



# Nanjing University of Information Science & Technology WMO RTC Nanjing

## On Improving the Capacity Building in the Talent Cultivation

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Head of WMO-CGMS VLab CoE Nanjing

November 25, Italy





# Contents

**01 Overview of RTC NJ's Training**

**02 Capacity Building Input**

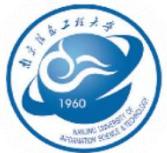
**03 How to carry out capacity building during training**

**04 Summary**



01

# Overview of RTC NJ's Training



# Global Training Coverage



Asia

27.9%

Africa

31.0%

Americ

19.0%

Europe

15.2%

Oceania

7.0%

- Held 260+ training programs
- Cultivate 6000+ trainees from 160 WMO member countries

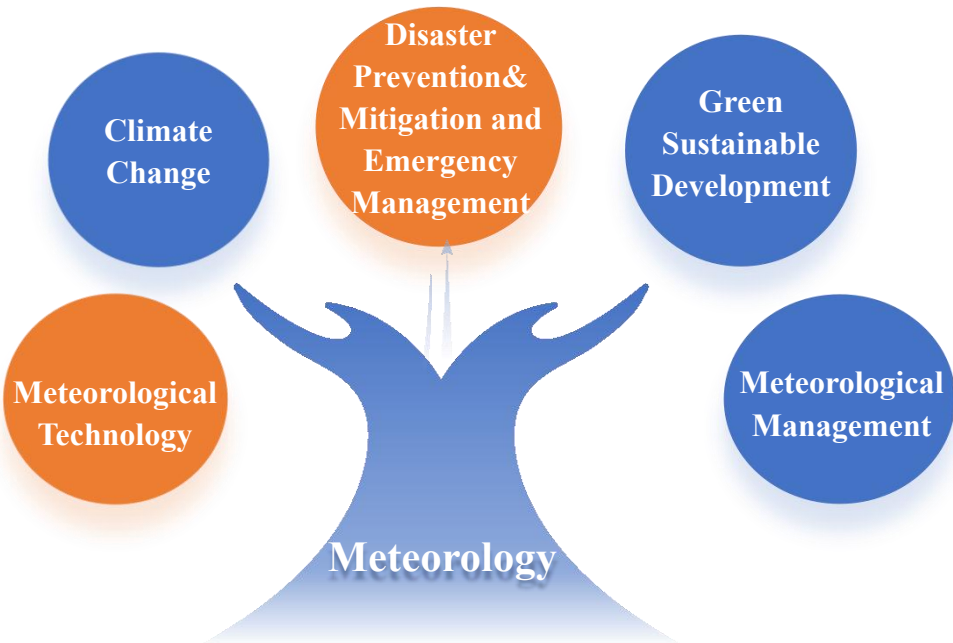




# Training Theme



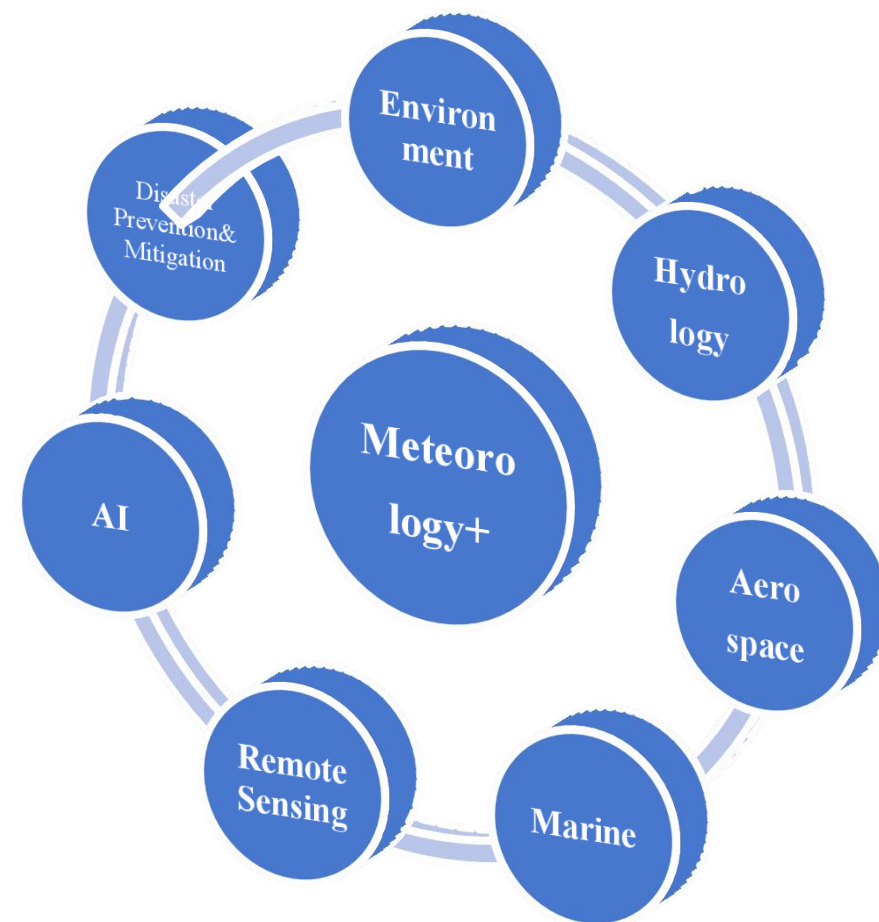
**The Guidance Outline for Regional Training (BIP-M&BIP-MT) Issued by the WMO**

