

***State of Quality Management System Implementation
in the National Hydrological Services***

Prepared by

CHy QMS Working Group:

Ted Yuzyk (Canada)

Jan Kubat (Czech Republic)

John Fenwick (New Zealand)

Robert Mason (United States)

Background

The World Meteorological Organization (WMO) has been promoting the application of a Quality Management System (QMS) framework for its National Meteorological and Hydrological Services. A high priority for the Commission for Hydrology at its Thirteenth and Fourteenth Sessions relates to advancing the implementation of a QMS by National Hydrological Services (NHSs). Although progress is being made globally, there are still many NHSs that do not have what is considered to be a properly structured and effective QMS in place. On a positive note, there is a growing number of NHSs that have adopted the principles and procedures advocated in the ISO 9001 QMS framework and are now ISO compliant or are in the process of so doing.

Early in January 2016 [a questionnaire](#) was sent to the 124 NHSs in an effort to assess the state of QMS in their organization. By the end of February, after a two week extension, [44 responses](#) had been received. This corresponds to a 35% response rate from the NHSs, which is considered a reasonable response for such surveys. Information from these completed questionnaires has been assessed and synthesized.

Questionnaire Synthesis

Table 1 shows that based on this survey sample: 36% (16) of NHSs have no formal QMS in place; 46% (20) have some type of formal QMS for their water quantity (hydrometric) monitoring program; and 18% (8) have an ISO compliant QMS. The most advanced WMO Regional Association (RA) in terms of QMS development would appear to be RA 6. It also would appear that RA 1 and RA 5 are the least advanced in regards to QMS development, based the results of this limited survey.

WMO Regional Association	Total Responses	No Formal QMS in place	Formal Internal QMS in place	ISO-certified
RA 1	8	6	1	1
RA 2	4	1	3	0
RA 3	3	1	2	0
RA 4	7	3	3	1
RA 5	6	4	1	1
RA 6	16	1	10	5
Total	44	16	20	8

Table1: Extent of QMS Implementation in NHSs

There are a number of reasons why a NHS may not be moving forward with fully implementing the ISO framework and pursuing certification. The reasons have been grouped below based on their responses:

1. Do not have the knowledge/expertise to put into place (14).
2. Do not have the resources nor consider it is cost-effective to put into place (10).
3. Do not consider it necessary for their program (6).
4. Have not given it any consideration (4).

This tabulation includes multiple reasons given from some NHSs and some NHSs did not respond to this question as they are making advancements in adopting an ISO 9001 QMS.

Consideration also needs to be given to languages in regards to QMS implementation. Although English is used extensively, many NHSs are more conversant in one of the other common UN languages and efforts need to be made to make QMS documentation available in those other languages.

When asked if the NHS was prepared to share its QMS documentation, 41% (18) indicated it was not available for distribution, while 20% (9) were open to sharing, and 39% (17) did not respond to the question. Unfortunately, the questionnaire did not specifically request the reasoning as to why a NHS would not wish to make its QMS material available for distribution. However, there is a wide range of reasons why this might be the case. For example, a NHS may see little utility in sharing material if it is only available in their native language, which is not used by other members. As well, the material may not be easily accessible or the NHS may not have available any resources to be able to respond to such requests. Sharing of documentation to assist NHSs is just one of the many challenges in advancing QMS implementation globally.

Interestingly, 55% (24) of NHSs that responded said they would be open to advice or assistance from CHy in helping them establish a QMS for their organization. For organizations that have a QMS in place, some 32% (14) would be interested in pursuing implementing an ISO 9001 QMS if they could get advice or assistance from CHy.

There are 8 NHSs that are presently ISO certified, 6 of them have indicated that they are prepared to provide advice or assistance to a NHS that is interested in adopting the ISO 9001 QMS framework. They are:

- Mauritius NHS (RA 1)
- Canada NHS (RA 4)
- New Zealand NHS (RA 5)
- Czech Republic NHS (RA 6)
- Hungary NHS (RA 6)
- Republic of Serbia NHS (RA 6)

Other NHSs that have extensive expertise in QMS implementation, such as the US NHS, can also help NHSs in the development of an effective QMS for their organization.

Although this survey focussed on a QMS for water quantity monitoring programs, a number of NHSs identified that they have a QMS for other water programme areas, such as: flood forecasting, hydrological

service products, water quality laboratory, etc. Opportunities exist to expand the implementation of QMS efforts to other areas.

Recommendations on Moving QMS Implementation Forward in the NHSs

1. It may be worthwhile to provide an orientation/training session on QMS development at the next Session of CHy, to be held in December 2016, to more effectively engage the NHSs in this priority.
2. Identifying one NHS to champion QMS in each RA may help to build momentum and be cost-effective if any travel is involved. Building upon the NHSs that have indicated that they are prepared to provide advice and assistance on development of QMS could be the first step.
3. It may prove more effective to structure advancing QMS along other common UN languages, such as French, Spanish, etc., so that the communications and sharing of documents will be more meaningful. Undertaking additional case studies and compiling QMS documentation in these other major languages to supplement the work that has been done by CHy to date will certainly help advance QMS development globally.
4. NHSs that have a mature QMS in place should be encouraged to provide opportunities to allow other NHSs to participate in one their internal reviews/audits and observe and learn firsthand what is involved in QMS implementation.