



Erasmus+ Programme (ERASMUS)

Application Form

Technical Description (Part B)

(ERASMUS Standard Budget-based + LS Type II)

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Disclaimer

This document is aimed at informing applicants for EU funding. It serves only as an example. The actual web forms and templates are provided in the Funding & Tenders Portal Submission System (and may contain certain differences). The applications (including annexes and supporting documents) must be prepared and submitted online via the Portal.

IMPORTANT NOTICE

What is the Application Form?

The Application Form is the template for EU grants applications; it must be submitted via the EU Funding & Tenders Portal before the call deadline.

The Form consists of 2 parts:

Part A contains structured administrative information

Part B is a narrative technical description of the project.

Part A is generated by the IT system. It is based on the information which you enter into the Portal Submission System screens.

Part B needs to be uploaded as PDF (+ annexes) in the Submission System. The templates to use are available there.

How to prepare and submit it?

The Application Form must be prepared by the consortium and submitted by a representative. Once submitted, you will receive a confirmation.

Character and page limits:

page limit normally 40 pages for calls for low value grants (60 000 or below); 120 pages for all other calls (unless otherwise provided for in the Call document/Programme Guide)

supporting documents can be provided as an annex and do not count towards the page limit

minimum font size — Arial 9 points

page size: A4

margins (top, bottom, left and right): at least 15 mm (not including headers & footers).

Please abide by the formatting rules. They are NOT a target! Keep your text as concise as possible. Do not use hyperlinks to show information that is an essential part of your application.

If you attempt to upload an application that exceeds the specified limit, you will receive an automatic warning asking you to shorten and re-upload your application. For applications that are not shortened, the excess pages will be made invisible and thus disregarded by the evaluators.

Please do NOT delete any instructions in the document. The overall page limit has been raised to ensure equal treatment of all applicants.

TECHNICAL DESCRIPTION (PART B)

COVER PAGE

Part B of the Application Form must be downloaded from the Portal Submission System, completed and then assembled and re-uploaded as PDF in the system.

Note: Please read carefully the conditions set out in the Call document Programme Guide (for open calls: published on the Portal). Pay particular attention to the award criteria; they explain how the application will be evaluated.

PROJECT	
Project name:	Climate University for Virtual Exchanges
Project acronym:	CLUVEX
Coordinator contact:	Hanna K. Lappalainen, University of Helsinki, Finland

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PROJECT SUMMARY

Project summary (in English)

Climate University for Virtual Exchanges (CLUVEX) is a 3 year project carried out by two Erasmus+ programme countries (Finland and Denmark), two Neighbourhood East countries (Ukraine and Armenia) universities and an art&science non for profit association based in Finland, in thematic areas of “climate action, environment and nature protection”, “environment and climate change” and “green skills”. The project aim is to bridge students from European and Neighbourhood East universities and to engage them with climate competences e.g. ideas of adaptation and mitigation to climate change and the green agenda together with interdisciplinary/ green/ soft skills. The project's main activity is the interactive on-line courses including traditional education materials in a way that students, professors and teaching assistants will work together in small groups. The Virtual Exchange (VE) will take place in small groups discussing specific topics of climate change. CLUVEX builds on atmospheric sciences research and existing virtual on-line platform called “Climate University” developed and hosted by the University of Helsinki (coordinator). The Climate University has been already piloted since 2018 in 25 higher education institutions in Finland. VE activities will be integrated into interactive Climate University higher education e-courses involving 2500 higher education participants. As a novelty, the art&science partner BioArt Society will introduce artistic perspectives on how contemporary art aims to contribute to the public climate change discourse in the form of VE lectures and creative exercises. CLUVEX will be implemented on a 50 % basis so that half of participants come from universities of Denmark and Finland e.g. European universities and the other half from Ukraine and Armenia universities (as Neighbourhood East countries). All the partners bring their technical tools together with pedagogical expertise for designing new VE interaction between students. Project also uses its networks like Una Europa, an alliance of 11 European universities, World Meteorological Organization’s Global Campus initiative, in Europe and Neighbourhood East to attract other participants on a diversity basis. The major outcome is nurturing the generation of young Climate Messengers competent in building climate awareness and sustainability strategies in their home organisations and future work life. CLUVEX has a high momentum in the post COVID19 situation, where we do not know how soon face-to-face communication will be normalised and sustainability of travelling is questioned in a world aiming at carbon neutrality. Thus, the VE cooperation complements the ongoing physical mobility opportunities in the field of climate change research and the ensemble of political decisions and issues, where Neighbourhood East has an especially important role in a global scale and new Climate Messengers could be a much needed expertise in labour markets.

1. RELEVANCE

1.1 Background and general objectives

Background and general objectives

Please address all guiding points presented in the Call document/Programme Guide under the award criterion 'Relevance'.

Describe the background and rationale of the project.

How is the project relevant to the scope of the call? How does the project address the general objectives of the call? What is the project's contribution to the priorities of the call (if applicable)?

Proposal & Call objectives

The **Climate University for Virtual Exchanges (CLUVEX) project objective** is to bridge students from European and Neighbourhood East countries universities and engage them with climate competences e.g. ideas of adaptation and mitigation to climate change and the green agenda together with the interdisciplinary, green and soft skills. Virtual Exchanges will educate and build a network of Climate Messengers, who are, after completion of the VE-enhanced Climate University courses, competent in building climate awareness and sustainability strategies in their home organisations and future work life. They are educated in climate change knowledge, science communication, problem-solving skills and cross-cultural dialogue. Climate adaptation at a regional and local level is important for any country and is extremely important for Neighbourhood East countries, with its vast territory and multiple climate zones and climate change scenarios. The most effective way is to learn from the world's best comprehensive EU approach and spread the European experience to Neighbourhood East countries.

The project contributes to the priority of the Erasmus+ programme 2021-2027 to support the green and digital transitions by educating young academics with science communication and climate competences and who will distribute science based knowledge and solutions to the wider audiences in the society. Furthermore, the project has a high momentum in the context of the COVID-19 pandemic and its enormous impact not only in Europe but also in Neighbourhood East countries. This is also addressed by the recent OECD report (2020), how important is a holistic approach to education, which takes into account students' learning, social and emotional needs especially in times of crisis like COVID19. There is a need especially for students across Europe and Neighbourhood East countries for international interactions.

The CLUVEX project aims to educate the maximum number of young students, 2500 in total, outlined in the Virtual Exchange (VE) Call. As the EU Youth Strategy 2019-2027 Calls all young people should have the necessary resources to take part in society. The project heeds the three key words of the strategy "*engages, connects and empower*" and involves university students from Europe and Neighbourhood East countries in novel learning and digesting of soft skills by virtual exchange, but also at the same time, encourages to open-mindedness and supporting the development of interpersonal and intercultural skills. Soft skills in the proposed project context are "*enabling the individuals to make decisions, solve problems, think critically and creatively, communicate effectively, recognize the emotions of others, build relationships at physical and emotional level*" as determined by World Health Organization (2003).

Youth and young academics have a crucial role to take the lead in the collective behaviour change needed to mitigate climate change (Blakemore, 2018). Youth is also the time when behavioural and wellbeing problems can emerge or worsen with consequences that stick long into adulthood (Paus et al, 2008; Salmela-Aro, 2017). The CLUVEX thematic scope is on "climate action, environment and nature protection", "environment and climate change" and "green skills". Project partners offer education and

degrees in atmospheric sciences, meteorology, climatology, geography, geo-ecology, and hydrology which provide science based knowledge for climate competences (Riuttanen et al. 2021). Climate change is a global problem that requires a complex approach developed and implemented by many countries and many people. The Northern Europe and Neighbourhood East as well as *Arctic and boreal regions* have specific scientific challenges and large scale research questions in understanding the land - atmosphere feedbacks or climate - air quality interactions (Kulmala et al. 2015, Lappalainen et al. 2016).

The CLUVEX contributes to exchange of knowledge and experience, research findings, which will equip the students to be active contributors for the transition to green societies. The CLUVEX partners have a special expertise in this task as carrying out frontier research in atmospheric sciences (climate change and air quality, clean air in the cities) and educators of young scientists who can become facilitators of ecological renaissance in various spheres of their employment. The project has, as addressed in the European Education Area, an ambitious geopolitical dimension and is contributing to the attainment of the 2030 Sustainable Development Goals (SDGs). CLUVEX fits into the climate action aims, it will also recognize United Nation SDGs. The project has scientific capacity especially to address thematic and science related to the 2030 SDGs. In particular, SDGs 11, 12 and 13 call us to ‘take urgent action to combat climate change and its impacts’ (SDG 13), to ‘ensure sustainable consumption and production patterns’ (SDG 12) and to ‘make cities and human settlements inclusive, safe, resilient and sustainable’ (SDG 11, UN 2015, 26-28). Many of the specific targets listed under these goals focus on raising awareness about climate friendliness and sustainable lifestyle as well as on supporting sustainable national and international policy-making, business and use of resources. CLUVEX acknowledges that different societies, communities and individuals all have specific needs and makes a special effort in the Europe - Neighbourhood East countries context. Climate change is a key driver of climate-related risks, but it is not the only one. The regional impacts of climate change also depend on the development of environmental, socio-economic, political, and technological conditions at the regional scale.



Climate University (<https://climateuniversity.fi>)

is the main virtual platform of the project and has already been successfully piloted in Finland since 2018 between 25 higher education institutions. Climate University is currently introducing 9 online courses for universities and everyone who wants to make the sustainability transition in the society real. Climate University has already well piloted online learning platforms and concepts. The climate competences and green skills addressed by the Climate University courses cover courses from circular economy, role of communication in solving the climate crisis to solutions where students can take their expertise in sustainability and climate change into action by offering solutions for real-life challenges. In October 2022, a new online course on biodiversity will be launched. For example, in 2021 UH had 1000 students registered



to Climate University courses where UH was teaching, and ca. 600 students got credits. Thus, the proposed project platform fully shares the idea of the “high-quality, inclusive and accessible digital education in Europe” (the Digital Education Action Plan, 2021-2027). The project partners will bring their earlier expertise in climate education and pedagogical know-how to the CLUVEX project.

The BioArt Society role in the project is to develop and carry out a specific art&science program where leading artistic experts introduce artistic work in relation to Climate Change. This program includes lectures and exercises with the objective to broaden the vision of the Climate University by introducing artistic and cultural approaches on climate change.

Consistency

CLUVEX aims to involve 2500 higher education students including ca. 50 university staff (lecturers and young professors). The project will be implemented on a 50-50% basis, so that half of the VE participants will come both from Finnish, Danish Universities and also from other European Union countries as well as the other half - from Ukraine, Armenia and other Neighbourhood East countries universities (EU-Neighbourhood East relations: *Push back, constrain and engage* 2021). The participation is also addressing the gender balance of the participants and other diversity aspects like socioeconomic, geographic, and academic/professional backgrounds in the spirit of “*Space and participation for all*” and provides the existence of safe virtual youth spaces and access to information and services provided by the partner universities. CLUVEX partner European universities are the University of Helsinki (UH) and University of Copenhagen (UCPH), and the Neighbourhood East countries’ Universities - the Odessa State Environmental University (OSENU), Taras Shevchenko National University of Kyiv (TSNUK), Yerevan State University (YSU) - are located so that the CLUVEX partners’ maximum geographical distance, between UCPH Denmark – YSU Armenia, is over 2600 km, concertises the difference between physical mobility vs. virtual access and how virtual access supports the equal opportunities to participate the education including communication. The different aspects of consistency and balance, especially in the selection of students in Europe - in Neighbourhood East, in Europe versus Neighbourhood East, are monitored by the project QA task team during the virtual exchange. Project supports higher education in Ukraine and Armenia specifically by offering virtual participation and training of facilitators, which will provide more opportunities for participation for students from these countries who are not able to take part in exchange abroad and for the university teachers in these countries who have had to switch to online teaching. Due to wars in Ukraine and Armenia a special attention will be given to male students and their opportunity to participate VE.

Scaling-up

The estimated number of the CLUVEX participation is based on (i) partner universities current capacity to involve their students into the Virtual Exchange and (ii) partner universities collaboration networks. The estimated capacity of the partner organisations to involve the students during a three year virtual exchange project is 750 students for UH, 500 for UCPH, 450 for OSENU, 500 for TSNUK, and 300 for YSU. In addition to the list here above also other networks will be used for the further upscaling of the “e-learning with a virtual exchange concept” over regions during and /or after the project. For example, we could open the art & science program to art students and other scientists of the Bioart Society network. CLUVEX-Guide will be built on the Erasmus+ Virtual Exchanges, Erasmus+ EVOLVE pilots 2018-2020 and previous knowledge of World Meteorological Organization (WMO) Regional training centers (public.wmo.int/en/resources/training/regional-training-centres). WMO Regional Training

Centers are also an especially important platform when future climate services are developed and new staff is trained. The project concept e.g. virtual exchange Guide collects the outcomes in a concrete way and the CLUVEX-Guide e.g. lessons-learned will be shared in different forums WMO Global Campus (public.wmo.int/en/resources/meteoworld/wmo-global-campus) and international conferences like European Geophysical Society (EGU) General Assemblies or Annual Conferences of the Universities of Arctic.

European Added Value

The Climate University, the project platform, started as a national project in Finland. Thanks to interactive methods developed through the Virtual Exchanges, it will become truly European and international. The EU project would provide a testbed for Climate University enhanced by the CLUVEX project by organising virtual exchange opportunities for students representing wider European backgrounds together with the students from Neighbourhood East countries. The project group discussion and exercises would be implemented in a way that it will also encourage to “*intercultural dialogue with partner countries and increasing tolerance through online people-to-people interactions*”. The virtual exchange exercises will include education and exercises on soft skills and introduce different science diplomacy assets and principles. In this project the soft skills are defined as “*a set of socio-affective skills that are necessary for interaction with others and that make it possible to cope with everyday demands and challenging situations*” by the World Health Organisation, Division of Mental Health (1994). CLUVEX tailored Virtual Exchange will also enhance the implementation of the European values of freedom, tolerance and non-discrimination through education across the relations of the EU with Neighbourhood East countries and support the rebuilding in Ukraine.

As a whole CLUVEX enables the promotion of best practices of VE combined with e-learning in a field of climate action and uses networking as a tool for disseminating its results. The CLUVEX continues a history of the EU cooperating with other countries on climate adaptation at all levels and increases the support for climate resilience and preparedness in European and Neighbourhood East universities. The virtual exchange around climate university supports the strengthening engagement and exchanges especially between the consortium countries Finland, Denmark, Ukraine, and Armenia, but has a huge capacity to upscale the climate tailored VE and supports Europe and Neighbourhood East countries to become more climate resilient in the future.

References

- Blakemore S-J. (2018): Avoiding Social Risk in Adolescence. *Current Directions in Psychological Science*. 2018;27(2):116-122. doi:10.1177/0963721417738144
- Paus, T., Keshavan, M., Giedd, J. N. (2008). Why do many psychiatric disorders emerge during adolescence? *National Review of Neuroscience*, 9, 947–957. doi:10.1038/nrn2513
- Salmela-Aro et al. (2016): Integrating the light and dark sides of student engagement using person-oriented and situation-specific approaches. *Learning and Instruction*, 43, 61-70. doi:10.1016/j.learninstruc.2016.01.001
- Riuttanen, L., Ruuskanen, T., Äijälä, M., & Lauri, A. (2021). Society needs experts with climate change competencies—what is the role of higher education in atmospheric and Earth system sciences? *Tellus B: Chemical and Physical Meteorology*, 73(1), 1-14.
- Kulmala, et al. (2015): Introduction: The Pan-Eurasian Experiment (PEEX) – multi-disciplinary, multi-scale and multi-component research and capacity building initiative, *Atmos. Chem. Phys.*, 15, 13085-13096, 2015, doi:10.5194/acp-15-13085-2015
- Lappalainen et al. (2016): Pan-Eurasian Experiment (PEEX): System understanding

of the Arctic-boreal regions for constructing scenarios and assessments of the future development of the Northern Pan-Eurasian environments and societies, Atmos. Chem. Phys., 16, 14421-14461, 2016, doi:10.5194/acp-16-14421-2016

1.2 Needs analysis and specific objectives

Needs analysis and specific objectives

Please address the specific conditions/objectives set out in the Call document/ Programme Guide, if applicable.

Describe how the objectives of the project are based on a sound needs analysis in line with the specific objectives of the call.

What issue/challenge/gap does the project aim to address? The objectives should be clear, measurable, realistic and achievable within the duration of the project. For each objective, define appropriate indicators for measuring achievement (including a unit of measurement, baseline value and target value).

The CLUVEX project aims are directly connected to 5 Work Packages (WPs).

Obj-1 to bridge and bring together students from European and Neighbourhood East countries universities and engage them with climate competences and soft skills (The overall Obj, All WPs 1-5)

Obj-1 issue/challenge/gap does the project aim to address:

- There is an urgent need to educate the climate competences of the academic youth and make them “Climate Messengers”. Especially, the climate related political decisions of Neighbourhood East countries are and will be affecting the atmospheric composition in their regions but will also have a global scale impact on the future development of mankind. Virtual exchange would enhance sharing of science-based knowledge and climate competences among young academics and would be used for the first time at this scale and volume of climate education.
- There is also a know-how gap in the soft skills of academics. Joint research across different geopolitical regions is needed to solve global challenges and soft skills, like cooperation, trust, assertive communication, problem solving and self-evaluation (Mangrulkar et al. 2001) are especially relevant skills in the future research collaboration in the field of climate change research.

Obj-1 indicators for measuring achievement:

- a unit of measurement: number of students participated and passed the virtual exchange / Climate University course
- baseline value: 0
- target value: 2500

Obj-2 to develop and design a new, tailored Virtual Exchange concept for climate education and training (WP-2)

Obj-2 issue/challenge/gap does the project aim to address:

- there is no existing concept and/or materials where in the e-education the communication & interactions is such strongly addressed as a part of virtual learning related to Earth science and climate change.

Obj-2 indicators for measuring achievement:

- a unit of measurement: Guide for VE and Guide for climate literacy are ready
- baseline value: no existing materials
- target value: 2 Guides

Obj-3 to educate new facilitators and moderators with climate competences and soft skills for VE (WP-3)

Obj-3 issue/challenge/gap does the project aim to address:

- there is a limited number of competences specialised teachers / assistant / moderators who have been also trained in soft skills, digital skills and virtual exchange skills.

Obj-3 indicators for measuring achievement:

- a unit of measurement: number of educated moderators and facilitators
- baseline value: 0
- target value: min 50 in total, min 10 per partner organisation

Obj-4 to educate university students to act as Climate Messengers in society (WP-4)

Obj-4 issue/challenge/gap does the project aim to address:

- to implement Climate Literacy Virtual Exchanges and International online courses
- to select and compile the best VE practices of the consortium partners and Climate University

Obj-4 indicators for measuring achievement:

- a unit of measurement: number of students participated passed the online course(s) and tailored VE exercises having “Climate Messenger” certificate
- baseline value: 0
- target value: 2500

Obj-5 to upscale and distribute information on Virtual Exchange as a powerful tool bring students together from across wide geographical distances (WP-5)

Obj-5 issue/challenge/gap does the project aim to address:

- students are not involved in international activities on climate and ecology, because the majority of international courses/schools/joint activities require fees and, therefore, exclude economically disadvantaged students

Obj-5 indicators for measuring achievement:

- a unit of measurement: number of education / research networks / universities contacted / international students collaborations in Europe and Neighbourhood East countries
- baseline value: 0
- target value: 20

1.3 Complementarity with other actions and innovation — European added value

Complementarity with other actions and innovation

Explain how the project builds on the results of past activities carried out in the field, and describe its innovative aspects (if any).