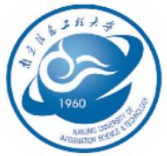


**From Meteorology**

**Theme Expansion**

**To More**





# International Training Courses Held in 2025

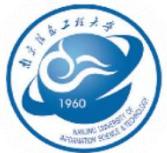
Serial Number	Training Program	Date	Participants' Number
1	Professional Induction Training for Hong Kong Observatory	2025/3/3-2025/7/9	6
2	Course on Weather Analysis and Diagnosis Bureau of Geophysics and Meteorology of Macao	2025/4/7-2025/4/19	9
3	Seminar on Testing of Information and Communications Technologies for Belt and Road Countries	2025/4/22-2025/4/28	21
4	Course on the Application of Meteorological Radar & Satellite Remote Sensing for Bureau of Geophysics and Meteorology of Macao	2025/4/22-2025/4/29	8
5	Course on Meteorological Surface Observation Practice Bureau of Geophysics and Meteorology of Macao	2025/5/6-2025/5/9	8
6	Seminar on Climate Change and Climate Information Services for Developing Countries	2025/5/7-2025/5/20	19
7	Seminar on Technology Transfer in Coping with Climate Change for Developing Countries	2025/5/16-2025/5/29	15
8	Seminar on Capacity-building in Disaster Management for the Central African Republic	2025/5/28-2025/6/10	24
9	Seminar on New Generation Artificial Intelligence Development Plan	2025/6/5-2025/6/18	29
10	Seminar on Multi-hazard Early Warning of Disasters for Developing Countries	2025/6/20-2025/7/3	30



# International Training Courses Held in 2025



Serial Number	Training Program	Date	Participants' Number
11	International Training Course on Disaster Prevention and Reduction Technologies with Fengyun Meteorological Satellite Data	2025/6/25-2025/7/4	26
12	Seminar on Marine Disaster Monitoring, Preventive and Mitigating Technologies for Developing Countries	2025/9/2-2025/9/15	25
13	Seminar on the Assessment and Review of Digital Professional Training Activities for Namibia	2025/9/11-2025/9/28	15
14	Seminar on Applied Technologies of Satellite Remote-sensing with the Framework of China-ASEAN Partnership	2025/9/17-2025/9/30	31
15	Seminar on Higher Technology and Innovation Development for Mexico	2025/10/11-2025/10/24	25
16	Course on Aeronautical Meteorological Forecast for CAAS	2025/10/17-2025/10/24	9
17	Training Course on Satellite Ground Data Reception Stations and Processing Systems for Namibia	2025/10/15-2025/11/13	20
18	Seminar on Earthquake Disaster Monitoring and Response for Central and South Asian Countries	2025/10/22-2025/11/11	22
19	2024 Master of Meteorology	2024/9/1-2026/7/15	25
20	2025 Master of Meteorology	2025/9/1-2027/7/15	20



# Aligning the Training Courses with UN EW4A

## Pillar 1 : Disaster Risk Knowledge

- Strengthened understanding of multi-hazard risks
- Improved capacity to turn scientific insight into risk-informed action

## Pillar 3: Preparedness and Response Capabilities

- Promoted timely, people-centered communication
- Fostered collaboration across sectors for effective dissemination

## Pillar 2: Detection, Observations, Monitoring, Analysis and Forecasting

- Enhanced skills in hazard detection and analysis
- Linked applications to early-warning and forecasting systems

## Pillar 4: Warning Dissemination and Communication

- Strengthened coordination and readiness through shared learning
- Enabled actionable early warnings that support community response







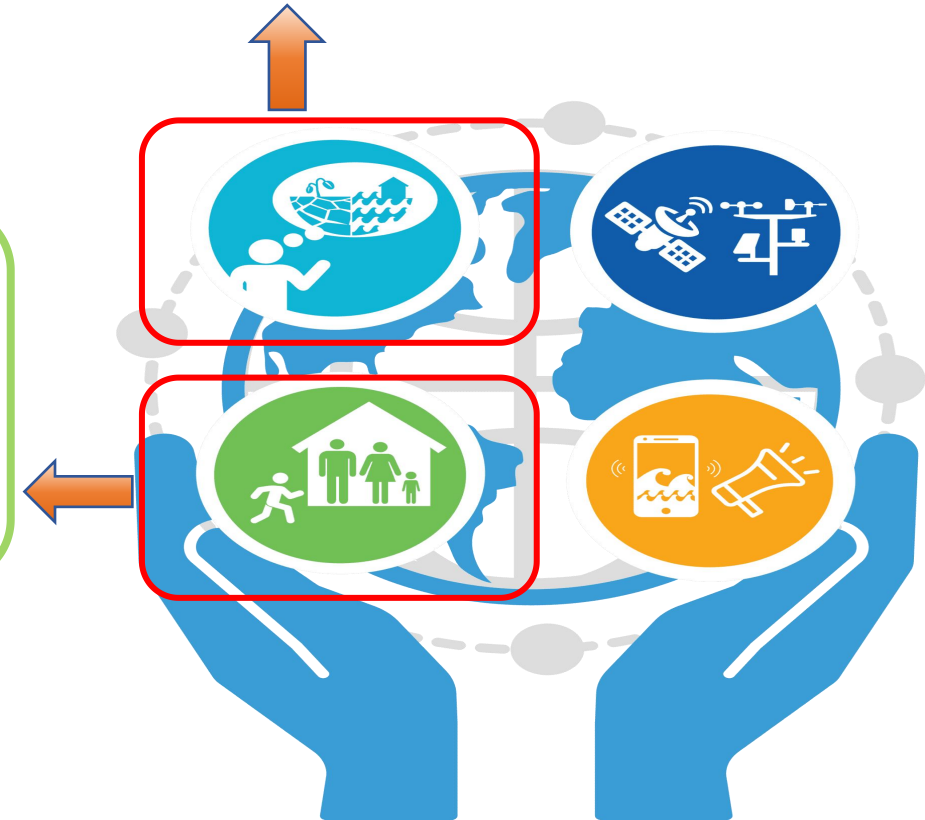
# Aligning the Training Courses with UN EW4A

