

RESULTS OF THE SURVEY ON
IMPACTS OF ACHIEVED RESULTS ON MEMBERS
CONDUCTED IN FEBRUARY-OCTOBER 2012

SUMMARY



December 2013

INTRODUCTION

A survey on the “Impacts of Achieved Results on Members” was undertaken in July-November 2013. The 191 Members of the World Meteorological Organization (WMO) were requested to respond to a questionnaire comprised of 74 questions. As of November 2013, a total of 97 Members (51%) had responded to the survey. Of these, five submitted incomplete responses. The rate of response per Regional Association (RA) is as follows: RA I (Africa): 42%; RA II (Asia): 44%; RA III (South America): 50%; RA IV (North America, Central America and the Caribbean): 77%; RA V (South-West Pacific): 33%; and RA VI (Europe): 61%.

This report presents a summary of the key findings. The full report is available as a separate document at http://www.wmo.int/pages/about/documents/Fullreport_IARM_Dec_2013.pdf.

RESULTS OF THE SURVEY

Expected Result 1: Enhanced capabilities of Members to deliver and improve access to high quality weather, climate, water and related environmental predictions, information and services in response to users' needs and to enable their use in decision-making by relevant societal sectors.

The sectors where NMHS products and services were mostly used, according to 92 respondents, include the general public (77%), emergency management (73%), the aviation industry (63%), agriculture (62%), and the marine sector (51%). Forty-one percent highlighted other sectors, such as energy, water, health, transportation, tourism, urban planning, housing, and industry.

Forty-six percent of 96 respondents indicated that they have highly reliable access to products delivered by WMO Global and Regional Centres; 48% rated their access as ‘mostly reliable’, while only 5% regarded it as intermittent. According to 81% of 95 respondents, the level of access to products provided by global and regional centres improved in the past two years.

Figure 1 presents the level of user satisfaction with the availability, reliability and timeliness of NMHS products and services as well as with their contribution to decision-making.

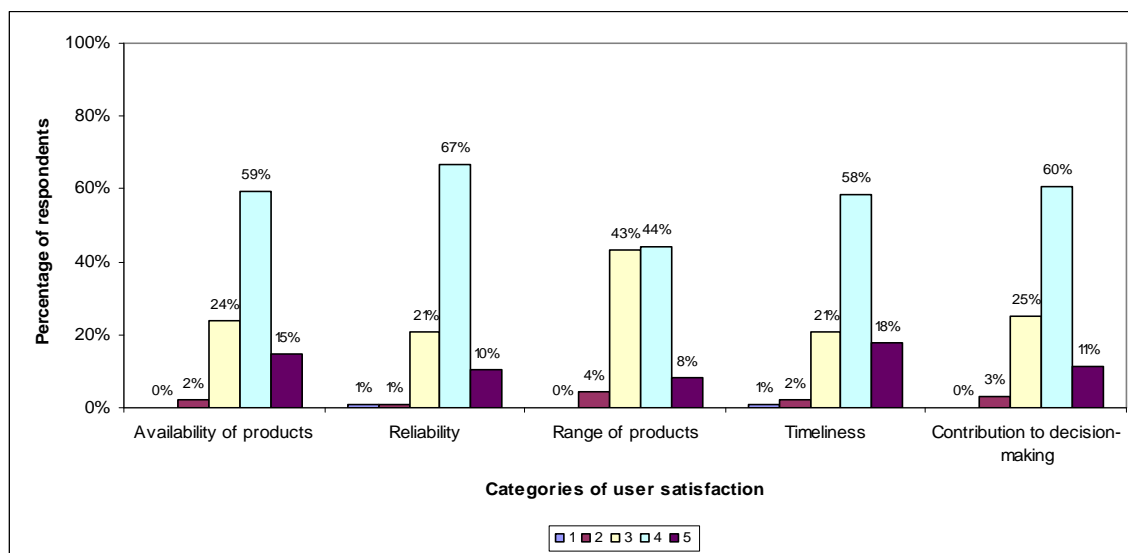


Figure 1: User satisfaction with NMHS products in terms of availability, reliability, range, timeliness and contribution to decision making (1=very dissatisfied; 5=very satisfied)

Expected Result 2: Enhanced capabilities of Members to reduce risks and potential impacts of hazards caused by weather, climate, water and related environmental elements.