Explain how the activities are complementary to other activities carried out by other organisations (if applicable). Illustrate the trans-national dimension of the project; its impact/interest in the EU area; possibility to use the results in other countries, potential to develop /cross-border cooperation among Programme countries and Partner countries, if applicable, etc.

If your proposal is based on the results of one or more previous or ongoing projects, please provide precise references to these projects.

Past activities of the project partners

Project builds on the results of past activities of the partners' projects and utilises the existing and already piloted and tested e-platforms, data pools and other education materials and active bachelor, masters, doctoral programs. All the CLUVEX partners have a long list of project references in a frame of EU ERASMUS Calls or other similar. The CLUVEX consortium consists of 5 complementary partners (2 universities from Europe and 3 universities from Neighbourhood East countries), which all provide bachelor, masters and doctoral programs in atmospheric and sustainability sciences.

Past activities by the partner universities relevant to CLUVEX:



University of Helsinki, Institute for Atmospheric and Earth System Research (UH-INAR), a CLUVEX project coordinator, brings the climate competences e-education developed in the frame of by **Climate University**. The Climate University is the network for climate and sustainability education, consisting currently of 25 higher education institutions in Finland. Climate University has produced a set of nine online courses on basics of climate change and sustainability, with advanced courses on for example statistical tools for climate science and sustainability leadership. Course materials are freely available via Climate University website (www.climateuniversity.fi). Based on the open materials, HEIs in the network organise courses for university students and continuous learning. Network has good experiences in co-teaching across institutions in Finland and is willing to expand to other countries. Climate University collaborates with Una Europa European Universities Initiative (www.una-europa.eu) to produce a Micro-Qualification in Sustainability for international audiences by the end of year 2022. Experiences from this pilot collaboration will be utilised in the CLUVEX- project to improve more efficient interactions and communication including new Virtual Exchange asset and to develop an administrative model for international cross-study collaboration. The ClimUni provides the following Open Educational Resources, eight of them available in English and one of them (a course on climate change for high schools) in Finnish only. Other relevant UH projects which find synergy with the CLUVEX project are ClimComp, ACCC-Finnish Flagship program/project and the PEEX program. ClimComp (blogs.helsinki.fi/climatecompetencies) is a project funded by the Academy of Finland for 2021-2024 to study the learning of the competencies needed for effective climate change mitigation and adaptation in the education system in Finland. In the project we develop a framework for climate competencies and study the learning of them in different educational contexts, including Climate University online courses, hackathons and intensive courses. **Outcomes of the project are utilized to develop the CLUVEX Virtual Exchanges** concept optimal for learning of the climate competencies. UH has also been active in developing “Horizontal Learning” concept (Lauri et al. 2020; Ruuskanen et al. 2018). The **new Finnish flagship for “Atmospheric and Climate Competence Center”** (ACCC; 2020-2024, www.acccflagship.fi) funded by Academy of Finland (AoF) provides the scientific competences for the further development of the VE / e-learning but also a **wide Finnish scientific community of students** whom can be invited to virtual exchange. The ACCC Centre consists of scientists and PhD students from many disciplines including physics, meteorology, chemistry, forest sciences and biology. **Pan-Eurasian EXperiment (PEEX) Program**, coordinated by UH, focused on land-atmosphere interactions feedbacks in the Arctic - boreal Northern Eurasian regions e.g. air quality research in megacities started in 2012. PEEX provides a **collaboration network for CLUVEX VE concept upscaling with universities from the Neighbourhood East countries and China** and is currently co-operating over 40 universities/ institutes including from the Neighbourhood East countries.



Odessa State Environmental University (OSEN) is the key higher education centre in Ukraine in the area of Environmental Studies, Hydrometeorology, Management, Computer Science and Water Bio-Resources. In the field of Hydrometeorology OSEN has been training specialists for the WMO for more than 50 years. The curricula for training specialists meet all international standards and are acknowledged by hydrometeorological services all over the world. Two of OSEN graduates, members of IPCC, Alioune Ndiaye and Oleg Sirotenko were among the

awarded the Nobel Peace Prize (2007). Training at OSENU's Hydrometeorological Institute is provided in the field of Earth Sciences. Within this domain of Earth Science as a speciality there exist the following specializations: Meteorology and Climatology, Agrometeorology, Hydrology and Integrated Use of Water Resources, Oceanography and Hydrography, Organization of Meteorological and Geophysical Service for the Armed Forces of Ukraine. In 2012 a Coordination Centre for Training and Retraining of Specialists in Agricultural Meteorology, Agroecology and Climate Change from the CIS countries was established as a result of the joint actions under 159352-TEMPUS-FI-TEMPUS-JPHES, 159173-TEMPUS-DE-TEMPUS-JPCR and 511390-TEMPUS-1-2010-1-SK-TEMPUS -JPCR projects, and in 2014 it became an International Training Centre in Environmental Science. In 2015-2019 OSENU participated in Erasmus+ project 561975-EPP-1-2015-1-FI-EPPKA2-CBHE-JP 'Adaptive learning environment for competence in economic and societal impacts of local weather, air quality and climate', which main result was creation of ECOIMPACT Personal Learning Environment. Since 2020 the University is involved in implementation of the project 619285-EPP-1-2020-1-FI-EPPKA2-CBHE-JP aimed at development of competency-based curricula for continuous comprehensive training of specialists in the field of climate services in Ukraine, as well as the initiation and development of additional education in climate change for decision-makers, experts in climate-dependent economic sectors and the general public.



Taras Shevchenko National University of Kyiv (TSNUK) Taras Shevchenko National University of Kyiv is today a classic university with a distinct research profile, and the leading contemporary academic and educational hub of Ukraine. TSNUK awards Junior Specialist's, Bachelor's, Specialist's and Master's degrees, Higher Qualification Post-graduate degrees and Doctoral degrees. Training and retraining programs are provided in 14 specialties of Junior Specialist qualification, 55 fields of Bachelor's, 49 areas of Specialist's and 98 fields of Master training programs. More than 26,000 students study at TSNUK. Approximately 1,645 postgraduate and 125 PhD students are working for higher qualifications. Over 350 doctoral and higher postgraduate theses are submitted annually at the university. Courses are provided by 198 Departments. The academic potential of TSNUK is today demonstrated by more than 60 full members and corresponding members of the National Academy of Science (NAS) of Ukraine, 626 members of staff with Doctor's degrees and 1,645 staff with higher postgraduate degrees. Teaching meteorology at the university began almost immediately after its foundation in 1846 and has long traditions and famous names. The Meteorology and Climatology Department (MCD) was founded in 1949. During its existence, the department has trained many highly qualified specialists for the Hydrometeorological Service of Ukraine and other Ukrainian and international institutions and organisations. The programs for training specialists meet all international standards and are acknowledged by hydrometeorological services all over the world. Nowadays within the field of Earth Sciences, the specialisation on Meteorology is provided at the MCD of Geography Faculty. TSNUK offers BSc and MSc programmes on Meteorology and PhD programme in the field of Earth Sciences (with Meteorology and Climatology specialisation). In 2015-2019 TSNUK participated in Erasmus+ project 561975-EPP-1-2015-1-FI-EPPKA2-CBHE-JP 'Adaptive learning environment for competence in economic and societal impacts of local weather, air quality and climate'.



Yerevan State University (YSU), a CLUVEX project partner. The Foundation “Yerevan State University” is an educational, scientific research and cultural autonomous higher educational institution, which has a special status by the RA legislation. Founded in 1919. The activity of YSU aims at implementing fundamental and applied scientific research and educational programs in various directions of Armenian Studies, Science, Social Economics, Humanities, Technics and Culture. The YSU Strategic Development Plan is carrying out quality research and introducing innovations, development of public involvement and services, creating and improving quality infrastructures, enhancing potential of qualified staff, providing quality services, broadening diversified admission and raising the relevance of education, promoting financial stability and effective management, enhancing strategic partnership and promoting internationalisation. The Faculty of Biology at YSU has been established in 1933. Currently, this faculty is the main educational center in Armenia to train high-quality specialists in various fields of Biology. At present, it consists of 7 Departments and Biology Scientific Research Institute (BSRI), and 2 scientific-educational centers - Center of Excellency of Applied Biology and Novel Center of Microbiological Biotechnologies and Biofuel. Nine research laboratories function within BRSI.



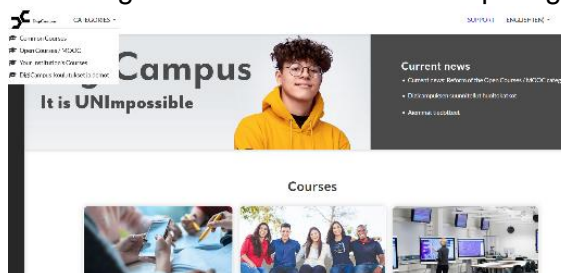
The University of Copenhagen (UCPH), a CLUVEX project partner, is a public research university in Copenhagen, Denmark. The section for the Physics of Ice, Climate and Earth at the Niels Bohr Institute, which is the key UCPH partner in the CLUVEX project, studies the elements of the Earth and climate system – the atmosphere, oceans, ice sheets and glaciers, sea ice, and the solid Earth itself – and the interactions between them. In the **CLUVEX project UCPH shares the ERDA platform for developing new VC exercises interlinked to Climate University courses**. ERDA is Electronic Research Data Archive at UCPH. It is meant for storing, sharing, analysing and archiving research data and educational materials. The intended audience includes students, employees and their collaboration partners. ERDA delivers safe central storage space in a cloud for own and shared files, interactive analysis and programming tools in addition to archiving for safe-keeping and publishing.



BioArt Society is a Helsinki based art association with 131 members from art, natural sciences and the humanities. BioArt Society is a leading organization in art & science and experimental arts. For more than a decade it is among the principal organisations in Europe setting the tone on an international level for activities related to art engaging with biology, ecology and life sciences. BioArt Society runs SOLU Space, a project space for exhibitions, workshops, lectures and other program, as well as the Ars Bioarctica art&science residency program in the sub-Arctic Finland at the Kilpisjärvi Biological Station of the University of Helsinki. Artistic program relevant examples to CLUVEX include *80+1 Kilpisjarvi* (2009), an art&science program on climate change in the sub-Arctic, *HYBRID MATTERs* (2014/15), a Nordic network program on environmental transformations through human activities, the *Field_Notes* art&science field laboratory series (2011/13/15/18/19/21), *State of the Art Network* (2020-23) a 3 years Nordic/Baltic network project on the Anthropocene, *The North Escaping* (2022 ongoing) a trans-disciplinary project on Climate Change in the North.

Innovative aspects

The CLUVEX / Climate University courses, having the virtual exchange as an integral part of the education, intends to be a digital easy access educational tool that supports various kinds of climate actions that supports behavioural changes by proving green skills to the participants. Climate University courses run in a digitally accessible online learning platform, currently DigiCampus, a shared learning environment for universities, courses (www.digicampus.fi). At the moment courses include independent learning at the online platform, but also teacher interaction and group work. Different methods like use of technical and digital assets like mobile phones will be tested with university students to ensure synergy between available digital educational and computing resources. For example, in the CLUVEX where the English skills of the participating students from Neighbourhood East countries might be a limiting the communication it is especially important to try to find new technological solutions, in this case, translators (Google Play STranslator) to help students in their virtual communication.



Complementary to other activities

Work on VE concept design has already been going on in the Climate University network and has been piloted in the Una Europa collaboration within European Universities. CLUVEX would enable such virtual collaboration within European and Neighbourhood East universities, as well as with WMO Global Campus. Furthermore, UH is also actively developing climate change education within the ClimComp project, and has also prior expertise in research-based education development in atmospheric sciences (Ruuskanen et al. 2018, Lauri et al. 2020).

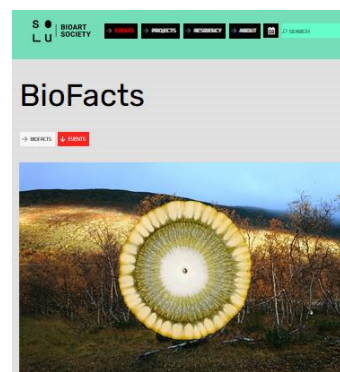


Transnational-dimension

Project outcomes can be used for wider distribution and piloting of the climate competence concept (“Climate Messengers”) on a virtual platform in Europe and in Neighbourhood East countries, not only for the university students but also for other audiences (schools, training and knowledge centers). The project emphasis on transformative climate action in building competences on environmental sustainability. Transformative action refers to activities that bring about changes in moral values and lifestyle patterns and green skills shaping practices society, as well as changes in structures of society and culture.

Artistic-dimension

Brought together through the common concern on the deteriorating conditions of the environment, artists and scientist from natural science and humanities increasingly collaborate and present joint outcomes in form of artworks, conferences, publications, curated exhibitions and public events which can be seen in the work of the Bioart Society and its international art&science network. The artistic dimension in CLUVEX is twofold: on the one hand introducing the arts as valuable partner in dissemination and the production of public awareness but also to provide space for transdisciplinary approaches through joint exercises: like out of the box thinking, scenario speculations and creative thinking beyond the disciplines.



Possibility use the materials in other countries

The Climate University course materials are already open-access and free to use by anyone anytime. Materials can be accessed via the Climate University website (www.climateuniversity.fi). Virtual collaboration and exchange of materials with WMO Education and Training Office and its Global Campus (public.wmo.int/en/resources/meteoworld/wmo-global-campus) is also planned.

The project will prepare insight for building European – Neighbourhood East competence framework on environmental sustainability and in parallel design and pilot curricula and educational programs that utilise those same inputs (consisting of state-of-the-art scientific knowledge on climate change and responses required in mitigation and adaptation, pedagogical approaches supporting climate action and adoption of key climate competences to be applied in VE format in the future). The project also aims to bridge state-of-the-art Virtual Exchange tailored to climate educational materials, free cloud computing resources and environmental data under one umbrella to ensure equal opportunities for all students enrolled for virtual courses independent of their geographical location. This supports the CLUVEX Climate Messengers in their future work towards international climate resilience. And during the project facilitate new Climate Messengers their preparedness and strengthening their engagement and learning from the international partners who have long been on the frontlines of climate change and have valuable experience.

2. QUALITY

2.1 PROJECT DESIGN AND IMPLEMENTATION

2.1.1 Concept and methodology

Concept and methodology

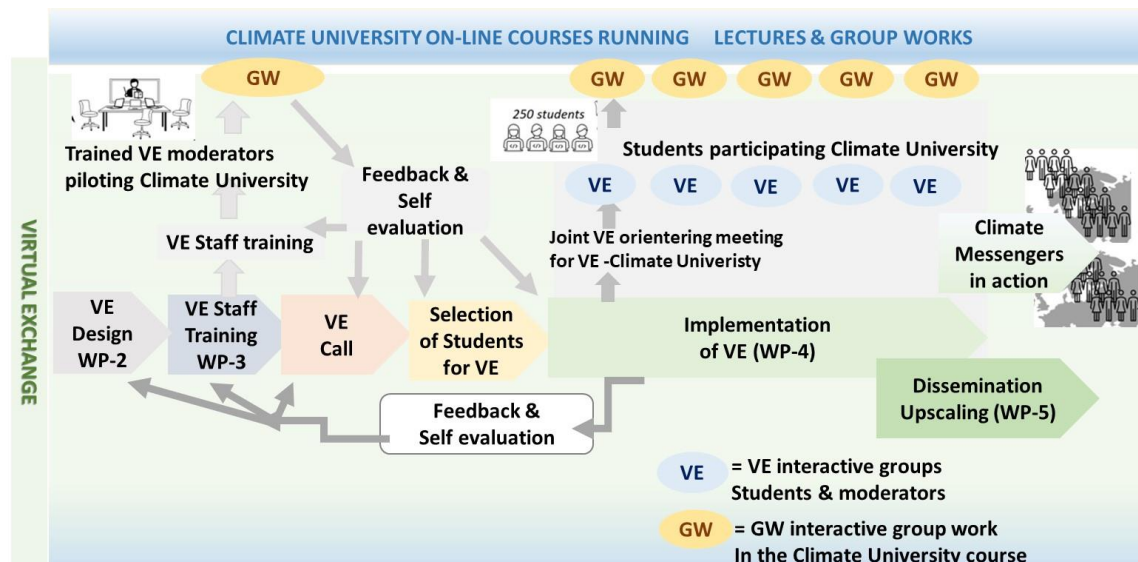
Please address all guiding points presented in the Call document/Programme Guide under the award criterion 'Quality of the project design and implementation'.

Outline the approach and methodology behind the project. Explain why they are the most suitable for achieving the project's objectives.

CLUVEX Strategy, Structure and Approach

The CLUVEX strategy builds on realistic and achievable tasks and follows the earlier lessons-learnt and recommendations by European Association for International Education (EAIE) together with ERASMUS guidelines. The project phases proceed from

the VE design (WP-2) and VE staff training (WP-3) to the implementation of the VE (WP-4) with the clear plans and activities for the dissemination and upscaling (WP-5). CLUVEX will organise 2 workshops in a hybrid format during the project. The kick-off-meeting / WS will be organised in M2 getting the partners' Team members together and start preparations for the VE training. The second WS is organised M10 aimed at staff training and providing skills to moderate the VE. Both WS are hosted by UH and the on-site meetings together with the on-line connection are organised in Helsinki, Finland.

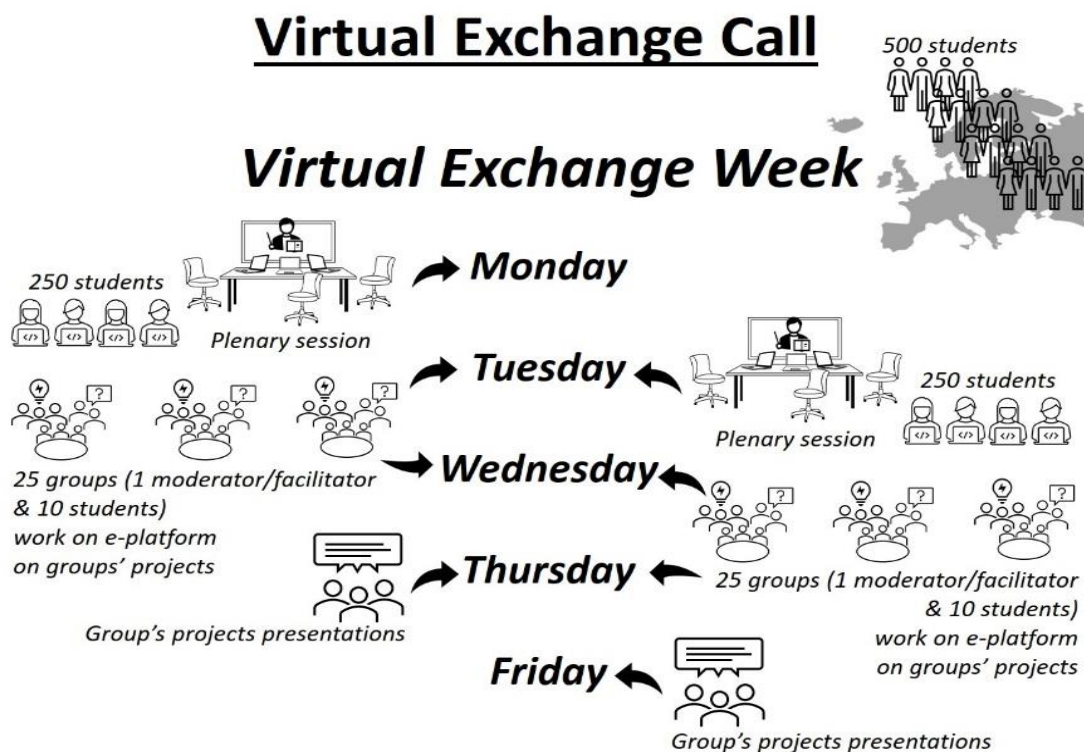


The first 12 months are used for designing the VE and the first version of the VE interactive art-based exercises collection (WP-2). Staff training (WP-3) starts from the very beginning of the project, first using the Climate University learning resources available, and later on with the help of learning resources developed in WP-2. Implementation of VE starts with the Call-for-VE following procedure and criteria outlined in the CLUVEX VE Guide. In the CLUVEX first phase (M1-6, WP-2), the CLUVEX team will prepare detailed plans and instructions for the teachers and assistants carrying out the VE-enhanced education based on Climate University learning resources. The plans will be introduced to the Expert's and Student's Advisory Boards for co-design and co-creation of attractive VE content. The syllabus of each VE-enhanced courses will be clearly defined and addressed in the Call-for-VE-Climate University. The VE orientates the participating students to Climate University courses, where they also continue working in groups e.g. have team working but also have lectures on climate competences.