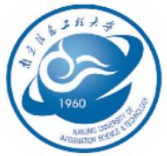
## **Pillar 1 : Disaster Risk Knowledge**

- 2. Course on Weather Analysis and Diagnosis Bureau of Geophysics and Meteorology of Macao
- 7. Seminar on Technology Transfer in Coping with Climate Change for Developing Countries
- 8. Seminar on Capacity-building in Disaster Management for the Central African Republic
- 10. Seminar on Multi-hazard Early Warning of Disasters for Developing Countries

## **Pillar 3: Preparedness and Response Capabilities**

- 12. Seminar on Marine Disaster Monitoring, Preventive and Mitigating Technologies for Developing Countries
- 18. Seminar on Earthquake Disaster Monitoring and Response for Central and South Asian Countries

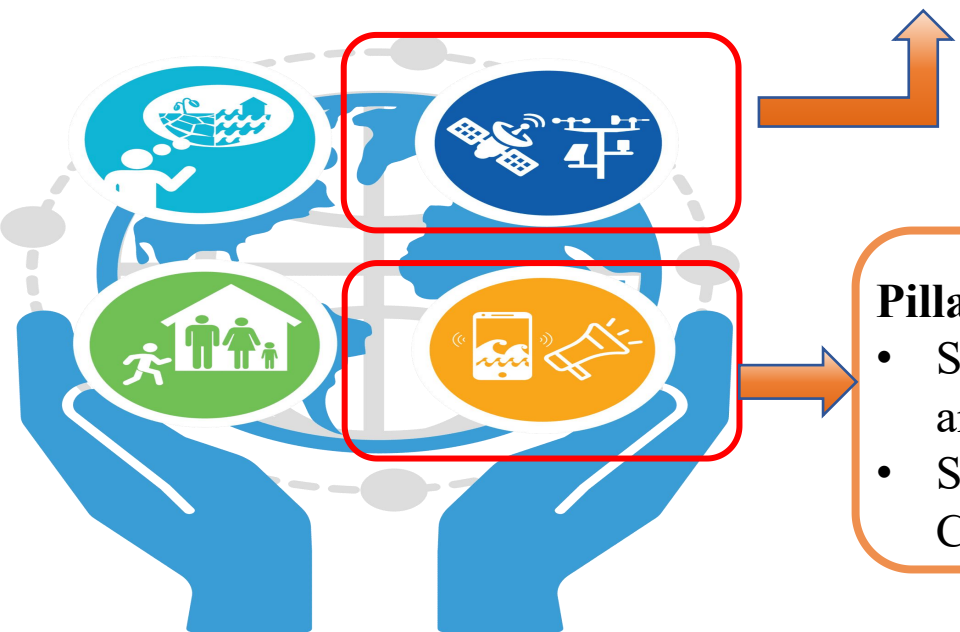




# Aligning the Training Courses with UN EW4A

## **Pillar 2: Detection, Observations, Monitoring, Analysis and Forecasting**

4. Course on the Application of Meteorological Radar & Satellite Remote Sensing for Bureau of Geophysics and Meteorology of Macao
5. Course on Meteorological Surface Observation Practice Bureau of Geophysics and Meteorology of Macao
11. International Training Course on Disaster Prevention and Reduction Technologies with Fengyun Meteorological Satellite Data
14. Seminar on Applied Technologies of Satellite Remote-sensing with the Framework of China-ASEAN Partnership
16. Course on Aeronautical Meteorological Forecast for CAAS (Civil Aviation Authority of Singapore)
17. Training Course on Satellite Ground Data Reception Stations and Processing Systems for Namibia



## **Pillar 4: Warning Dissemination and Communication**

- Seminar on Earthquake Disaster Monitoring and Response for Central and South Asian Countries
- Seminar on Multi-hazard Early Warning of Disasters for Developing Countries



02

# Capacity Building Input



Excuse me, could you explain why "Capacity Building" is now emphasized across various fields?



Nowadays, the world's changing so fast—training personnel is super important for individuals, organizations, even whole countries to succeed. And when it comes to talent cultivation, capacity building is totally the key part—like the most critical one.







Capacity building refers to the process of developing and enhancing the skills, knowledge, and abilities of individuals to enable them to perform their roles more effectively. It is not just about acquiring new skills, but also about improving existing ones and fostering a continuous learning mindset. This process is essential for several reasons.

1

Capacity building enhances the competitiveness of individuals in the job market.

2

Capacity building is vital for the growth and development of organizations.

3

Capacity building plays a significant role in addressing societal challenges and contributing to sustainable development.



# Coverage of Capacity Building in Our Training Program



## Theoretical Knowledge Input

The input of theoretical knowledge serves as the core foundation for capacity building. Without a solid theoretical base, the enhancement of capabilities would lack direction and support.