Ninety-five percent of 96 respondents contribute to the implementation of a multi-hazard early warning system in their country. Eighty-seven percent of 91 respondents indicated that their contribution is recognized under a formal agreement, Memorandum of Understanding or other government mandates.

Ninety-three percent of 96 NMHSs make part of a disaster risk reduction platform. Eighty-four percent have a flood management plan established or under development.

Forty-two percent of 93 respondents participate in a regional hydrological forecasting system for a transboundary river basin.

Expected Result 3: Enhanced capabilities of NMHSs to produce better weather, climate, water and related environmental information, prediction and warnings to support in particular disaster risk reduction and climate impact and adaptation strategies.

Eighty-one percent of 91 respondents issue seasonal predictions, 69% monthly predictions, 64% climate watch bulletins, and 47% long-term projections. In terms of quality, over half of respondents rated the above products to be of high to very high quality, and 32-44% percent gave them an average rating, depending on the type of product. 14% and 10% of respondents gave a low rating to the quality of seasonal predictions and long-term projections, respectively. Only 6-7% rated the quality of monthly predictions and climate watch bulletins as low to very low.

Eighty percent of respondents were satisfied or highly satisfied with the timeliness of monthly and seasonal predictions; two-thirds with that of climate watch bulletins, and 60% with that of long-term projections. Sixteen percent rated long-term projections as 'very untimely' or 'untimely'.

Figures 2 and 3 present the proportion of Members developing and disseminating a range of climate products and information for national needs, based on the responses of 90-93 Members.

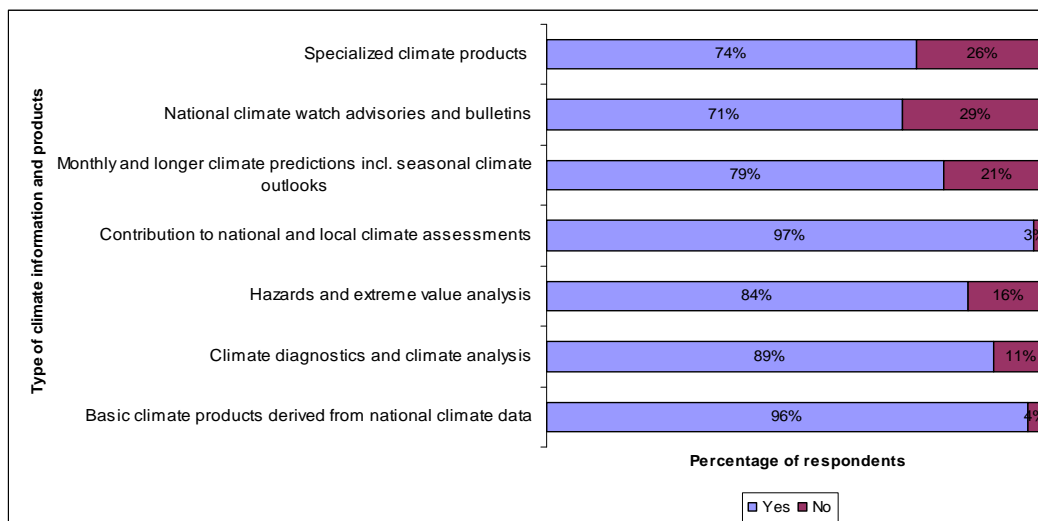


Figure 2: Climate information and products developed and disseminated for national needs

