ACT NOW

Training Package
and Trainer's
Manual

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Introduction

Rationale

The ActNow project aims to build the capacity of youth workers to better integrate climate change and sustainable development topics in their practice and further development issues into formal and non-formal education systems, based on innovative educational material such as Mobile Augmented Reality Games and Simulation Games recognising the need for a multidisciplinary approach.

What is climate change?

Climate change is the long-term alteration of temperature and typical weather patterns in a place. Climate change could refer to a particular location or the planet as a whole. Climate change may cause weather patterns to be less predictable. These unexpected weather patterns can make it challenging to maintain. Climate change has also been connected with damaging weather events such as more frequent and intense hurricanes, floods, downpours, and winter storms.

In polar regions, the global warming temperatures associated with climate change have meant ice sheets and glaciers are melting at an accelerated rate from season to season. This contributes to sea levels rising in different regions of the planet. Together with expanding ocean waters due to rising temperatures, the resulting rise in sea level has begun to damage coastlines due to increased flooding and erosion.

The cause of current climate change is mainly human activity, like burning fossil fuels, like natural gas, oil, and coal. Burning these materials releases what are called greenhouse gases into Earth's atmosphere. These gases trap heat from the sun's rays inside the atmosphere causing Earth's average temperature to rise. This rise in the planet's temperature is called global warming. The warming of the planet impacts local and regional climates. Throughout Earth's history, the climate has continually changed. When occurring naturally, this is a slow process that has taken place over hundreds and thousands of years. The human-influenced climate change that is happening now is occurring at a much faster rate.

What is sustainable development?

Sustainable development has been defined as development that meets the needs of the present without compromising the ability of future generations to meet their own needs. Sustainable development calls for concerted efforts to build an inclusive, sustain-nable and resilient future for people and the planet.

For sustainable development to be achieved, it is crucial to harmonise three core elements: economic growth, social inclusion and environmental protection. These elements are interconnected, and all are crucial for the well-being of individuals and societies.

Eradicating poverty in all its forms and dimensions is an indispensable requirement for sustainable development. To this end, sustainable, inclusive and equitable economic growth must be promoted, creating greater opportunities for all, reducing inequalities, raising basic living standards, fostering

equitable social development and inclusion, and promoting integrated and sustainable management of natural resources and ecosystems.

What is Augmented Reality?

AR is about augmenting/modifying user's perception of the real world. While some researchers define AR as a technical concept, others offer a broader definition. Azuma et al. (2001) define AR based on the following three properties:

• combines real and virtual objects in a real environment
• runs interactively and in real-time
• aligns real and virtual objects with each other.

This definition emphasises the real environment as the place where virtual objects are added. This is an important distinction with respect to Virtual Reality (VR), where the user primarily relates to a virtual environment. Nonetheless, the two might best be seen on a continuum, whereby AR and VR represent a sliding scale of mixed reality, describing AR as real-time views of a physical, real-world environment. In this reality-elements have been (to a lesser or a greater degree) augmented, enhanced, enriched or diminished by computer-generated sensory input, e.g., sound or graphics as a layer or projection.

Augmented Reality in education

AR technology in education could be identified as the most exciting and engaging teaching method. In that way, each issue can include more colour and be more interactive for participants. AR allows students to challenge their limitations and enables them to access inaccessible positions by giving them the possibility to have a different viewpoint. AR combines both pedagogical and technological additions to teaching and learning. AR has more advantages compared to the traditional teaching methods. One of these advantages is that it activates many senses such as touch, hearing, and vision simultaneously. In this way, students have active participation in learning and teaching.

Simulation games

Games are increasingly proposed as an innovative way to convey scientific insights on the climate economic system to students, non-experts and the wider public. Gaming increases the sense of personal responsibility and confidence in politics for climate change mitigation and makes more optimistic about international cooperation. They have a high comparative potential for climate change communication and teaching for several reasons. Simulation games might allow one to experience the complex, non-linear dynamics of the climate system and test out different strategies without real-world consequences. At the same time, they are easily understandable for non-experts and an appealing and entertaining approach to the serious issue of climate change.

Scientists, educators, and policymakers face challenges in finding effective strategies to engage the public on climate change. We argue that games on the subject of climate change are well-suited to address these challenges because they can serve as effective tools for education and engagement.

The ACT- NOW consortium has conducted a survey. According to it, there is a lack of supporting material that sums up the available set of tools to use and create Mobile Augmented Reality Games.

It also identified a Gap between Climate Change Science and Public initiatives for Action and determined the educational resources presented in the Training Package.

