

# ANNEX I

## WORLD METEOROLOGICAL ORGANIZATION

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WWW/PCO/QMF, ANNEX

### **Explanatory circular on the WMO Quality Management Framework**

#### **Purpose of this circular**

A survey among NMHSs revealed that many Members needed more basic information on the WMO quality management policy. Also, misunderstandings concerning the WMO Quality Management Framework (WMO QMF) and quality management (QM) in general exist among WMO's Members. Therefore, the Executive Council, at its fifty-sixth session asked the Secretariat to issue an explanatory circular on that matter to further clarify the scope of the WMO Quality Management Framework, as given in Resolution 27 (Cg-XIV).

#### **Beware of misunderstandings**

Some of the misunderstandings are related to the terms used in connection with QM, which are often very similar, but have different meanings, such as Quality Management Framework (QMF), Quality Management System (QMS), Quality Assurance (QA) and Quality Control (QC). It is important to be knowledgeable of the meaning of the different terms and to use them correctly.

The following definitions are based on the ISO 9000 Standard: "Quality Management Systems – Fundamentals and vocabulary".

Quality:	Degree to which a set of inherent characteristics fulfils requirements
Quality Control:	The part of QM focused on fulfilling quality requirements
Quality Assurance:	The part of QM focused on providing confidence that quality requirements will be fulfilled
Quality Management:	Coordinated activities to direct and control an organization with regard to quality
Quality Management System:	Management tool consisting in a set of rules to direct and control an organization with regard to quality (to establish policy and objectives and to achieve those objectives)
Quality Policy	Overall intentions and direction of an organization related to quality as formally expressed by top management
Quality Management Framework:	Framework specific to WMO, which is aimed at addressing a wider range of quality management issues of interest to the Members of the Organization, including the ISO 9001:2000 QMS standard.

#### **What is a quality management system?**

The ultimate goal of a QMS is to encourage and to support the continual improvement of the quality of the delivered services and products.

A QMS consists of a set of rules (procedures) that an organization decides to follow in order to achieve its objectives related to the quality of its products. Such a system contains, for example, rules concerning the general management of the organization and makes reference to the technical procedures which have to be followed, the quality controls which are performed on the

products or services and the actions to be taken if the products or services do not comply with the requested specifications.

In order to ensure the achievement of the quality objectives, it is essential that clear and unambiguous procedures are used for each specific task.

### **The ISO 9001 Standard and the certification process**

The ISO 9001 Standard “Quality Management Systems – Requirements” is a management tool defining requirements for organizations that aim at efficiently directing their activities with regard to quality and customer satisfaction.

It should be stressed that the ISO 9001 Standard is a QM standard and **not a product quality standard**. Consequently, it does not address the quality of products, but defines requirements related to the management structure of the organization. Since ISO 9001 is a generic standard, it can be used by organizations of any type and size. It is the organization itself, which will specify its objectives and the procedures necessary to ensure that its quality objectives are indeed met.

An organization, which has implemented all the requirements of the standard, may invite an external body (a certification firm) to audit its QMS as regards its conformity with the standard. If the QMS complies with the standard, the certification firm will issue a certificate (the ISO 9001 quality management certification) and register the organization in a list of certified organizations.

Finally, it should be recalled that ISO is the organization, which developed the ISO 9001 Standard, but ISO does not work as a certification body. Organizations independent from ISO officiate as certification bodies and carry out the certification according to the ISO 9001 Standard.

### **Why consider quality management?**

Various reasons have led many NMHSs to consider the topic of quality management. These reasons were among others:

- User/customer requests  
*Some users of meteorological or related products require that the product they use/purchase are produced by a organization that is certified.*
- ICAO recommendation on the provision of meteorological services for international air navigation  
*ICAO recommends that QMS should be implemented for the provision of meteorological services for international air navigation. They should be in conformity with the ISO 9000 series of quality assurance standards and certified by an approved organization. (WMO Technical Regulations, No. 49, Vol. II, [C.3.1] 2.2)*
- Enhancement of the quality of meteorological products  
*NMHSs aim at constantly improving the quality of the products/services they provide and at meeting their stated quality objectives.*
- Need to enhance competitiveness  
*Many NMHSs have to generate revenue by selling their products or services. They also have to compete with commercial providers of meteorological services. The introduction of QMSs can help them to enhance and demonstrate competitiveness and to justify their activities to their governments.*
- Positive experience reported by NMHSs having implemented a QMS  
*NMHSs having implemented a QMS reported benefits from it in their overall activities and operation, which were well worth the investment.*