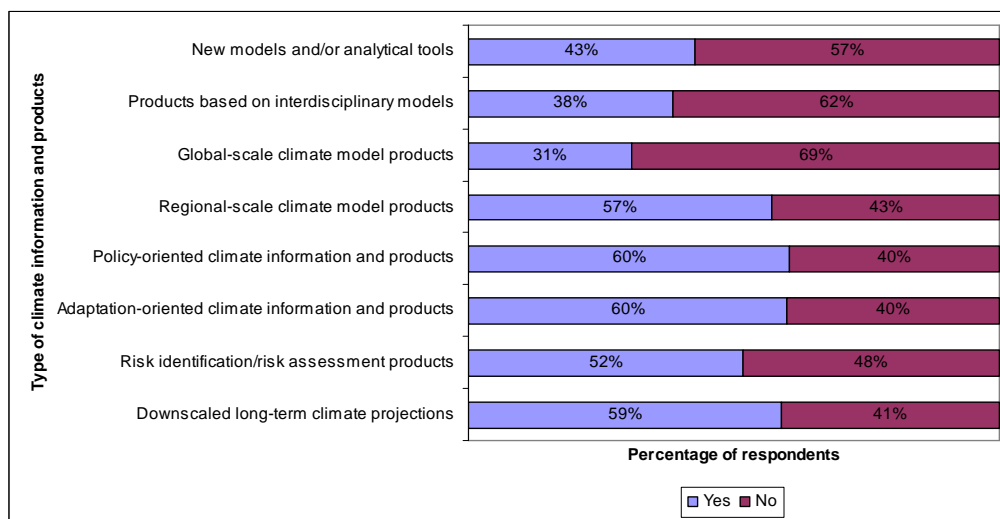


Figure 3: Climate information and products developed and disseminated for national needs (continued)

The two products considered of highest quality are (1) the basic climate products derived from national climate data and (2) NMHS contribution to national and local climate assessments. There was least satisfaction with the quality of interdisciplinary models, new models/analytical tools and, to a lesser extent, regional-scale climate model products.

In terms of the products available at WMO Regional Climate Centres, half of 86 respondents rated their quality as 'high' to 'very high', while 20-25% provided them an average rating. Slight dissatisfaction was reported only with respect to long range forecasts (10%).

Expected Result 4: Enhanced capabilities of Members to access, develop, implement and use integrated and interoperable Earth- and space-based observation systems for weather, climate and hydrological observations, as well as related environmental and space weather observations, based on world standards set by WMO.

Nineteen NMHSs, or 21% of 92 respondents, initiated or implemented a WIGOS demonstration national project. Over three-quarters of 92 respondents indicated an increase in the availability of observations for users/user groups over the past two years.

Half of 88 respondents implemented some functions of the WIS defined in the Manual on WMO Information System (WIS), WMO-No. 1060, over the past two years. As a result, data access improved for 60% of 52 respondents through obtaining more observational data and products. Data processing and management capabilities improved for 70% of 34 respondents. Figure 4 presents Members' rating of the maturity of the WIS functions implemented at their respective NMHS, based on 51 respondents.

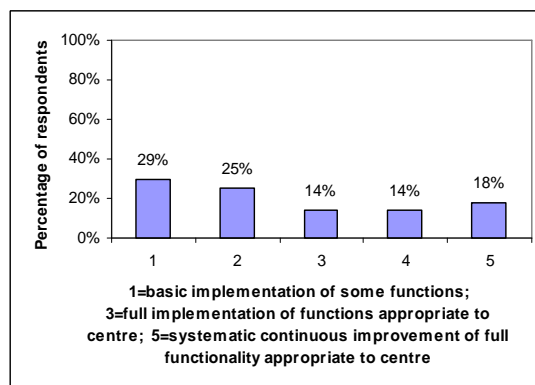


Figure 4: Maturity of WIS functions implemented at NMHSs

Seventy-six percent of 92 respondents indicated that the national climate user community had access to data archives at national or global climate data centers operated by them.

As evident from Figure 5 below, the majority of 88 respondents rated relatively high the quality of climate observations provided.

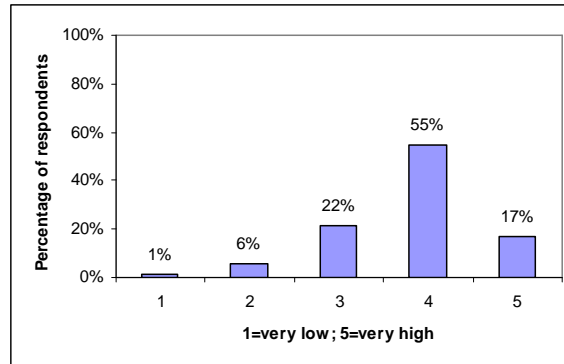


Figure 5: Quality of climate observations provided by NMHSs in meeting user needs

Thirty-eight percent of 92 respondents benefited from a WMO-coordinated data rescue project; 56% had a data rescue project carried out in their country during the past two years; and 88% indicated that there is a continued need for such projects.

