


# Promoting BIP and Competency implementation





It supposed to offer a webinar and give an examples of  
Applying it

- We will discuss Promoting BIP and Competency implementation through discussing the Guide to the Implementation of Education and Training Standards in Meteorology and Hydrology volume I meteorology to clarify the advantages of this edition and it add more value than last edition


## About the development of this guide line for BIP-M

the *Guidelines for the Education and Training of Personnel in Meteorology and Operational Hydrology* (WMO-No. 258) were replaced by the *Guide to the Implementation of Education and Training Standards in Meteorology and Hydrology* (WMO-No. 1083), Volume I: "Meteorology". At the core of this change was a move from a system of personnel classification and associated syllabuses to a system based on learning outcomes – in other words, a move to a system in which the learner's attainment was central.

- By publishing the first edition of WMO No. 1083, the BIP-M has become mandatory for meteorologists providing services to civil aviation (as Aeronautical Meteorological Forecasters, or AMFs),
- Also, WMO has published *Competency Frameworks* (WMO-No. 1209) for most of job.
- This edition goes further, abstracting the essence of what all meteorologists and meteorological technicians must be able to do into a set of overarching learning outcomes while making it explicit that the role of the more detailed outcomes is to guide rather than to restrict institutions

## Structure of BIP-M and BIP-MT


- ➔ New set of overarching learning outcomes has been developed that lays out in broad terms the philosophy of BIP-M and BIP-MT by defining the knowledge and set of abilities that are common ( skills) to all meteorologists and those that are common to all meteorological technicians. These outcomes will be achieved through the learning and assessment of atmospheric science and related topics