Practical observation and experience are the core driving force for capacity building. Only through practical operation can one's capacities truly be firmly established and steadily improved.

## Practical Observation & Experience



## Knowledge Transfer

The core objective of capacity building is to transform theoretical knowledge and practical experience into actionable and applicable skills, thereby helping individuals and organizations achieve their respective development goals steadily.



03

# How to carry out capacity building during training





# Training Approaches



**Single Way:Offline Training**



**Hybrid Way: Offline and Online**



**“Bringing in”**



**“Bringing in”+“Going Global”**





# Training Methodology and Philosophy

Training Methodology: A “Demand-Design-Implementation-Evaluation” cycle ensures each training program addresses real operational needs, supports the sustainable development, and enhances trainees’ capacity building.

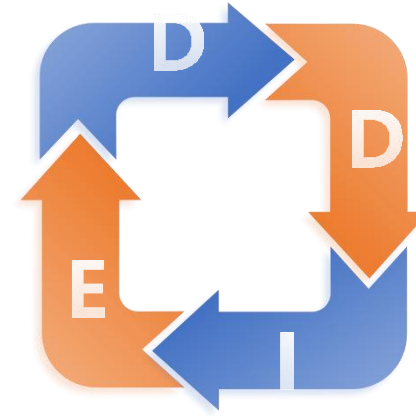
Training Philosophy: From theory to practice for sustainable capacity building in training program, integrating the “5C” principles: Cutting-edge Knowledge, Communication, Collaboration, Can-do spirit and Creativity.

## Demand

Know trainee’s background and needs

## Design

Design courses responding to trainee’s demand



## Evaluation

Analyze the feedback and make the improvement for future

## Implementation

Offer related theratical lectures and hands-on trainings



# Analysis of Trainees' Learning Needs

## Before the project

- Know the national conditions and key meteorological issues of the participants' countries.
- Set up relevant theoretical and practical courses, to directly and effectively enrich participants' theoretical knowledge and enhance their practical skills.

## During the project

- Keep track of learners' learning situations in real time.
- Make corresponding adjustments based on the learning situation.
- Help them learn and understand better.
- Keep proper records to make a good preparation for the next similar project.

## After the project

- Follow up with the key trainees to know: 1. what they gained contributed to their capacity building; 2. shortcomings in the training; 3. the areas they are more interested in for the future.
- Conduct a thorough analysis and make necessary preparations for the future project.



## Improvement of the Curriculum System

### Theoretical Courses

Invite some professors and industry experts and scholars to give lectures for enhancing trainees' theoretical knowledge through cutting-edge theoretical knowledge.

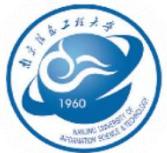
### Cultural Courses

Offer immersive presentations, modular teaching, and thematic discussions to introduce participants to China, covering traditional culture, modern civilization, economic development, ecological construction, poverty alleviation, and high-tech advancements.

### Experiential Courses

Introduce advanced equipment to trainees, demonstrate practical operation methods, and improve their hands-on skills.

Visit places highly relevant to the project. Help participants observe and understand China's development comprehensively. Enable them to apply these experiences and practices to enhance the economic and social development of their own countries.



## Enhancement of Training Quality

### Focus on Training Needs Analysis

01

Addressing the “job requirements” set by the World Meteorological Organization (WMO) for meteorological services

02

Meeting the “individual needs” of the trainees’ home countries

03

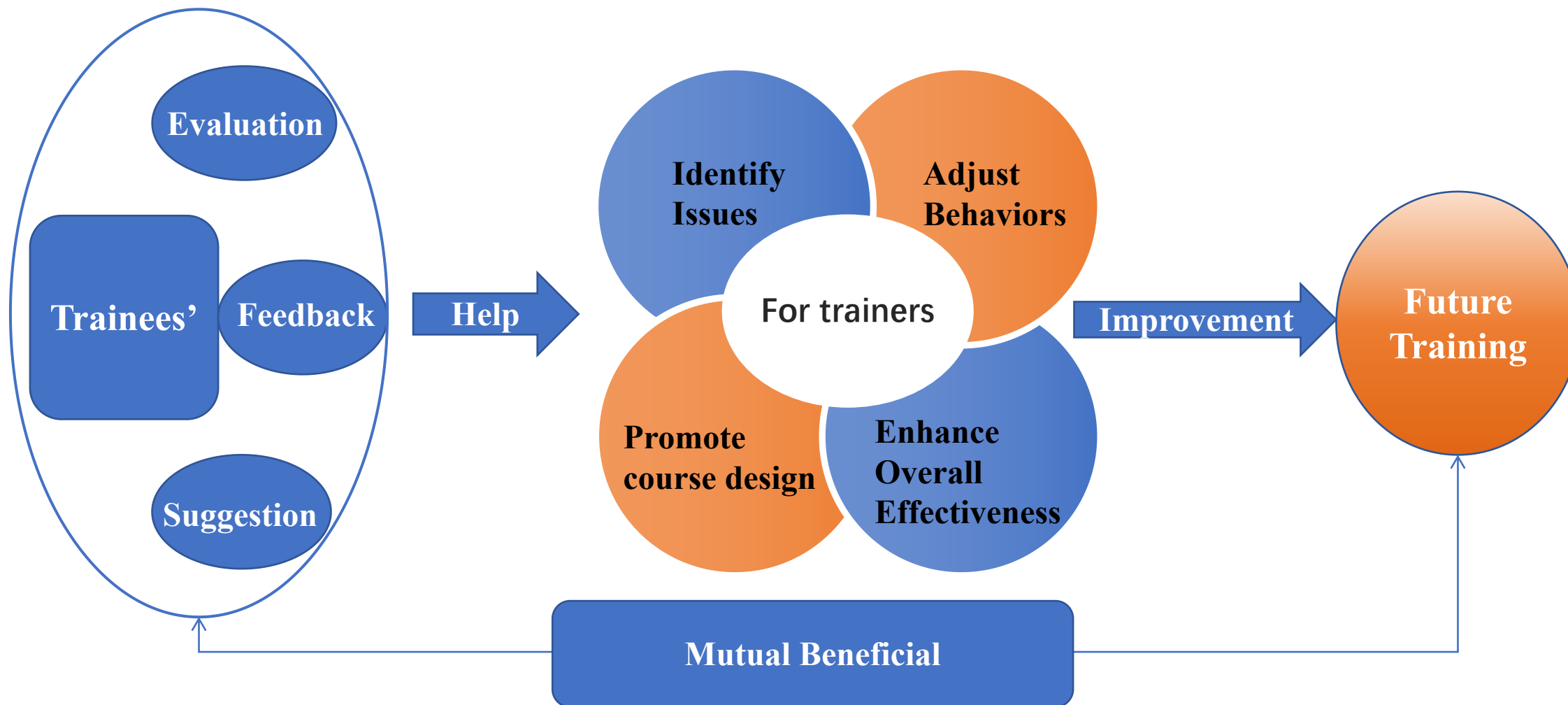
Fulfilling the “cooperative needs” related to multilateral and bilateral international exchanges

