



# EMME-CARE

## EASTERN MEDITERRANEAN MIDDLE EAST – CLIMATE & ATMOSPHERE RESEARCH CENTRE

HORIZON 2020 – WIDESPREAD-2018-01-TEAMINGPHASE2  
EMME-CARE | GRANT NO. 856612

### D3.4 Report on the content of the open education and training courses

August 2024



This project has received funding  
from the European Union's Horizon 2020 research  
and innovation programme under grant agreement  
No. 856612 and the Cyprus Government



Deliverable Number	Deliverable Title	Lead Beneficiary	Type	Dissemination Level	Due Date (in months)
-----------------------	-------------------	---------------------	------	---------------------	----------------------------

<b>D3.4</b>	Report on the content of the open education and training courses	1 – CYI	Report	Public	M60
-------------	------------------------------------------------------------------	---------	--------	--------	-----

Version	Date	Changed page(s)	Cause of change	Partner
<b>V1</b>	28/08/2024	Initial version		CYI
<b>V2</b>	02/09/2024	Final Version		CYI

*Disclaimer:* The information in this document is subject to change without notice. Company or product names mentioned in this document may be trademarks or registered trademarks of their respective companies.



The document is proprietary of the EMME-CARE Consortium Members. No copying or distributing in any form or by any means is allowed without the prior written agreement of the owner of the property rights.

This document reflects only the authors' view. The European Community is not liable for any use that may be made for the information contained herein.

## Table of Contents

I.	Introduction.....	4
II.	Objectives, Strategy, and Structure of Deliverable D3.4.....	5
II.1.	Open Education Resources: Objectives & Strategy .....	5
II.2.	Open Education Resources: Context .....	5
II.3.	Structure of Deliverable D3.4 .....	6
III.	The CARE-C Open Access Education Resources Database .....	6
III.1.	On-line Annual workshop on the latest scientific findings on Regional Air Pollution & Climate Change.....	7
III.2.	Education material of Autumn Schools .....	8
III.3.	CARE-C Colloquium series.....	8
III.4.	CARE-C Publication database .....	9
IV.	The HRDA Training Program for Cyprus.....	9
IV.1.	Introduction .....	9
IV.2.	Training Programs Overview .....	9
IV.3.	Indicative contribution of CARE-C .....	10
IV.4.	Co-benefits.....	10
IV.5.	Implementation challenges.....	10
IV.6.	Enrolment sustainability.....	11
IV.7.	Timeline and Next Steps .....	11
IV.8.	Conclusion .....	12
V.	Eastern Med & Middle East Education and Training Opportunities.....	12
V.1.	Introduction .....	12
V.2.	The H.E. “Edu4ClimAte” project (Greece).....	12
V.3.	The MSCA “Dust” Doctoral Network project (Greece, UAE) .....	13
V.4.	Specific Technical training programs (Egypt, Saudi Arabia) .....	13
V.5.	Conclusion and Future prospects .....	13

# I. Introduction

The CARE-C Centre of Excellence established on 1st of January 2020 under the Grant Agreement of the “**Eastern Mediterranean Middle East – Climate and Atmosphere Research**” Project (EMME-CARE, H2020 GA no.856612) provides scientific, technological and policy solutions through the establishment of a world-class Center of Excellence focusing on environmental challenges.

The **Deliverable D3.4**, at hand, as per the GA, represents the “**Report on the content of the open education and training courses**”, outlining the status of the CARE-C CoE activities in regards to **Task 3.4** led by Cyl, as detailed below which summarizes the structure of **WP3**.

## Task 3.1. Efficient Support from the Education & Training Office (Lead: Cyl) (M6 to M24)

This Task was completed with the submission of **Deliverable D3.1** “**Report on the functions of the Education and Training Office**” (submitted in **M12**) – **First Periodic Technical Report**

## Task 3.2. Upgraded Master and Doctoral Programmes in Environmental Sciences (Lead: UH) (M6 to M48)

The Advanced Partners in collaboration with the Cyl Graduate School will:

- Design courses in relation to the new R&D activities of the CoE’s departments (**M18**).
- Launch a highly attractive regional master programme focusing on UN Sustainable Development Goals relevant for the region (**M48**).

