the severe weather system had on the affected area and its main characteristics, as well as the effectiveness of the warnings and forecasts that were issued leading up to the event. Meteorologists should meet with EM staff to discuss the effectiveness of the partnership and what lessons were learned. After the event, NMHSs should help the media to explain what happened and what the main impacts of the weather were. Media questions should be answered honestly, and the opportunity taken to reassure people in affected areas that the severe weather is over; this can help dissipate any rumours that frequently spread when people have been shocked by a weather impact.

### **3.11 List of experts on communication, outreach and public education (TOR (k))**

The Team noted the value of having a list available of experts in the field that could be called upon to assist with PWS training activities that include communication, outreach and public education aspects. The Team agreed to provide the WMO Secretariat with a list of names and that this list should be reviewed periodically to ensure it is kept up-to-date.

### **3.12 Collaborative activities between ET-COPE and other CBS OPAGs and other WMO Technical Commissions (TOR (l))**

3.12.1 The Team noted the importance of coordinating its work with relevant activities within other Commission for Basic Systems (CBS) Open Programme Area Groups (OPAGs) as well as other Technical Commissions (TCs). This includes the Expert Team on Ensemble Prediction

Systems within the Data Processing and Forecasting (DPFS) OPAG who are examining the use of probabilistic forecasting.

3.12.2 Some of the work of the WMO Forum on Social and Economic Assessment and Benefits of Weather, Climate and Water Services is also relevant to the Team. The Forum is the primary group for following up on Madrid Action Plan (MAP), and there are several aspects of direct interest to the Team, especially in relation to PWS outreach. These include: developing a background paper exploring possible approaches to engaging users and evaluating service needs, and developing a list of considerations in the generation and use of user surveys.

#### **4. ACTION ITEMS**

4.1 The Team agreed to the following Action Items arising from the meeting:

- Drafts of each 'How-To Guides' to be provided to the Chair by 31 December 2009. The Chair to provide *Guides* to WMO Secretariat by 31 January 2010 with a view to having them translated into WMO official languages and published by 31 March 2010.
- *Guidelines* for NMHSs on communicating the social and economic benefits and impacts of Public Weather Services to be drafted by the Chair and circulated to the Team for comment by 31 May 2010, with a view to publication in time for CBS-Ext (10).
- Information on the use by NMHSs of emerging technologies and social media drafted by the Chair and circulated to the Team for comment by 30 June 2010, with a view to publication by 30 September 2010.
- List of available experts in communications, outreach and public education that can be called upon to assist with PWS training activities, to be developed by all Team members and provided to the Secretariat by 31 December 2009.
- 'Job description' of skills / personal qualities needed to work with public / user sectors to be developed by Mr Kreft by 31 December 2009.

#### **5. VISIT TO THE NATIONAL FORECAST CENTRE AT THE CUBAN INSTITUTE OF METEOROLOGY**

The Expert team visited the National Forecast Centre at the Cuban Institute of Meteorology and was briefed on the range of operations for which the Centre is responsible. This includes the provision of national forecast and warning services, including official Hurricane Warnings. Of particular interest to the Team were the effective arrangements for *in situ* briefing of the media and emergency management, as well as the systems used to broadcast information by television.

#### **6. CLOSURE OF THE MEETING**

The meeting of the ET-COPE closed at 1700 hours on Friday, 20 November 2009. All participants expressed their appreciation to the Cuban Institute of Meteorology, and, in particular, to Dr José Rubiera and his staff for their warm hospitality and excellent arrangements provided for the meeting.

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**PARTICIPANTS AT THE MEETING OF THE EXPERT TEAM ON COMMUNICATION,  
OUTREACH AND PUBLIC EDUCATION ASPECTS OF PWS (ET/COPE)**

**Havana, Cuba, 16 – 20 November 2009**

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**EXPERT TEAM ON COMMUNICATION, OUTREACH AND PUBLIC EDUCATION OF PWS (ET/COPE)**

**(Havana, Cuba, 16-20 November 2009)**

**PROGRAMME**

	<b>Monday 16 November 2009</b>	<b>Tuesday 17 November 2009</b>	<b>Wednesday 18 November 2009</b>	<b>Thursday 19 November 2009</b>	<b>Friday 20 November 2009</b>
<b>AM</b>					
<b>0900</b>	<p><b>1. Opening</b></p> <p><b>2. Background Information and Objectives (WMO Secretariat)</b></p> <p><b>3. ET/COPE Work Programme</b></p> <p>TORs (a, b, e, h and I): Discussions of key issues led by <b>Mr Jon Gill</b></p>	<p>TOR (d): Discussions of key issues led by <b>Messrs Mao Hengqing / José Rubiera</b></p> <p>TOR (i): Discussions of key issues led by <b>Mr Ivan Cacic</b></p> <p>TOR (g): Discussions of key issues led by <b>Ms Claire Morehen (Martin)</b></p>	<p>Identify and formulate deliverables under each TOR <b>(All participants )</b></p>	<p>General discussion Arrangements for follow-up actions under TORs</p> <p><b>4. Conclusions, Deliverables, Follow-up Actions</b></p>	<p><b>6. Preparation of report and the Executive Summary of the work of the Expert Team</b></p>
<b>1200</b>	<i>Lunch</i>	<i>Lunch</i>	<i>Lunch</i>	<i>Lunch</i>	<i>Lunch</i>
<b>PM</b>					
<b>1330</b>	<p>TOR (f): Discussions of key issues led by <b>Mr Peter Kreft</b></p>	<p>TOR (j): Discussions of key issues led by <b>Mr José Rubiera</b></p>	<p>Prepare inputs for reports on each subject and for the report of the meeting <b>(All participants)</b></p>	<p><b>5. Visit to the Cuban National Meteorological Service</b></p>	<p><b>7. Review and adoption of the report</b></p>
<b>1700</b>	<p>TOR (c): Discussions of key issues led by <b>Mr Stephen King'uyu</b></p>	<p>TOR (k) <b>All participants</b> General discussion on ET/COPE work</p>			<p><b>8. Closure of the Meeting</b></p>