The implementation and the timeline of the VE Calls will be adjusted to the Climate University annual schedule. All the current Climate University courses are continuously carried out at UH during the following teaching periods; 1st period in September - October, 2nd in November - December, 3th in January - February and 4th in March - May. Typically, one on-line Climate University course module lasts 1-2 periods and the courses are evenly distributed around the year. Currently, there is at least Sustainable.now (5 ECTS) in the 1st period, Climate.now (2 or 5 ECTS) in the 2nd period, ClimateComms.now (2 ECTS) and Leadership for sustainable change (5 ECTS) in 3rd period, SystemsChange.now in 3-4th period and Solutions.now in 4th period once every year.

During the project lifetime, in total, 5 VE Calls will be announced (in particular, for Spring and Autumn semesters, and starting from Autumn 2024). Each VE Call will invite

500 students from the Partners' Universities as well as other Universities in European and Neighborhood East countries (i.e. 250 students from UH and UCPH and other EU countries as well as 250 students from OSENU, TSNUK, and YSU and other Neighborhood East countries). After each VE Call, the Virtual Exchange Week (from Monday until Friday) program will be arranged for students. Accepted students will be divided into 2 large groups (each of 250). For each such group a plenary session (in zoom, on Mon & Tue) will be arranged followed by working in sub-groups (25 smaller groups/teams with 10 students in each) with facilitators/ moderators supervision on joint exercises. Facilitators will supervise the VE groups and give help with the exercise and



communication if needed and makes sure that no one is left behind (ref. Leave no one behind (LNOB) a central, transformative promise of the 2030 Agenda for Sustainable Development and SDGs). After plenary session, each sub-group (in total, $2 \times 25 = 50$) will have 3 days to work with exercises on e-platform, followed by final plenary sessions (on Thu & Fri, for 1st and 2nd large groups, correspondingly) for overviewing results obtained working with exercises on e-platform. After such Virtual Exchange Week, all results will be collected for further public dissemination and outreach, and students will be granted participation in the Climate University MOOC courses.

VE
Design
WP-2

VE Design. During the first year of the project, the VE design will be set up, involving topics such as: VE integration into curricula, VE planning and implementation, VE procedures, code of conduct and tools, science communication, digital co-creation tools, overcoming language barriers, etc. These will be compiled in the Guidebook for university administrators, IT staff and facilitators, based on the experience of existing VE initiatives and the previous VE projects' experience and ideas what has been already done (evolve-erasmus.eu) with due regard to the specifics of Earth science applications.

The CLUVEX will introduce the ensemble of examples for the VE team works and mini projects to attract the students to participate in the VE - courses. The idea of the development of VE online courses in the field of the climate change and sustainability

will contribute not only to obtaining new knowledge and acquisition of new skills (i.e. development of a person's potential in line with the concept of lifelong learning), but also stipulate an increase in the level of climate awareness and environmental responsibility among the population due to availability of the courses to bring up general awareness of the climate change impacts and societal need for sustainability transformation.

The teaching aid will be accompanied by the **Climate Literacy (Competences) Guidebook**, based on selected Climate University materials, to explain the concept of Earth's climate system and its components, as an essential soft skill for future working force across all subject areas and the importance of climate science communication in a meaningful way.

In order to better bridge and prepare the staff (moderators) students to participate VE - Climate University an inventory of the Climate University learning materials relevant for the VE will be compiled. Based on the inventory we aim to develop new climate competences relevant interactive exercises and group assignments which also find synergy with partners' existing e-platforms, such as game scenarios, case studies, simulators, competitions, etc., forming a live Annex to **the Virtual Exchange Guidebook for climate competences**. This collection of interactive assignments will be continuously updated, but its first version will be ready by the end of Year 1. In this task CLUVEX builds on the previous Climate University courses' exercises to develop the VE training concept. The current Climate University courses include working for creative projects and groupwork in small groups, typically 3-6 students per group. On-line courses include different types of interactive on-line meetings between students and supervisors and tasks tailored for students working on a multidisciplinary basis. Some of the courses also aim at reaching out to the surrounding society. For example, in the "Climate Leadership" course students are contacting private companies and make a "climate leadership plan" together. In the Solutions.now course, students work in small groups to brainstorm challenges given by stakeholder organisations, for example companies, cities or NGOs.

Last but not least, the Code of Climate Messenger will be developed, the declaration based on the Climate Literacy Guidebook that determines the basic set of behavioural principles and rules that are climate-friendly, collaborative, respectful and tolerant to diversity, non-discriminative and facilitating the promotion of green jobs.

**VE Staff
Training
WP-3**

VE Staff Training. The CLUVEX team recognizes that teaching a class with virtual students is not the same. The teachers and assistants (PhD students) or even undergraduate students, who will gain working life skills by being trained as facilitators as VE moderators and facilitators in the course will be trained (WP-3) before the implementation phase (WP-4). The Team PIs and members are already well orientated themselves on different pedagogical approaches, services for society and have published several peer reviewed papers (See Chapter 2.2.1, for details). The content of the VE – Climate University courses will be in English. The project pays a special attention that we have enough educated staff with good language skills acting as moderators. In addition in all VE group works there will be bilingual moderators who are able to help translating the challenging issues in case needed. However, already during the

IT experts are involved in the planning of the Climate University - Virtual exchange and make an overview of open-source or free interactivity tools available. Currently, the Climate University courses are using a moodle-based learning management platform, and the on-line meetings, lectures and group works, are organized by Zoom or Teams software.


 VE
Call

VE Call. The partner universities will organise the **call-for-Virtual Exchange at the universities and open the on-line registration system to VE - Climate University** program. Current Climate University courses are designed in a way that university students coming from different scientific disciplines are able to participate. The partners will involve students from the Bachelors, Masters and Doctoral Programs at their universities having a great pool of potential students to be involved to CLUVEX. The **University of Helsinki (UH-INAR)**, 31600 students, runs several relevant Masters / Doctoral programs: The Master's Programme in Atmospheric Sciences (ATM-MP), Master's Programme in Forest Sciences Study, Environmental Change and Global Sustainability (ECGS), Nordic Master Programme in Environmental Changes at Higher Latitudes (EnCHIL), Doctoral Programme in Atmospheric Sciences (ATM-DP). The **University of Copenhagen (UCPH)**, with its overall student body of more than 37000 students, runs the Climate Change, Impacts, Mitigation and Adaptation (CCIMA), which is an interdisciplinary MSc programme at UCPH, combining natural and social science approaches to the study of climate change, its causes and effects, how we can deal with it and adapt to it. CCIMA draws on staff from a range of internationally leading research groups and centres at UCPH. The **Odessa State Environmental University (OSENU)**, with about 1400 students, offers both full-time studies (BSc, MSc and PhD programmes) and distance learning facilities. Within the core field of Earth Sciences, the specialization on Meteorology and Climatology is provided. The relevant MSc programme includes research into the climate system components, issues on climate dynamics and modelling, assessment of the climate change impact on the society and economy, as well as development of adaptive mitigation measures. The **Taras Shevchenko National University of Kyiv (TSNUK)** is the main university in Ukraine, a powerful multi-sector diversified educational and research complex. More than 26 thousand students study at the University. Approximately 1,645 postgraduate students and 125 PhD students are working for higher qualifications at the University. Within the field of Earth Sciences, the specialisation on Meteorology is provided at the Meteorology and Climatology Department of Geography Faculty. TSNUK offers BSc and MSc programmes on Meteorology and PhD programme in the field of Earth Sciences (with Meteorology and Climatology specialisation). The courses related to weather, climate and climate change issues are also studied by students of different specialties of the Faculty of Geography, as well as students of the Institute of Biology and Medicine of TSNUK. Among the main areas of the research of the department's staff are climate change, climate change impact on water resources, economic meteorology, economy of climate change, climatology of heat waves and tropical nights, simulation of urban climate and human thermal comfort conditions, air pollution, which are extremely relevant nowadays. The **Yerevan State University (YSU)** has about 20.000 students studying at 19 faculties of YSU. The educational process is conducted by more than 1600 highly qualified specialists and experts (207 professors, 581 associate professors, 375 assistants, 453 lecturers). Climate change education at YSU may take the form of both formal, informal, and non-formal learning and teaching approaches, including nature-immersive field projects, international case studies and higher degree research (HDR), among others. Literary analysis of university education on climate change and sustainability has reflected a gradual shift globally over the past decade away from a narrow preoccupation in curricula on environmental protection toward broader objectives and creative educational approaches. These initiatives include corporate social responsibility (CSR), multiculturalism and ethics.

To ensure that the critical number of students will be involved with the VE training the partner universities distribute the Call to their international networks:

- **Climate University network in Finland** consists of the following higher education institutions: University of Helsinki (lead), Aalto University, Haaga-Helia University of Applied Sciences, Häme University of Applied Sciences, University of Eastern Finland, University of Jyväskylä, LAB University of Applied Sciences, University of Lapland, LUT University, Laurea University of Applied Sciences, Metropolia University of Applied Sciences, University of Oulu, Hanken School of Economics, University of Arts Helsinki, Tampere University, Turku University of Applied Sciences, University of Turku and University of Vaasa. These institutions have a cross-study agreement to enable students to take Climate University courses from each others' curricula.
- **UNA Europa**, <https://www.una-europa.eu>, One of the forerunners in renewing European universities, Una Europa is made up of 11 leading European universities who 'share a new vision for the university of the future'. In addition to UH, Una Europa includes Freie Universität Berlin, Università di Bologna, University College Dublin, University of Edinburgh, Universiteit Leiden, Jagiellonian University i Krakow, KU Leuven University, Universidad Complutense de Madrid, Université Paris 1 Panthéon-Sorbonne, Universität Zürich. UH leads a pilot work on Micro-Qualification in Sustainability, consisting of MOOCs and other formats of online teaching to be available for Una Europa students since Autumn 2022 and later for everyone (L. Riuttanen). UH will actively promote the virtual exchange and MOOCs into the joint degrees in Una Europa as well as for use by Una Europa partners in their own curricula (INAR-UH as a network partner).
- **Nordic University Teachers network** Atmosphere-Biosphere Studies (ABS) is a pioneering project in multidisciplinary environmental education covering the aspects of physics, chemistry, meteorology, biology, geosciences, sustainability sciences and environmental anthropology. The education is based on internationally recognized top research. ABS contributes to the Nordic-Baltic cooperation in environmental education, utilises the idea of lifelong learning, enhances student and teacher mobility, and serves as a forum for exchanging experiences and best practices in education.
- **UArctic Network of Universities**, colleges, research institutes, and other organisations concerned with education and research in and about the North and involving students from 200 universities (INAR-UH a network member).
- **Black Sea Universities Network (BSUN)** This network (bsun.org) includes more than 120 member universities from the 12 member states of the Black Sea Economic Cooperation Organization as Albania, Armenia, Azerbaijan, Bulgaria, Georgia, Greece, Moldova, Romania, Russia, Turkey, Ukraine, and Serbia. BSUN has the status of Sectoral Dialogue Partner to Black Sea Economic Cooperation (BSEC), is in close cooperation with the Parliamentary Assembly of the Black Sea Economic Cooperation (PABSEC), is a member of the European University Association (EUA), and is a founding member of the UN "Academic Impact" Initiative. BSUN has signed collaborative agreements and collaborates closely with the Eurasia Universities Association, the Caspian Universities Association, the Baltic Sea Cooperation Program, and the Mediterranean network of schools of engineering (RMEI). BSUN also signed a strategic partnership with ENEA from Italy to cooperate in developing joint activities in education and research on the green economy, sustainable development, and renewable energy sources. (OSENUE is a network member)
- **INTENSE International Doctoral School Network** consists of academic institutions from Ukraine, Mongolia and Vietnam (intense.network/intense-school/intense-international) and is supported by INTENSE e-services (<http://intense.network/e-services>). Such activities, as joint co-supervision, physical and credit mobility, joint research, joint events, and prioritised partnerships are envisioned in the INTENSE

network. (OSEN is a founding member)

VE Call

Selection of participating students. The principles, criteria and procedure of selection will be elaborated by consortium in the CLUVEX VE Guide. The project Steering Group will select the students to courses and ensure the diversity, non-discrimination of participants and all other relevant aspects (as the number of students indicated in the proposal per university) are in balance. Some level of English language proficiency will be required, but participants will also be introduced to online translating tools such as MS Translator, Google Translator or Yandex Youtube translator to work on joint assignments, and small group discussions will be formed in a way that every group has at least one student fluent in English and in languages of Partners from the Neighbourhood East countries, plus facilitator.



UN Sustainable
Development Group

Universal Values
Principle Two: Leave No One Behind

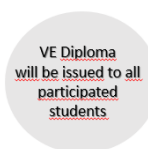
Implementation of VE (WP-4)

VE Implementation e.g e-Climate Messenger Certificates and credits. The project implies elaboration of climate competency-based climate university courses with the use of VE of blended team works and exercises for training and advanced training of university students at various levels in the field of atmospheric and environmental sciences. CLUVEX will elaborate the existing Climate University courses for students and teachers and educate them as Climate Messengers. Universities belonging to the Climate University network organise courses based on the Open Educational Resources and **credits per course are marked in parentheses**. The credits for the VE will be organized during the first 6 months of the project. The coordinator, UH, has a unit for “International Exchange Services and Education Cooperation” (studies.helsinki.fi/instructions/article/international-exchange-services-and-education-cooperation) and all the CLUVEX students may register “traineeships abroad as well as flexible study rights (JOO) for degree students”

- 1.1. **Circular.now:** on the circular economy and why it is needed (3-5 ECTS, BSc+) <https://climateuniversity.fi/portfolio-items/circular-now/>
- 1.2. **Climate.now:** on basics of climate system, its change and effects of the change, how to mitigate and adapt to changing climate (2-5 ECTS, BSc+) <https://climateuniversity.fi/portfolio-items/climate-now/>
- 1.3. **ClimateComms.now:** challenges of communicating about climate change and factors of effective climate communication (2 ECTS) <https://climateuniversity.fi/portfolio-items/climatecomms-now/>
- 1.4. **Leadership for Sustainable Change:** on principles of sustainability, transformation theories and leadership practice, the different theories and tools of learning and practicing sustainability (5 ECTS) <https://climateuniversity.fi/portfolio-items/leadforsust/>
- 1.5. **Solutions.now:** on solutions for real life challenges, presented by companies (5 ECTS) <https://climateuniversity.fi/portfolio-items/solutions-now/>
- 1.6. **Statistical tools for climate and atmospheric science:** where to find open climate and atmospheric data and how to use it? (5 ECTS) <https://climateuniversity.fi/portfolio-items/statistical-tools-for-climate-and-atmospheric-science/>
- 1.7. **Sustainable.now:** on the concept of sustainable development and its ecological, social, economic and cultural dimensions (2-5 ECTS, BSc+) <https://climateuniversity.fi/portfolio-items/sustainable-now/>
- 1.8. **SystemsChange.now:** on systems thinking in the context of climate change (5-

- ECTS) <https://climateuniversity.fi/portfolio-items/systemschange-now/>
- 1.9. **Lukiolaisen ilmaisto.nyt/Climate.now for High Schools:** a basic course on Climate Change for high school students (2 ECTS, BSc)
<https://climateuniversity.fi/portfolio-items/lukiolaisen-ilmasto-nyt/>
- 1.10 **Biodiversity.now:** new course coming in October 2022 (2-5 ECTS, BSc+)

CLUVEX will provide a specific **CLUVEX-Climate e-Messenger Certificate** by the CLUVEX universities. Tentative plan is that the student would need to participate, in a minimum to 2, Climate University - VE-enhanced courses and pass the course assessment successfully. University of Helsinki is, in any case, able to provide the credits as a separate diploma and use the Climate University credits as a reference. The 2nd option is that all the participating students will register themselves to the Helsinki university system and the 3rd option is that the credits for the student curriculum will be implemented by the partner universities.



VE CREDITS

Option-1
students from abroad studying at the University of Helsinki may submit application and have Learning Agreement.

Option-2
credits for the student curriculum by the partner universities

The credits are as indicated in the list above varying from 2 to 5 ECTS. The Bologna declaration, ratified also in Neighbourhood East countries in 2003, the partners develop curricula in line with the European standards and norms, providing students with opportunities of academic mobility and issuing European Diploma Supplement and ECTS Transcript of Records

CLUVEX self-evaluation. For the self-evaluation CLUVEX will collect feedback in a standardised manner from the teachers and students after completing each VE-course. The feedback will be discussed with the Advisory Board and Student Advisory Board. Lessons learned and best practices can be utilised before the next VE-course and be collected in the CLUVEX Guide.

Dissemination Upscaling (WP-5)

Dissemination and Upscaling. Previous collaboration of the CLUVEX partners UCPH, with World Meteorological Organization's (WMO) Global Campus and regional centers provides a baseline for a global upscaling and the development of an international standard for training of young scientists. Participating countries Collaboration with WMO and having a representative of the Global Campus as a CLUVEX Advisory Board member enables the conformity of curricula, for example education staff for climate services to international standards and contribute to improvement of the quality of courses to be created. Also the other CLUVEX Advisory Board Members represent relevant networks like Universities of Arctic for the future upscaling. The CLUVEX' experience in development of innovations and application of the VE e-learning, which will make it possible for the Neighbourhood East part of the consortium to get acquainted with the most relevant and state-of-the-art developments in distance and blended learning.

- **WMO Network of Regional Training Centers**, 43 Regional Training Centres in 28 countries around the world, serving to promote, demonstrate, disseminate and provide outreach of project outcomes worldwide, to countries outside the EU. WMO Regional Training Centers. WMO Global Campus (public.wmo.int/en/resources/meteoworld/wmo-global-campus) will also be involved (WMO ETR director is a member of CLUVEX Advisory Board). The PI of the UCPH, as a staff member of WMO, is deeply involved in these WMO network activities. UCPH PI leads this collaboration with regional training centers).
- **Pan-Eurasian EXperiment, PEEEX**, www.atm.helsinki.fi/peex A hub (over 40 research units from many countries worldwide including also Neighbourhood East countries and China) for distributing information, especially The PEEEX research is

interested in land-atmosphere interactions in the boreal and Arctic environments. Program is also motivated by establishing environmental observation systems, which find synergy with citizen science and education activities of the project (network coordinator UH) (INAR-UH leads).