By basing the training on this needs analysis and aligning it with these requirements, we can more effectively enhance the trainees’ capabilities in relevant areas.





## Enhancement of Training Quality





# Case Study



## Course Overview

- **Title:** Seminar on Marine Disaster Monitoring, Preventive and Mitigating Technologies for Developing Countries
- **Time:** September 02–September 15, 2025 (14 days)
- **Participants:** 25 professionals (RA I — 10, RA II — 10, RA IV — 4, RA V — 1)
- **Approach:** Theory 40% — Practice 40% — Application 20%

## Program Design

Courses  
& Lectures

Presentation

Discussion

Cultural  
Exchange

Sightseeing  
& Practice

Others



Opening Ceremony



Class Hour



Visit Time



Closing Ceremony





# Course Syllabus



## Course Program

Seminar on Marine Disaster Monitoring, Preventive and Mitigating Technologies for Developing Countries  
September 2- September 15, 2025

Nanjing University of Information Science & Technology (NUIST)  
WMO RTC Nanjing-China

This seminar will be delivered in RTC-Nanjing Building, Classroom S311

Tencent Meeting number: 926-2838-6620 401-8157-823 Pass word: 123456

### Important Notes:

Time and Date indicated in the table are based on Beijing time (GMT+8).

Time&Date	Lecture Topic/Activity	Lecturer
<b>Sep 2 (Tuesday)</b>		
14:00-17:00	China Overview 1: Information Technology in Shaping the Future of China	Prof. WANG <u>Suchun</u>
<b>Sep 3 (Wednesday)</b>		
09:00-12:00	Marine Hazard Classification and Impact Assessment	Prof. DONG <u>Changming</u>
14:00-17:00	Sea Level Rise Monitoring, Early Warning and Disaster Risk Reduction Technologies	Prof. LIN <u>Xia</u>
17:00-17:40	Orientation	RTC NJ Staff
17:40-18:00	Registration	RTC NJ Staff
<b>Sep 4 (Thursday)</b>		
9:00-12:00	Tropical Cyclone Monitoring, Early Warning and Disaster Risk Reduction Technologies	Prof. YANG Gang
14:00-17:00	Ocean Wave Monitoring and Early Warning	Prof. DONG <u>Jihai</u>
<b>Sep 5 (Friday)</b>		
9:00-12:00	Storm Surge Monitoring, Early Warning and Disaster Risk Reduction Technologies	Prof. LIU <u>Yuli</u>
15:00-17:00	Visit Local Farm	RTC NJ Staff
<b>Sep 6 (Saturday) —Study Tour</b>		
9:00-12:00	Sightseeing in Nanjing(Jiangsu Province Civil Defense Education&Experience Center)	RTC NJ Staff
14:00-17:00	Sightseeing in Nanjing(Nanjing City Planning and Construction Exhibition Center)	RTC NJ Staff

### Sep 7 (Sunday) —Study Tour

9:00-12:00	Nanjing to Shanghai by High-speed Train	RTC NJ Staff
14:00-17:00	Visit to <u>Bund Area</u>	RTC NJ Staff

### Sep 8 (Monday) — Study Tour

9:00-12:00	Visit to East China Sea Forecast and Disaster Mitigation Center, Ministry of Natural Resources	RTC NJ Staff
14:00-17:00	Visit to China Rescue and Salvage Exhibition Hall	RTC NJ Staff

### Sep 9 (Tuesday) —Study Tour

9:00-12:00	Visit to <u>Lujiazui Financial District</u>	RTC NJ Staff
14:00-17:00	Shanghai to Nanjing by High-speed Train	RTC NJ Staff

### Sep 10 (Wednesday)

9:00-12:00	Marine Heatwave Monitoring and Early Warning I	Prof. JIN <u>Meibing</u>
14:00-17:00	Marine Heatwave Monitoring and Early Warning II	Prof. JIN <u>Meibing</u>