## Task 3.3. Leverage Mobility Programmes to engage regional talents (Lead: UH) (M6 to M84)

The first part of this **Task 3.3** was reported in **Deliverable D3.2** “**Mid-term Report on the scholarship and mobility programmes**” (submitted in **M42**). – **Third Periodic Technical Report**

The second and final report on this Task will be on M84 as **Deliverable D3.5** “**Final Report on the scholarship and mobility programmes**”.

## Task 3.4. New Open Education Resources for Cyprus and the EMME (Lead: Cyl) (M24 to M84)

The *Cyl Graduate School* in close collaboration with the Advanced Partners, the Open University of Cyprus, and regional higher education partners will:

- Design the content and materials of new courses on climate change and the environment.
- Integrate these courses into different modules (learning units) in different formats (incl. distance learning).
- Implement the new courses in Cyprus and in the region (with EMME Open Universities).

This last Task of WP3 is reported here in **Deliverable D3.4** “**Report on the content of the open education and training courses**” on M60 as results of activities between September 2021 and August 2024. Activities to be performed in this Task between September 2024 and August 2026 will be presented in the fifth and last Period Technical Report.

## II. Objectives, Strategy, and Structure of Deliverable D3.4

### II.1. Open Education Resources: Objectives & Strategy

**Needs and Gaps:** The EMME is a recognized hotspot for Air Pollution and Climate Change where urgent scientifically sounded / knowledge-based mitigation and adaptation actions must be undertaken rapidly. **Open Science & Education** is likely to play a central role here, in making EMME countries more resilient as it has the potential of making the scientific process more transparent, inclusive and democratic. It is increasingly recognized as a critical accelerator for the achievement of the United Nations Sustainable Development Goals and a true game changer in bridging the science, technology and innovation gaps and fulfilling the human right to science.

However, the Open Access of the latest scientific findings on Air Pollution and Climate Change in the EMME region and free circulation of Educational resources on these topics currently suffers from an unfavourable regional context where

- 1) Open Science culture is not widely spread, with a lot of critical information (e.g. environmental observations) still remaining confidential, especially within the vast majority of (non-EU) Eastern Mediterranean & Middle East countries
- 2) Mobility of researchers (and therefore trans-boundary circulation of knowledge) in the EMME is almost inexistent due to escalating regional conflicts, lack of financial resources, administrative issues (e.g. VISA issuance), lack of opportunities (conferences, specialized workshops), etc.
- 3) There are very limited post-graduate educational programs on Air Pollution and Climate Change within EMME countries to build national capacity and feed the Environmental (atmospheric) research community which currently remains very small

As a result, and to the best of our knowledge, outside the work of the EMME-CARE project, there is currently no Open Education/Training Resources made freely available on the latest scientific advances on Air Pollution and Climate Change in the EMME

**Purpose:** The objective of this Task 3.4 is to provide a wide breath of scientific knowledge resources relevant to Air Pollution and Climate in the EMME region. It is NOT to provide a full, comprehensive, and integrated Open / On-line Education package which remains the main purpose of our MSc and PhD programs (which must be taught in-person as per national regulation). Instead, it aims to compile the latest scientific findings and state-of-the-art research on the topics, so that anyone can catch up and stay updated with the most recent discoveries in the domain.

**Target audience:** Although few training modules accessible to the wide public are planned to be developed (see Section “HRDA Training Program for Cyprus”), our Open Education resources aim to target the scientific community of regional researchers who would benefit from access to a free / Open Access Hub of Education resources to advance their knowledge and enrich their regional network of collaborators.

### II.2. Open Education Resources: Context

The design of the content and materials of new courses on climate change and the environment (**Task 3.4a**) and their integration into different modules (**Task 3.4.b**) is involving primarily both CARE-C and the Cyl Graduate school (See Sections III and IV). The regional dissemination of these Open Education Resources in the EMME (**Task 3.4.c**) was initially thought to be performed with the support of the Open University of Cyprus (OUC) and other regional Open Universities of the region.