- **Digital Belt and Road Program (DBAR)** (dbeltroad.org), China (as a stakeholder), provides a network for education collaboration with Chinese universities. DBAR is coordinated by The Aerospace Information Research Institute (AIR), Chinese Academy of Sciences (CAS), which is a scientific research institute, with more than two thousands of researchers and collaborates with INAR-UH. (INAR-UH A DBAR-Center of Excellence).
- **Copenhagen Science City**, copenhagensciencecity.dk is a partnership between the City of Copenhagen, UCPH and various local governmental and business organisations. It is a home to a wide range of educational programmes in the fields of natural science, medicine, health and ICT. It utilises its unique resources in different fields to create a strong knowledge and innovation community and to attract business talent and investment and increase the number of entrepreneurial students and spin-outs.
- **PACES: Air Pollution in the Arctic: Climate, Environment and Societies** (pacesproject.org) - International initiative co-sponsored by International Global Atmospheric Chemistry (IGAC), Future Earth & International Arctic Science Committee (IASC). (UH and UCPH involved)
- **IAMES** (www.iamesworld.com). International Association of Meteorological Education and Sciences (IAMES) was established in December 2020, which was initiated by Nanjing University of Information Science and Technology (NUIST) and supported by more than 30 colleges, universities and scientific research institutions from over 20 countries. IAMES is a non-governmental, non-profit, academic, and scientific organization, dedicated to the international promotion and coordination of scientific studies and education on meteorology (atmospheric science, hydrology, environmental science, and other meteorology-related disciplines). IAMES encourages the application of this knowledge to social needs, such as weather forecasts, climate change, mitigation of natural hazards, and environmental preservation. IAMES is established to stimulate meteorological education and research, promote scientific and technological innovation, share high-quality platform resources, provide government policy consultation, and enhance the coordination ability to respond to major scientific issues (OSENU is an Associate member).
- **INTENSE International Network** (intense.network/intense-school/intense-international). The INTENSE International Doctoral School Network has been established on 7 Nov 2019 by OSENU, Kharkiv National V.N.Karazin University, Institute of the Ecology of the Carpathians NANU, National University of Mongolia, Khovd State University, HoChiMInh City University of Natural Resources and Environment, and Hanoi University of Science and Technology by signing an agreement. Such activities, as joint co-supervision, physical and credit mobility, joint research, joint events, and prioritised partnerships are envisioned in the INTENSE network. The agreement provides for access to e-learning, arrangement for joint research training and a range of other academic activities.

Different needs of the CLUVEX partners

The **current pedagogical approaches** together with other cultural issues are taken into account when the format and ways of Virtual Exchanges are designed in WP-2. Different needs are discussed in the periodic CLUVEX Steering Committee meetings and with the teams developing VE in WP-2 so that the CLUVEX pedagogical approach is based on a joint concept for organising student-to-student communication and exercises.

Taking a VE-enhanced Climate University course would allow **practising English** in a professional environment and developing soft and digital skills which is especially relevant for the Neighbourhood East partner universities. It is expected that students (and teachers alike) have very limited knowledge of digital interactivity tools such as Miro boards, Slido, TurningPoint, etc. Their experience in digital co-creation of documents, computer codes, taking joint exercises is also very limited. The use of video-conferencing tools like Zoom, MS Teams or Concord and the LMS like Moodle, CANVAS or SAKAI is now widespread but often copies the classroom environment. In the CLUVEX VE-Climate University the students will be involved in guided international discussion groups, working in small international groups on assignments, developing learning artifacts together.

2.1.2 Project management, quality assurance and monitoring and evaluation strategy

Project management, quality assurance and monitoring and evaluation strategy

Describe the measures foreseen to ensure that the project implementation is of high quality and completed in time.

Describe the methods to ensure good quality, monitoring, planning and control.

Describe the evaluation methods and indicators (quantitative and qualitative) to monitor and verify the outreach and coverage of the activities and results (including unit of measurement, baseline and target values). The indicators proposed to measure progress should be relevant, realistic and measurable.

Management and Self-evaluation

The main decision body is the Steering Committee (Coordinator and WP leaders), which will monitor the project every 3 months in their periodic meeting. The main indicator is the feedback of the participants from the WP-3 (from the educated staff) and WP-4 (from the participating students). The decision process is explained in Section 2.2.2 and addressed by the Consortium Agreement. The CLUVEX budget and division on resources (person months) is based on a 50 % - 50 % basis between 2 EU universities and 3 universities in Neighbourhood East countries. This division enables the coherence in partner budgets and resources allocated per WPs between partners. Each of 5 CLUVEX partners takes a lead on one of the 5 WPs. Self-evaluation based on the collected feedback after each Climate University course is a continuous process during the project. The detailed **CLUVEX Monitoring Strategy & Quality Assurance Plan** will be made as one of the first tasks (WP-1) of the project. To control the quality of the CLUVEX project outcomes/outputs during the lifetime of the project will be implemented by:

(1) Regular project WP/Task reports and feedback from the staff & students

The Coordinator and the Steering Committee will monitor project implementation through regular reports submitted by WP Task Leaders having meetings every three months. The University of Helsinki together with the Steering Committee has a key role in the overall project management by making an assessment of project performance, reviewing the quality of project results, monitoring the distribution of budget funds, providing guidelines for future actions and ensuring the sustainability of the project results. The project self-evaluation is based on the feedback collected during the staff training and implementation of VE from the moderators and students.

As a project coordinator, UH coordinates the project, organization on-site workshops, drafting of specific reports, internal communication of the project progress, results, organization of timely inputs from partners, overall financial management, finalisation of the financial report. UH coordinator and the project manager prepare all the reporting materials required by contractual obligations, participate in the meetings of the assembly of partners, hosts a kick-off meeting, mid-term and a final meeting. The project starts with the preparatory work (WP2) for preparing to train the facilitators. The e-form for selecting the participating students will be established, issues credits

Local partners are responsible for coordination within their organizations and local coordination e.g. distributing Call-for-VE-Climate University.

(2) Advisory Board reviews (every 6 month)

CLUVEX Expert's and Student's Advisory Boards will review every 6 months the project progress and provide feedback and recommendations for further performance of the project.

(3) Successful implementation of Project Deliverables and Milestones

Phased implementation of all WPs with corresponding Deliverables and Milestones will ensure the high quality of the project outcomes/outputs and stimulates collaboration between Partners and end-user communities. It also guarantees cost-effectiveness and sustainability of climate related e-education and on-line training. During the project we make high-quality assessment and refine course Climate University materials, especially the people-to-people communication, which can be implemented, after project, at international level.

(4) Project monitoring and visits by the ERASMUS office

UH and other CLUVEX partners are prepared having the external ERASMUS monitoring as stated in the Guidelines by EACEA for the ERASMUS calls. Project Manager reports the project progress e.g. control of the project outcomes, timely implementation of the implementation plan and WP(s) and the effectiveness of management in the on-line Steering Committee meetings to keep CLUVEX partners updated.

2.1.3 Project teams, staff and experts

Project teams and staff			
<i>Describe the project teams and how they will work together to implement the project.</i>			
<i>List the staff included in the project budget (budget category A) by function/profile (e.g. project manager, senior expert/advisor/researcher, junior expert/advisor/researcher, trainers/teachers, technical personnel, administrative personnel etc. and describe shortly their tasks. If required by the call, provide CVs of all key actors. If required by the Call document/Programme Guide.</i>			
Name and function	Organisation	Role/tasks	Professional profile and expertise
Hanna K. Lappalainen, Research coordinator	UH	Coordinator concept developer	Docent, Dr. in Atmospheric Sciences, competence is leading and coordinating large-scale initiatives (PEEX Program Secretary General starting from 2012, Co-Principal Investigator (PI) of the Universities-of-Arctic Thematic network called "Arctic-Boreal Hub"), expertise in international collaboration (member of several international bodies like Arctic Councils' Sustainable Arctic Observation Networks (SAON), Future Earth Governing Council. Coordinator of ClimEd project.
Laura Riuttanen, University lecturer	UH	WP2 co-leader, Task Leader content developer	Project WP-Co-Leader & Specialist developing virtual education / VE concept and tools. University Lecturer in Atmospheric Sciences, Doctor in Meteorology, the Coordinator and the developer of the Climate University Finland. Academic Lead of the Una Europa Micro-Qualification in Sustainability. Coordinator of the ClimComp research project.
Alexander Mahura Senior researcher	UH	WP3,4 co-leader, Task Leader content developer	Project WP-Co-Leader/ specialist of training for virtual education. PhD Phys&Math Atmos. Science. Expertise on meteorology - air quality multi-scales and -processes modelling for environmental applications/ lecturing and teaching in intensive training courses/ schools on modelling, observations, assessments/ participated in many EU research and educational projects.

Janne Salovaara PostDoc	UH	Content developer	Doctoral researcher (PhD submitted) with background in sustainability sciences. Climate University network co-coordinator. Experience in virtual teaching and collaboration concept development.
Anton Rusanen Senior researcher	UH	IT expert	Senior researcher, Project IT expert.(as in-kind support)
Joula Siponen	UH	Content developer	Doctoral student in UH-INAR working on climate competencies. MSc in hydrosphere geophysics.
Alla Borisova Project secretary	UH	Project management expert	Over 20 experience on projects management (project reporting, websites, newsletter, organization of international meetings and conferences) and working at the International Project Offices such as iLEAPS and PEEEX Program.
Sergiy Stepanenko	OSENU	Project management expert, Content developer	DSc (Physics and Mathematics), Prof., Rector of Odessa State Environmental University, Chairman of the Council of Rectors of the Odessa region, Head of the OSENU academic group in multiple TEMPUS and ERASMUS projects. Key specialist in Mesoscale Meteorology, Boundary Layer Meteorology, Regional Aspects of Climate Changes and Adaptation to Their Effects, Ecological Education and Education Sustainable Development. Under his leadership 8 PhD theses were defended, a group of MSc and PhD students have been working. Took active part in development of educational standards and curricula of 3-cycle system for Training of Specialists in the field of 'Environmental Science, Environmental Control and Sustainable Nature Management', as well as development of a speciality of Climatology for master level training in Ukraine. An author of 153 published scientific and methodological papers, including 3 monographs, 5 textbooks, a tutorial and 2 lecture summaries.
Valeriya Ovcharuk	OSENU	WP2 leader, Task Leader content developer	DSc (Geography), Director of the Hydrometeorological Institute of OSENU, Associate Professor of the Department of Land Hydrology. Member of the Presidium of the Ukrainian Meteorological and Hydrological Society, Deputy Chairman of the Ukrainian Meteorological Society, member of the International Association of Hydrological Sciences, member of the Ukrainian Geographical Society and European Geosciences Union (2022). Area of scientific interests: hydrological extremes under changing climate. Authored over 180 published scientific papers (6 monographs, textbooks, articles, conference papers, including more than 50 international publications) on hydrological topics.
Inna Khomenko	OSENU	Content developer	Associate Professor of the Department of Meteorology and Climatology, PhD (Geography). Key specialist in Dynamic Meteorology, Boundary Layer Meteorology, Meteorological Disasters, and Regional Aspects of Climate Changes. Has experience in implementation of multiple international projects. In 2016 completed the WMO Online Course for Trainers of the CIS with extensive coverage of the competencies established in the WMO Technical Regulations. An author of 45 published scientific and methodological papers, including 3 monographs, tutorials and lecture summaries.
Oleh Shablii	OSENU	WP5 co-leader, Task Leader	Head of the Foreign Relations Department, Senior Lecturer at the Department of Foreign Languages. Research area: development of modern software to

		Content developer, Project management expert	apply the theory of individualization of studying foreign languages in a DL mode, methodical and diagnostic testing and creation of individualized programs for the student's independent work. Local Project Manager in the number of international projects under the TEMPUS IV and Erasmus+ programmes, such as ECOIMPACT, INTENSE and ClimEd. Experience in cooperation with electronic media, including TV and radio, development of web-sites in WordPress, elaboration and use of DL resources, the author of the individual method of preparation of the students to take international certification exams in English language.
Kateryna Husieva	OSENU	Content developer	Senior Officer of the Foreign Relations Department, Head of the International Training Centre in Environmental Sciences, in 2018 - Junior Researcher at OSENU Research Division, PhD (Geography). Speciality: Constructive Geography and Rational Nature Use. Experience in organization of international conferences, seminars, summer schools, management of international projects: INTENSE (2017-2021), ECOIMPACT (2015-2018), others.
Volodymyr Andrusenko	OSENU	IT expert	Deputy Head of the Foreign Relations Department, Head of the Distance Learning Sector (DLS). MSc in Information Management Systems and Technologies (with honours). Holder of the scholarship of the President of Ukraine. Experience in IT support for implementation of several international projects under the TEMPUS IV and Erasmus+ programmes.
Prof. Dr. Olga Shevchenko	TSNUK	WP3 co-leader, content developer	Deputy Dean of the Faculty of Geography, Professor of the Department of Meteorology and Climatology (since 2021), Dr. Sci. (Dr. Habil.) with specialisation in Meteorology and Climatology (2020). Expertise - climate change economics, economic meteorology, thermal comfort conditions, climate change, urban climate, urban air pollution. Participated in Erasmus+ ECOIMPACT project.
Prof. Dr. Sergii Zapototskyi	TSNUK	Content developer	Dean of the Faculty of Geography, Professor (since 2015), Dr. Sci. (Dr. Habil.) with specialisation in Geographical Science (2013). Expertise - climate change economics, thermal comfort conditions, heat wave, regional economy, regional and sectoral competitiveness, issues of rational nature management.
Prof. Dr. Sergiy Snizhko,	TSNUK	Content developer	Head of the Meteorology and Climatology Department, Professor (since 2003), Dr. sci. (Dr. Habil.) with specialisation in Hydrology (2002). Expertise - climate change economics, thermal comfort conditions, heat wave, impact of climate change on water resources, urban climate, air pollution. WP co-leader in Erasmus+ ECOIMPACT project.
Yuliya Yatsenko,	TSNUK	Content developer	University lecturer, MSc in Meteorology and Climatology. Expertise - urban climate, air pollution, climate change.
Rostyslav Oliinyk	TSNUK	Content developer	University lecturer, PhD in Geophysics. Expertise - air pollution, climate change. Participated in Erasmus+ ECOIMPACT project.
Prof. Dr. Alexander Markarov, Head of YSU ICO	YSU	WP5 co-leader, Task Leader	Professor of Political Science (2012), Dr. Sci. (Dr. Habil.) with specialization in Political Science (2010). Since 2006 - Head of YSU ICO responsible for institutional international academic, educational and scientific collaboration. Supervision of the activities of International Relations, Grants, Diaspora and Foreign Students Departments. 15 years of leadership and

			<p>excellence experience in implementation of international HE cooperation and successful history of projects development, administration and implementation, including: i) project coordinator of PICASA Tempus grant; ii) institutional coordination and YSU representative on Project Management Team of various Tempus grants in the fields of quality assurance and internationalization (QATMI, ARMQA, Cap4Com, etc); iii) coordination of mobility grants – Erasmus Mundus grants, YSU bilateral agreements; iv) PI and team leader in curriculum development grants (USAID/HED and Arizona State University, CRC). Team leader in international research grants awarded by INTAS, ASCN (Switzerland), Economic and Social Research Council (UK). Selected fellowships awarded by Erasmus Mundus, OSIAFP/HESP, CEP, ACTR/ACCELS.</p>
Dr. Alexander Yesayan	YSU	Postdoctoral Researcher	<p>Director of Institute, Chair of Ecology and Nature Protection. Academic courses: BSc Courses Fundamentals of Ecology and Nature Protection Ecology and Rational Use of Resources MSc Courses Ecological Monitoring Bioindication Industrial and Biotechnological Ecology. Scale of professional interests: Conservation of Biodiversity, plant genomics and biotechnology, food safety and biosafety. 1996 - up to date: Local Expert on Environmental Education for Climate Change.</p>
Dr. Karen Ghazaryan	YSU	Postdoctoral Researcher	<p>Acting Head of Chair, Chair of Ecology and Nature Protection. Academic degree: Doctor of Biology (2004), NAS of Armenia, Institute of Zoology. Academic courses: Principles of Ecology and Nature Protection, Ecology of culture, Ecological problems of RA, Soil ecology. Scale of professional interests: Ecological monitoring and management, Soil ecology, hydro ecology. Professional membership: (NGO, professional council, editorial staff of scientific journal, funds etc.) 2011 to present: member of International Association for Landscape Ecology; 2011 to present: Member of the technical group of standardization of "Management of Environment", National Institute of Standards CJSC, Ministry of Economy of the Republic of Armenia; 2010-to date: member of INTECOL. Awards received: 2011- Young Scientist Travel Award from the 8th IALE Word Congress.</p>
Ms. Lusine Hambaryan	YSU	Researcher	<p>Associate Professor, Chair of Ecology and Nature Protection. Academic degree: Doctor of Biology, 2001, "Seasonal succession of phytoplankton of Lake Sevan in period of repeated reduction of water level". Academic courses: Hydroecology, Ecology and Nature Protection, Modern Scientific Methods of Ecology, Environmental Economics. Scale of professional interests: Eutrophication in freshwater ecosystems, water quality, quantity and quality of phytoplankton community, management of limnoecosystems, biogens and their dynamics, research of bioindicators, research of cyanobacteria, some aspects of minimization of anthropogenic influence of fresh water body, ecology of hydrobionts. Professional membership: Armenian Ecologists NGO; National Security Academy NGO.</p>
Mr. Karen Grigoryan	YSU	Young Researcher	<p>Lecturer, Chair of Ecology and Nature Protection. Academic courses: Principles of Ecology and Nature Protection; Conceptions of contemporary natural science. Scale of professional interests: Physics of condensed matter, ecology, Nature Protection.</p>

Dr. Arsen Aproyan, Head of Grant Coordination Department of YSU	YSU	Administrative staff	Head of Grant Coordination Department of YSU, Ph.D. in Law. Member of the Armenian Young Lawyers Association, member of the Armenian British Alumni Association. He promoted implementation of different international and extension projects (since 2012- 2 Erasmus Mundus, 4 Tempus). Since 2001 he has participated in more than 84 international conferences, trainings in the USA, EU, Ukraine, Georgia. Author of 15 scientific articles.
Alexander Baklanov professor	UCPH	WP4 leader	Professor in Meteorology (2008), Dr. Scient. in Meteorology and Climatology (1998), PhD in Geophysics (1983), MS in Physics (1979). Science Officer of Science & Innovation Department, World Meteorological Organization (WMO) and Affiliated Professor at Niels Bohr Institute, University of Copenhagen; Editor in chief of Urban Climate journal; Member of Academia Europaea. Led many European projects and Training schools, deeply involved in WMO research, training and education programmes.
Roman Nuterman Research coordinator	UCPH	IT expert	PhD, head of HPC laboratory, researcher with expertise in integrated modelling of climate, ocean and air quality
Eigil Kaas professor, director	UCPH	WP5 co-leader, advisor/coordinator?	Professor in Meteorology at the Niels Bohr Institute for Physics, Astronomy and Geophysics, University of Copenhagen. Research leader of the Danish National Center for Climate Research at the Danish Meteorological Institute. Research interests are climate and numerical weather prediction with special focus on climate dynamics/physics and numerical methods used in atmospheric models, and in coupled atmospheric chemistry transport models.
Erich Berger	Bioart Society	artists and art curator, art&science content development expert	Erich Berger is a curator, cultural worker and artist with 25 years experience of working with transdisciplinary projects within art, science and technology. Since 2009 he directs the Bioart Society in Helsinki/Finland. Prior he worked among other venues as chief curator for Laboral Centro De Arte in Gijon/Spain, as content developer and producer for Atelier Nord in Oslo/Norway and as researcher at the Ars Electronica Futurelab in Linz/Austria. Berger developed, managed, produced and participated in several Creative Europe and FP7 funded projects. In 2017 the Bioart Society under the direction of Berger received the State Prize for Interdisciplinary Art in Finland.
Piritta Puhto	Bioart Society	art&science content development expert	Piritta Puhto is a Curator and Senior Producer at the Bioart Society in Helsinki. She is interested in the political and institutional context in which art is made and exhibited and in the possibilities art provides to engage with the world today. She defines her work at the Bioart Society as centred in creating better structures and conditions for artistic work.
Lisa Kalkowski	Bioart Society	producer expert	Lisa Kalkowski is a producer, diversity agent and educator based in Helsinki. She is currently working for Bioartsociety and UrbanApa. After working for multiple years with festivals in the performing arts, Lisa Kalkowski has started to expand her expertise in the field of Bio Art. She has a background in project management, workshop facilitation, art pedagogy and has been focusing with her work at UrbanApa on antiracist and

			intersectional feminist art production.
Milla Millasnoore	Bioart Society	communications expert	Milla Millasnoore is a communications professional and freelance journalist. In the past, she has worked in the field of art and culture as well as with subjects like development cooperation and policy, political communication, and international affairs. Her personal interests relate to enhancing sustainability in the field of culture and arts. Currently Millasnoore works with communications for Bioart Society and Video Art Festival Turku (VAFT).

