



# **The International Forum of Meteorological Societies**

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## **A Summary Report**

### **Workshop on Global Weather Enterprise (GWE) Collaboration**

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**Organized by:**

**Global Facility for Disaster Reduction and Recovery  
GFDRR - of the World Bank Group**

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### Figure: Schematic Diagram of Potential Entity Relationship for GWE



## 1 Introduction

This article has been written as a follow-up of the workshop organized by the Global Facility for Disaster Recovery and Reconstruction (**GFDRR**) of the World Bank Group (**WBG**) with the assistance of the World Meteorological Organization (**WMO**) and the American Meteorological Society (**AMS**). It presents a summary of the workshop as well as issues faced by Global Weather Enterprise (**GWE**) and what needs to be done to resolve those issues. The article is based the information provided to attendees by the workshop organizers and the proceedings of the Workshop as well as *some of his own ideas have been added by the author*.

## 2 Background

It is believed that there is a great amount of scientific development done by Public, Private and Academic Sectors as well as a vast amount of meteorological data is collected by various types of users (e.g. National Hydro-Meteorology Services (**NHMS**), forestry departments, hydrology and power generation people, etc.). However, due to insufficient collaboration, the usage of all these available resources is not optimum. The GWE is unable to realize its full potential to deliver society's growing needs and unfair competition between the sectors leads to inefficiencies and in the worst case existential threats for some organizations.

By engagement and partnership, all three sectors of the GWE can grow substantially so that the GWE can more rapidly fulfill the growing societal needs to save lives and property

It was also the conclusion of the three Panel Discussions in the WWOSC-2014 Conference in Montreal, Canada that the collaboration between three sectors (PPA) and between various countries is necessary for progress of GWE to create a Weather Ready Globe. In addition, it is also necessary to assist least developed countries and developing countries to have a viable infrastructure for data collection and trained personnel to be able to operate the infrastructure and make best use its outputs. Readers are referred to the two documents at the end of this article which were created as a summary of the above panel discussions. These documents present the ideas of the leaders of the GWE and inferences drawn from those ideas. These documents are an interesting introduction to this very important mission.

## 3 Collaboration Issues and Impediments

In this section we outline some of the issues which hinder PPA collaboration and in a subsequent document we will discuss how they need to be handled and resolved.

1. **Lack of proper infrastructure** in least developed and deficient infrastructure in some developing countries.
2. **Non-Availability of data collected by NHMS to private sector.** The NHMS's of most countries do not want to share their collected data because they feel that this data is collected with Tax Payers' money and it cannot be provided free to Private Sector users *to make profit*. However, the way we

see the reality is that this “undepletable” goldmine of data if “mined/used” by a large number of users, will produce maximum value for the Society which the GWE is supposed to serve.

3. ***Fragmented Data Collection.*** In a given country systems are installed by various types of users even within the Government e.g. systems have been installed by National Hydro-Meteorological Service, Forestry Departments, Provincial Governments, Power Generation companies, etc. But data is not shared. We need to work towards “network of networks” model which will allow us to share collected and quality controlled data for the betterment of the society.
4. ***Existence of Commercial wings of NHMSs.*** In addition, some countries have NHMSs which also have commercial counterpart. Therefore, they compete with the Private Sector in those countries creating uneven playing field for the Private Sector (as compared to the countries where NHMSs share data), and hence creating tension between the Public and Private sectors.
5. ***Feeling of Threat from Private Sector.*** Some NMHSs feel adversarial relationship with the Private Sector and feel that a strong Private Sector will be a threat to their existence. Recently, some NHMSs have complained to WMO about some Private companies especially from US providing services to the users in their countries.
6. ***Complexity of coordination of work of three (PPA) sectors.*** First of all, difficulty in getting the three sectors to agree on the rules of this engagement and then how to implement the resulting agreements – especially internationally – is a difficult process and will require very diligent hard work.
7. ***Fulfilling need for data for Least Developed and Developing Countries.*** Some US Private Sector companies have tried to do that and have received resistance from local NHMSs. One attendee in the meeting even complained that they were warned that the company could be charged for breaking local law.
8. ***Budget Allocations by National Governments.*** The value of weather information to mitigate avoidable loss of life and damage to property is not understood by most governments. If they did, they would pay more attention to developing proper infrastructure, forecasting systems and disaster management tools and technologies even when there are overall budgetary issues faced by a country. This in many cases turns out to be cutting you nose despite your face.
9. ***Legislative Issues and Attitude of Governments:*** Some of the impediments are caused by Government regulations which are outdated and hence hinder PPA collaboration. They need to be modernized.
10. ***Public Education.*** Since politicians are accountable to, the public needs, public needs to be educated (made aware) to strongly support the need for improved weather information to politicians so that they make adequate investment in disaster management infrastructure and development of related sciences.