### Sep 11 (Thursday)

9:00-12:00	Marine Algal Bloom Monitoring, Early Warning and Disaster Risk Reduction Technologies	Prof. ZHOU <u>Xin</u>
14:00-17:00	Country Presentation & <u>Roundtable Discussion: the Needs, Challenges, and Gaps</u>	Prof. WANG Yong

### Sep 12 (Friday) — Study Tour

9:00-12:00	Sightseeing in Nanjing( <u>Bluesky Resure Center</u> )	RTC NJ Staff
14:00-17:00	Sightseeing in Nanjing (Local Cultural Area)	RTC NJ Staff

### Sep 15 (Monday)

9:00-12:00	China Overview 2: Green Development and Ecological Civilization	Prof. CHU <u>Qinghua</u>
14:00-14:30	Course Evaluation	RTC NJ Staff
14:30-15:30	Closing Ceremony	RTC NJ Staff





# Highlights of Training Process



**Theoretical Class**



**On-site Practical Training**



**Experiential Class**



# Quality Assurance Example



After each class, we ask the participants to fill out the evaluation form for the teacher and course on the spot, as shown in the right picture.



Course Evaluation Form	
Seminar on Marine Disaster Monitoring, Preventive and Mitigating Technologies for Developing Countries	
Place of Delivery : Nanjing University of Information Science & Technology	
Indicators/ Courses	Marine Algal Bloom Monitoring, Early Warning and Disaster Risk Reduction Technologies (Prof. ZHOU Xin)
Instructor Level	Excellent <del>☒</del> Good☐ Poor☐
Textbooks/ Materials/ Handouts	Excellent <del>☒</del> Good☐ Poor☐
Classroom Interactions	Excellent <del>☒</del> Good☐ Poor☐
Multi-media Use in the Lecture	Excellent <del>☒</del> Good☐ Poor☐
Difficulty of Course Contents	Excellent <del>☒</del> Good☐ Poor☐
Correlation Between the Lecture and the Seminar Theme	Excellent <del>☒</del> Good☐ Poor☐
Total Point	12
Note: please tick the corresponding box to grade the course. An "Excellent" is equal to 2 points. A "Good" is equal to 1 point. A "Poor" is equal to 0 point. The full score for each course is 12 points.	





# Seminar Feedback Example



At the end of each seminar, we ask the participants to fill out an overall evaluation form, as shown in the right picture.



## Evaluation Form

<b>Seminar on Marine Disaster Monitoring, Preventive and Mitigating Technologies for Developing Countries</b> (September 2- September 15, 2025 )		
Place of Delivery: Nanjing University of Information Science & Technology, China		
Please fill this summative evaluation form for the seminar to help us improve our seminars in the future. Thank you for your cooperation!		
Items	Question	Tick the most appropriate rating
Training	Seminar contents	1□ 2□ 3□ 4□ 5☑
	Lecture length and number	1□ 2□ 3□ 4□ 5☑
	Lecture difficulty	1□ 2□ 3□ 4☑ 5□
	Instructors qualification	1□ 2□ 3□ 4□ 5☑
	Classroom delivery	1□ 2□ 3□ 4□ 5☑
	Lecture contents	1□ 2□ 3□ 4□ 5☑
	Correlation between study tours and seminar topics	1□ 2□ 3□ 4□ 5☑
	Study tour arrangements	1□ 2□ 3□ 4□ 5☑
	Classrooms and teaching equipment	1□ 2□ 3□ 4□ 5☑
Management	Hotel room (0 is for unavailability of Non-single private room)	0□ 1□ 2□ 3□ 4□ 5☑
	Airport pickup service and catering	1□ 2□ 3□ 4□ 5☑
	Opening and closing ceremonies	1□ 2□ 3□ 4□ 5☑
	Cultural experience and extra-curricular activities	1□ 2□ 3□ 4□ 5☑
	Attitude of the Chinese staff	1□ 2□ 3□ 4□ 5☑
	Organizational capacity of the Chinese staff	1□ 2□ 3□ 4□ 5☑
Seminar Impacts	Foreign language communication skills of coordinating officers in China	1□ 2□ 3□ 4□ 5☑
	Seminar duration	1□ 2□ 3□ 4□ 5☑
	Significance to future career development	1□ 2□ 3□ 4□ 5☑
	Contribution to cooperation and friendship between China and your country in related theme areas	1□ 2□ 3□ 4□ 5☑
Overall Evaluation		1□ 2□ 3□ 4□ 5☑
Total score		??
your suggestions and comments: <i>wonderful seminar, well co-ordinated</i>		
Your impression of China: <i>the people are very punctual and the co-ordination of all the movement of us.</i>		



# Follow-up Actions and Emerging Collaborations



After the seminar, our trainees keep in touch with us, and propose the intention to have the further cooperation and collaboration by signing Memorandum of Understanding(MOU)

Kareem Mahmoud Hassan Tonbol 1  
发至 王小刚; 抄送 suchun、HossamELDin Bakr AbdElSalam 详情

2025-10-19 16:25

Dear Prof. Felix,

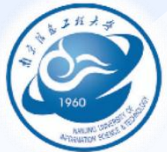
Thank you for your prompt and positive response.

Please find attached the **first draft of the Memorandum of Understanding (MOU)** between **Nanjing University of Information Science & Technology (NUIST)** and **Arab Academy for Science, Technology & Maritime Transport (AASTMT)**.

Kindly review and **amend it as you see fit** to align with NUIST/RTC processes and your strategic vision.