Outside resources (subcontracting, seconded staff, etc)

If you do not have all skills/resources in-house, describe how you intend to get them (contributions of members, partner organisations, subcontracting, etc).

If there is subcontracting, please also complete the table in section 4.

The CLUVEX project implementation is based on in-house skills and resources by the Partners. Project allocated 2500 Euro budget for e-proof reading / printing the Guide or other materials (in WP-5). There are no specific resources involved outside of the project partners resources.

2.1.4 Cost effectiveness and financial management

Cost effectiveness and financial management (n/a for prefixed Lump Sum Grants)

Describe the measures adopted to ensure that the proposed results and objectives will be achieved in the most cost-effective way.

Indicate the arrangements adopted for the financial management of the project and, in particular, how the financial resources will be allocated and managed within the consortium.

⚠ Do NOT compare and justify the costs of each work package, but summarize briefly why your budget is cost effective.

UH will be responsible for overall financial management. The project manager will be supported by the UH financial project services. The financial project services will transfer the corresponding Erasmus+ grant contribution to the Partners'/Beneficiaries' bank accounts in accordance with the budget breakdown, timetable and adopted procedure, ensure regular reporting to the project manager on project finances, assist in audit and financial reporting to the funding agency. This approach facilitates timely and economical achievement of objectives.

The project budget is divided on a 50x50% basis between European (1250 students) and Neighbourhood East (1250 students) partners with the total budget of 499,325 euro and incl. 5% own share. The division is based on the balance of participating students (to ensure the balance also in the groups works during the virtual exchange); so, that number of participants per Partner is:

- UH 750 students with the total budget of 147.125 euro
- OSENU 450 students with the total budget of 66.649 euro
- TSNUK 500 students with the total budget of 66.572 euro
- YSU 300 students with the total budget of 70.775 euro
- UCPH 500 students with the total budget of 98.205 euro
- Bioart with the total budget 50.000 euro

The UH coordinator budget includes salary costs and the organization of the kick-off and mid-term meetings (15.600 euro for facilities, participants hotel costs and other organization costs). Also, YSU budget includes 2.500 euro for graphical design of the different materials, translation, material costs for e-proof reading / printing e-Guide and other materials.

A major part of the budget is the salary costs. Person-months (PMs, in total 270) are mainly allocated to WP-2 for joint designing of VE (60 PMs), WP-3 - for trainings (71), and WP-4 (71) - for implementation. Project management (WP-1) has 32 PMs and WP-5 on dissemination - 36 PMs. The allocated PMs are 25, 9 and 9 PMs for the UH, UCPH and BioArt European Partners, and the Neighbourhood East Partners have 74, 72 and 79 PMs for OSENU, TSNUK and YSU, respectively. Although 3 EU Partners have in total 43 PMs (compared with 3 Neighbourhood East partners - 227 PMs), which depend on the currently existing level of salaries in these countries, but UH, UCPH and BioArt human efforts/resources will be sufficient to effectively realise valuable knowledge transfer and assist to the Neighbourhood East Partners/ Universities in successful development, training and implementation of VE.

The budget of the coordinator, UH, includes also: (i) 15.600 euro for organisation of 2 workshops in Helsinki, Finland: kick-off (M02) and mid-term (M18) meetings, including costs of room rent, hotel costs of the participants (4 persons per Partner; note, no need for 2 Finnish Partners), lunches, dinner etc.; (ii) 1.000 euro - travel to EC for signing Grant Agreement.

The Partner's budgets include salary and travelling costs (flight/train tickets based on the Commission Unit Costs, CUS). The Partners' travelling budgets to 2 workshops are based on CUS's distance between meeting place and home organisation: for OSENU - 1570 km, TSNUK - 1140 km, YSU - 2600 km and UCPH - 1100 km.

All Partners are also committed to provide **5% co-funding for the CLUVEX project**. The in-kind contributions/resources, where applicable, are also indicated in the description of Tasks in each WP.

2.1.5 Risk management

Critical risks and risk management strategy			
<p><i>Describe critical risks, uncertainties or difficulties related to the implementation of your project, and your measures/strategy for addressing them.</i></p> <p><i>Indicate for each risk (in the description) the impact and the likelihood that the risk will materialise (high, medium, low), even after taking account the mitigating measures.</i></p> <p>Note: <i>Uncertainties and unexpected events occur in all organisations, even if very well-run. The risk analysis will help you to predict issues that could delay or hinder project activities. A good risk management strategy is essential for good project management.</i></p>			
Risk No	Description	Work package No	Proposed risk-mitigation measures
1	Disputes between partners / low likelihood	WP-1	Singing the Consortium Agreement.
2	Project partners able to work together with most crucial tasks for the project success and able to co-design the VE framework for CLUVEX training and implementation / low likelihood	WP-2	Project partners have already worked together and project WP leaders know each other. Follow up of project schedule and the timely reporting.

3	Not enough educated teachers / assistant / facilitators, low likelihood	WP-3	Broad pre-course information among lecturers and assistants and active internal communication between WP leaders and Steering groups
4	Not enough students participating VE – Climate University program / medium likelihood	WP-4	Use of extensive collaboration networks for Call-for-VE, Broad pre-course information, active call-for-VE announcements and advert campaign among students at the partner universities e.g. pointing out the unique opportunity for highly quality climate knowledge and competences to be acquired during the VE Climate University course.
5	Management regarding the war in Ukraine. For example, about the participation of students (especially male students) and teachers and project management in case university infrastructure is harmed by an attack / difficult to estimate	WP-4	Our exiting ClimEd project provides contacts at several universities Ukraine and also with ministry administration to find a solution in the war time situation.
6	Privacy regulations as a risk / low likelihood	WP-4	Project Steering Committee pays a special attention to privacy issues when making the scheme for the on-line registration. Also guidelines and principles for the privacy will be included in the project Guidebook to ensure student participants' data will be protected according to the laws and regulations of each country, at the same time also following the rules set by the funding agency.
7	English skills of the students coming from the Neighbourhood East partner universities to VE-Climate University, where the communication skills plays crucial role / low-to-medium likelihood	WP-4	Project Team will take into account the use of technology (translators), several team members are speaking both English and national language fluently and can be helpful during the VE.
8	Blocking of social media networks / low likelihood	WP-5	Use of wide range of Social Media Networks based in different countries, so in case of blocking other social media networks maintain

2.2 PARTNERSHIP AND COOPERATION ARRANGEMENTS

2.2.1 Consortium set-up

Consortium cooperation and division of roles (if applicable)

Please address all guiding points presented in the Call document/Programme Guide under the award criterion 'Quality of the partnership and the cooperation arrangements'.

Describe the participants (Beneficiaries, Affiliated Entities, Associated Partners and others, if any) and explain how they will work together to implement the project. How will they bring together the necessary expertise? How will they complement each other?

In what way does each of the participants contribute to the project? Show that each has a valid role and adequate resources to fulfil that role.

CLUVEX Partner Universities configuration

The CLUVEX partners have worked together in previous projects, but not yet in this consortium combination. This a good baseline for carrying out the CLUVEX and ensures that the consortium is capable for collaboration and achieving the project objectives. Examples of **previous collaboration** between partners:

UH-UCPH: collaboration has been focused on meteorology air quality / regional-urban scale modelling; intensive training courses for students and young researchers at Copenhagen (Denmark), and Helsinki (Finland) on environmental modelling.

UH-YSU: collaboration in Erasmus+ MODEST project on modernization of doctoral education in science and improvement teaching methodologies. Collaborated within the Tempus, Erasmus+ programs.

UH-OSENU: collaboration within Erasmus+ ClimEd project presupposed creation of a Research and Education platform, development of courses for various target groups in Climate Services and Economics of Climate Change, as well as training sessions for staff capacity building.

UH-TSNUK-OSENU: in collaboration under Erasmus+ ECOIMPACT project, a personal learning environment for competence in economic and societal impacts of local weather, air quality and climate, as well as short-term professional development courses for weather-sensitive sectors of economy, university course on Economic Meteorology, update course on Economic Meteorology for hydrometeorology professionals were developed.

CLUVEX universities contribution & role in WPs, expertise of the Team members and resources

University of Helsinki (UH) is the **WP-1 Leader for Management and Quality Assurance**, co-Leader of **WPs 2-3** and contributes to all other WPs. UH provides the Climate University courses e-platform together with expertise on designing virtual learning MOOCs and exercises (blogs.helsinki.fi/climateuniversity) (**WP-2**) and expertise on climate competencies theoretical bases and education (ClimComp) for the staff training (**WPs 2-3**). UH's also uses its long term experience in organizing data analysis courses and trainings for PostDocs and students having different educational backgrounds and representing different disciplines. This experience is useful especially for **WPs 2&4**. The international collaboration networks for call-for-VE and for upscaling such as Pan-Eurasian EXperiment Program and UArctic thematic network "Arctic-boreal Hub" (www.uarctic.org/organization/thematic-networks/arctic-boreal-hub) (WP 1,5). UH has coordinated several ERASMUS projects and have a special Education Team specialized in ERASMUS projects and contractual conditions. UH brings together a team, which complements above listed contribution and role in the project. In addition to given expertise and skills Mahura and Borisova are also can help with communication with Neighbourhood East Partners/ Universities colleagues including financial and contractual issues if needed.

The key reference for the UH Team expertise in the CLUVEX context are:

- **Riuttanen, L.**, Ruuskanen, T., **Äijälä, M.**, & **Lauri, A.** (2021). Society needs experts with climate change competencies—what is the role of higher education in atmospheric and Earth system sciences? *Tellus B: Chemical and Physical Meteorology*, 73(1), 1-14.
- **Lauri, A.**, Ruuskanen, T., **Riuttanen, L.**, Hari, P. and Kulmala, M.: Research-oriented intensive courses foster multidisciplinary atmospheric science. World Meteorological Organization, Global Campus Innovations, 2020.
- Ruuskanen T., Vehkamäki, H., **Riuttanen, L.** and **Lauri A.**: An Exploratory Study of the Learning of Transferable Skills in a Research-Oriented Intensive Course in Atmospheric Sciences. *Sustainability*, 10(5), 1385, 2018. <https://doi.org/10.3390/su10051385>
- **Mahura, A.**, V. Ovcharuk, T. Kryvomaz, **H. Lappalainen, K. Lauri, I. Khomenko, O. Shabliy, V. Kabin, M. Frankowicz, Yu. Rashkevych, L. Riuttanen, S. Tyuryakov, I. Bashmakova** (2021): Online Approaches for Climate-Oriented Education. pp. 79-80, In Proceedings of the International Research-To-Practice Conference “Climate Services: Science and Education”, 144 p., ISBN 978-966-186-162-5

● **Odessa State Environmental University (OSENU)** is the **WP-2 leader** for the preparatory work for implementing the Virtual Exchange. It will also nominate technical and administrative staff for relevant training to organise and support the VE, and academic staff for teachers and facilitators training (WP-3), select students to follow the agreed Climate Messenger courses (WP-4) and take part in dissemination activities across its networks. OSENU will join the resources of several existing approaches to implementing the WP-2 and for the preparation of the VE exercises and group work. In addition, as a co-lead in **WP-5**, OSENU team will be in charge of internal visibility of the project, incl. development of dissemination materials, CLUVEX webpages and social media profiles. For the **WP-3** (Staff training) and **WP-4** (Implementing the VE-Climate University online courses) OSENU has the necessary expertise, facilities and successful experience.

The key reference for the OSENU Team expertise in the CLUVEX context are:

- **Sergiy Stepanenko, Valeriya Ovcharuk, Inna Khomenko**, Maryna Goptsiy. Supra- and multidisciplinary project-based training in the field of climate change adaptation and disaster risk management. CALMet XIV Conference Programme Book, 27 September- 1October 2021, ID; 22
- Mahura, A., **V. Ovcharuk**, T. Kryvomaz, H. Lappalainen, K. Lauri, **I. Khomenko, O. Shabliy**, V. Kabin, M. Frankowicz, Yu. Rashkevych, L. Riuttanen, S. Tyuryakov, I. Bashmakova (2021): Online Approaches for Climate-Oriented Education. pp. 79-80, In Proceedings of the International Research-To-Practice Conference “Climate Services: Science and Education”, 144 p., ISBN 978-966-186-162-5
- **Ovcharuk, V.**, Mahura, A., Kryvomaz, T., Aguilar, E., Olano, J., **Khomenko, I., Shabliy, O.**, Sogacheva, L., Zhou, P., Mäkelä, A., Krakovska, S., Lappalainen, H., **Stepanenko, S.**, Lauri, K., Riuttanen, L., Tyuryakov, S., and Bashmakova, I.: Climate-oriented Trainings in the Field of Climate Services, Climate Change Adaptation and Mitigation, EGU General Assembly 2022, Vienna, Austria, 23–27 May 2022, EGU22-4895, <https://doi.org/10.5194/egusphere-egu22-4895>, 2022.
- **Stepanenko, S., Khomenko, I., Shabliy, O., Ovcharuk, V.**, and Semenova, I.: Application of New Approaches in Teaching Earth Sciences, EGU General Assembly 2022, Vienna, Austria, 23–27 May 2022, EGU22-12701, <https://doi.org/10.5194/egusphere-egu22-12701>, 2022.

Taras Shevchenko National University of Kyiv (TSNUK) is a **WP-3 leader for Staff Training** (teachers, assistants, moderators) for the virtual exchange. TSNUK

develops the VE concept by developing a value system through educational programs at different levels by converting students into actual Climate Messengers (in WP-2), on organisation and carrying out a series of trainings (in hybrid mode) for IT- staff, administrators, teachers and facilitators (WP-3), on practical implementation of VE at national (taking into account the Neighbourhood East countries educational system) level (WP-4) as well as promoting CLUVEX project outcomes to a wide international audience (WP-5). In particular, TSNUK University is leader and promoter of competence for sustainable development through education, research, development of climate change adaptation and mitigation strategies and environment protection.

The key reference for the TSNUK team expertise in the CLUVEX context are:

- Tvaronavičienė, M., Shishkin, A., Lukáč, P., Illiashenko, N., **Zapototskyi, S.** Sustainable economic growth and development of educational systems / Journal of International Studies [this link is disabled](#), 2017, 10(3), pp. 285–292
- Umnov A., Tyuryakov S., **Snizhko S.**, Stepanenko S., Timofeeva A., Nezhlukchenko T., Bepalov D., Kiryushin A., Podgaiskii E., Kuzmova K. and Zilitinkevich S. ECOIMPACT Personal Learning Environment: A new educational tool to facilitate the application of the Internet of Things and personal learning technologies in meteorology. Global Campus Innovations. Volume IV – Technology-enhanced Learning. World Meteorological Organization Publisher: WMO. Pp. 3 – 18.
- **Shevchenko O.** Urban Meteorology - as an integrating direction of weather, climate and environmental studies of cities and the basis of urban environmental services. Hydrology, hydrochemistry and hydroecology. 2019. Vol. 3 (54). Pp. 168 – 170.
- **Shevchenko O., Snizhko S.**, Vitrenko A. Economic meteorology: textbook Kyiv: Mayster knyg. 2019. 352 p.

Yerevan State University (YSU) is the **WP-5 leader on Dissemination, Visibility and Sustainability**. Involvement of all HE stakeholders, internal (students, academic and administrative staff) and external (government authorities, international partners, QA agencies), is a prerequisite for the project success and longevity. Thus, the dissemination model will be adopted to ensure the project results have impact at national and International level in the PC's and beyond. The WP coordinator is YSU, and the lead partners will be representatives from each HEY's. The team will develop a detailed dissemination plan at the launch of the project. The main goal and specific objectives, the activities and achievements within the frames of the project and the accumulated Q-how will be shared with wider academic communities through a number of dissemination channels that will evolve around project web-site, biannual newsletters, dissemination via local media (newspapers and talk-shows), trainings and Workshops, publication of brochures, Training Kits and guidelines as well as delivery of dissemination Conferences at different stages of the project in PC's. This experience makes YSU the strongest consortium actor to lead dissemination and outreach activities and to promote Climate Messengers in Neighbourhood East countries as the new greener workforce for the local labour market. YSU and YSU's Research Institute of Biology will contribute to the development of the Climate Literacy Guide and related interactive assignments (WP-2), the involvement of Department of English for Professional Communication will allow to allocate facilitators to be trained in support of VE (WP-3), students of faculties will be the primary target group for VE (WP-4).

The key reference for the YSU team expertise in the CLUVEX context are:

- **Hovhannisyan N. H.**, Yesayan A. H. , Esoyan S. S. , Dallakyan M. V., **Manukyan I. M.**, **Danlielyan A.** Local Wheat and Barley Genetic Diversity as a Source of Adaptive Traits to Sustain Forecasted Climate Change 2016, ,Thesis, 1st International Agrobiodiversity Congress. 2016, p. 286.

- **Hovhannisyan N.A., M. V. Dallakyan , S. S. Esoyan, I. M. Manukyan, A.H. Yesayan** Preliminary data on morphological, genetic and enological diversity of neglected autochthonous grape varieties of Armenia, 2016, Article, Biological Journal of Armenia, 2016, 4(68), pp. 98-104.
- **K. Grigoryan , S. Mkrtchyan, R. Dunamalyan, L. Ghukasyan, M. Mardiyan** Quality of Life And Developmental Changes of Preterm Infants at Early Childhood, 2021, Article, Proceedings of the YSU. Chemistry and Biology, 2021, N 55 (1), p. 91-102.
- **H. Gevorgyan, K. Trchounian** Influence of Biohydrogen Production on the Ratio of Generated Acids And Regulation of Δ pH in E. Coli During Fermentation of Mixed Carbon Sources at pH 7.5, 2021, Thesis, TUBA World Conference on Energy Science and Technology, 08-12.08.2021, p. 177-178.