A separate document to be produced by IFMS will discuss how we can make an attempt to resolve these challenges.

## 4 Nov. 28, 2017 GWE-GFDRR Workshop

### 4.1 Reasons for the Workshop

The following factors show that GWE is undergoing major structural changes:

1. Private sector actors now have the capability to carry out far more than in the past.
2. Public-sector funding sources are under some pressure because of the consequences of the economic crisis over the past decade.
3. The societal need for more accurate and reliable weather information is growing fast as population density increases and climate change is taking place; nowhere is this need more acutely felt than in low- and middle-income countries.
4. The science and technology of the GWE is also advancing rapidly providing the opportunity to satisfy societal needs.
5. The GWE has for decades been one of intertwined contributions from the public and private sectors but not in an organized and conscious manner – with some exceptions.

All of these factors suggest that greater engagement between the public and private sectors of the GWE is essential for the opportunity to enable the GWE to grow substantially over coming decades and for this growth to be systematically managed for the benefit of all contributors and users. Failure to manage these changes to the GWE in an organized manner may result in detrimental competition between the public and private sectors instead of development in a mutually cooperative manner for the benefit of the society from the anticipated growth.

The avenues likely to generate this growth in the GWE include:

- a) Greatly increased societal need for more accurate and reliable forecasts,
- b) Mobilization of private capital, economic growth in many countries, sustained increased funding for research and development,
- c) Stronger cohesive engagement between the public and private sectors, and scaling-up via operationalization of scientific and technological advances.

The growth of GWE by a factor of ten over the next decade to increase its effectiveness and maximize its benefits to society is envisaged by the organizers of Workshop. The basis for a “10 x 10” growth (factor of ten in size over the next ten years) arises from a variety of quantitative and qualitative projections of recent growth trends in the GWE and in the avenues enabling the growth as previously listed.

### 4.2 Reason for WBG-GFDRR Involvement

Protecting society from hydro-meteorological and related hazards is a core element of achieving the World Bank’s *twin goals of ending extreme poverty and building shared prosperity*. Therefore, a part of World Bank Group’s (**WBG**) mission is to build hydro-meteorological capacity (both in terms of infrastructure and education) in developing and least developed countries.

*Given the WBG’s wide remit to support both the public sector through the International Bank for Reconstruction and Development (IBRD) and the International Development Association (IDA), and the private sector through the International Finance Corporation (IFC), the group is uniquely positioned to play a pivotal role in convening the sectors of the GWE and developing knowledge products to make full use of the GWE’s collective resources.*

Keeping above points in mind the Global Facility for Disaster Recovery and Reconstruction (**GFDRR**) of the World Bank Group (**WBG**) organized a workshop to initiate the stronger collaboration process between PPA sectors. They used the services of Prof. Allan Thorpe, Prof. David Rogers to organize this event.

### 4.3 Workshop Participants

Approximately 80 key individuals participated representing WMO, WBG, HMEI, IFMS, AMS, EMS, NHMS's of some advanced countries, international players such as ECMWF; weather service companies such as IBM, WeatherNews, Panasonic, AccuWeather, MeteoGroup; meteorological technology companies such as Harris, Spire, Vaisala, Cray, etc. The event was held at the Marriott Hotel near the World Bank Headquarters.

### 4.4 Workshop Methodology

GFDRR prepared and distributed the scoping documents to participants prior to the meeting to set the tone for the discussion. Most of the meeting was in discussion mode with introductory points being presented by *Conveners: William Hooke, Alan Thorpe and David Rogers* and attendees getting opportunity to provide comments.

### 4.5 Scope of the Seminar

The scope of this Seminar was to discuss the following issues in an environment where participants could talk freely and real problems (and opportunities) could be brought to the table for discussion and potential resolution. Specific issues that were to be discussed included:

1. What is the optimum investment in the public sector NMHSs particularly in low- and middle-income countries?
2. Are there socio-economic advantages if the private sector assumes a greater operational role?
3. What business models of private sector engagement in the sector can be sustainable?
4. How could more clearly defined and agreed roles and responsibilities for the public and private sectors be used to enhance the capacity of the GWE to deliver on the sustainable development goals?
5. Is the GWE utilizing the available innovative technologies effectively?
6. What are the opportunities and potential threats of private sector provision and sharing of global data?