The engagement of OUC has not materialized yet. However, active regional dissemination has already been partially achieved thanks to the fast-growing collaboration network of regional higher education institutions initiated by CARE-C in the framework of EMME-CARE (see Section V). It remains in our plans for the next two years (M60 to M84) to maintain these efforts and assess how Open (Cyprus / EMME) Universities can be engaged in this process. **Progress on Task 3.4 for the next 2 years will be monitored in the last 2 periodic Technical Reports.**



## II.3. Structure of Deliverable D3.4

This deliverable outlines updates on completed work, as well as planned actions to be implemented through to M84 of the EMME-CARE project. These are outlined within the framework of three activity thrusts:

- **Open Access Education Resources Database:** At first, the Task 3.4 has been focusing on building and enriching over the years an **Open Access Education Resources Database (Task 3.4.a)** of the latest scientific findings relevant to Regional (Eastern Mediterranean & Middle East) Air Pollution and Climate Change. This has been achieved through collecting teaching material of
  - 1) Autumn Schools (teaching material)
  - 2) Annual on-line scientific workshops bringing scientific experts of the EMME altogether (presentations)
  - 3) CARE-C scientific publications (documents)
  - 4) Colloquium series (to reach out a larger audience) (videos)
  - 5) CARE-C Research Highlights (to reach out a larger audience) (documents)

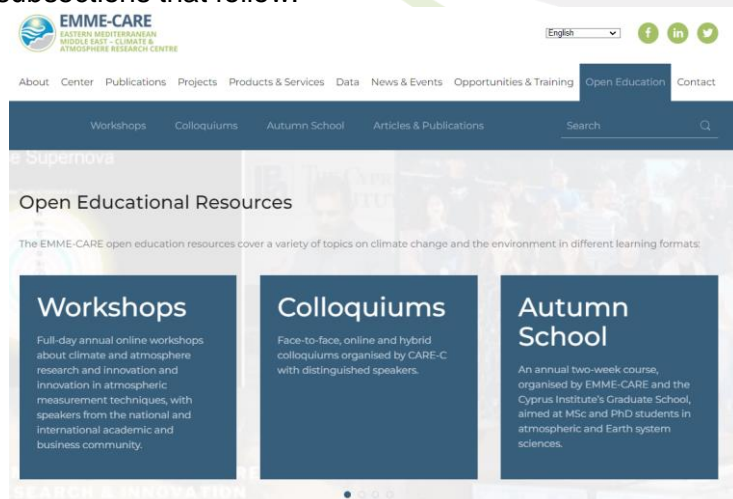
All these resources are presented in details in [Section III “Open Education Resources”](#).

- **Vocational Education & Training:** Integration of courses into different modules (learning units) and in different formats (**Task 3.4.b**) and **implementation of these courses in Cyprus (Task 3.4.c)** has been considered through the angle of **“Vocational Education & Training” (VET)**; leveraging the recent accreditation of the Cyl Graduate School by the “Human Resource Development Authority of Cyprus (HRDA)”. Our VET strategy is presented in detail in [Section IV “The HRDA Training Program for Cyprus”](#).

- **Scientific & Technical Training in the EMME region:** The current national (Cyprus) regulation does not allow on-line attendance (distant learning) of our ES Master courses (**Task 3.2**), which would have benefited to a large number of regional (EMME) students who do not have financial resources to attend our courses in person (in Cyprus). Hence, the current regional context does not facilitate the co-development of joint courses with regional Higher Education Institutions. To overcome this issue and keep on with Objectives of **Task 3.4.c** to reach out EMME students, scientific and technical experts, several successful initiatives have been taken so far and are presented in [Section V “Scientific & Technical Training in the EMME region”](#)

## III. The CARE-C Open Access Education Resources Database

To ensure open access to all relevant educational material and activities produced by the CoE, a dedicated section entitled “Open Education” has been created and is monitored and updated on an ongoing basis on the EMME-CARE website, as per below. Its contents are outlined in detail in the subsections that follow.



Screenshot of the Open Educational Resources webpage (<https://emme-care.cyi.ac.cy/open-education/>) of the EMME-CARE website

### III.1. On-line Annual workshop on the latest scientific findings on Regional Air Pollution & Climate Change

The Climate and Atmosphere Research Center (CARE-C) of the Cyprus Institute, and its Advanced Partners, have been organizing the Annual Scientific Workshop on Climate and Atmosphere Research & Innovation in the Eastern Mediterranean and Middle East (EMME) region for the last 3 years. This one-day online event aims to bring together the international scientific community to discuss the latest innovations, and exchange knowhow, on the science of climate change and air pollution, as well as highlight related challenges, impacts and potential solutions for the EMME region.