University of Copenhagen (UCPH) is the **WP-4 Leader for Implementation of VE** at international level and provides: (i) the University Electronic Research Data Archive (ERDA) e-platform together with expertise in virtual learning and exercises. UCPH team will bring their long-term experience in organising courses, summer schools and trainings for students and PostDocs having different educational backgrounds and representing different disciplines. This expertise is used in WPs 2-4. UCPH team expertise in PICE climate/environment courses and the Climate Change, Impacts, Mitigation and Adaptation (CCIMA) interdisciplinary programme, YSSP schools and WMO education and training programs will be used for the implementation of WP4 tasks. For the Call-for-VE/MOOC in WP-3 (trainings) UCPH will use international collaboration networks in Europe and world-wide WMO Global Campus collaboration for call-for-VE. The Department for the Physics of Ice, Climate and Earth at the Niels Bohr Institute studies the elements of the Earth and climate system – the atmosphere, oceans, ice sheets and glaciers, sea ice, and the solid Earth itself – and the interactions between them provides the competences needed for the implementation of the MOOC education. Has a long-term international experience in CCIMA interdisciplinary programme, combining natural and social science approaches, and using the ERDA system for VE. Prof. A. Baklanov (UCPH, WP-4 Leader) is associated members/experts of WMO in the ERASMUS+ ClimEd project (2020-2023) coordinated by UH as well as authors of several educational materials of WMO, and will bring this expertise to the CLUVEX WPs on development and implementation of VE and planned trainings.

The key reference for the UCPH Team expertise in the CLUVEX context are:

- Miranda, A.I., A. Monteiro, H. Martins, **A. Baklanov**, K.H. Schluenzen (2014) Online Integrated Modelling of Meteorological and Chemical Transport Processes. EUMETCHEM Young Scientists Summer School Education Book. COST Action ES1004, University of Aveiro, WMO, University of Hamburg, 132 p., ISBN 978-989-98673-3-8.
- Zhang, Y. and **A. Baklanov** (Eds.), (2019): "Training Materials and Best Practices for Chemical Weather/Air Quality Forecasting (CW-AQF)". WMO, ETR-26, p. 565. https://library.wmo.int/doc_num.php?explnum_id=10439
- Grimmond S., V. Bouchet, L. Molina, **A. Baklanov**, P. Joe, et al. (2019): Guidance on Integrated Urban Hydro-Meteorological, Climate and Environmental Services, Volume I: Concept and Methodology. World Meteorological Organisation, Publication #1234, https://library.wmo.int/doc_num.php?explnum_id=9903
- Sokhi, R.S., **A. Baklanov**, K.H. Schlünzen (Eds.), Mesoscale Modelling for Meteorological and Air Pollution Applications, Textbook, 9781783088263, Anthem Press (2018), p. 380

BioArt Society will provide the artistic and didactic expertise to design the art &

science lecture and exercise series together with the collaborating partners. For this Bioart Society will make use of its experts members and its international network of organisations and actors in the field of art & science.

The key reference for the Bioart Society team expertise in the CLUVEX context are:

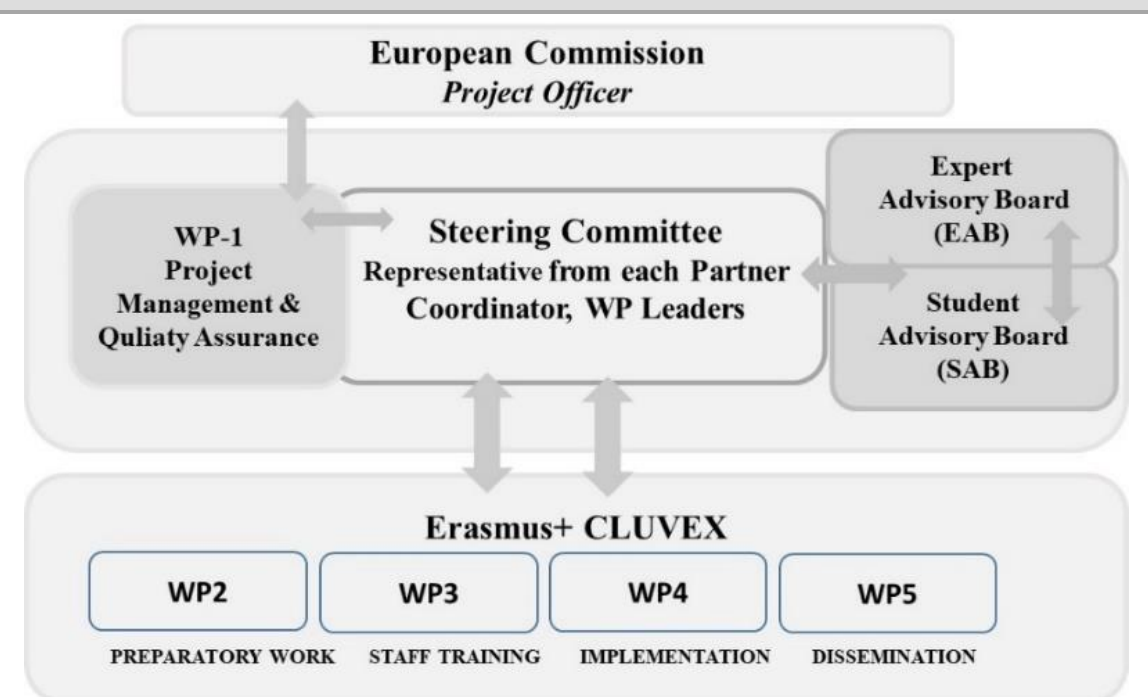
- **Berger, E., O'Reilly, K., Sederholm, H., Mäki Reinikka, K.** (editors) (2020), *Art as we Don't Know It*, Helsinki, Aalto Arts Books
- Beloff, L., **Berger, E., Haapoja, T.** (editors) (2013), *From Landscape to Laboratory*, Helsinki, The Finnish Society of Bioart
- Lowenhaupt Tsing, A., Bubandt, N., Gan, E., Swandson, H.A. (editors) (2017), *Arts of Living on a Damaged Planet*, Chicago University of Minnesota Press
- Fowkes, M., Fowkes, R. (2022), *Art and Climate Change*, London, Thames Hudson LTD

2.2.2 Consortium management and decision-making

Consortium management and decision-making (if applicable)

Explain the management structures and decision-making mechanisms within the consortium. Describe how decisions will be taken and how regular and effective communication will be ensured. Describe methods to ensure planning and control.

Note: *The concept (including organisational structure and decision-making mechanisms) must be adapted to the complexity and scale of the project.*



WP-1 Management. The project day-to-day management is coordinated by the UH (WP-1). The coordinator oversees the overall project management. WP-1 coordinates -- financial and contractual issues, smooth workflow on achieving goals and objectives, delivering Deliverables/Milestones, project web-pages (in collaboration with Partners from Neighbourhood East countries), project meetings and coordination of the planned WorkShops (WS) incl. invitations for visa processing and other practical issues. At UH, project coordination is supported by different UH service units such as **the UH Financial Services, International Exchange Services and Education Cooperation** and the new unit of **Services for Digital Education and Continuous Learning** which was established in January 2021. (Sanna-Katja Parikka, Unit for Services for Digital

Education and Continuous Learning). The Climate University on-line courses are copy right protected and the CLUVEX related intellectual immaterial rights **(IPR) will be protected and agreed in the Consortium Agreement. New knowledge** on the CLUVEX VE concept for climate education (WP-2), approach for VE trainings (WP3) and methods for implementation VE-climate courses (WP4) **will be published in the peer reviewed journals together with projects team members.** The coordinator also communicates with the project Steering Committee, Advisory Boards and Commission and organizes the meetings. WP-2 is focused on preparatory work for VE, WP-3 - on staff training for VE, WP-4 - on implementing VE at international level, and WP-5 - on dissemination and outreach.

Steering Committee (SC) is the main decision body and SC members are the coordinator, WPs Leaders and co-Leaders. The SC will have monthly online meetings to ensure the progress of work on Tasks, timely delivery of Deliverables and Milestones, as indicated in described WPs and corresponding timelines. SC will make the decision on the majority basis, and the coordinator has a veto right in case of disputes (details in the **Consortium Agreement**).

Expert Advisory Board (EAB) provides advices on the implementation of the project for the Steering Committee. The invited EAB members have also a role as ambassadors for the wide distribution of the VE concept in their networks. EAB members are invited 4 representatives of relevant bodies for the dissemination and have expertise and leadership in international education networks:

- **Dr. Yinka R. Adebayo**, Director, WMO Education and Training Office & Deputy Director, WMO Member Services and Development Department, Switzerland; yadebayo@wmo.int
- **Dr. Wilfran Moufouma Okia**, Chief, WMO Regional Climate Prediction Services Division, Geneva, Switzerland, e-mail: wmokia@wmo.int
- **Dr. Kirsi Latola**, Research Coordinator, Thule Institute at University of Oulu and Vice-President, UArctic Network, Finland; kirsi.latola@oulu.fi
- **Dr. Katja Lauri**, Research Director, UH, Nordic Universities Teachers Network "Atmosphere-Biosphere Studies (ABS)" leader, Finland; katja.lauri@helsinki.fi

Student Advisory Board (SAB) provides advice on the implementation of the project for the Steering Committee. For SAB we invite 2 students from each Partner/University. They will be selected from most active participants. The SAB will consist of 10 students in total and on a 50-50% gender basis.

3. IMPACT

3.1 Impact and ambition

Impact and ambition

Please address each guiding points presented in the Call document/Programme Guide under the award criterion 'Impact'. Define the expected short, medium and long-term effects of the project. Who are the target groups? How will the target groups benefit concretely from the project and what would change for them?

Partners/ Universities

- UH - University of Helsinki, FI
- UCPH – University of Copenhagen, DK
- OSENU – Odessa State Environmental University, UA
- TSNUK – Taras Shevchenko National Univ of Kyiv, UA
- YSU – Yerevan State University, AR
- BioArt Society, FI

Climate University Courses

- Solutions.now
- ClimateComms.now
- Sustainable.now
- Climate.now
- Circular.now
- Leadership for Sustainable Change.now
- SystemsChange.now
- Statistical tools for climate and atmospheric science
- Climate.now for High Schools (in Finnish)
- Biodiversity.now

Dissemination and Upscaling

- WMO Network of Regional Training Centers
 - Pan-Eurasian Experiment
 - Digital Belt and Road Program
- Air Pollution in the Arctic: Climate, Environment and Societies
 - Copenhagen Science City
- International Association of Meteorological Education and Sciences

International Networks

- UNA Europa
- UArctic. UArctic Network of Universities
 - Nordic University Teachers Network
 - Climate University Network in Finland
 - Black Sea Universities Network
- INTENSE International Doctoral School Network

Short-term effect of the project is involving a wide spectrum of students in acquiring the unique knowledge and skills for sustainable development and design regional, sectoral and local climate adaptation programs at the **CLUVEX partner universities in Finland, Denmark and in Ukraine, Armenia** (green box, figure above). At the first phase for dissemination the university students and university lecturers and professors at the CLUVEX partner universities and countries are the primary target group. The Climate University at UH is already a competence center in climate online education for regional sustainable development. However, the VE concept enables and facilitates the way for wide upscaling. The virtual exchange component will optimise the “doorstep” of the Climate University education and will attract more new students at the Partner’s universities and in their countries from various geographical regions. The Partner universities are leading universities in their countries and CLUVEX is an asset to consolidate a new format of on-line climate education.

Climate specialists, **Climate Messengers**, will be in high demand in a few years as those programs inevitably will become mandatory by national standards. Virtual exchange addressed communication skills (communication over different cultural, geographical etc. interfaces) together with the climate competences are much needed for implementing the global climate actions. CLUVEX Virtual Exchange - Climate University concept is aimed to be one aimed at to be the most important priorities at the participating universities is education aimed at developing XXI century competences, designing new activities adequate to the challenges of time, focusing on the needs of the community and initiating innovations in the field of education, especially implementing new digital forms of education and encouraging the Universities students, researches and teachers in Finland, Denmark and in Ukraine and Armenia to engage with their colleagues in EU and the world. Therefore, VE is considered as a prominent mechanism to foster development of green literacy as a soft skill in the XXI century, international cooperation and digital transformation of the mobility practises.

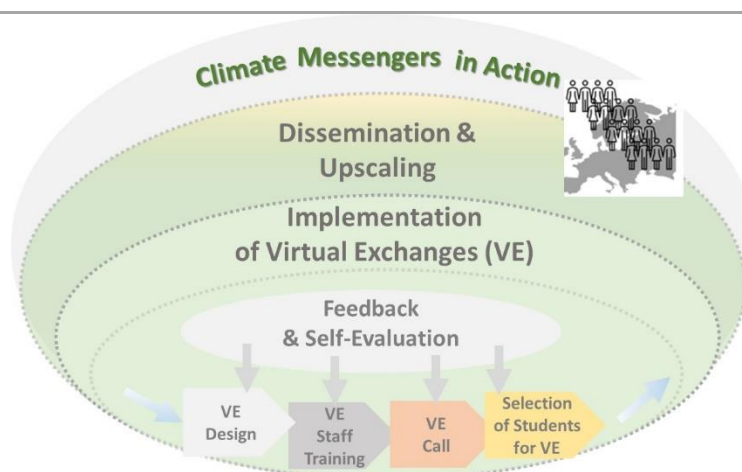
Young Climate Messengers may have future positions at the National Weather Service with personnel in the fields of meteorology, climatology, hydrology and physical oceanography. For example, OSENU has started training specialists in the field of climate services, recognized as a priority by WMO, in 2013. The MSc curriculum in Climate Services based on WMO regulations is so far

the only one in Ukraine. Over the latest 20 years OSENU researchers have been intensively engaged in solving issues related to climate change and making assessment of its impact on the economic sectors in Ukraine, city management and human health. The end-user survey conducted in 2021 showed that there is a need for courses focused on practical aspects of climate change, in particular, on climate system vulnerability and adaptive capacity, climate change impact on sustainable operation of business, mitigation measures, etc.

TSNUK developed an innovative course for distance learning "Economic Meteorology". This course is a part of MSc curriculum Meteorology. The textbook and other teaching materials for this course were prepared. Special attention in the course is given to extremely urgent and relatively new directions of economic meteorology - marketing and advertising of meteorological services as well as the economics of climate change. Knowledge about climate and climate change are really important not only for meteorologists and climatologists, but also for many other professions. Meteorology and climatology department of TSNUK developed a lot of courses about climate and climate change which were studied by students of different specialties (ecologists, urbanists, teachers of geography, specialists in management and development of the regions, etc.). About two hundreds of students from the different TSNUK departments every academic year study climatic courses of Meteorology and Climatology department.

YSU - There is a perceived need for this climate change-related research, since climate change is a major global problem, and knowledge about it is becoming increasingly important for future professionals, who need to be made familiar with strategies for its mitigation and adaptation as part of their university studies. Through a mixed research strategy, which entailed a bibliometric research, a worldwide online survey and case studies, the study shed some light on various aspects related to teaching and further needs on climate change within university programs. As such, HE providers have a vital role to play in educating future environmental auditors, community organisers, corporate managers, engineers, practitioners, technical professionals, policymakers and, most significantly, the community about actions that can be taken to mitigate and adapt to climate change, while concurrently propagating social and governance measures. Over time, the cumulative build-up of societal awareness progressively permeates and influences the practices of the corporate sector, community stakeholders and local and national governments on how to better manage climate change mitigation and adaptation in their diverse spheres of influence, including through advocacy, daily behaviours and professional careers.

Bioart Society has a need for scientific expertise and collaborators in their projects. The goal here is to educate artists about the state of the art research so their artistic work and cultural responses are based on scientific knowledge.



Mid- and Long-term effects of the project is implemented by the specific dissemination and upscaling activities. The aim of the medium impact is to **disseminate the VE concept to wider networks and forums and facilitate the steps towards wider use of VE methods when implementing climate actions**. The CLUVEX partners have direct contacts with the networks and bodies like WMO Network of Regional Training Centers, International Universities Climate Alliance, Pan-Eurasian Experiment, Digital Belt and Road Program, Air Pollution in the Arctic: Climate, Environment and Societies, Copenhagen Science City, The CLUVEX partners have direct contacts with the networks and bodies like WMO Network of Regional Training Centers, International Universities Climate Alliance, Pan-Eurasian Experiment, Digital Belt and Road Program, Air Pollution in the Arctic: Climate, Environment and Societies, Copenhagen Science City, Copernicus, IAMES, BSUN, INTENSE. These networks cover a wide range of geographical regions from Europe to China, a wide range of domains from cities to Arctic regions. BioArt Society has an extensive collaborative network of art&science organisations, galleries and museums in Europe and worldwide. The work and experience of the BioArt Society drawn from CLUVEX will disseminate through further collaborations into future projects and productions within the art&science community and to the general public. CLUVEX VE-Climate University concept, once it has been piloted, is up-scaleable. For example, WMO hosts Network of Regional Training Centers, 43 Regional Training Centres in 28 countries around the world, serving to promote and provide a global dissemination platform to demonstrate, disseminate and provide outreach of project outcomes worldwide, to countries outside the EU. **WMO Global Campus** (public.wmo.int/en/resources/meteoworld/wmo-global-campus) will also be involved (WMO ETR director is a member of CLUVEX Advisory Board). The PI of the UCPH, as a staff member of WMO, is deeply involved in these WMO network activities. **Pan-Eurasian Experiment, PEEX** (Coordinator H.K. Lappalainen, PEEX Secretary General, www.atm.helsinki.fi/peex). A hub (over 40 research units from worldwide including from Neighbourhood East countries and China) for distributing information. The PEEX research is interested on land-atmosphere interaction in the boreal and Arctic environments. Program is also motivated by establishing environmental observation systems, which find synergy with citizen science and education activities of the project. **Digital Belt and Road Program (DBAR)** (<http://dbeltroad.org/>), China (as a stakeholder), provides a network for education collaboration with Chinese universities. DBAR is coordinated by The Aerospace Information Research Institute (AIR), Chinese Academy of Sciences (CAS), which is a scientific research institute, with more than 2,000 researchers and collaborates with INAR-UH. **Copenhagen Science City**, copenhagensciencecity.dk is a partnership between the City of Copenhagen, UCPH and various local governmental and business organisations. It is a home to a wide range of educational programmes in the fields of natural science, medicine, health and ICT. It utilises its unique resources in different fields to create a strong knowledge and innovation community and to attract business talent and investment and increase the number of entrepreneurial students and spin-outs. The **International Universities Climate Alliance** (www.universitiesforclimate.org) is a network of universities worldwide working for climate topics (research, education and climate action). **International Association of Meteorological Education and Sciences (IAMES)** www.iamessworld.com/index.htm, supported by more than 30 colleges, universities and research institutions from over 20 countries, is a non-governmental, non-profit, academic and scientific organization, which encourages application of the meteorology-related knowledge to social needs, such as weather forecasts, climate change, etc. **Black Sea Universities Network (BSUN)** bsun.org, which includes more than 120 member universities from 12 member states of the Black Sea Economic Cooperation Organization, is a member of the European University Association (EUA) and a founding

member of the UN Academic Impact Initiative. **INTENSE International Doctoral School Network** intense.network/intense-school/intense-international, consisting of academic institutions from Ukraine, Mongolia and Vietnam, presupposes joint co-supervision of PhD students, physical and credit mobility, joint research, joint events, and prioritised partnerships.

As a **whole long-term effect** of the project is a full-scale collaboration between Neighbourhood East countries and the EU on climate change adaptation not only in research areas but in developing and implementing local and regional adaptation plans. Partner universities will be centers of excellence in that large collaboration.

3.2 Communication, dissemination and visibility

Communication, dissemination and visibility of funding

Describe the communication and dissemination activities which are planned in order to promote the activities/results and maximise the impact (to whom, which format, how many, etc.). Clarify how you will reach the target groups, relevant stakeholders, policymakers and the general public and explain the choice of the dissemination channels.

Describe how the visibility of EU funding will be ensured.