Expected Result 5: Enhanced capabilities of Members to contribute to and draw benefits from the global research capacity for weather, climate, water and the related environmental science and technology development.

Ninety respondents expressed their degree of satisfaction with the skill of climate predictions, as presented on Figure 6.

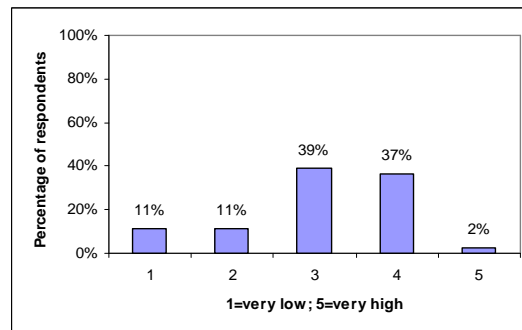


Figure 6: Level of skill of climate predictions issued by NMHSs and other mandated institutions:

Seventy-three percent of 80 respondents indicated that their operational nowcasting service had improved as a result of WMO research projects. According to 71%, the access and use of outputs of operational ensemble modelling systems enhanced as a result. About half found advances in the design and operational use of mesoscale prediction systems.

Thirty-one respondents from developing and least developed countries participated in regional or international research initiatives on high-impact weather or a severe weather forecasting demonstration projects in the past two years. Their rating of improvements in NMHS capabilities as a result of participation in these activities is presented in Figure 7.

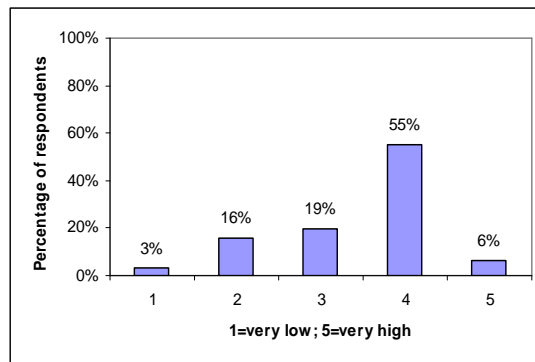


Figure 7: Improvements in capabilities in forecasting high-impact weather

Figure 8 presents satisfaction with the usefulness and timeliness of the Global Atmospheric Chemistry Bulletins, as rated by 76 respondents.

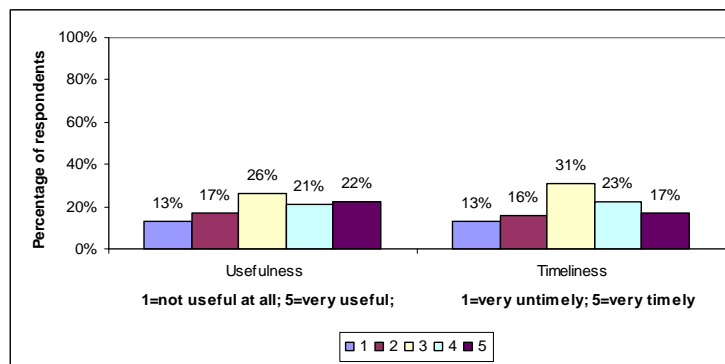


Figure 8: Rating of the usefulness and timeliness of the Global Atmospheric Chemistry Bulletins

Expected Result 6: Enhanced capabilities of NMHSs, in particular in developing and least developed countries, to fulfil their mandates.

Members observed significant improvements in their visibility and relevance in the national development agenda as relates to user accessibility to forecasts and warnings, their timeliness and accuracy, user awareness of the types of services provided, and contribution to policy setting, as presented in Figure 9.