As such, the workshop will provide a unique opportunity for networking by allowing participants to connect with researchers, scientists, and innovators with shared interests, enhance regional collaboration, increase visibility on important scientific results relevant to the EMME, and contribute to enhancing national capacities for addressing the climate crisis. This workshop also aims to provide a forum for signposting opportunities for collaboration on competitive calls and other relevant activities that can support the international community in working together more closely to address climate change impacts and challenges.



The scientific presentations provided during the Annual Workshops “Climate and Atmosphere Research & Innovation in the Eastern Mediterranean & Middle East” (<https://emme-care.cyi.ac.cy/3rd-emme-climate-workshop/>)

Workshop Topics include the following:



- Climate Change and Weather Extremes
- Atmospheric Dust
- Air Pollution Sources and Impacts
- Greenhouse Gases and Remote Sensing Observations
- Atmosphere and Climate Modelling and Prediction
- New Instrumentation and Research Infrastructure
- International Networks and Regional initiatives
- Education and Training Opportunities

Relevant resources for all occurrences of the workshop are available in Open Access through the EMME-CARE website (<https://emme-care.cyi.ac.cy/3rd-emme-climate-workshop/>).

Indicatively, the following weblink showcases a YouTube video (<https://www.youtube.com/watch?v=DmWZlxVGgDg&t=16s>) of a total of 8 hours of on-line presentations) (93 views), and the abstract booklet of the 2023 workshop (<https://emme-care.cyi.ac.cy/wp-content/uploads/Book-of-Abstracts-7-Nov-23-workshop.pdf>)

### III.2. Education material of Autumn Schools

Our Autumn schools are organized every year (2022, 2023, 2024 [planned]) and typically host 15 participants. They have no registration fees and all the content of the school is shared in Open Access at the below links

 <p>Autumn School: Atmospheric Measurements Using Miniaturised Sensors and Drones (30 October – 3 November 2023)</p>	 <p>EMME-CARE Autumn School: Analysis of aerosols, air pollution and their sources in the Eastern Mediterranean (31 October – 11 November 2022)</p> <p>Autumn School is organized by CARE-C and Cyi Graduate School</p>
<p><a href="https://emme-care.cyi.ac.cy/emme-care-autumn-school-atmospheric-measurements-using-miniaturised-sensors-and-drones-30-october-3-november-2023/">https://emme-care.cyi.ac.cy/emme-care-autumn-school-atmospheric-measurements-using-miniaturised-sensors-and-drones-30-october-3-november-2023/</a></p>	<p><a href="https://emme-care.cyi.ac.cy/analysis-of-aerosols-air-pollution-and-their-sources-in-the-eastern-mediterranean/">https://emme-care.cyi.ac.cy/analysis-of-aerosols-air-pollution-and-their-sources-in-the-eastern-mediterranean/</a></p>
<p>The focus of the course (Autumn Schools) is both practical and theoretical approaches in miniaturised sensors and drone technologies. Short lectures on relevant topics (atmospheric sciences, drones, sensors) will be given during the first day. On the second day, working groups will have a chance to participate in test flights and collect data that will be further analysed and reported during the rest of the course. The course will conclude with a written report that will be returned after the course. The aim of the course is to teach the students the whole cycle of scientific field work, from how to design measurements, collect data, analyse data to publishing a report of the experimental work and data.</p> <p>Course information, Course Material available at the above link.</p>	<p>The focus of the course is analysis of aerosol, greenhouse gas and air pollution data based on the long-term datasets gathered at the Cyprus Atmospheric Observatories (CAO) and other available data sets from the Eastern Mediterranean. The course is implemented by working in small groups using programming tools (e.g. Matlab) for statistical analyses and data visualization. As an introduction to the subject, the students are invited to join the annual Climate Change workshop in the EMME area on the first course day. Short lectures on relevant topics will be also given during the course.</p> <p>Course information, Course Material available at the above link.</p>

### III.3. CARE-C Colloquium series

A total of 6 colloquiums provided between 2020 and 2023 (see list below) with YouTube links and as much as 3,200 views