The ActNow Training Package and Trainer's Manual is a complete and comprehensive educational programme designed to train youth workers, educational providers and environmental experts to enhance their capacity in designing and implementing educational and training content on the issue. The training material developed is produced to equip the participating youth workers in order to advance their skills, key competences, and increase their knowledge about climate change issues, and provide them with the necessary tools to address the societal challenges that NEETs, young unemployed and low skilled young workers are facing. It is envisaged that this training package and the trainer's manual is filling the gaps and adding value to the field of Youth Work.

The training manual addresses environmental, social, economic and cultural issues points of view and can be used simultaneously within the envisaged program. Given the nature of the material, it will try as much as possible to respond to the specific educational needs of the target group. Practitioners will be able to apply it by adapting it to their realities; they can use parts of the material, enrich it, change some topics, add or simplify work programs. Ultimately, this will help to develop more informed, engaged and active practitioners.

Relevance

The ActNow Training Package includes a list of all the available digital tools for Mobile Augmented Reality Games and relevant software in lesson plans/scenarios related to the youth workers' work. Analytical instructions on the use of the tools (Trainer's Manual) are provided and their affordances and limitations. The Training Package includes examples of uses of Augmented Reality and proposals for the use of these tools. These should come in handy for all the youth workers who will participate in the remaining Intellectual Outputs and all the educators interested in creating Mobile Augmented Reality Games (MARG). Lastly, in this Training Package, there is an effort to map the technological affordances of MARG to the corresponding educational objectives. The Trainer's manual includes guidelines with an explicit set of Learning Outcomes (LO) and allocates time for each learning unit and a tutor manual. This learning design framework is produced to create lesson plans/scenarios, using Mobile Augmented Reality Games to promote digital and civic competencies to young people. The Training Package and the Trainer's Manual will be accessible through the project's site and serve as supporting material for the youth workers who participate in the project and all educators interested in implementing MARG in their teaching practice. In addition, the project's package has a design assessment, evaluation tools and the Youthpass certification framework to support the youth workers and young people's learning process. The assessment tools are designed to measure the existing knowledge and competences that the target groups have in this area, while after the completion of the training, the evaluation tools will be used to measure the participants' progress. The training package will be first tested and assessed by the group comprised of youth workers, youth officers and volunteers in the partner countries. It will be translated and uploaded on the project's website and MOOC.

In general, the ActNow training package will cover the following topics and competences:

- Sea level rise
- Extreme weather events
- Desertification

- Agriculture Production
- Climate Change Immigrants
- Critical thinking,
- Problem-solving based on real-life scenarios,
- Negotiations skills,
- Collaboration,
- Judgment and decision-making
- Digital Skills

The manual includes guidelines, lesson plans, and AR Tools for each learning module. The learning design framework is produced in a simple way so that youth workers can create lesson plans/scenarios using Mobile Augmented Reality Games to promote climate change and sustainable development issues. There is a list of contents for the Learning Modules.

This manual has two versions:

1) Youth workers' version with a ''trainer guide'' area at the end of each chapter will be tested during the pilot phase by trainers. (Youth workers, trainers, educators etc.)

2) Trainees version without the ''trainers guide'' area that will be made available in the digital learning platform –MOOC for Climate Change and tested during the pilot phase by trainees (young people. young unemployed and low skilled young workers).

The Training Package consists of three parts; the Introduction, the Learning Modules and the Assessment process. It will be available online for youth workers, youth leaders, trainers, professionals, environmental experts, and educators.

The Introduction provides the guidelines to the youth workers, youth leaders and trainers on using the developed material. In addition, it explains the value of this Training Package in the field of youth work.

The second part of the Training Package includes the four learning modules (their Lesson plans accompanied by the relevant PPTs presentations) to support the youth workers and trainers to address issues and challenges that young people face in their social environment and to promote a more inclusive- oriented approach in the field of youth work.

The participants are expected to function as a first-aider in the topics covered by the Package. The learning modules use non-formal educational methods. Each module comprises of three units, including notes, case studies, simulation activities, role plays, diagrams, and material that can easily be adapted to local contexts.

The third part of this volume provides youth workers, youth leaders and trainers with several assessment tools following the YOUTHPASS competence framework to assess themselves and others in the topics of the learning modules.

The training course is divided into three learning modules, covering the following thematics:

- **Module 1: Climate Change Impacts and effects on Water**
  - I. Sea level rise
  - II. Water Temperature

- **Module 2: Climate Change impacts on Humans**

  - I. Climate Change Immigrants
  - II. Agriculture Production

- **Module 3: Climate Change impacts on Wildlife and nature**

  - I. Desertification
  - II. Extreme weather events

Each learning module consists of a Lesson Plan, with clear instructions for the youth workers to confidently apply the training in a class and a PowerPoint presentation during each workshop. Furthermore, each module includes Worksheets with practical exercises that can be distributed as handouts in the class, which will enhance the comprehension of the training content by the participants and ensure that the class's learning objectives are met.