If helpful, we can arrange a **30-45-minute coordination call** to walk through any edits and finalize the Year-1 workplan.

With appreciation and best regards,



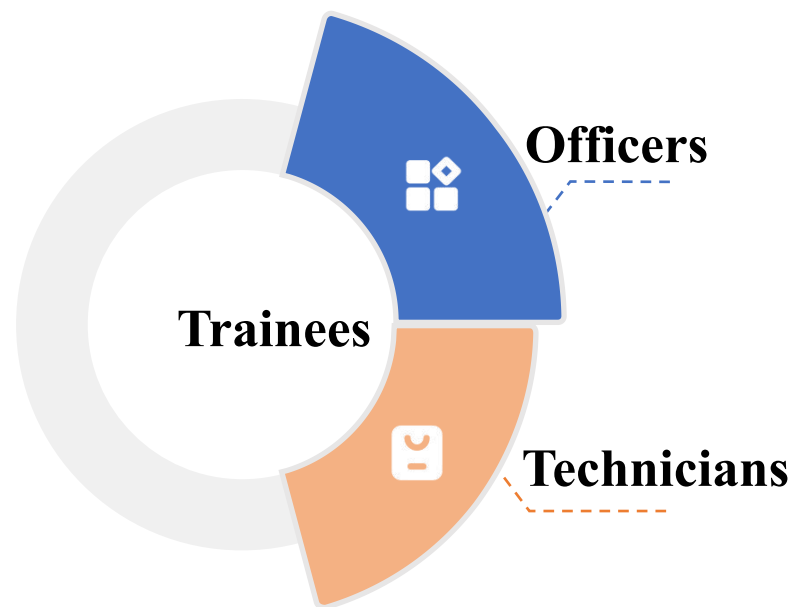
04

# Summary





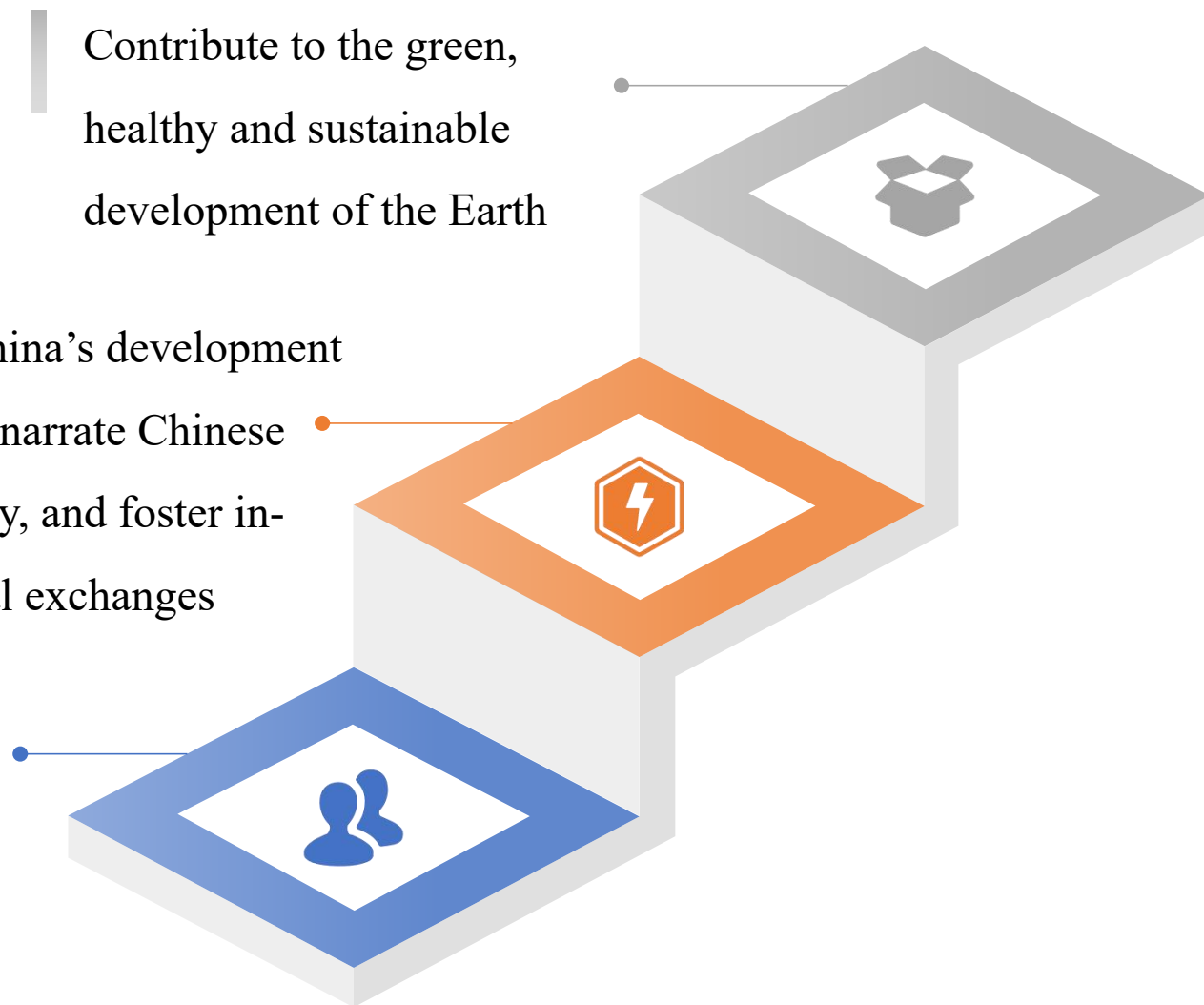
# Achievements of Capacity Building



Contribute to the green, healthy and sustainable development of the Earth

Showcase China's development experiences, narrate Chinese stories vividly, and foster in-depth cultural exchanges

Promote the development and progress of individuals in their careers





# Current Key Challenges

## **Bridging capacity gaps among developing countries**

Many trainees are from developing and least-developed regions with limited technical background and operational experience to certain topics.