Colloquiums
<ul style="list-style-type: none"> <li>▶ 8th of June, 2023: Links between Different Ecosystems, Clouds and Climate – Assistant Professor Tuija Jokinen</li> <li>▶ 17h of November 2022: Climate Change Overheating in the MENA Region: Lessons and Perspectives from Recent Research – Associate Professor Panos Hadjinicolaou</li> <li>▶ 5th of May, 2022: Colloquium: Reactive Trace Gases in the Earth's System – Assistant Professor Efstratios Bourtsoukidis</li> <li>▶ 10th of March, 2022: Policy Implications of a Global Assessment of Oil and Gas Methane Ultra-Emitters – Professor Philippe Ciais</li> <li>▶ 11th of October, 2021: Pre-Conference workshop (2021 Climate Change in the Eastern Mediterranean and Middle East 2nd International conference) CARE-C researchers</li> <li>▶ 21st of May, 2020: Webinar – SARS-CoV-2 in the air – A major route of transmission for the COVID-19 diseases by Professor Jean Sciare</li> </ul>



## List of our Colloquiums

### III.4. CARE-C Publication database



The full list of CARE-C publications (since 2009) (<https://emme-care.cyi.ac.cy/publications/>) with active doi weblinks of more than 700 references relevant to regional Air Pollution & Climate Change

**Research Highlight**  
*'Stability of nanoparticle production by atmospheric-pressure spark ablation'*

**Summary**  
Spark ablation is a gas-phase synthesis method for generating nanoparticles from conductive materials in the form of electrodes. The process relies on spark discharges forming a plasma between two conductive electrodes, heating them up and consequently evaporating small amounts of the material they consist of. The resulting vapors are subsequently quenched and carried away by a gas flow, forming nanoparticles upon nucleation and growth.

In this study, we investigate the stability of nanoparticle production by atmospheric spark ablation.

**Impact**  
This research significantly enhances the current understanding of nanoparticle production via atmospheric-pressure spark ablation by demonstrating the critical impact of electrode composition and carrier gas on stability. For materials, like palladium (Pd) and nickel (Ni), which don't react with nitrogen (N<sub>2</sub>), the production of nanoparticles was stable no matter if nitrogen or argon (Ar) gas was used. However, for materials like aluminum (Al) and magnesium (Mg) that easily form compounds with nitrogen, the nanoparticle production became unstable when nitrogen was used. This instability is due to the formation of a nitrile layer on the electrodes, which changes their properties and affects the process. Using argon gas instead of nitrogen helped maintain stable nanoparticle production for these reactive materials.

**Authors' bios**  
Dr. Klito Petalidou is an Associate Research Scientist in Nanoparticle/Nanomaterial Synthesis for Gas Sensing and Catalytic Application at the Climate and Atmosphere Research Center (CARE-C) of the Cyprus Institute.  
Prof. George Biskos is a Professor at the

Specific "Research Highlights" documents have also been created to enhance the dissemination of our scientific publications (<https://emme-care.cyi.ac.cy/research-highlights/>) to a broader audience

## IV. The HRDA Training Program for Cyprus

### IV.1. Introduction

The Cyprus Institute has made significant strides in enhancing its role in vocational education and training (VET) through its recent accreditation by the **Human Resource Development Authority of Cyprus (HRDA)**. This accreditation, effective from March 2024 and valid for five years, enables the Institute to offer a range of training programs aimed at upskilling and reskilling individuals in various sectors. **CARE-C will contribute to the green and digital education thematic by offering the know-how and relevant skills of its research and technical staff within this state sponsored partnership, and leveraging its existing educational resources and research activities aimed at addressing climate change and fostering sustainable development.**

### IV.2. Training Programs Overview

CARE-C is committed to providing high-quality training programs that exploit its expertise in scientific and technical fields. Courses will be available both internally for staff and externally for the public, with financial support from HRDA covering up to 80% of the costs for eligible participants, including those employed in the private sector, unemployed individuals, self-employed persons, as well as public sector officers.

The relevant HRDA call instrument is Pillar 2 (Recovery and Resilience Fund) which provides full funding for training programs aimed at enhancing digital and green skills, with no maximum grant amount. Specific terms and conditions apply regarding the duration of training, participant limits, and instructor qualifications. For instance, training sessions must last between six to one hundred and fifty hours, and a minimum of six participants is required to commence a program.

Instructors for these programs must meet stringent criteria, including certification as VET instructors by HRDA or exemption based on their teaching experience. This ensures that the training provided is of the highest quality and meets the educational standards expected by participants.