Aim

The ActNow – Training Package aims to equip youth workers to educate NEETs, young unemployed and young people on climate change's significant issues and topics utilising Augmented Reality tools. The ActNow Training Package and the Trainer's Manual serves five important aims:

1. Develop a broad set of knowledge, skills, attitudes and values to sensitise, recruit, mobilise and adequately support youth workers and the youth to critically reflect on climate change as a major environmental challenge that requires immediate action;
2. Build the capacity of front-line youth workers, professionals and educators to use bespoke Mobile Augmented Reality and Simulations Games;
3. Provide youth workers and youth professionals with the tools and methodology to implement, evaluate and assess key competences of young people through action research-based;
4. Make use of the existing AR and Simulation games platforms and provide youth workers with the necessary technical knowledge to create their content for fostering young people key competences through learning about Climate Change;
5. Develop knowledge and critical understanding of climate change and sustainable development It is also focused on raising awareness and increasing understanding of climate change, its impacts, and scale. It provides access to quality developed educational resources and training.

Target Groups

The Training Package and the Trainer's Manual is designed for youth workers, environmental professionals, educational experts, trainers and young people (professionals and volunteers)- either they are formally recognised or not- youth officers, volunteers who are actively involved in the field of youth and young people in general. It will also address policy decision-makers, people who work in youth clubs, university officers, multipliers, and other relevant stakeholders.

M1.U1. Climate Change and effects on water

Learning Outcomes:

On successful completion of this Module, youth workers, trainers, and youth leaders will be able to:	Knowledge	Skills	Attitudes
Sea Level Rise - origin and consequences	Discuss the importance of the origin of the sea-level rise and what are the consequences.	Demonstrate how to evaluate and analyse the origin and the consequences of the sea-level rise.	Willingness to support young people through the knowledge gained on the sea level rise issue.
Climate Change and Sea Level Rise – direct link	Develop an understanding of the concept of climate change and the direct link with the sea level rise.	Learn specific steps and individual tools to demonstrate the direct link.	Be open to supporting young people to enhance their knowledge and tools on the issue.
Climate Change and Sea Level Rise – indirect link	Develop an understanding of the concept of climate change and the indirect link with the sea level rise.	Learn specific steps and individual tools to demonstrate the indirect link.	Awareness of how to respond to and support young people in the delivery of the topic.

Lesson Plan:

Content- Description	Instruction Method	Timing	Materials/ Equipment Required	Advice/ Tips for the Youth workers, trainers, and youth leaders	Assessment/ Evaluation	Further Reading/ Link to Resources
Energizer - One Word Game (10mins) Allow the participants a few minutes to introduce themselves. If the group is bigger than 12 people, divide the participants into smaller groups. Ask the participants to think for a minute or two and then share one word that describes AR with their group. Once they have shared with their groups, you can invite them to share their word with the entire room.	The One Word ice breaker is designed to allow the speaker/lecturer/trainer to provide initial context into a meeting's topic and get everyone in the right mindset for discussion.	5 minutes	Possibility of physical, online and hybrid versions based on the chosen online platform.	Using this ice breaker, encourages everyone to think about a certain topic in smaller groups ahead of time, which could increase participation during the meeting.	N/A	N/A
Introduction to module 1: Climate Change and effects on water ● The facilitator begins this session with the PowerPoint Presentation Module 1: *Climate Change and effects on the water - Introduction.* The facilitator will	Introduce the module and explain the content and definitions of Climate Change and its effects on water. Through questions and a short discussion, elaborate on the basic ways to understand the link	30 minutes.	Projector, screen, speakers. Laptop, Internet.	Be informative; read the room.		

introduce the theme, present slides 3-4 and explain this unit's relevant information and skills. ● The facilitator then introduces slide 5 (explanatory image of global warming) and briefly explains the cycle of water evaporation. ● The facilitator introduces slide 6 **(Pre-evaluation tool)** and asks the participants to sort the terminologies on the table, from left to right, left being the lowest impact on climate change, right being the highest impact. ● The correct answer is stated within the next graph. ● The facilitator then introduces slide 7 (cycle graph) and refers to the results of the previous slide. The correct answers are all; the purpose of the previous slide was to ignite the discussion and the critical thinking. ● The facilitator goes through the terminologies one by one. For assistance, there are explanatory	between climate change and effects on water. Briefly explain the functioning of climate change and point out the consequences to the planet.		Copy of Presentation – Module 3: Introduction Flipchart/Whiteboard and markers.		Pre-assessment evaluation tool, participants need to discuss and sort the terminologies on the existing scale of slide 6. Examples of questions can be found in Annex Training Assessment Evaluation Guidelines.