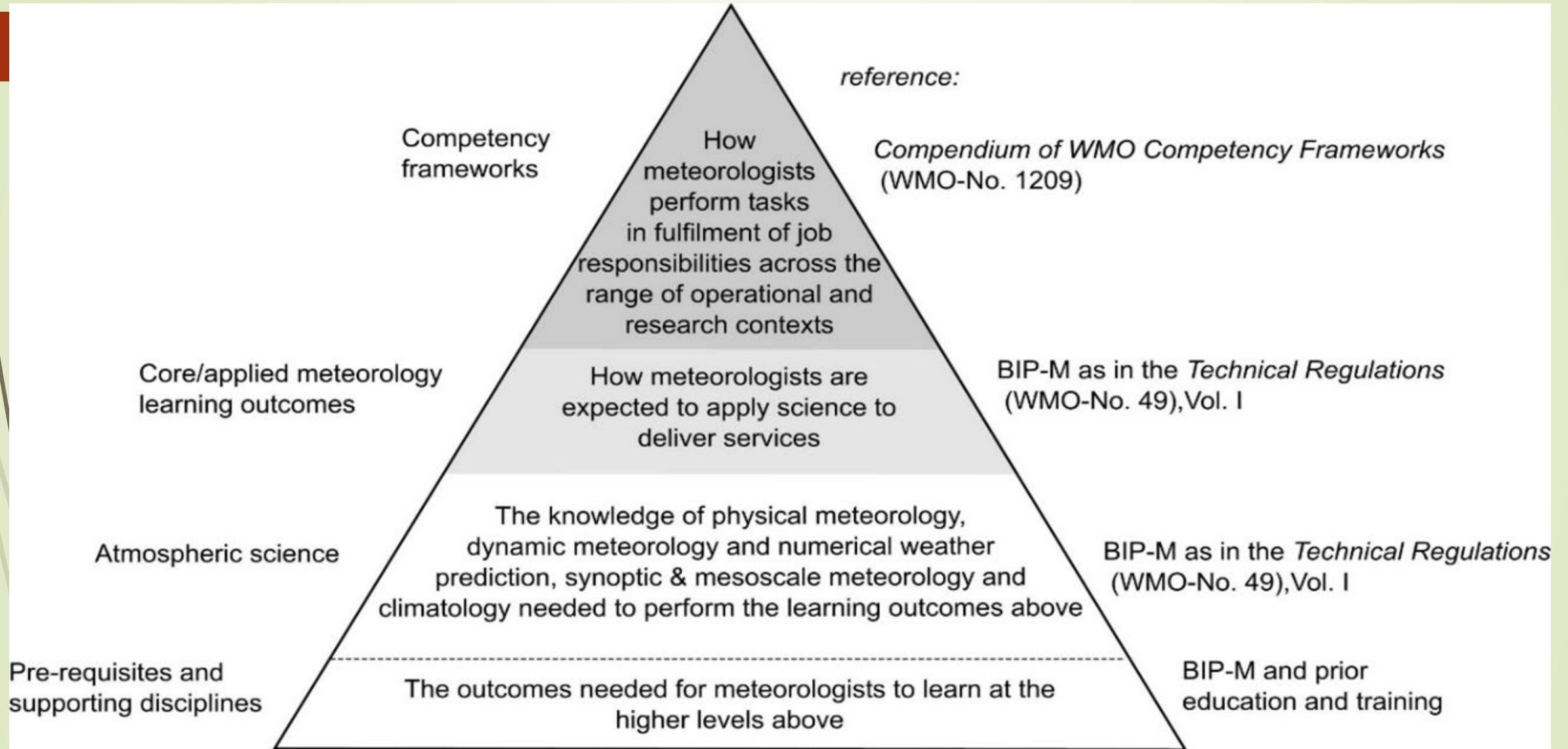


➤ It has been laid out generally as Professional meteorologist and Professional meteorological technician as actually has.

➤ Additional all details of outcomes have been related :

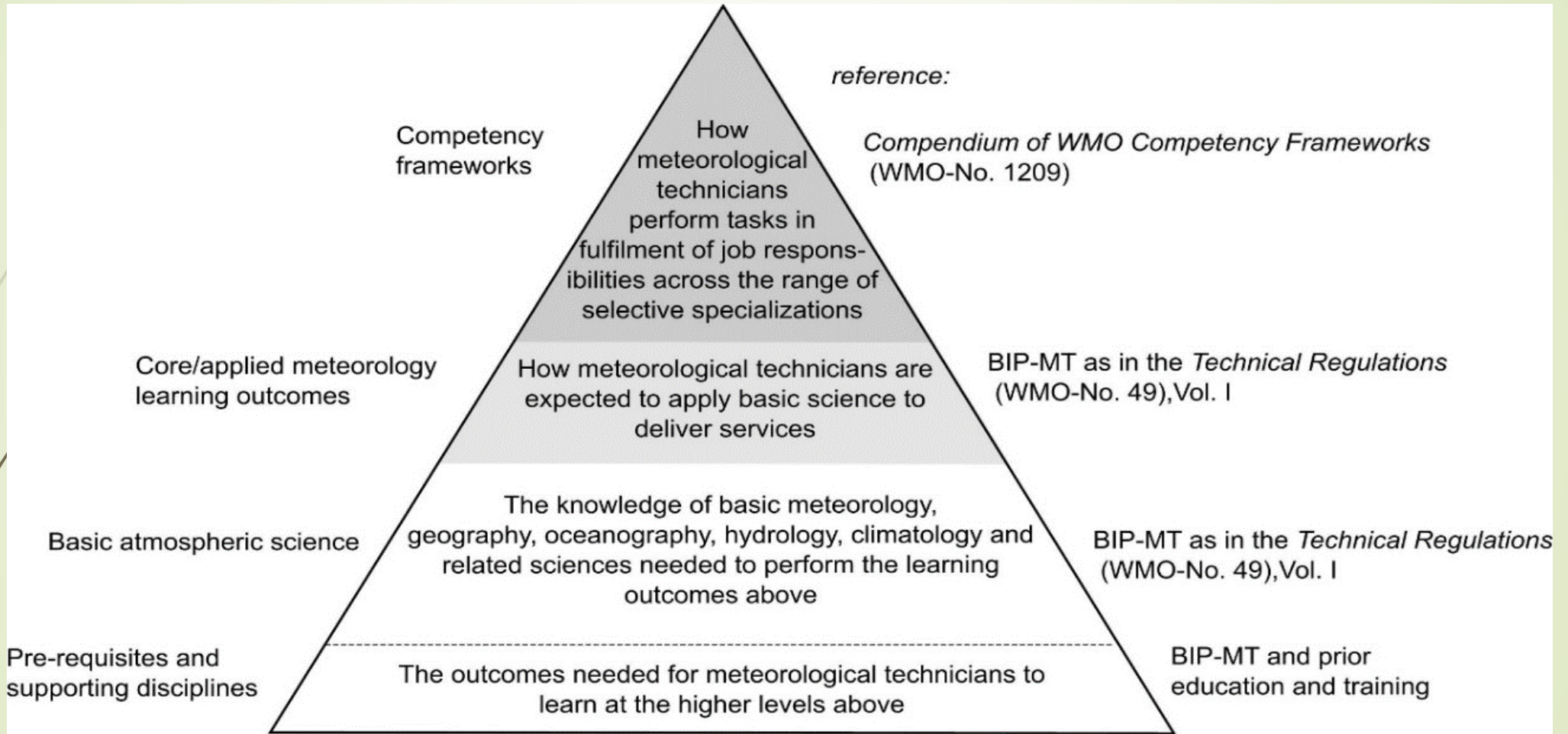
- Topics
- Teaching and training activities
- professional learning outcomes and *Future-proofing* give institutions guidance of learning outcomes related Management skills , Communication and teamwork skills, Information technology and Research skills.