To effectively design and implement these training programs, the Cyprus Institute is conducting a comprehensive market analysis (to be completed by October 2024), assisted by CARE-C's portfolio of contacts of collaborators in the public and private sector. This involves engaging with governmental departments, ministries, and industry stakeholders to identify gaps in skills and training needs. The Institute is actively soliciting feedback from potential participants to tailor its offerings accordingly.

### IV.3. Indicative contribution of CARE-C

CARE-C will design courses, both scientifically rigorous and practically relevant, that align with the overall training program aims and serve EMME-CARE's priorities, such as:

- Hands-on training in operating drones and sensors for atmospheric monitoring and environmental research, leveraging the expertise of the Unmanned System Research Laboratory (USRL) and the Instrumentation Laboratory (INL)
- Modules on data analysis (including Machine Learning methods) and air quality and climate model output visualization utilising the staff expertise at the Environmental Prediction Department.
- Customized programs for professionals in specific industries like energy, agriculture, or tourism, focusing on the environmental challenges and opportunities relevant to their sectors, in collaboration with the Institute's Energy Environment and Water Research Center (EEWRC)
- Courses designed for policymakers and government officials, equipping them with the knowledge to develop effective climate policies and adaptation strategies, conducted by research personnel from the CARE-C Impacts and Policy Department.
- Introductory programs for the general public, raising awareness about climate change and promoting sustainable practices in daily life.

### IV.4. Co-benefits

By reaching out to these diverse groups, CARE-C can maximize the impact of its training programs and foster a culture of environmental stewardship across different sectors. The HRDA's financial support can enable CARE-C to dedicate more resources to developing and delivering these training programs, ensuring that they are accessible to a wide range of participants at little or no cost to them. With the strategic alignment of its training programs with the HRDA's priorities, targeting diverse audiences, and leveraging its existing expertise, CARE-C can maximize the impact of the HRDA's financial support and contribute to the development of a skilled workforce capable of addressing the challenges of climate change in the EMME region.

### IV.5. Implementation challenges

The Centre works together with the Cyl Graduate School that oversees the implementation of the VET at the Institute level, especially regarding the encounter of potential challenges that could impact the effectiveness and efficiency of the training initiatives.

These may include:

- Instructors for HRDA programs must be certified by the HRDA as "VET instructors" or meet specific exemption criteria. This requirement can limit the pool of available trainers, particularly if there are not enough qualified personnel within the Cyprus Institute or the broader community.
- Participant recruitment and retention: Attracting the minimum required number of participants (at least six) for each training program can be challenging, particularly in niche areas of green and digital skills.

Moreover, maintaining participant engagement throughout the course duration is critical for successful outcomes, and any dropouts could affect the overall effectiveness of the training.

- Alignment with market needs: The training programs must be aligned with the evolving needs of the labour market. Conducting thorough market analysis and maintaining ongoing communication with industry stakeholders is essential to ensure that the training offered is relevant and in demand.
- Ensuring that the training programs remain relevant and sustainable in the long term is a significant challenge. This includes adapting to technological advancements and changing environmental policies. Continuous evaluation and adaptation of the training content will be necessary to keep pace with these changes

The implementation of HRDA-funded training programs within and beyond the EMME-CARE project faces challenges ranging from administrative compliance and financial management to operational logistics and market alignment. These challenges are proactively addressed through strategic planning, stakeholder engagement, and continuous evaluation which will be essential for the success of the training initiatives aimed at fostering green and digital skills in the region.

#### IV.6. Enrolment sustainability

To address the minimum participant requirement for HRDA-funded courses within the EMME-CARE project, several strategies are planned to be implemented. These strategies aim to enhance recruitment, ensure course relevance, and promote collaboration, ultimately facilitating the enrollment of at least six participants per course.