A summary of comments will be provided in a document to be produced by conveners.

### 4.6 Expected Results

The expected Results included, but not be limited to:

1. A better understanding of, and potential financing models for access to, private sector data services in support of global NWP;
2. Guidance on future strategic investments of WBG in GWE;
3. Better understanding of how the GWE is linked to **SDGs** (Sustainable Development Goals) at the national level;
4. A framework for potential investment in global centres to support common global, regional and national public goods;

5. A better understanding of the roles and responsibilities of the public sector and private sector in the delivery of services.

It was expected that a facilitated open dialogue between the main parties will lead to improved working arrangements that will benefit the entire GWE and help increase opportunities for collaboration and cooperation. It is expected that the participants will agree priority activities, which would lead to the development of a more efficient and equitable GWE.

## 5 Conclusions

The scientific progress achieved by PPA sectors in the past is impressive but its full impact is not being achieved due to the reasons listed in section 3. In addition, any current achievements implemented in advanced countries are not reaching the Least Developed and some Developing countries. Better impact can be achieved only by active collaboration between these three sectors as well as between countries. Without this active collaboration in a systematically orchestrated manner, GWE may have detrimental consequences due to competition between the public and private sector instead of the mutual co-operation that would allow growth to take place and for society to benefit from the anticipated growth.

All of these factors suggest that greater engagement between the public and private sectors of the GWE is essential with the shared benefit being the opportunity to enable the GWE to grow substantially over coming decades and for this growth to be managed for the benefit of all contributors and users.

The Agenda of the GFDRR was extensive. However, the first meeting of this type can be considered to be only start of the discussion. In such a short time only the surface of topics could be touched. More focused and detailed meetings will be required to achieve real results.

## 6 Required Follow-up

In order to facilitate future interaction and chart a course to ensure this collaboration becomes a reality, a working group is required which will have focused meetings on specific issues and problems. This group should not be larger than 15 persons selected from various sectors of GWE and organizations such as WMO, WBG, HMEI and IFMS. The venue of the meetings can vary from AMS Conferences, Internet Asia, EMS Annual Meetings, IFMS meetings etc.

## 7 How the Conflict was resolved in the US

### 7.1 Background

When there was a conflict between the three sectors (PPA) of the US Weather Enterprise, NWS funded a NAS Study by a cross-sector Committee. The Committee examined the roles of the public, private, and academic sectors in providing **weather** and **climate** services, the **barriers to interaction** among the sectors, and the **impact of scientific and technological advances** on the weather enterprise. This resulted in a comprehensive report called "Fair Weather Report" which outlined the findings on above topics as well as recommended the ways of effective Partnership between these sectors in **Weather** and **Climate** Services. It also suggested that for resolving current and future conflicts between these sectors, a neutral body which has membership of all these sectors be assigned the role of "Conflict Resolution". AMS met these criteria and was assigned the role of that neutral body. As a part of its role, AMS organizes committees, board, etc., that include all three sectors, they provide venues (e. g. Annual AMS Meetings)

for the interaction, but AMS as an organization does not take direct responsibility for ensuring the desired results – it’s up to the committee and the sector reps.

## 7.2 Commission on the Weather, Water, and Climate Enterprise (CWWCE)

In order to play its above-mentioned role, AMS created a **Commission on the Weather, Water, and Climate Enterprise (CWWCE)** which is charged with developing and implementing programs that address the needs and concerns of all sectors of the weather, water and climate enterprise; promote a sense of community between government entities, private sector organizations; and universities; foster synergistic linkages between and among sectors; entrain and educate user communities on the value of weather and climate information; educate policy makers on the value and operations of the enterprise; and provide appropriate venues and opportunities for communications that foster frank, open and balanced discussions on points of contention and concern. In other words, the “prime directive” of the CWWCE is to engage the government, academic, and private sectors on pressing and strategic issues on behalf of the larger Society. These interactions may extend to involve other AMS Commissions, the user community, and disciplines beyond that may request assistance with enterprise communication, growth and development matters. A core value of the CWWCE is to encourage early career, diverse, and student participants in Commission activities including, as appropriate, leadership positions.

The description of the AMS Enterprise Commission is provided on the Commission web pages (<https://www.ametsoc.org/cwwce/>) which also provides links to lots of recent commission reports if the reader wants to drill deeper.