notes on the "notes" section of the PowerPoint. ● The facilitator then plays the explanatory 3minute video on the slide and asks for any potential questions.						
Unit 1: Sea Level Rise ● The facilitator begins this session with the PowerPoint Presentation Module 3: Unit 1 (Slide 10). The facilitator will introduce the theme, present the slides of Climate Change and Sea Level Rise, and explain the relevant information and skills pertaining to this unit. ● The facilitator then explains that the evaluation of the learner will be covered later in this module. For now, the facilitator asks: ● What are the key considerations to bear in mind when thinking of climate change and sea level rise? (slide 11)	Explain what is the terminology of sea-level rise, the consequences and the domino effect.	60 minutes.	Pens and note-taking materials for participants in concluding assessment. Projector and screen. Laptop. Copy of Presentation – Module 3: Unit 1. Smartphone (optional) to	Try to create an interactive and engaging environment when delivering this unit.	4-Question Quiz at the end of the PowerPoint Presentation. Group discussion questions.	

			every 3 participants.			
• The facilitator can take note of the aspects and parameters that the group mentions on a flipchart.						
• The facilitator then proceeds to slide 12, an interactive VR graph that shows the sea level since 1980. Participants are then asked to scan the presented QR code with their phones and explore the interactive graph by themselves.						https://www.youtube.com/watch?v=qzR62JJCMBQ&feature=emb_logo
• The facilitator will then proceed to slide 13 and 14 and go through the problems that are a result of the sea level rise.						https://www.youtube.com/watch?v=inpok4MKVLM&feature=emb_logo
• In slide 15 the facilitator introduces the video *"What Causes Sea Level Rise"* and follows a short discussion after the end.						
• Facilitator then proceeds to slides: 16-Ice Melt 17-Thermal Expansion 18-Land Water Storage and presents the slides.						

• In slide 19 the facilitator demonstrates the 1 scenario of sea level rise through the interactive Geo AR *"Sea level rise viewer eLearning platform"*. • The facilitator explains that the eLearning platform allows participants to plan for sea level rise scenario in their community by using the local scenarios tab of NOAA's Sea Level Rise Viewer. This self-guided tutorial uses examples to help them understand how to optimise the functionality of the viewer to get the information you need, including options to compare both time and climate scenarios for your location. • On slide 20, participants are asked to scan the demonstrated QR code with their phones, solo or in groups of 3 and practice the Geo AR by themselves.						
Assessment questions			Pens and note-taking materials for participants in			

| After the completion of the M1U1, the facilitator asks the following questions:

1. What causes the level of the water to rise and sink all day long?

2. The average height of the ocean in a particular place is called the _____ _____ _____.

3. NASA measures the average sea level of the whole ocean from space. What is another name for the average sea level of the whole ocean?

4. True or False: As Earth warms, the ocean warms, too.

5. What is the name of the NASA satellites that measure global sea level?

Correct answers: 1. Waves and tides 2. Local sea level 3. Global sea level 4. True 5. Jason

The facilitator proceed to the next slide and shows two powerful images for a short debriefing discussion. | | | concluding assessment.

Projector and screen.

Laptop. | | | |

M1.U2. Water Temperature

Learning Outcomes:

On successful completion of this resource, youth workers, youth trainers and youth leaders will be able to:	Knowledge	Skills	Attitudes
Water Temperature - origin and consequences	Explain the key concepts of water temperature; comprehend the linkages between climate changes and their impact on the environment	Develop systematic and critical thinking skills and encourage participants to question prevailing opinions	Create an awareness and understanding of the effects of climate change
Climate Change and Water Temperature – direct link	Acknowledge the connection between the water cycle and global warming	Advance systematic and critical thinking skills and encourage participants to question prevailing opinions	Build awareness and understanding of the flow of water in the environment and the effects of global temperature
Climate Change and Water Temperature – indirect link	Recognise the indirect connection between the water cycle and global warming	Establish systematic and critical thinking skills and encourage participants to question prevailing opinions;	Generate awareness and understanding of the flow of water in the environment and the effects of global temperature

Lesson Plan:

Content- Description	Instruction Method	Timing	Materials/ Equipment Required	Advice/Tips for the Youth workers, youth trainers, youth leaders	Assessment/ Evaluation	Further Reading/ Link to Resources
Energizer – Countdown Students have to count from 1 to 20. There is one rule, though: there is no particular order.	Students have to count from 1 to 20. There is one rule, though: there is no particular order. Students have to yell the consecutive number whenever they want. But when two students yell a number simultaneously, you have to start counting from 1 again. Wonder how long it will take until you reach 20?	5 minutes.	N/A	You can adjust the time upon your own decision and stop the exercise.	N/A	https://topnotch teaching.com/ti me-saving-tips/classroom-games-to-re-energize/

Unit 2: Water Temperature **A brief introduction to the key concepts of climate change and the linkages between climate changes and their impact on the environment** Participants will learn about climate change; what it is, what causes it, what the impacts are on the environment and how we can help to stop it.	Organising climate change discussion; Watching the video and presenting the main terminology; reflection; assigning of additional research and carrying out relevant experiments as homework. (Video from slide 35)	5 minutes.	Computer, projector, posts and A3 sheet of paper; pens, internet access;	Facilitate the comprehension of participants. take the time to ask if everyone has fully understood the video. Share the Glossary to the participants before the training activity to have a clear overview of the relevant terminology.	An evaluation questionnaire to assess the degree of knowledge before and after this activity.	**Climate change and global ocean:** https://svs.gsfc.nasa.gov/vis/a010000/a010500/a010502/index.html **European Environment Agency:** https://www.eea.europa.eu/signals/signals-2018-content-list/articles/climate-change-and-water-2014 Climate Change: How do we know? — http://climate.nasa.gov/evidence/
Water cycle and its connection with global warming	Workshop.	15 minute	Computer, projector.	The lesson plan runs alongside a	An evaluation questionnaire	Water cycle lesson plan:

		s.		Powerpoint presentation. The information can be adapted to suit different ages of students by adding/deleting. Slides on the presentation and varying the level of detail used. The main purpose of these resources is to provide key information and visual aids for teachers to adapt to their needs.	to assess the degree of knowledge. Brainstorming activity.	https://ypte.org.uk/lesson-plans/water-cycle Global warming demonstration: https://www.jpl.nasa.gov/edu/teach/activity/global-warming-demonstration/ Thermal Expansion Model: https://www.jpl.nasa.gov/edu/teach/activity/thermal-expansion-model/
This activity, based on presentations and experiments, focuses on presenting the fact that oceans are absorbing most of the heat trapped in our warming world. Additionally, students will trace the flow of water in the environment, investigate simulated effects of global temperature change on oceanic surface levels, use data from current models to evaluate the consequences of changes within the water cycle, and observe and explain several different properties of water.						
Climate Expressions – Reporting to Base Goal 13: Climate Action Overview Reporting to Base – Climate Expressions This is a little race where the students are divided into groups hunting for proper definitions of various climate expressions. Seventeen items are distributed in the nearby area. The groups go searching for the expressions.				Use the instructions presented in the link.		Teaching the UN Sustainable Development Goals: https://www.youtube.com/watch?v=qV_FMta5GYk http://globalresponsibility.eu/clim

The group takes one word at a time, returns to the base, and writes the missing word linked to the right explanation. See the link.						ate-expressions-reporting-to-base/
An Inconvenient Truth Goal 13: Climate Action Overview Watch Al Gore's very beautiful and thought-provoking film, "An Inconvenient truth" (instructed by Davis Guggenheim). Afterwards, the students will discuss the film – first in ping-pong-pair and next in plenary. After that, the students are divided in groups covering the four main areas of the film: "Ice, snow and glaciers," "Climate Change", "CO2-circuit", "Animals and plants impact of climate change" – and work towards a presentation by using the questions under "instruction".	A Method Box.	+ 1 hours Follow the link.	Telephones.	Use the instructions presented in the link.	An evaluation and a reflection questionnaire to assess the degree of knowledge before and after this activity. Follow the link.	http://globalresponsibility.eu/an-inconvenient-truth/
Seeing Water Pollution Goal 14: Life Below Water OverviewA simple exercise that shows how pollutants act in water and how non-solid pollutants can be particularly damaging to life below water and ecosystems in general.	A Method Box.	+ 4 hours Follow the link.	Computer, multi-media projector and screen.	Use the instructions presented in the link.	An evaluation and a reflection questionnaire to assess the degree of knowledge before and after this activity. Follow the link.	http://globalresponsibility.eu/seeing-water-ng-water-

						pollution/
	A Method Box.	45 minutes + homework/assignment.	Coffee filters or other filter paper A number of glass/clear plastic containers: -2 large containers (2l+) -4 to 6 small containers (150ml).		An evaluation and a reflection questionnaire to assess the degree of knowledge before and after this activity. Follow the link.	
Assessment Activity: Go With the Flow: An Ocean Currents Game.	Online.	10 minutes.	Tablet or smartphone, internet connection.		Solve succesfully 4 out of the 8 Puzzles.	https://spaceplace.nasa.gov/ocean-currents/en/