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- Every part of additional outcomes have its on details outcomes( competences ) that will help who would like to implement it.
  - These outcomes will be achieved through the learning and assessment of atmospheric science and related topics.
  - We will offering Hierarchy of education and training for meteorologist and meteorological technicians Before go to the next step.



**A Hierarchy of education and training for meteorologist**



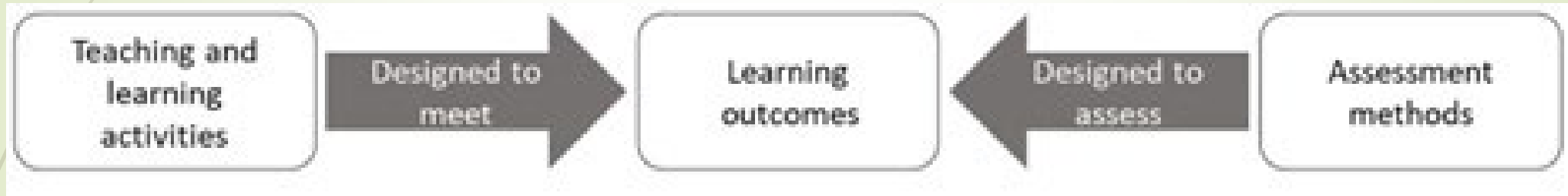


**A hierarchy of education and training for meteorological technicians**

- According to job description or collected information for what the locally meteorological personnel do ,every countries need to add local learning outcomes or Competencies .

It is necessary to determine assessment methods for pre-training, during training, and post-training periods to evaluate the degree of learning outcomes achieved and their impact on job performance.

- Designed the teaching and training activities for applicable of learning outcomes