## 8 IFMS’ Potential Role

A similar neutral body as discussed above will be required to support resolution of similar conflicts between PPA sectors and an additional dimension - various countries - on an international scale. IFMS which is a forum of Meteorological Societies of the World can play this role with the support of AMS and other three partners (WMO, WBG and HMEI).

Learning from AMS experience in handling this challenging task, we envision forming a Commission called Weather Enterprise Liaison Commission (**WELC**) under IFMS which can coordinate this effort as per the following schematic diagram.

The WELC should consist of members from the three sectors as well as the three organizations shown in the diagram.

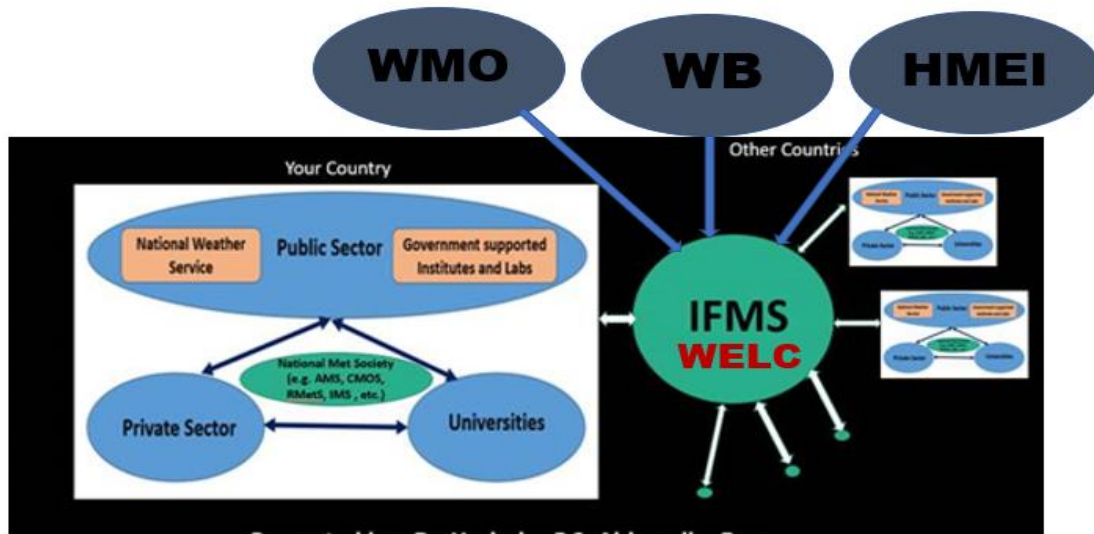
Like AMS, the WELC can have appropriate number of Committees to handle various matters.

IFMS can provide the secretarial and planning assistance, which would require financial support. We believe that the WBG and WMO which will be the net beneficiaries of this volunteer-based organization can finance IFMS with reasonable funds to operate this program.

However, this effort will require considerable money for running a small office, covering travel cost and other miscellaneous costs. We believe that the WBG and WMO which will be the net beneficiaries of this volunteer-based organization can finance IFMS with reasonable funds to operate this program.

**We recommend that a follow-up meeting be held at the AMS Conference in Austin where these ideas about constituting a Committee and assigning its home be discussed and decisions made.**





**Schematic Diagram of Potential Entity Relationship**

## Acknowledgements

The author would like to thank Jack Hayes and Keith Seitter for their review of this paper and valuable comments. We would also like to thank WBG and WMO for organizing this very important workshop and making PPA sectors aware of what is the current status and what can be achieved through this collaboration to strengthen the GWE.

Finally, thanks are also due to Alan Thorpe, David Rogers and William Hooke for running this important workshop.

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The WWOSC Panel Report as well as the transcripts of the speeches are available on the website of CMOS (Canadian Meteorological and Oceanographic Society):

[http://www.cmos.ca/document/2679/Report-](http://www.cmos.ca/document/2679/Report-Special%20Joint%20Panel%20on%20the%20Future%20of%20the%20Weather%20Enterprise%20FINAL-V01.pdf)

[Special%20Joint%20Panel%20on%20the%20Future%20of%20the%20Weather%20Enterprise%20FINAL-V01.pdf](http://www.cmos.ca/document/2679/Report-Special%20Joint%20Panel%20on%20the%20Future%20of%20the%20Weather%20Enterprise%20FINAL-V01.pdf)

<http://www.cmos.ca/document/2680/Annexes-A-B-C-Panel%20Speeches-QA-26-May-2016-Final.pdf>