M2.U1. Climate Change Immigrants

Learning Outcomes:

On successful completion of this resource, youth workers, youth trainers and youth leaders will be able to:	Knowledge	Skills	Attitudes
Climate Change Immigrants – origin and consequences	Discern the linkages between climate changes and migration.	Identify the main drivers of migration and climate change in specific contexts.	Develop care and concern for the environment and respect for the rights of other people.
Climate Change and Immigration – Direct Link	Comprehend and distinguish the different definitions linked to climate changes and migration.	Analyse how climate change can impact migration pathways and what approaches will help to address climate-induced displacements.	Be open to supporting young people to enhance their knowledge and tools on the issue.
Climate Change and Immigration – Indirect Link	Discuss the concept of climate change and the indirect link with immigration.	Receive specific steps and tools to demonstrate the link.	Awareness on how to support young people in the delivery of this topic.

Lesson Plan:

Content- Description	Instruction Method	Timing	Materials/ Equipment Required	Advice/Tips for the Youth workers, youth trainers, youth leaders	Assessment/ Evaluation	Further Reading/ Link to Resources
Icebreaker activity – Draw your coat of arms This activity is a great way for players to introduce themselves and their colleagues. It's especially fun for people who think they already know each other very well – almost every time there are at least a few surprises! Sometimes, these new nuggets of wisdom can immediately affect the employees' relationships, current projects, or challenges. Since you have to draw, rather than explain, it serves double duty for topics like problem-solving, creative thinking and innovation. **Part 1. Drawing** Participants should work individually and spend 10 minutes to complete their personal Coat of Arms by drawing a picture or symbol in each of the 5 sections, in response to five questions. **Part 2. Interpreting** Participants should identify the person	**Brief the participants**. Explain that each Participant will draw something in each of the five sections of the Coat of Arms handout in response to relevant questions. Emphasise that no words are allowed. Reassure the participants that artistic ability is not important	25-30 minutes.	Personal Coat of Arms handout Pens, pencils, crayons.	You can adjust the time requirement by increasing or decreasing the number of sections on the Coat of Arms.	N/A	https://www.sessionlab.com/methods/coat-of-arms

whom they know least well in the group, partner with her, and exchange the drawings. **Part 3. Presenting** Each participant now has 2 or 3 minutes to introduce their partner using the information they have gained from interpreting the Coat of Arms.	because the picture is simply to convey information.					
A brief introduction to the topic Participants will be presented the connection between migration and climate change through a brief video (see link). Then they will be presented the main terms on human mobility in the context of environmental and climate change and the Environment and climate change terminology relevant to mobility.	Watching the video and presenting the main terminology.	30 minutes.	Computer, projector.	A video with subtitles has been chosen to facilitate the comprehension of participants. Therefore, take the time to ask if everyone has fully understood the video. Share the Glossary to the participants before the training activity so they can have a clear overview of the relevant terminology.	An evaluation questionnaire to assess the degree of knowledge before and after this activity.	**Video** https://www.youtube.com/watch?v=VQslOVboFfU **Terms on human mobility** https://environmentalmigration.iom.int/glossary & https://www.migrationdataportal.org/themes/environmental_migration_and_statistics#definition
3 – Land and water: how natural resources misuse affects migration This activity, based on case studies, foresees the realisation of a workshop focused on the analysis of the role that land plays, presenting the socio-economic phenomenon of land grabbing,	Workshop.	50 minutes.	Computer, projector.	Case studies can be changed or can be asked the participants to identify. It is important to provide	An evaluation questionnaire to assess the degree of knowledge. Brainstorming activity.	**Tirana Declaration** https://www.landcoalition.org/en/about-ilc/governance/assemblydeclarati

trying to understand what the causes and effects of this phenomenon are, what are the reasons behind it, and above all, what are the risks associated with areas such as Africa and a focus on transboundary basins, determining people displacement**.**				information in a simple and clear way regarding the importance of acquiring such knowledge. You can invite experts or CSO operating in these fields.		ons/2011-tirana/ **Land grabbing in Europe/family farming** https://www.eesc.europa.eu/en/our-work/opinions-information-reports/opinions/land-grabbing-europefamily-farming FAO AQUASTAT Reports, Transboundary River Basins – Jordan River Basin, Food and Agriculture Organization of the United Nations (FAO), Rome, 2009 C. J. Fröhlich, « Water : Reason for Conflict or Catalyst for Peace ? The Case of the Middle East », *L'Europe en Formation*, 2012/3 (n° 365), p. 139-161