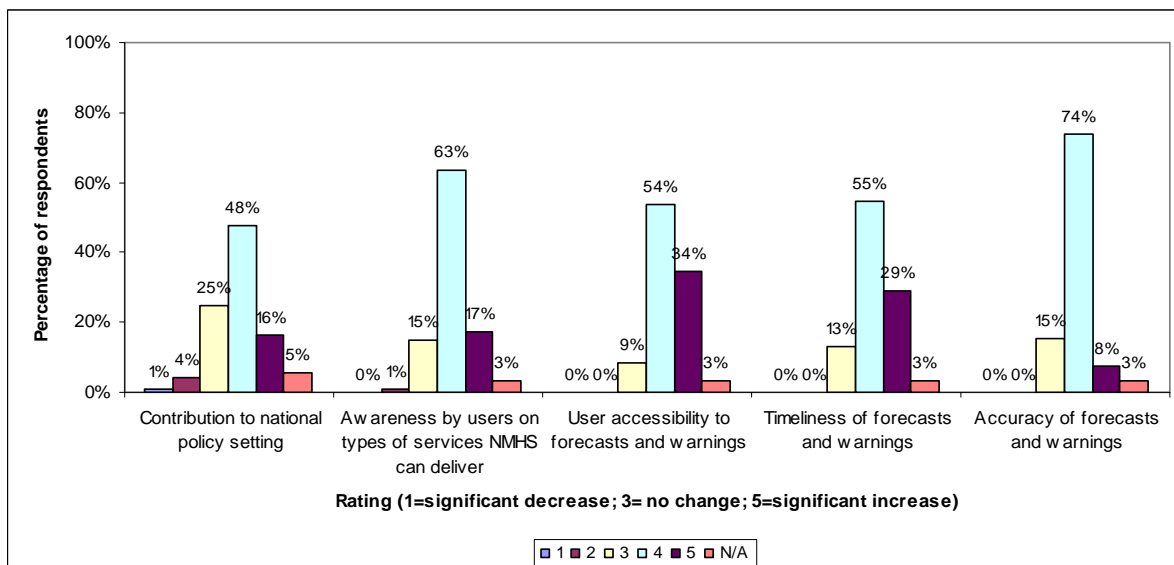


Figure 9: Change in the visibility and relevance of NMHSs in the national development agenda

A similar increase in visibility and relevance was also registered in terms of the regional services provided by NMHSs, though to a lesser extent. Whereas 38% of 91 respondents attributed these positive developments to the contribution of NMHSs to regional policy setting, the same portion indicated no change in this regard.

Of the improvements made to the NMHS infrastructure and operational facilities, 93% were in the surface observing network, 43% in the upper-air observing network, 74% in equipment for meteorological/environmental satellite data, and 82% in the data-processing/forecasting sector .

In the past two years, 58 NMHSs contributed to or had students under the WMO Fellowship Programme. Their rating of the Programme’s value is presented in Figure 10.

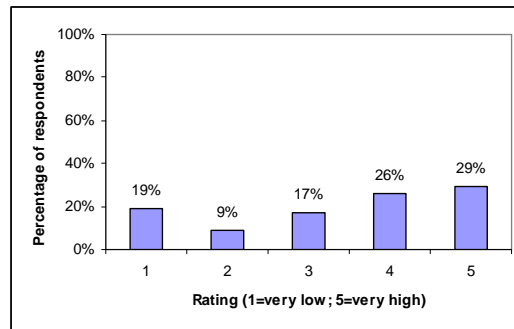


Figure 10: Value obtained from the WMO Fellowship Programme

Expected Result 7: New and strengthened partnerships and cooperation activities to improve NMHSs’ performance in delivering services and to increase the value of the contributions of WMO within the United Nations system, relevant international conventions and strategic issues.

Seventy-two percent of 92 respondents implemented projects or activities in partnership with UN and other international organizations over the last two years. 68% actively contributed to the work of IPCC. Of these, 58% contributed by nominating and supporting authors and review editors; 88% contributed to the government/expert review of IPCC reports.

Almost two-thirds of 92 respondents use WMO non-technical, public information outputs (e.g. website, press releases, World Met Day materials, In the Media, Facebook) frequently or on a regular basis. 16% always use them, while 22% use them occasionally. Half of 89 Members provided training to senior managers and communication officers in media relations, social media or other aspects of communication.

Expected Result 8: An effective and efficient Organization

No relevant questions in the survey. The data is collected using other sources.

WMO Services and Activities

The rating of the usefulness of WMO services and activities to each NMHS over the last two years is presented in Figure 11.