- Targeted outreach and marketing including establishing partnerships with local businesses, government agencies, and educational institutions to promote the training programs; launching targeted marketing campaigns using social media, newsletters, and community events to raise awareness about the training programs; organize networking events or informational sessions where potential participants can learn about the courses, meet instructors, and understand the value of the training.
- Flexible course offerings such as developing modular training programs that allow participants to enroll in specific modules rather than a full course; blended learning options that combine online and in-person training.
- Collaboration with stakeholders by working closely with local authorities and community organizations to identify potential participants, especially among unemployed individuals or those seeking to upskill; implement feedback mechanisms to understand the training needs of potential participants better such as surveys or focus groups to provide insights into what topics are most relevant.
- Incentives for participation such as scholarships or stipends for participants from specific sectors (e.g., unemployed individuals); recognition and Certification by providing credentials that are recognized by industry.
- Monitoring and adaptation by regularly assessing enrollment trends and participant feedback to identify barriers to participation

By implementing these strategies, the EMME-CARE project can effectively attract participants for the HRDA-funded courses, ensuring that training programs are well-attended and impactful in promoting green and digital skills in the country.

#### IV.7. Timeline and Next Steps

The timeline for the organisation of the upcoming training programs is structured as follows:

- March 2024: VET Accreditation achieved.
- July 2024: Initial meetings with HRDA and discussions at the Institute's Academic Committee level with the participation of CARE-C's Director and Senior Faculty.
- August 2024: Scouting and informing CARE-C faculty and researchers about market needs.
- September 2024: Deadline for course suggestions from CARE-C Faculty and Senior Research Staff.
- November 2024: Detailed training module descriptions and finalisation of Cyl proposal to HRDA
- January 2025: Dissemination campaign
- Spring 2025: Commencement of training courses



## IV.8. Conclusion

The Cyprus Institute, through its VET programs and the initiatives of CARE-C, is at the forefront of fostering green and digital education in Cyprus and the EMME region. By integrating advanced research with educational resources, the Institute not only addresses immediate skill gaps but also prepares a new generation of professionals equipped to tackle the pressing challenges of climate change. The ongoing collaboration between educational institutions and research centers is essential for developing innovative solutions and promoting sustainable practices across various sectors. The structured approach presented above ensures that the Cyprus Institute remains responsive to the evolving educational landscape and the needs of its stakeholders, thereby contributing to the broader goals of the EMME-CARE project in developing new open educational resources for Cyprus and the Eastern Mediterranean region.

## V. Eastern Med & Middle East Education and Training Opportunities

### V.1. Introduction

Access to several countries of the region have been always limited and difficult to reach from Cyprus (e.g. Turkey, Syria, Iraq, Libya). Escalating conflict in the region has dramatically extended the number of countries which are not safe to access anymore (Palestine, Israel, Lebanon, Jordan, Iran). This has restrained Educational collaboration with mobility opportunities to only few countries of the Middle East (Gulf countries and Egypt) and Greece. It also had the adverse consequence to “freeze” for a while many of our active regional collaborations (American University of Beirut, Saint Joseph University of Beirut; Tel Aviv University, Weizmann Institute, University of Amman, etc); having a direct impact on our Education & Training programs (Task 3.4.c). To overcome this unfavourable regional context, several “Education & Training” initiatives were taken. They are presented below.

### V.2. The H.E. “Edu4ClimAte” project (Greece)

The “European Higher Education Institutions Network for Climate and Atmospheric Sciences” (Edu4ClimAte; <https://edu4climate.cyi.ac.cy/>) project was funded in 2022 as part of the widening call “European Excellence Initiative”.

Edu4ClimAte is coordinated by CARE-C (J. Sciare, EMME-CARE Project Coordinator) and aims to establish a “hub of knowledge, innovation, and cooperation”, specifically aimed at addressing challenges relating to climate change and air pollution for the EMME region. Through the development of a comprehensive set of High-Quality Education and Training activities, Edu4ClimAte will strengthen the profile and foster capacity building of the consortium, with a centre of gravity around the Greek and Cypriot partners (University of Crete and The Cyprus Institute).

From its inception, Edu4ClimAte has been built to complement EMME-CARE Objectives, as stated in its Grant Agreement (Section 1.1.5) through spreading Excellence between Widening Partners: [Edu4ClimAte is the first project funded by the European Commission where a TEAMING CoE (CARE-C) will actively contribute to raise excellence of another Widening Partner [University of Crete]. This new mode of spreading excellence (between widening countries) could potentially represent a new model to follow for maximizing and widely distributing across the European Union the benefits of a Research and Innovation-led economy]

**Edu4ClimAte activities contributing specifically to extend the EMME-CARE Open Education Resources to the EMME region (Task 3.4):**