4-EU role in addressing climate and environmental migration A brief excursus presenting legal and policy responses to environmental migration and displacement. A brief debate will be organised to evaluate the recommendations on ways to address better root causes and consequences of the climate change migration nexus in Europe and beyond.	Presentation and debate.	40 minutes.	Computer.	Being very specific, it can be useful to address a single aspect of the EU challenges.	Tbd.	
New York Times interactive climate migration map Participants are asked to visit the dedicated site and explore the interactive map on the climate migration issue.	Discussion.	5 minutes.	Tablet, or smartphone Internet connection.		Discuss the causes of climate migration. Being able to state 3 major causes.	https://www.nytimes.com/interactive/2020/07/23/magazine/climate-migration.html

M2.U2. Agricultural Production

Learning Outcomes:

On successful completion of this resource, youth workers, youth trainers and youth leaders will be able to:	Knowledge	Skills	Attitudes
Climate change and impacts on human on Agriculture production – origin and consequences.	Discuss agricultural production and processes' impacts on the environment.	Recognise GHG volume of emissions in different agricultural productions and sectors.	Establish self-awareness about the fact that our consumption volume of a certain food directly affects climate change.
Climate change and agricultural production – direct link.	Recognise climate change impact on the future of agricultural production and the direct link.	Determine new agricultural techniques and their food security implications.	Present self-awareness about the need of including smart and eco techniques, turning agriculture into a more sustainable activity.
Climate change and agricultural production – indirect link.	Discern climate change impact on the future of agricultural production and the direct link.	Relate new agricultural techniques and their food security implications.	Demonstrate awareness on how to include smart and eco techniques into a more sustainable activity.

Lesson Plan:

Content- Description	Instruction Method	Timing	Materials/ Equipment Required	Advice/Tips for the Youth workers, youth trainers, youth leaders	Assessment/ Evaluation	Further Reading/ Link to Resources
Activation activity The trainer will ask about various topics. Learners must list elements on a specific topic during a pre-established time. Some of the proposed themes are: ● Renewable natural resources. ● Non-renewable resources. ● Highly polluting waste. ● Causes of deforestation. ● Green energies. ● Ways to reuse waste. ● Alternatives to plastic. ● Greenhouse gases	To activate the learners, the trainer asks them to get up and say the answers that come to mind out loud, without waiting for permission. Trainer can give a couple of minutes per topic, and during that time let there be fuss in class.	15 -20 minutes.	N/A	It is unnecessary to write down the answers or count the successes and failures, just talk about the proposed topic. The intention is to activate the students to begin the second part of the module while raising awareness about environmental aspects.	N/A	N/A

An introduction to the relation of agriculture and climate change Participants will be presenting the climate-smart agriculture approach including its objectives and why it is needed. Then, a few questions about the video will be displayed to open a debate about how climate change will hit agricultural professionals and the climate-smart agriculture approach.	Play the video and after its visualisation, start an open debate with the proposed questions.	15 minutes.	Internet, computer, projector.	A video with subtitles has been chosen to facilitate the comprehension of participants. Therefore, take the time to ask if everyone has fully understood the video and then share the questions to open a debate among participants. Don't force learners to participate, just be sure to establish a comfortable and confident atmosphere.	N/A Debate and brainstorming activity.	Here you can find the link for the video: https://www.youtube.com/watch?v=lUdNMsVDIZ0
Agriculture & Climate Change The content of this section consists of 3 slides. The first shows the total percentage of GHG emissions produced by extensive industrial agriculture, the second slide shows different GHGs emitted by agriculture, such as N2O and CH4. Finally, the third slide shows a table and a graph of total N20 emissions, where agriculture represents 80% of the total emissions of	Present the topic using the ppt provided.	30 minutes.	Internet, computer, projector.	It is important to emphasise the importance of industrial agriculture and livestock in global warming. It should also be noted that there	An evaluation questionnaire to assess the degree of knowledge.	Presentation based on the sources: STERN, N. (2006) The economics of climate change: The Stern review. London: Great