CLUVEX project aims to maximise the outreach of the project, ensuring that information and resources are easily searchable and accessible and by actively seeking a wider audience, through both online and in person engagement opportunities. Project website will serve as the central distribution point for communication and interaction activities. Project results will be disseminated via partners' collaborating networks, existing local and international platforms, including social media. All partners are well established and recognizable organisations within their communities and professional and academic networks. The already established communication channels of each partner will be utilised to amplify and multiply the reach of messages. Consortium partners approve the dissemination strategy which includes a plan for upscaling of the project's activities, guidelines on its development beyond the lifetime of the project. Design and produce dissemination materials. CLUVEX will make a clear identity of the CLUVEX project via generating the logo, motto, hashtag, images or concepts (brand book), CLUVEX webpage on the consortium partners' websites and to be updated regularly.

Target audience	Goal	Tools	Timetable 1M = 1st month
university students at the partner universities / other universities / national academics networks	To attract students to participate VE - Climate university courses	Website, Call-for-VE courses, adverts in universities media(s) for students, tailored advertisement at the partners' universities Bachelor / Masters / Doctoral Programs *)	M06-M30
teaching staff, practicing experts, VE facilitators at the partner universities	To attract the teachers and other staff to participate the VE staff training	Website, Call-for-VE courses, adverts in universities media(s) for students	M03-M24
partner universities' PR offices and departments, student media, bloggers and/or influencers	To distribute and advertise the VE-Climate University Concept for the further dissemination	Promotional materials such as brochures, flyers	M18-M36

Partners' collaboration networks	To distribute and advertise the VE-Climate University Concept for the further upscaling	Promotional materials such as brochures, flyers, photos, CLUVEX Guidebook	M18-M36
Wider international research community	To disseminate the VE-Climate University Concept for the wide use	Presentations in international science conferences and other forums **) see list here below	M18-M36
General audience	To increase general awareness	Website, Social media networks (Twitter, Facebook, LinkedIn)	M03-M36

*) See also the programs introduced in section 2.1.1 VE-Call

- Annual Schools on “Multi-Scales and -Processes Integrated Modelling, Observations and Assessment for Environmental Applications” introduce a young generation of researchers to special topics in atmospheric and environmental sciences. During school, participants learn about the current progress and challenges in Earth system research; meteorological, hydrological and atmospheric composition modelling and observations (including ground-based and remote-sensing); and modern technologies for environmental studies and assessments (including health impacts). School consists of theoretical lectures and practical exercises (to be accomplished by students as small-scale research projects ending with presentation of the project results); the latest at <https://megapolis2021.ru>.
- Annual Schools on “Urban Climate and Air Quality” include lecturing (on climate change, urban climate and ecology, cryosphere, air quality, economic and social problems of the urbanised regions of the Arctic) and practical exercises (applications and technologies (Linux, Matlab, Python, R) for Earth and atmospheric sciences, thermal comfort applications for urbanised regions, and modelling for Arctic regions); the latest at <http://ucaws2022.ru>.
- Annual Schools at International Conferences: ENVIROMIS - Early Career Scientists School and International Conference on Environmental Observations, Modelling and Information Systems (the latest at: <http://www.scert.ru/ru/conference/ENVIROMIS-2022>) & CITES - School and Conference on Computational Information Technologies for Environmental Sciences (the latest at: <http://www.scert.ru/ru/conference/cites2021>).

**) List of potential science conferences, where VE-Climate University can be introduced:

- **Annual European Geophysical Union (EGU)** General Assemblies bring together geoscientists from all countries of the world for meeting covering all disciplines of the Earth, planetary, and space sciences; provides a forum where scientists, especially early career scientists, can present their work and discuss their ideas with experts in all fields of geoscience; the latest EGU <https://www.egu22.eu>.
- **Annual European Meteorological Society (EMS)** Meetings foster exchange and cross-fertilization of ideas in meteorological, climatological and related communities; the network consists of 39 Country Member Societies and 30 Associate Members; <https://www.emetsoc.org>.
- **World Meteorological Organisation (WMO)** - Global Campus and Regional collaboration increases collaboration between training institutions to help overcome a gap between training demand/ supply, connects people and institutions to learning opportunities necessary for well-functioning meteorological, hydrological and climate services. (<https://public.wmo.int/en/resources/meteoworld/wmo-global-campus>)
- **Air Pollution in the Arctic: Climate, Environment and Societies (PACES)**: PACES is an IGAC-sponsored initiative, which aims to review existing knowledge and foster new research on the sources and fate of Arctic air pollution, its impacts on climate, health, and ecosystems, on the feedbacks between pollution and natural sources, on climate responses, and on societal perspectives, including sustainability, adaptation and economic feedbacks

(<https://igacproject.org/activities/PACES>)

- **International Research-to-Practice Conference on ‘Climate Services: Science and Education’** - the biannual conference held at the premises of OSENU since 2021, with the support of Ukrainian Joint Meteorological and Hydrological Society, and Erasmus+ ClimEd and INTENSE projects. (<http://climateservices.odeku.edu.ua>)
- **Monitoring of Geological Processes and Ecological Conditions of the Environment** - the annual conference dedicated to the monitoring of natural hazards. The conference organisers are ESI “Institute of Geology” of TSNUK with the support of the European Association of Geoscientists and Engineers (EAGE). (<https://eage.in.ua>)
- **ISEA - International Symposia:** ISEA International is an international non-profit organisation fostering interdisciplinary academic discourse and exchange among culturally diverse organisations and individuals working with art, science and technology. The main activity of ISEA International is the annual International Symposium on Electronic Art (ISEA). The symposia began in 1988 (<http://www.isea-web.org>)

3.3 Sustainability and continuation

Sustainability, long-term impact and continuation

Describe the follow-up of the project after the EU funding ends. How will the project impact be ensured and sustained? What will need to be done? Which parts of the project should be continued or maintained? How will this be achieved? Which resources will be necessary to continue the project? How will the results be used? Are there any possible synergies/complementarities with other (EU funded) activities that can build on the project results?

After the CLUVEX project lifetime Climate University e-platform will be sustained by UH. The VE concept and exercises developed, e.g. CLUVEX Guidelines, during the project will be integrated into the Climate University approach. During the project all the partner universities have digested the idea of virtual exchange and UCPH, OSENU, TSNUK, and YSU as Universities have got acquainted with the climate on-line learning and are able to continue the dissemination of the concept and the participation to VE - Climate University courses also in the future in their countries and in their national and international networks. These activities are low resource demanding and can be done by the permanent staff of the partners. The details to ensure the project impact after the project will be introduced in the project Sustainability Strategy (WP-5). Also the extensive memberships of the CLUVEX team members in national and international networks ensure the large scale dissemination of the CLUVEX concept.

4. WORK PLAN, WORK PACKAGES, TIMING AND SUBCONTRACTING

4.1 Work plan

Work plan
 Provide a brief description of the overall structure of the work plan (list of work packages or graphical presentation (Pert chart or similar)).

The CLUVEX project is implemented by 5 Work Packages (WPs): WP1. Project Management and Quality Assurance (led by UH, Hanna K. Lappalainen), WP2. Preparatory work for implementing the Virtual Exchange (VE) (led by Valeriya Ovcharuk, OSENU), WP3. Staff Training (teachers, assistants, moderators) for VE (led by Olga Schevchenko, TSNUK), WP4. Virtual Exchange Implementation at International Level (led by UCPH, Alexander Baklanov) and WP5. Project dissemination, visibility, and sustainability (led by Alexander Markarov, YSU). Each Partner is taking the leading responsibility in one of specific WP and all Partners are contributing and taking part in each WP. WP-1 tasks on the management and quality assurance are led by UH. WP-2 is led by OSENU and co-lead by UH (Laura Riuttanen). The Virtual Exchange (VE) workflow starts from designing the VE exercises and training. WP2 tasks are carried out in a close collaboration with existing Climate University network and courses (coordinated by UH). All other Partners will bring their expertise and existing tools to the VE development (see the list of tools in Chapter 1.3). WP-3 is led by TSNUK and co-lead by UH (Alexander Mahura). The staff training in close collaboration with all Partners is focused on teaching personnel (lectures, assistant, facilitators) from the Partner's universities. The idea is that CLUVEX will educate all together 50 persons who will be able to facilitate the VE exercises. WP-4 is led by UCPH and co-lead by TSNUK (Sergiy Snizhko). The implementation of the VE as a part of Climate University modules is conducted in collaboration with all the Partners. WP5 is led by YSU and co-lead by OSENU (Oleh Shablii) and focused on dissemination and upscaling of the VE concept and CLUVEX outcomes/ results.

The diagram illustrates the structure and timeline of the Erasmus+ CLUVEX project. It is divided into two main parts: the overall work plan structure and the Virtual Exchange (VE) workflow timeline.

Erasmus+ CLUVEX Structure: The work plan is organized into five Work Packages (WPs) shown as interconnected boxes. WP1 (Project Management & Quality Assurance) is at the bottom, connected to WP2 (Preparatory Work), WP3 (Staff training), and WP4 (Implementation). WP2, WP3, and WP4 are in the middle, with WP5 (Dissemination) at the top. Bidirectional arrows indicate collaboration between WP1 and the other WPs, and between WP2, WP3, WP4, and WP5.

Virtual Exchange - 5 VE Call(s) in 3 years: This timeline shows the progression over three years. In Year 1, there is 'Education of VE moderators'. In Year 2, there are '1st VE call' and '2nd VE call', each involving '250 students'. In Year 3, there are '3rd VE call', '4th VE call', and '5th VE call', each involving '250 students'.

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4.2 Work packages and activities

WORK PACKAGES
<p><i>This section concerns a detailed description of the project activities.</i></p> <p>Group your activities into work packages. A work package means a major sub-division of the project. For each work package, enter an objective (expected outcome) and list the activities, milestones and deliverables that belong to it. The grouping should be logical and guided by identifiable deliverables/outputs.</p> <p>Projects should normally have a minimum of 2 work packages. WP1 should cover the management and coordination activities (meetings, coordination, project monitoring and evaluation, financial management, progress reports, etc.) and all the activities which are cross-cutting and therefore difficult to assign to another specific work package (do not try splitting these activities across different work packages). WP2 and further WPs should be used for the other project activities. You can create as many work packages as needed by copying WP1. The last WP should be dedicated to Impact and dissemination</p> <p>Please refer to the Call document/Programme Guide for specific requirements concerning the number and the typology of work packages.</p> <p>Work packages covering financial support to third parties (⚠ only allowed if authorised in the Call document/Programme Guide) must describe the conditions for implementing the support (for grants: max amounts per third party; criteria for calculating the exact amounts, types of activity that qualify (closed list), persons/categories of persons to be supported and criteria and procedures for giving support; for prizes: eligibility and award criteria, amount of the prize and payment arrangements).</p> <p>⚠ Enter each activity/milestone/output/outcome/deliverable only once (under one work package).</p>

Work Package 1

Work Package 1: [Management and Quality Assurance]			
Duration:	M01 – M36	Lead Beneficiary:	UH
Objectives			
<i>List the specific objectives to which this work package is linked.</i>			
<ul style="list-style-type: none"> ▪ to ensure the daily management of the project including organisation of the on-line / on-site meetings and financial and contractual control 			

- to take care of the project internal communication flows
- oversee the implementation of the project quality assurance

Activities (what, how, where) and division of work

Provide a concise overview of the work (planned tasks). Be specific and give a short name and number for each task.

Show who is participating in each task: Coordinator (COO), and if applicable Beneficiaries (BEN), Affiliated Entities (AE), Associated Partners (AP) and others, indicating **in bold** the task leader.

Add information on other participants' involvement in the project e.g. subcontractors, in-kind contributions.

Note:

In-kind contributions: In-kind contributions for free are cost-neutral, i.e. cannot be declared as cost. Please indicate the in-kind contributions that are provided in the context of this work package.

The coordinator remains fully responsible for the coordination tasks, even if they are delegated to someone else. Coordinator tasks cannot be subcontracted. If there is subcontracting, please also complete the table below.

Task No (continuous numbering linked to WP)	Task Name	Description	Participants		In-kind Contributions and Subcontracting (Yes/No and which)
			Name	Role (COO, BEN, AE, AP, OTHER)	
T1.1	Project communication e-platform	establish and update CLUVEX project website (public and intranet) with contributions and relevant materials from all Beneficiaries/ Partners involved	UH OSENU TSNUK YSU UCPH BioArt	COO BEN BEN BEN BEN BEN	No
T1.2	Project meetings	organise periodic meetings (online) of the Steering Committee, WP leaders, and Advisory Boards (experts and students) as well as CLUVEX kick-off, mid-term and final meetings (face-to-face or hybrid/online depending on pandemic situation)	UH OSENU TSNUK YSU UCPH	COO BEN BEN BEN BEN	No

			BioArt	BEN	
T1.3	Quality assurance	develop quality assurance plan considering specifics (development, training, implementation, dissemination) of each WP and implement corresponding measures	UH OSENU TSNUK YSU UCPH BioArt	COO BEN BEN BEN BEN BEN	No
T1.4	Project reporting	organise periodic reporting on WPs progress and oversee that all Deliverables/Milestones are completed/achieved in time	UH OSENU TSNUK YSU UCPH BioArt	COO BEN BEN BEN BEN BEN	No
T1.5	Financial and contract management	collaborate and carry out with the university services for distributing project funding to Beneficiaries/ Partner universities and assuring the contractual commitments	UH	COO	No

Milestones and deliverables (outputs/outcomes)

Milestones are control points in the project that help to chart progress. Use them only for major outputs in complicated projects. Otherwise leave the section on milestones empty.

Means of verification are how you intend to prove that a milestone has been reached. If appropriate, you can also refer to indicators.

Deliverables are project outputs which are submitted to show project progress (any format). Refer only to major outputs. Do not include minor sub-items, internal working papers, meeting minutes, etc.

It is recommended to limit the number of deliverables to max 10-15 for the entire project. You may be asked to further reduce the number during grant preparation.

For deliverables such as meetings, events, seminars, trainings, workshops, webinars, conferences, etc., enter each deliverable separately and provide the following in the 'Description' field: invitation, agenda, signed presence list, target group, number of estimated participants, duration of the event, report of the event, training material package, presentations, evaluation report, feedback questionnaire.

For deliverables such as manuals, toolkits, guides, reports, leaflets, brochures, training materials etc., add in the 'Description' field: format (electronic or printed), language(s), approximate number of pages and estimated number of copies of publications (if any).

For each deliverable you will have to indicate a due month by when you commit to upload it in the Portal. The due month of the deliverable cannot be outside the duration of the work package and

must be in line with the timeline provided below. Month 1 marks the start of the project and all deadlines should be related to this starting date.

The labels used mean:

Public — fully open (🚩 automatically posted online on the Project Results platforms)

Sensitive — limited under the conditions of the Grant Agreement

EU classified — RESTREINT-UE/EU-RESTRICTED, CONFIDENTIEL-UE/EU-CONFIDENTIAL, SECRET-UE/EU-SECRET under Decision [2015/444](#).

Milestone No (continuous numbering not linked to WP)	Milestone Name	Work Package No	Lead Beneficiary	Description		Due Date (month number)	Means of Verification
MS1	CLUVEX project management structure	1	UH	establish management structure for successful realisation of the CLUVEX project		M02	management structure established & working
MS2	Mid-term assessment reporting	1	UH	prepare report (incl. status/ progress on achieving goals, objectives, tasks, deliverables, milestones, etc.) to EC		M18	CLUVEX mid-term assessment report to EC successfully delivered
MS3	Periodic reporting, finance and contracts	1	UH	day-to-day management e.g periodic meeting notes and reports, Commission Contract and Consortium Agreement signed, money transfers to partners		M3, M18, M36	minutes of the meetings are available
Deliverable No (continuous numbering linked to WP)	Deliverable Name	Work Package No	Lead Beneficiary	Type	Dissemination Level	Due Date (month number)	Description (including format and language)
D1.1	CLUVEX project e-platform	1	UH	DEC	PU	M02	Website (public and intranet) / English
D1.2	Project meetings and reports, financial and contractual tasks	1	UH	R	PU	M06, M12, M18, M26, M34, M36	Minutes of kick-off, mid-term and final meetings (English), project reports, Consortium Agreement,
D1.3	CLUVEX Monitoring Strategy & Quality Assurance Plan	1	UH	R	PU	M03 + regular updates	QA Plan and measures determined in the Monitoring & QA Plan

	and Reports on quality assurance						with regular updates
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Work Package 2

Work Package 2: [Preparatory Work for Virtual Exchange]					
Duration:	M01 – M18	Lead Beneficiary:	OSENU		
Objectives					
<i>List the specific objectives to which this work package is linked.</i>					
<ul style="list-style-type: none"> to develop and design a new, tailored Virtual Exchange concept for climate education and training to compile an inventory of the current Climate University to bridge and connect the Virtual Exchanges to climate education context to develop training programmes for implementing virtual exchanges in a frame of Climate University 					
Activities (what, how, where) and division of work					
Task No (continuous numbering linked to WP)	Task Name	Description	Participants		In-kind Contributions and Subcontracting (Yes/No and which)
			Name	Role (COO, BEN, AE, AP, OTHER)	
T2.1	Virtual Exchange Guidebook (VEG)	The Virtual Exchange (VE) guidebook for (partner) university administrators and facilitators will cover topics: VE integration into curricula, VE planning and implementation, VE procedures, code of conduct and tools, including the call for participation and selection of students, science communication, digital co-creation tools, overcoming language barriers,	OSENU UH TSNUK YSU UCPH	BEN COO BEN BEN BEN	In-kind as communication costs between the CLUVEX Partners

		etc. The guidebook should be based on the experience of existing VE initiatives with regard to Climate / Earth science applications.	BioArt	BEN	
T2.2	Climate Literacy Guidebook (CLG)	“Climate literacy as a new 21 st century skill for the future jobs” guidebook. The guidebook explains the basics of the climate system and its components, provides a concept, how to integrate climate competences into higher education as an essential skill needed in the future jobs and introduces ways, how to best communicate on climate issues and sciences..	OSENU UH TSNUK YSU UCPH BioArt	BEN COO BEN BEN BEN BEN	In-kind as communication costs between the CLUVEX Partners
T2.3	Climate Messenger Code of Conduct (CMC)	The declaration builds on the Climate Literacy Guidebook. The code of conduct determines the principles, purpose and elements, how best act as a Climate Messenger and distribute the climate competences.	OSENU UH TSNUK YSU UCPH BioArt	BEN COO BEN BEN BEN BEN	In-kind as communication costs between the CLUVEX Partners
T2.4	Developing new climate training guidelines	Three specific climate training guidelines are to be developed based on the CLUVEX Virtual Exchange Guidebook: (1) for administrators, IT staff and facilitators (moderators); (2) for new Climate Messengers based on the Climate Literacy Guidebook; (3) for climate /Earth system sciences education and services designers, who provide educate and could find Virtual Exchange as a promising new tool	OSENU UH TSNUK YSU UCPH BioArt	BEN COO BEN BEN BEN BEN	In-kind as communication costs between the CLUVEX Partners
T2.5	Climate University content library and interactive exercises	Compiling the Climate University content library relevant for VE, developing interactive exercises and group assignments based on partners’ existing e-platforms, such as game scenarios, case studies, simulators, competitions, etc., as an e-living Annex to the	OSENU UH TSNUK YSU	BEN COO BEN BEN	In-kind as communication costs between the CLUVEX Partners