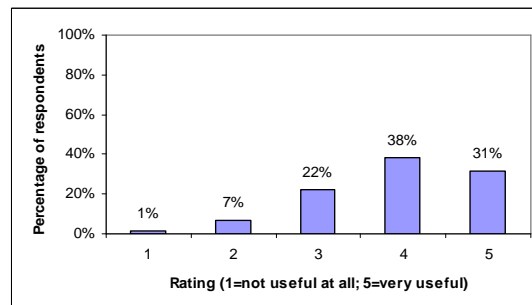


Figure 11: Usefulness of WMO services and activities

WMO activities and services beneficial to NMHSs

The two areas of WMO services and activities that the 90 respondents valued most are:

- Observing systems and data collection, exchange and rescue, with WIS and WIGOS featuring widely in Members' responses; and
- Capacity building.

Other WMO activities and services that were also highly appreciated include:

- WMO programmes, including the Aeronautical Meteorology Programme (AMP) and related Quality Management System (QMS), the Disaster Risk Reduction (DRR) Programme, the Severe Weather Forecasting Demonstration Project (SWFDP), the Tropical Cyclone Programme (TCP), and the Marine Meteorology and Oceanography Programme (MMOP).
- Provision of climate services, including the Global Framework for Climate Services (GFCS);
- Standardization and provision of guidelines, procedures, manuals and other publications;
- The role of WMO as convener and sponsor of meetings/conferences;
- Meteorological services, specifically the Public Weather Services (PWS) Programme and the development of medium- and long-term weather and climate diagnostics and prognosis.

The ability to participate in technical commissions, expert teams and regional activities was also considerably valued by Members, and especially the financial assistance provided by WMO to representatives from developing and least developed countries. The provision of technical support (e.g. equipment, software, tools, expertise and the Voluntary Cooperation Programme) was another area of WMO support that was seen as particularly beneficial to Members.

Ability to respond to users' needs and contribute to decision making

Sixty percent of 91 respondents indicated significant improvement in their ability to respond to users' needs and contribute to decision making through participation in WMO activities. Close to 40% registered minor improvements, while only 2% did not assign any credit to WMO for their capacity development.

Major successes from leveraging off WMO activity in changing influence on decision makers or users of services

The three areas where respondents indicated highest achievements were:

- Communication to the public and decision makers, including the provision of more accurate forecasts and heightened awareness of climate change;
- Capacity building and technology transfer; and
- Climate services.

Other areas highlighted, though to a lesser extent, include:

- Early warning and disaster risk reduction;
- Institutional and policy developments;
- Elevated international status and improved reputation due to WMO's authority on the science of meteorology and hydrology;
- Strengthened cooperation among governmental institutions;
- Development of guidelines and tools.

Services and programme activities in need of improvement

The majority of respondents indicated highest need for improvement in the following three areas:

- Observation and monitoring networks, including data management and rescue. The need to strengthen NMHS capacity for WIS and WIGOS implementation has been specifically highlighted;
- Training and capacity building;
- Climate information, products and services to meet user needs, especially further consolidation and implementation of GFCS.

Other areas for improvement identified include:

- Public weather services;
- Infrastructure development
- Cooperation, especially at the regional and national level
- Numerical weather prediction, development of nowcasting systems, long-term forecasting;
- Disaster risk reduction, including the WMO DRR Programme and the development of natural hazard risk assessments;
- Scientific research (especially climate and atmospheric);
- Aeronautical and marine meteorological services, including QMS;
- Communications, including training and the use of social media.

Areas in which biggest improvements have been made over the past two years

The biggest improvements were accounted in the areas listed below (ordered from most to least frequently appearing in respondents' answers):

- Modernisation of the observation network and enhanced surface coverage;
- Data collection, management, rescue, processing, archiving and dissemination;
- Communications (information to the general public and the media; use of mobile platforms and social networks);
- Weather prediction (short-term forecasting, numerical weather prediction);
- Aviation service delivery, QMS;
- Climate forecasting and observations;
- Disaster risk reduction;
- Personnel training;
- Partnerships and coordination among national stakeholders;
- Long-term forecasting.

Areas in which more development is needed

The majority of respondents indicated highest need for improvement in the following five areas:

- Modernisation and expansion of the observation network;
- Weather forecasting, especially short-term numerical prediction and modelling;
- Database management, including data collection, processing, rescue and archiving;
- Human capacity development;
- Climate information, products and services, including GFCS and climate modelling.

Other areas that frequently appeared in respondents' comments were:

- Communications and service delivery;
- Early warning systems;
- Aviation services and QMS;
- Water services and hydrological forecasting;
- Research;
- International cooperation.