- WP 1 “High quality Education & Training” (Task1.1. Climate & Atmosphere Training Hub)
- WP 4 “Network and Alliance” (Task 4.3. International Research & Innovation Networks of HEIs)
- WP 5 “Dissemination, Exploitation, Communication” (Task 5.4. Communicating Climate Change to citizens and society)



### V.3. The MSCA “Dust” Doctoral Network project (Greece, UAE)

The “Doctoral Network on Atmospheric Dust” (Dust-DN) has just been funded in 2024 as part of the Marie Skłodowska-Curie Actions (MSCA). Dust-DN is coordinated by CARE-C (F. Marengo, Assoc. Prof. recruited in the framework of EMME-CARE).

It is the first doctoral network on a European scale (to our knowledge), bringing together expertise on mineral dust in the atmosphere and multidisciplinary methods. Dust-DN is a strategic, international, and intersectoral alliance of high-profile partners. It will be able to deliver advances in understanding fundamental dust properties, and improve our knowledge and prediction of the socio-economic impacts of dust.

Dust-DN is an interdisciplinary and intersectoral project involving 7 beneficiaries and 16 associated partners, from which many are located in the EMME region; Cyprus (CARE-C), Greece (National Observatory of Athens, NOA), UAE (Khalifa University, KU).

Dust-DN has very strong Educational & Training components, therefore, **contributing specifically to extend the EMME-CARE Open Education Resources to the EMME region (Task 3.4)** and in particular through its Work Package 6 “Training and Networking” (led by CARE-C) but also through joint PhD co-supervision between Cyprus (CARE-C), Greece (NOA) and UAE (KU).

### V.4. Specific Technical training programs (Egypt, Saudi Arabia)

Other initiatives were taken **to extend the EMME-CARE Open Education Resources to the EMME region (Task 3.4)** to additional Middle East countries (Egypt, Saudi Arabia):

- **Egypt:** CARE-C is actively collaborating with Cairo University (Centre of Hazard Mitigation, Environmental Studies and Research (CHMESR)) in the framework of several World Bank funded projects which aim to build national (Egypt) capacities on Air Pollution (see details in the list of new services in [Deliverable D1.11](#)). This capacity building activities contribute to Task 3.4 as they provide training courses with on-line material for distant learning on atmospheric sampling and chemical analyses (2021, 2022) as well as in-person training on atmospheric data processing (2024). (See more at: <https://emme-care.cyi.ac.cy/care-c-of-the-cyprus-institute-and-egypt-ministry-of-environment-join-forces-to-better-air-quality-in-cairo/>).
- **Saudi Arabia:** CARE-C is engaging in 2024 with a new regional collaboration (Saudi Arabia) with the National Centre for Meteorology to establish an early warning network for dust storm over the Arabic Peninsula. (see details in the list of new services in [Deliverable D1.11](#)). This activity contributes to Task 3.4 and it comprises the preparation of learning materials (on PM source apportionment) and in-person training (in Jeddah in 2025-2026). (Youtube presentation of collaboration at: [https://www.youtube.com/live/\\_LIE70pW9w4?si=LQnEeZ9ECwHWN2cj&t=19294](https://www.youtube.com/live/_LIE70pW9w4?si=LQnEeZ9ECwHWN2cj&t=19294)).
- **U.A.E.:** CARE-C is collaborating with the New York of Abu Dhabi and Khalifa University sharing Open / On-line scientific presentations on regional Air Pollution & Climate Change

### V.5. Conclusion and Future prospects

While the current regional context is challenging our collaborations with Higher Education Institutions (HEIs) in the EMME and does not favour the rapid implementation of new (Open Education) courses on Air Pollution & Climate Change (as planned in Task 3.4), CARE-C has managed to overcome this obstacle and has been a key driver in engaging several regional HEI partners by coordinating prestigious EU-funded such as H.E. Edu4ClimAte (engaging The Cyprus Institute and University of Crete), MSCA “Dust-DN” (engaging The Cyprus Institute, the National Observatory of Athens, Khalifa University – UAE). Additional technical training initiatives have been (or will be) materialized in Egypt (Cairo University), and Saudi Arabia (National Centre of Meteorology).

As mentioned before, it remains in our plans for the next two years (M60 to M84) to maintain these efforts and assess how Open (Cyprus / EMME) Universities can be further engaged in this process.