		Virtual Exchange Guidebook.	UCPH BioArt	BEN BEN			
Milestones and deliverables (outputs/outcomes)							
Milestone No (continuous numbering not linked to WP)	Milestone Name	Work Package No	Lead Beneficiary	Description		Due Date (month number)	Means of Verification
MS4	Virtual Exchange concept for climate education and training	2	OSENU	2 Guidebooks and the Climate Messenger Code of Conduct to be developed, formatted and ready for use in trainings		M09	2 Guidebooks and the CMC Code are available in EN/RU in electronic format at project website
MS5	Training guidelines /syllabus	2	OSENU	Training guidelines /syllabus for (i) administrators, IT staff and facilitators, moderators (ii) VE-based guidelines on climate literacy for Climate Messengers (iii) VE-based guidelines / syllabus in digital co-creation for Earth science students		12	3 programs/syllabi are developed based on the Guidebooks and Climate University content identified; developed guidelines / syllabus are available at project website
Deliverable No (continuous numbering linked to WP)	Deliverable Name	Work Package No	Lead Beneficiary	Type	Dissemination Level	Due Date (month number)	Description (including format and language)
D2.1	Virtual Exchange Guidebook (VEG)	2	OSENU	R	PU	M06	Format: digital (pdf) Language: EN, Partners national Volume: at least 20 pages
D2.2	Climate Literacy Guidebook (CLG)	2	OSENU	R	PU	M09	Format: digital (pdf) Language: EN, Partners national Volume: at least 20 pages

D2.3	Climate Messenger Code of Conduct (CMC)	2	OSENU	R	PU	M09	Format: digital (pdf) Language: EN, Partners national
D2.4	Training programs/ syllabi	2	OSENU	R	PU	M12	Online, EN
D2.5	e-Living Annex to the Virtual Exchange Guidebook	2	OSENU	DEM, DATA	PU	M12, M18	Online, EN

Work Package 3

Work Package 3: [Staff Training for Virtual Exchange]					
Duration:	M04 – M24	Lead Beneficiary:	TSNUK		
Objectives					
<i>List the specific objectives to which this work package is linked.</i>					
<ul style="list-style-type: none"> to orientate and familiarize the staff members the with VE concept as “nurturing Climate Messengers from students” and educate them to act as Virtual Exchange Climate University facilitators /moderators by introducing them developed online tutorials (e.g climate competencies) and digital skills to facilitate and carry out the trainings for teachers, assistants, administrators, IT staff of the CLUVEX partners 					
Activities (what, how, where) and division of work					
Task No (continuous numbering linked to WP)	Task Name	Description	Participants		In-kind Contributions and Subcontracting (Yes/No and which)
			Name	Role (COO, BEN, AE, AP,	

				OTHER)		
T3.1	Training of administrators and IT staff (hybrid format)	To arrange and carry out the training on the VE approach and tools based on output from WP-2 (VE integration into curricula, VE planning and implementation, VE procedures, code of conduct and tools, including the call for participation & selection of students, science communication, etc.)		TSNUK OSENU UH YSU UCPH BioArt	BEN BEN COO BEN BEN BEN	In-kind support as IT support from the CLUVEX Partners
T3.2	VE-based training for teachers and facilitators on Climate University's climate literacy for Climate Messengers (hybrid format)	To arrange and carry out the staff training based on Climate University courses and introduce them climate competences (change scenarios, vulnerability and risk assessment for regions and sectors, comparison of adaptation strategies and actions, case studies) together with soft skills so that they are able to engage students of various study areas becoming Climate Messengers.		TSNUK OSENU UH YSU UCPH BioArt	BEN BEN COO BEN BEN BEN	In-kind support as IT support from the CLUVEX Partners
T3.3	VE-based training for teachers and facilitators in digital co-creation for Earth science students (hybrid format) based on Climate University courses	To arrange and carry out the training based on Climate University's climate related e-libraries, databases together with existing regional, national and international climate adaptation and mitigation programs, using different interactive materials developed		TSNUK OSENU UH YSU UCPH BioArt	BEN BEN COO BEN BEN BEN	In-kind support as IT support from the CLUVEX Partners
Milestones and deliverables (outputs/outcomes)						
Milestone No (continuous numbering not linked to WP)	Milestone Name	Work Package No	Lead Beneficiary	Description	Due Date (month number)	Means of Verification
MS6	Preparedness of IT-staff and	3	TSNUK	All online materials are accessible through learner's personal accounts, all	M10	All materials are accessible for the

	administrators for VE-learning process			IT staff and administrators are capable of starting VE-learning process		CLUVEX consortium members	
MS7	Preparedness of teachers and facilitators for VE-learning process	3	TSNUK	All teachers and facilitators have passed tests demonstrating ability/skills to moderate the student groups and have climate knowledge (competences) of various aspects of climate change impact, mitigation and adaptation, etc.	M12	Number of CLUVEX persons, whom passed necessary tests	
Deliverable No (continuous numbering linked to WP)	Deliverable Name	Work Package No	Lead Beneficiary	Type	Dissemination Level	Due Date (month number)	Description (including format and language)
D3.1	Set of online tutorials/ recordings for the CLUVEX trainings and course modules	3	TSNUK	R	PU	M12, M15, M18	Electronic format, EN/Partners languages
D3.2	Online tutorial on soft-skills development and digital didactics for VE learning	3	TSNUK	R	PU	M24	Electronic format, EN/ Partners languages, 20 pages

Work Package 4

Work Package 4: [Implementation for Virtual Exchange]			
Duration:	M13 – M36	Lead Beneficiary:	UCPH
Objectives			

<i>List the specific objectives to which this work package is linked.</i>					
<ul style="list-style-type: none"> ▪ to test and pilot Climate Literacy Virtual Exchanges in a frame of Climate University ▪ to compile the best VE practices of the consortium partners and Climate University ▪ to educate university students to act as Climate Messengers in society 					
Activities (what, how, where) and division of work					
Task No (continuous numbering linked to WP)	Task Name	Description	Participants		In-kind Contributions and Subcontracting (Yes/No and which)
			Name	Role (COO, BEN, AE, AP, OTHER)	
T4.1	Implementing of Climate Literacy Virtual Exchanges	Based on the WP-2 preparatory works (developed materials and guidelines) and WP-3 staff training (obtained competencies and skills) the implementing of Virtual Exchanges together and in synergy with the Climate University course and having students from CLUVEX partner universities and collaboration networks participating the VE-Climate University courses.	UH UCPH OSENU TSNUK YSU BioArt	COO BEN BEN BEN BEN BEN	In-kind support as IT support
T4.2	Co-creation Virtual Exchanges and international online pilot courses	Implement Co-creation Virtual Exchanges. Test the UH's Climate University course on different platforms / context, collaborate with WMO Global Campus for joint VE forms. Assist in knowledge transfer of climate courses at the CLUVEX partner universities and collaboration networks.	UCPH UH OSENU TSNUK YSU BioArt	BEN COO BEN BEN BEN BEN	In-kind contribution: collaboration with partner universities, WMO Global Campus, RTCs and other EU and national networks and associations
T4.3	Compilation of the best VE practices of CLUVEX partners and Climate	Engage Moderators Virtual Exchanges and Reflection. Compile the experiences and feedback given by the CLUVEX moderators,	UCPH UH	BEN COO	In-kind contribution: collaboration with partner universities, WMO Global

	University approach	students and international collaborators for the disseminating the educate VE – Climate university concept and to second the university students to act as the Climate Messengers in society.	OSENU TSNUK YSU BioArt	BEN BEN BEN BEN	Campus, RTCs and other EU and national networks and associations		
Milestones and deliverables (outputs/outcomes)							
Milestone No (continuous numbering not linked to WP)	Milestone Name	Work Package No	Lead Beneficiary	Description		Due Date (month number)	Means of Verification
MS8	Pilot course initial testing	4	UH	Delivery of WP2 and WP3 for piloting of the VE-Climate University courses		16	Initial testing of the Climate University's pilot course successfully completed
MS9	VE-Climate University implementation	4	UCPH	New knowledge transfer of VE - climate on-line education concept to all partners		33	2500 students have successfully completed the VE –Climate University
Deliverable No (continuous numbering linked to WP)	Deliverable Name	Work Package No	Lead Beneficiary	Type	Dissemination Level	Due Date (month number)	Description (including format and language)
D4.1	Initial test of the Climate University's pilot course	4	UH	DEM	PU	M18	a unit of measurement: number of students participated passed the online course(s) and tailored VE exercises having "Climate Messenger" certificate
D4.2	Participation of CLUVEX partner universities' students to VE & Climate University	4	OSENU	R	PU	M30	a unit of measurement: number of students participated passed the online course(s) and tailored VE exercises

	course						having “Climate Messenger” certificate
D4.3	CLUVEX best VE practices	4	UCPH	R	PU	M36	Description e.g number of countries, networks involved

Work Package 5

etworksWork Package 5: [Dissemination, Visibility and Sustainability]					
Duration:	M01 – M36	Lead Beneficiary:	YSU		
Objectives					
<i>List the specific objectives to which this work package is linked.</i>					
<ul style="list-style-type: none"> ▪ to ensure visibility and promotion of the CLUVEX project ▪ to get public feedbacks (interviews for social media, university website, radio) ▪ to raise awareness on climate education and climate ▪ to promote Virtual Exchange programmes and the Climate University 					
Activities (what, how, where) and division of work					
Task No (continuous numbering linked to WP)	Task Name	Description	Participants		In-kind Contributions and Subcontracting (Yes/No and which)
			Name	Role (COO, BEN, AE, AP, OTHER)	
T5.1	Developing the project dissemination strategy and	Dissemination strategy is prepared, reviewed and approved by the CLUVEX consortium partners. It covers dissemination activities to reach various target groups: students (wide range	YSU	BEN	In-kind as communication costs between the

	materials	students and natural sciences students), teaching staff, practicing experts, VE facilitators, university management, volunteers, applicants, parents, partners and citizens. Dissemination materials are designed and produced.	OSENU UH TSNUK UCPH BioArt	BEN COO BEN BEN BEN	CLUVEX Partners	
T5.2	Setting up and maintaining online representation of the project for wider audience (webpage, profiles on social media networks)	The CLUVEX logo, motto, hashtag, images or concepts (brandbook) are generated and approved to establish a clear identity of the project. CLUVEX webpages are created on the consortium partners' websites and updated regularly. CLUVEX social media profiles are created and updated regularly. Press kits for a wider media range include press-releases, photos, brandbook, audio.	YSU OSENU UH TSNUK UCPH BioArt	BEN BEN COO BEN BEN BEN	In-kind as communication costs between the CLUVEX Partners	
T5.3	Developing the project sustainability strategy	Sustainability strategy is written, reviewed and approved by the CLUVEX consortium partners. It includes scenarios for multiplication of the project's activities, guidelines on its development beyond the lifetime of the project.	YSU UH OSENU TSNUK UCPH BioArt	BEN COO BEN BEN BEN BEN	In-kind as communication costs between the CLUVEX Partners	
Milestones and deliverables (outputs/outcomes)						
Milestone No (continuous numbering not linked to WP)	Milestone Name	Work Package No	Lead Beneficiary	Description	Due Date (month number)	Means of Verification
MS10	Internal visibility of the project (within consortium)	5	YSU	Dissemination Campaign targeted at the participating institutions. It includes presentation of the project to HEIs' administration and faculties, information and invitation of students to participate	M03	Information materials in EN/Partners languages, invitations, posters, publications on participating

					in VE, raising awareness of VE initiatives, requirements for participation, etc. It starts with the project and should be maintained beyond the lifetime of the project.		Universities' social networks	
MS11	Project's outreach	5	YSU		Dissemination campaign targeted at the wider audience outside participating HEIs. It raises awareness of the project, its achievements, results and impact.	M12	Publications on CLUVEX social media networks, regional mass media (news, radio, TV) presentations on conferences, forums, etc.	
Deliverable No (continuous numbering linked to WP)	Deliverable Name	Work Package No	Lead Beneficiary		Type	Dissemination Level	Due Date (month number)	Description (including format and language)
D5.1	Dissemination strategy (public and internal) with Brandbook and dissemination materials as an annex	5	OSENU		R	PU	M03 (for dissemination strategy) M03 (for digital materials) M18, M36 (for physical materials)	Dissemination Strategy Format: online (pdf), available on the Internal Communication e-Platform Brandbook is annex to the Dissemination Strategy, includes logo, colour scheme, templates Language: English, volume: at least 15 pages (Strategy) + links to templates, presentations, logo, etc Dissemination Materials Format digital: info posters, banners, visual imagery, audio

								(interviews, jingle, ringtone) physical (analog): badges, T-shirts, hoodies, notebooks, pens, etc. Language: EN/ Partners languages
D5.2	Sustainability strategy	5	YSU		R	PU	M33	Format: digital (pdf) Language: English Volume: at least 30 pages

Estimated budget — Resources <i>(n/a for prefixed Lump Sum Grants)</i>														
Participant	Costs													
	A. Personnel		B. Subcontracting	C.1a Travel			C.1b Accommodation	C.1c Subsistence	C.2 Equipment	C.3 Other goods, works and services	D.1 Financial support to third parties		E. Indirect costs	Total costs
UH	25	120,900	0	1	2	1,000	15,600	0	0	0	0	0	9,625	147,125
OSENU	74	60,449	0	2	4	1,840	0	0	0	0	0	0	4,360	66,649
TSNUK	74	60,449	0	2	4	1,768	0	0	0	0	0	0	4,355	66,572
YSU	79	60,181	0	2	4	3,464	0	0	0	2,500	0	0	4,630	70,775

UCPH	9	90,013	0	2	4	1,768	0	0	0	0	0	0	6,424	98,205
BioArt	9	46,283	0	0	0	0	0	0	0	446	0	0	3,271	50,000
Total	270	438,274	0	9	18	9,840	15,600	0	0	2,946	0	0	32,665	499,325

For certain Lump Sum Grants, see detailed budget table/calculator (annex 1 to Part B; see [Portal Reference Documents](#)).

Overview of Work Packages (n/a for Lump Sum Grants)

Staff effort per work package						
Fill in the summary on work package information and effort per work package.						
Work Package No	Work Package Title	Lead Participant No	Lead Participant Short Name	Start Month	End Month	Person-Months
1	Management and Quality Assurance	1	UH	1	36	32
2	Preparatory Work for Virtual Exchange	2	OSENU	1	18	60
3	Staff Training for Virtual Exchange	3	TSNUK	4	24	71
4	Implementation for Virtual Exchange	5	UCPH	13	36	71
5	Dissemination, Visibility and Sustainability	4	YSU	1	36	36

					<i>Total Person-Months</i>	270
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Staff effort per participant						
<i>Fill in the effort per work package and Beneficiary/Affiliated Entity.</i>						
<i>Please indicate the number of person/months over the whole duration of the planned work.</i>						
<i>Identify the work-package leader for each work package by showing the relevant person/month figure in bold.</i>						
Participant	WP1	WP2	WP3	WP4	WP5	Total Person-Months
UH	12	5	2	4	2	25
OSENU	6	28	16	18	6	74
TSNUK	6	14	28	20	6	74
YSU	6	10	22	21	20	79
UCPH	1	1	1	5	1	9
BioArt	1	2	2	3	1	9
Total Person-Months	32	60	71	71	36	270

Events meetings and mobility**Events meetings and mobility**

*This table is to be completed for events meetings and mobility that have been mentioned as part of the activities in the work packages above
Give more details on the type, location, number of persons attending, etc.*

Event No (continuous numbering linked to WP)	Participant	Description					Attendees
		Name	Type	Area	Location	Duration (days)	Total
E1.1	UH, OSENU, TSNUK, YSU, UCPH, BioArt	CLUVEX project kick-off-meeting	Meeting / workshop	Initiation the project realisation, detailed discussions and distribution of roles/ responsibilities/ contributions among the CLUVEX Partners/ Universities	Helsinki, Finland	2	ca. 25
E1.2	UH, OSENU, TSNUK, YSU, UCPH, BioArt	CLUVEX project mid-term meeting	Meeting / workshop	Status/progress reporting and discussions (proposing/taking measures) on achieving goals, objectives, realisation of WP's (on development, training, implementation, dissemination) tasks, deliverables, milestones; project's sustainability strategy	Helsinki, Finland	2	ca. 25
E1.3	UH, OSENU, TSNUK, YSU, UCPH, BioArt	CLUVEX project final meeting	Meeting / workshop	Overview of the CLUVEX project results for the consortium members and VE trained staff	online/ virtual	2	up to 100 attendees

E3.1-E3.5	TSNUK, UH, OSENU, YSU, UCPH, BioArt	Virtual Exchange Trainings (for teachers, facilitators, administrators, IT-staff) in WP-3 on Staff Training	A series (5) of trainings in online mode (at each CLUVEX University the participants are meeting at the same location/ virtual room)	Training and skills on Virtual Exchange setting-up and integration into curricula, climate literacy for Climate Messengers, digital co-creation for Earth science students	online/ virtual	2	up to 50 attendees per each training
E4.1-E4.5	UCPH, UH, OSENU, TSNUK, YSU, BioArt	VE Introductory Meetings (for students) in WP-4 on Implementation for VE	A series (5) of Virtual Exchange Weeks online for students of the CLUVEX Universities as well as Europe and and Neighborhood countries	Knowledge transfer of climate on-line education to students	online/ virtual	5	up to 500 persons per each VE Week

4.3 Timetable

Timetable (projects of more than 2 years)																								
<i>Fill in cells in beige to show the duration of activities. Repeat lines/columns as necessary.</i>																								
Note: Use actual, calendar years and quarters. In the timeline you should indicate the timing of each activity per WP. You may add additional columns if your project is longer than 6 years.																								
ACTIVITY	2024				2025				2026				YEAR 4				YEAR 5				YEAR 6			
	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4
Task 1.1 - Project communication e-platform																								
Task 1.2 - Project meetings																								
Task 1.3 - Quality assurance																								

If subcontracting for the project goes beyond 30% of the total eligible costs, give specific reasons.

5. OTHER


5.1 Ethics

<p>Ethics (if applicable)</p> <p><i>If the Call document/Programme Guide contains a section on ethics, describe ethics issues that may arise during the project implementation and the measures you intend to take to solve/avoid them.</i></p> <p><i>Describe how you will ensure gender mainstreaming and children's rights in the project activities.</i></p>
<p>CLUVEX makes a protocol for privacy control (M1-3) and personal data security. This is a relevant issue, when collecting information on the registration and participation of the students to the CLUVEX VE – Climate University courses. The project also makes a protocol for the gender and diversity balance. CLUVEX will also take into account all relevant national laws and EU directives on ethical issues and personal data protection in the field. All data collected during this project will follow procedures as outlined in the project QA plan. All CLUVEX's WPs foresee the need to establish and follow good ethical standards</p>

5.2 Security

<p>Security</p>
<p>Not applicable.</p>

6. DECLARATIONS

<p>Double funding</p>	
<p>Information concerning other EU grants for this project</p> <p> <i>Please note that there is a strict prohibition of double funding from the EU budget (except under EU Synergies actions).</i></p>	<p>YES/NO</p>
<p>We confirm that to our best knowledge neither the project as a whole nor any parts of it have benefitted from any other EU grant (including EU funding managed by authorities in EU Member States or other funding bodies, e.g. Erasmus, EU Regional Funds, EU Agricultural Funds, European Investment Bank, etc). If NO, explain and provide details.</p>	<p>YES</p>
<p>We confirm that to our best knowledge neither the project as a whole nor any parts of it are (nor will be) submitted for any other EU grant (including EU funding managed by authorities in EU Member States or other funding bodies, e.g. Erasmus, EU Regional Funds, EU Agricultural Funds, European Investment Bank, etc). If NO, explain and provide details.</p>	<p>YES</p>
<p>Financial support to third parties (if applicable)</p> <p><i>If your project requires a higher maximum amount per third party than the threshold amount set in the Call document/Programme Guide, justify and explain why this is necessary in order to fulfil your project's objectives.</i></p>	
<p>Not applicable.</p>	