**Cocom BIP-M/MT concept paper, author of draft: Sally Wolkowski
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**Introduction**

Cocom is the Coordinating Committee for the Standing Committee of Heads of Training Institutions (SCHOTI). It is not a formal body to WMO, but it does act in an informal manner as an advisory committee to WMO Education and Training department. The most recent face to face meeting was held in South Africa in September,2018, kindly hosted by SAWS. Terms of reference for Cocom can be found in annex A. The representatives at the meeting in September were:

* Winifred Jordaan (SAWS)
* Sally Wolkowski (UKMO)
* Dider Reboux (Meteo France)
* Jennifer Milton (MSC)
* Patrick Parrish (WMO)
* Andrea Henderson (BoM)
* John Ogren (NWS)
* Liz Page (COMET)
* Pablo Ortiz (AEMET)

One topic of conversation on the agenda of the meeting was the upcoming review of the BIP-M and BIP-MT. We discussed the issues of needing to meet a number of different approaches and requirements for the BIP portfolio, the difference between the BIP portfolio (knowledge required to be a Meteorologist) and competency frameworks (vocational competence required to operate in a role) and indeed, how the variety of global requirements and uses for the standards could be met without compromising the quality of the standards. During this discussion, an outline concept was developed for a flexible BIP portfolio which we believe worthy of sharing with the BIP-M and BIP-MT review working group to prompt further ideas and discussion.

We felt this concept paper would be useful to aid discussions at the November meeting.

**The concept**

This conceptual model for the BIP portfolio started by understanding the variety of audiences which use the BIP portfolio as an accreditation standard. These are summarised in table 1 below. It is acknowledged that this is not exhaustive but it was felt important to start by looking at the variety of uses of the standards before thinking about any revisions to structures.

|  |  |
| --- | --- |
| Employer type | Types of roles which might make use of the BIP-M or BIP-MT |
| Universities | research scientists, industry meteorologists, meteorologists ready for on the job training |
| National Meteorological Services | operational meteorologists or forecasters, advisors, observers, meteorological technicians, engineers, advisors, data scientists, meteorological researchers, meteorology communicators |
| Industry | industry meteorologists, risk forecasters, meteorological service users, meteorological communicators |

**Table 1: Potential users of the BIP portfolio**

The next step moved on to what different types of knowledge were required for the different roles. Table 2 provides an outline analysis of the different types of meteorological theory and skills required to fulfil the different types of role in industry, academia and national meteorological services.

|  |  |  |
| --- | --- | --- |
| **Type of knowledge required** | **Description** | **Example roles requiring this knowledge** |
| Meteorology essentials | The information required to be able to talk confidently about the weather and the processes which involve weather | All roles  |
| Operational essentials | Knowledge about weather processes required in order to fulfil an operational role, providing meteorological forecasts and advice which is needed for all specialisms (the PWS standard) | Operational meteorologists, forecasters, aviation advisors, industry meteorologists, engineers |
| Research and development essentials | Knowledge required to fulfil research positions. | Researchers, industry meteorologists, data scientists |
| Observational technologies | Knowledge required to interpret observational products, design observing networks, install, maintain, and do quality control on instruments and observations platforms  | Observers, Meteorological technicians, |

**Table 2: Different types of meteorological theory and skills to fulfil various roles**

These types of knowledge are not independent of each other. In fact, there are overlaps which should be acknowledged. For example, all roles would need to know about cloud types, basic airmass theory but may not require in depth knowledge of numerical weather prediction and programming. Conceptually, it was felt that much of the meteorological essentials were likely to be required for all roles. This overlap can be visually demonstrated by the diagram below

**Figure 1:** Diagram format of initial concept (please note that the size of the circles is not representative of the differences expected)

**Electives**

However, within all of these categories there remains a wide variety of specialist knowledge associated with the different roles which the current BIP portfolio supports. Not all jobs or organisations require all of these elements in order to provide an effective service. During the meeting, it was concluded that these could be optional elements in the curriculum. Examples of this knowledge might be sea ice formation for marine forecasters, the use of API for operational meteorologists and research scientists, communication skills for guidance forecasters and advisors.

Based on this approach, it may be worth considering the value of the alignment of the elective structures to competency frameworks for some specialisations.

**Does the concept work?**

During the meeting, some initial work was completed to assess whether the concept could work by utilising the current BIP-M framework and identifying what category each element would be used for. This is an incremental approach. Other approaches could be used to test this concept further, such as auditing the skills required for each of the roles and redrafting the content of the BIP portfolio accordingly.

**End of document**