The systematic application of QM practices in the various sectors of operation, service delivery and/or administration enables the NMHSs to better control the optimal use of resources and the consequent development and implementation of procedures and practices, as well as to implement error control and corrective feedback. In view of the various benefits that can be obtained from the

use of QM procedures, for the NMHSs themselves as well as for the end-user clientele, the Fourteenth WMO Congress decided to address aspects of quality management. It also recognized the need to assist those NMHSs that did not wish to pursue the ISO-based certification and/or that did not have the resources needed for that purpose. Therefore Congress decided to work towards a Quality Management Framework (QMF), as a cross-cutting activity, which should assist Members in their various situations to achieve their individual QM-related objectives.

## **Present situation**

In view of the benefits NMHSs could gain from the use of QMSs, including an increased quality of products and services as well as an optimized use of resources, Cg-XIV encouraged the Members to implement QMSs but did not urge the pursuance of a specific standard. Mention of ISO 9001 is made in various documents because it is one of the most well-known and widely accepted standards, but this standard was not seen as a unique single-track approach which would have to be followed by WMO's Members.

However, some NMHSs might be required to implement the ISO 9001 standard by Government directive, requests by their customers, the need for economic competitiveness, etc. Indeed, in general terms, the requirements for confidence in the quality of products/services are constantly increasing and put pressure on the NMHSs. Recognizing that such influences exist, Congress aimed at assisting the Members by addressing this issue through the WMO QMF.

## **The Congress Resolution**

The basis for the WMO QMF is given in Resolution 27 (Cg-XIV), which stipulates:

*WMO should work toward a Quality Management Framework (QMF) for NMSs that would eventually include and develop the following distinct though related elements, which could be addressed, possibly on a phased basis:*

- (1) WMO technical standards;*
- (2) Quality management system(s) including quality control; and*
- (3) Certification procedure(s);*

*while recognizing that the tasks associated with the development of such a framework had yet to be assessed.*

*The development of a WMO Quality Management Framework should enable the provision of early and continuing relevant advice to Members on developing their quality management system.*

Resolution 27 is very general and lists issues which should be further studied in order to help the Members to improve the quality. The different points of the resolution and related issues will be shortly addressed under the following points.

## **WMO Technical Standards as Reference Documentation**

The procedures and practices, which are described in the WMO Technical Regulations and documentation already provide the basis material for use as reference material in national QMSs. This documentation also contains some quality requirements, quality control and quality assurance practices.

The use of consistent and up-to-date WMO technical documentation in QMSs, and particularly in the certification process, is important since clear process descriptions are required. So far, ISO-certified NMHSs have not reported problems with the use of existing relevant WMO technical documents in acquiring their certification. However, the WMO documentation should be revised to ensure it is consistent, free of errors or duplications, and compatible with internationally accepted quality management standards.

The first point of Resolution 27 addresses this matter. Possible strategies to efficiently achieve this and to make the use of this documentation as straightforward as possible should be investigated under this point.

## **QMSs for NMHSs**

A QMS addresses on one hand the general management of an NMHS (management of resources, staff, objectives, internal audits, ...) and on the other hand the technical documentation describing, for example, how the products (e.g. meteorological observations and forecasts) are realized and controlled.

Consequently, QMSs need to be designed specifically for every NMHS. Consultants usually assist in the development of a QMS and advise on how to set it up. However, the description of applied processes has to be developed by the staff so that it corresponds to the work habits of the organization and to its real needs. Nevertheless, many processes can be based on and make reference to standard procedures, such as those available in the WMO technical documentation.

The generation of the QMS documentation should be a value-adding activity, and not an aim in itself. Each organization determines the extent of the documentation required for its activities and the media to be used so that it fits its purposes.

Full commitment of the executive management is necessary for setting up a QMS. If that commitment is missing, the system could become a burden and possibly a waste of resources.