## **Combining AI assistance to the training**

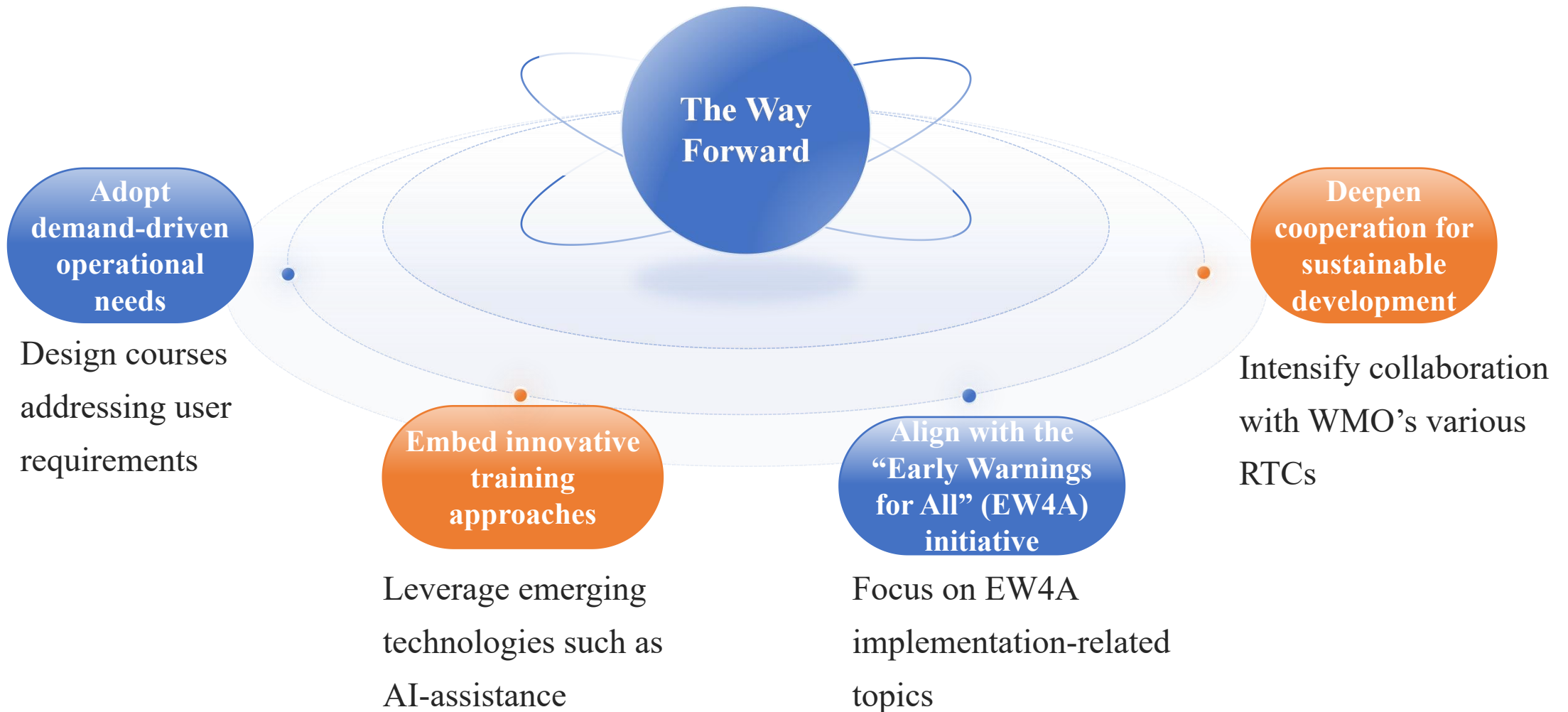
Training should evolve rapidly to integrate emerging technologies, such as AI-assisted satellite analysis and cloud-based data access, while remaining practical for local operations.

## **From short-term training to sustainable long-term learning**

There is a need to strengthen mechanisms that sustain learning outcomes—linking trainings with on-the-job mentoring, national strategies, and WMO strategies.



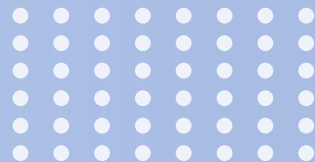
# Leveraging WMO RTC Nanjing for Greater Impact





**In conclusion, capacity building is of paramount importance in talent development. It enhances individual competitiveness, drives organizational growth, and contributes to societal progress.**

**As we look to the future, it is essential for individuals, organizations, and governments to prioritize capacity building and invest in the development of skills and abilities that will enable us to thrive in an ever-changing world.**







**“Let us ensure that Earth information is not only collected--but also understood, accessible, and actionable for all.”**

**--Celeste Saulo, WMO Secretary-General**







# Thank You

**Nanjing University of Information Science and Technology**  
**WMO Regional Training Centre Nanjing**  
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**Email: [rtc@nuist.edu.cn](mailto:rtc@nuist.edu.cn)**