**Constructive alignment between outcomes and activities**

## ➤ Assessment

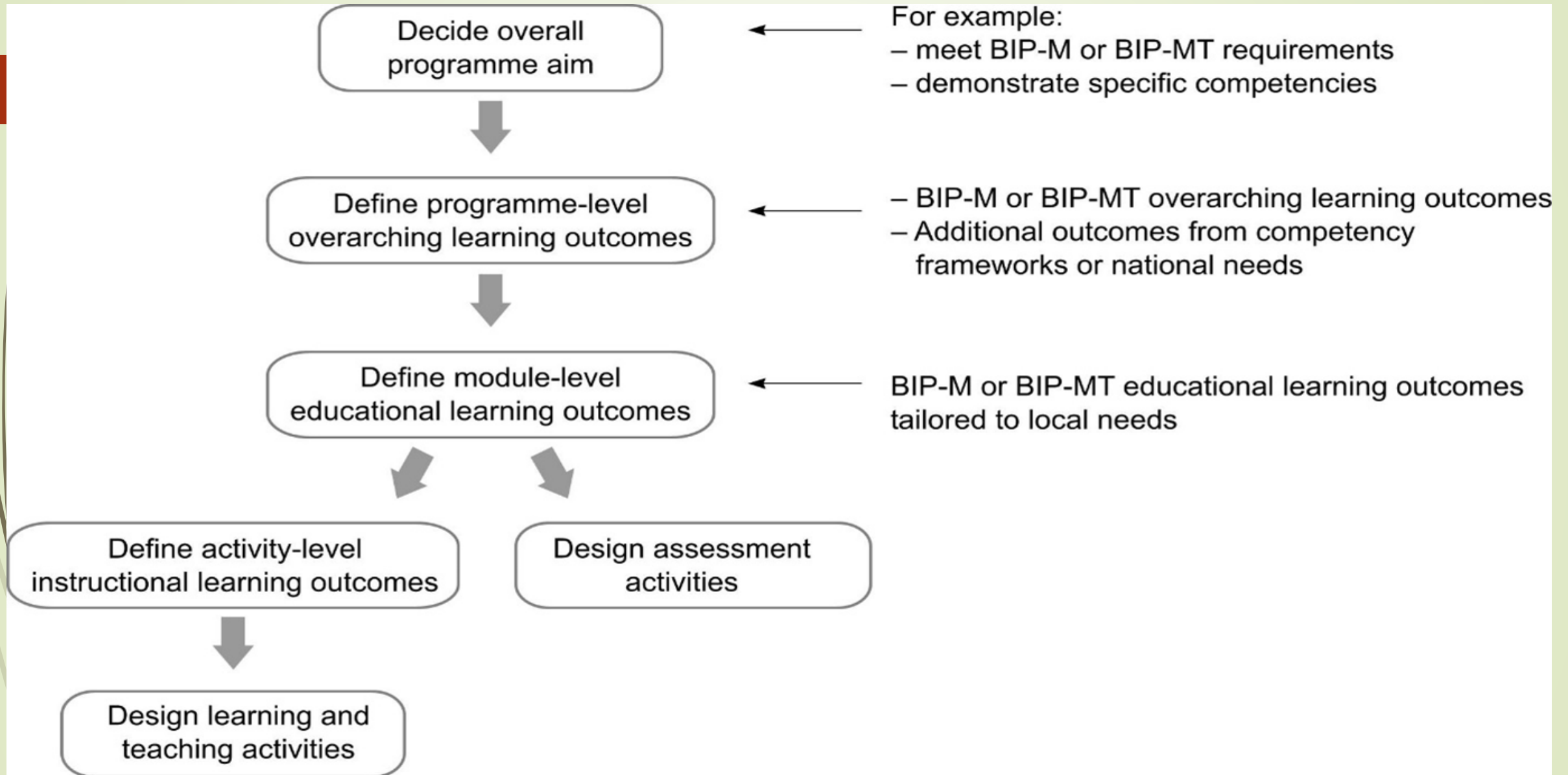
The methods employed in teaching and learning should correspond with the intended learning outcomes, just as the approaches to assessing learning should be aligned accordingly.

- learning outcomes that specify the knowledge and cognitive process should be *SMART* to allow them to self-assess and gauge their progress.
- To effectively assess learning, assessment methods must align with clear learning outcomes that detail the required knowledge and cognitive processes. This alignment facilitates the creation of assessment items, though it may necessitate innovative approaches.

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- Assessment before the course start to measuring the level of participates regrading the learning outcomes needs for participates to be satisfy before attained the course
  - Assessment during implementing the program
  - Final assesment of program
  - Assessment after returning the job
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## ➤ Curriculum design

Institutions must define specific outcomes for their programs, modules, and assessment activities, utilizing BIPs as a foundational guideline tailored to regional and local needs. A systematic approach to curriculum design is essential to ensure programs meet BIP requirements, benefiting both students and employers. This holistic design should highlight connections between components, providing students with a comprehensive understanding of the weather and climate systems and their societal impact. While the guide does not specify detailed instructional outcomes due to varying local needs and practices, it emphasizes the importance of intentional design in learning and assessment activities, leveraging evidence-based practices and educational technologies. The program duration is not fixed, as the focus is on achieving learning outcomes rather than the time spent on activities.