The second point of Resolution 27 refers also to QC. This topic is only partly addressed in the WMO technical documentation. The Technical Commissions would need to develop new or additional requirements for quality control and quality assurance procedures.

## **WMO QMF vs ISO 9001**

Inadequate knowledge of ISO 9001 and its application has led to misconceptions and concerns over high costs and complexity. Some of these misconceptions may have resulted from the fact that the ISO 9001 Standard is a generic standard applicable to any type of organization. In fact, this should be perceived as an advantage because it enables an NMHS seeking certification to define the level of complexity required by its particular situation. While there is no single solution that fits all NMHSs, the implementation methodology is defined by the Standard. It is also important to mention that several NMHSs have reported on achieving an ISO 9001 certification at reasonable cost.

WMO QMF reaches much farther than ISO 9001, since it includes also, for example, the technical standards to be followed. The WMO QMF and the implementation of QMS according to ISO 9001 are complementary -not mutually exclusive- activities.

An ISO 9001 certification carries an important element of international credibility and recognition. As a matter of fact, almost all the NMHSs, which have completed the implementation of a QMS have done it according to ISO 9001.

The development of the WMO QMF should include the ISO 9001 as well as other options and should not create a conflict for Members in the choice between single-track approaches of ISO or other practices.

## **Certification**

The third point of Resolution 27 mentions the certification. Cg-XIV was originally under the impression that a certification according to ISO 9001 would be prohibitively expensive for many NMHSs. Therefore, Cg-XIV decided to include the matter of certification in the WMO QMF in order to assess whether certification should be considered at all and if so, which type of certification scheme should be considered. Various options could be considered:

- Implementation of QMS without the ISO 9001 certification;
- QMS with ISO 9001 certification;
- WMO-own certification system.

More recent information obtained from ISO-certified NMHSs showed that the direct costs of certification were generally not as high as expected. The costs linked with a WMO-own certification scheme might be much higher than ISO 9001 certification provided by national auditing firms due to permanent staff and travel costs, the requirements for neutrality and geographic balance within the WMO certification team, and in some countries, the large amount of translation work, which would be necessary to facilitate the work of WMO auditing teams.

It became also evident from the experience gained by several ISO 9001 certified NMHSs, that the largest portion of the QMS-related cost were attributed to consulting services needed to set up the QMS in the NMHS. As a result, it would appear more cost-effective for WMO to invest into capacity building activities to enable NMHSs to develop and implement a QMS, rather than in developing a WMO-own certification scheme.

WMO has no experience as auditing organization and it would take a long time to develop the scheme and to train the auditors. Such a delay could, in many cases, be unacceptable.

In the same line of thoughts, a WMO-own certification scheme would have to be compatible with ISO 9001 certification in order to meet the requirements of those NMHSs, which were required to implement QMSs according to ISO 9001.

To conclude the matter of certification, it should be noted that at present it is not clear whether NMHSs could meet the ICAO recommendation on QMS contained in the ICAO Annexes with any WMO-own certification scheme.

## **Documents addressing the WMO QMF**

- Cg-XIV, Abridged Final Report with Resolutions (WMO-No. 960), Sections 3.1.0.12 to 3.1.0.15 and Resolution 27
  - EC-LV, Abridged Final Report with Resolutions (WMO-No. 961), Resolution 8
  - EC-LVI, Abridged Final Report with Resolutions (WMO-No. 977), Sections 3.25 to 3.30
  - EC-LVII/PINK 8.4 and EC-LVII/Rep. 8.4
  - XIII-RA II, Abridged Final Report with Resolutions (WMO-No. 981), Section 15.4
  - XIV-RA IV, Abridged Final Report with Resolutions (WMO-No. 987), Section 15.4
  - XIV-RAVI, Abridged Final Report with Resolutions, PINK 15.4
  - CBS-XIII, Abridged Final Report with Resolutions and Recommendations (WMO-No. 985), Sections 4.14 to 4.22
  - WMO/TD-No. 1267, WMO Quality Management Framework – First WMO Technical Report (CD-ROM)
  - WMO QMF website: [www.wmo.int/web/www/QMF-Web/home.html](http://www.wmo.int/web/www/QMF-Web/home.html)
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