Mapping BIPs to program outcomes

# BASIC INSTRUCTION PACKAGE FOR METEOROLOGISTS

- ▶ 2.2 Overarching learning outcomes.
- ▶ 2.3 Pre-requisite mathematics and physics .
- ▶ 2.4 Mandatory topics
  - ▶ 2.4.1 Physical meteorology
  - ▶ 2.4.2 Dynamic meteorology
  - ▶ 2.4.3 Weather systems and services
  - ▶ 2.4.4 Climate science and services
- ▶ 2.5 Professional learning outcomes
  - ▶ 2.5.1 Management skills
  - ▶ 2.5.2 Communication and teamwork skills
  - ▶ 2.5.3 Information technology
  - ▶ 2.5.4 Research skills

# BASIC INSTRUCTION PACKAGE FOR METEOROLOGICAL TECHNICIANS

- ▶ 3.1 Interpretation
- ▶ 3.2 Overarching learning outcomes
- ▶ 3.3 Pre-requisite mathematics and physics
- ▶ 3.4 Mandatory topics
  - ▶ 3.4.1 Basic geography, oceanography and hydrology
  - ▶ 3.4.2 Basic physical and dynamic meteorology
  - ▶ 3.4.3 Basic synoptic and mesoscale meteorology
  - ▶ 3.4.4 Global and local climatology
  - ▶ 3.4.5 Cloud formation
  - ▶ 3.4.6 Meteorological parameters, instruments and methods of observation
  - ▶ 3.4.7 Basic climate-data quality control



# BENEFITS OF ADOPTING A COMPETENCY FRAMEWORK

- ▶ Competency frameworks are being established in fields like meteorology, hydrology, and climatology to support skill maintenance globally. **Their implementation offers various benefits for professional development and standardization across these industries:**
- ▶ **Improves the quality-of-service provision.** For example, the Commission for Aeronautical Meteorology (CAeM) noted that one long-term benefit of the implementation of competency standards is that they will improve the quality of the meteorological services provided to international air navigation by ensuring that personnel meet the defined performance criteria and knowledge required to provide these services;
- ▶ – **Promotes national and international consistency.** When competencies are adopted as standard practices, they promote consistency of service across organizations. Globalization means that personnel should be expected to perform at similar levels and have similar skills, whatever their country of service;

➤ **Assists organizations in meeting their operational objectives;**

– **Provides a tool for evaluation** by enabling organizations to perform a gap analysis between actual skills, knowledge and behaviors, and desired skills, knowledge and behaviors;

➤ – **Provides guidelines for coaches/mentors/managers on specific behaviors' that need development;**

➤ – Enables effective, efficient and targeted training and development of resources;

➤ – Allows organizations to determine their ongoing training needs through periodic assessment of individuals against the required competencies;

➤ – Assists with career and succession planning. For example, managers and supervisors can use competency requirements to identify the skills, knowledge and behaviors required for new roles and perform a gap analysis to determine what areas need development;

➤ – Assists with capability development and workforce planning. Implementation of a competency framework enables organizations to understand where they are now and what will be required to get them to where they want to go;

- ▶ Assists with change management. Meteorological service provision is a rapidly changing landscape, where service areas are evolving from a typical forecast product delivery service to a user
- ▶ -focused, impact-based service. Implementing competencies enables organizations to understand where they are now, and provides a tool to map the training requirements to acquire the skills and knowledge for where they want to go. Moreover, whilst service delivery methods and technology will change over time, the core competencies for service provision will remain fairly static. Therefore, competencies provide continuity, consistency and quality assurance through times of change, but still have the flexibility to evolve to reflect significant transitions in a role;

- Provides a tool organizations can use to document their quality management process. The fundamental quality management cycle of “plan, do, check and act” is mirrored in the competency management cycle;
- – Provides the individual with the motivational reassurance of their own competence to fulfil the role;
- – Provides guidance to develop new services. For example, as the need for climate services unfolds with the implementation of the Global Framework for Climate Services (GFCS), a competency framework can assist in defining the human resources development requirements.



➤ Thank you