the productive sectors. The objective is to raise awareness that agricultural sector contributes significantly to climate change because it emits a high amount of GHG that could be reduced if more sustainable and environmentally friendly techniques were applied.				are other GHGs other than CO2, and that agriculture is a sector that emits a large amount of them, such as N2O and CH4.		Britain Treasury. US EPA. Global Anthropogenic Non-CO2 GHG Emissions: 1990-2020 https://www.ipcc.ch/about/
Exercise: Classify the following products according to the amount of GHG emitted by their production. Learners are shown the graph "Greenhouse gas emissions per 1000 kilocalories" without showing the names of the products. In addition, the different products of the graph are shown in a disorderly way below. The learners must place them on the correct way, for this, they can write on a paper the order from highest to lowest or a debate can be generated, and the trainer writes them on a blackboard.	Present the graphic and list of products using the ppt provided.	30 minutes.	Internet, computer, projector, paper, pen, blackboard.	Let the learners take their time, and try to advise them but without giving them the correct answer. The important thing is that they are wrong, because there are products that we consume on a daily basis that we do not know the amount of GHG that their production emits. When about 15 minutes have passed, let the learners know so they can finish		Here you can find the link for the graphic: https://ourworldindata.org/grapher/ghg-kcal-poore?country=Beef+%28beef+herd%29~Fish+%28farmed%29~Pig+Meat~Poultry+Meat~Tofu+%28soybeans%29~Cheese~Coffee~Tomatoes~Palm+Oil~Cane+Sugar~Milk~Lamb+%26+Mutton~Olive+Oil

				and then go on unveiling the products from smallest to largest. You can create an environment of uncertainty and mystery to make it more fun. Lastly, ask the students to check how many answers they have guessed and have a short debate asking who has guessed more, if any product surprises them.		
Climate Change Maps for Agriculture Participants can practice and develop one of the following interactive AR scenarios for the years 2021 – 2080 and experiment with hot and cold weather, temperature, precipitation and agriculture. ● Frost-Free Season ● Growing Degree Days ● Corn Heat Units ● Precipitation ● Very hot days	Interactive activity.	10 minutes.	Tablet, Smartphone, Internet connections.			https://climateatlas.ca/climate-change-maps-agriculture

Climate change's impact on agriculture Participants will be presenting the change in productions patterns and the needs for improvements required to maintain a sustainable and climate-adapted agricultural production. They will learn how climate change hits and demands changes in the processes stablished in agriculture.	Present the topic using the ppt provided.	30 minutes.	Internet, computer, projector.	Sources have been included in the presentation in case the trainer wants or is asked to provided more information.	An evaluation questionnaire to assess the degree of knowledge.	Presentation based on the sources: **Food and Agriculture Organization of the United Nations** http://www.fao.org/climate-change/our-work/what-we-do/climate-change-strategy/en/ European Environment Agency https://www.eea.europa.eu/publications/cc-adaptation-agriculture
Can we create the "perfect" farm? Participants will be presenting the innovative ways countries are revolutionising farming to ensure we can feed humanity in a way that works with the environment. Then, a few questions about the video will be displayed to open a debate about how can we feed every member of a growing population a healthy diet.	Play the video and after its visualisation, start an open debate with the proposed questions.	30 minutes.	Internet, computer, projector.	A video with subtitles has been chosen to facilitate the comprehension of participants. Therefore, take the time to ask if everyone has fully understood the video and	Debate and brainstorming activity concerning the proposed questions.	Here you can find the link for the video: https://www.youtube.com/watch?v=xFgecEtdGZ0

				then share the questions to open a debate among participants. Don't force learners to participate, just be sure to establish a comfortable and confident atmosphere.		

M3. U1. Climate Change and Desertification

Learning Outcomes:

On successful completion of this resource, youth workers, youth trainers and youth leaders will be able to:	Knowledge	Skills	Attitudes
Climate change impacts on wildlife – origin and consequences	Expand the knowledge of youth workers and youth professionals about desertification and how it affects nature and wildlife.	Advance the participants' awareness.	Adopt a different lifestyle and attitude.
Climate change and desertification – direct link	Institute to the target group possible ways of prevention and fight of desertification.	Equip the participants with knowledge and tools.	Awareness of how to respond to and support young people in the delivery of the topic
Desertification and Climate change– indirect link	Comprehend the difference between weather and climate.	Distinguish between weather and climate.	Act for a sustainable life in their daily life.

Lesson Plan:

Content- Description	Instruction Method	Timing (minutes)	Materials / Equipment Required	Advice/Tips for the Youth workers, youth trainers, youth leaders	Assessment/ Evaluation	Further Reading/ Link to Resources
Icebreaker activity on desertification. Tell students to remember when the first time they encountered a desert was? (in a book, movie, cartoon, etc.) Ask them to describe their feelings.	Divide the participants into two groups: the first group, the ones whose feelings were positive and the second group, the ones that have negative feelings. Each group will state the reasons for the feelings felt, and then share their thoughts with other groups.	20 minutes.				
Presentation of the PPT 1-11.	Make sure that the students understood the causes of desertification, the consequences on people, animals,	20 minutes.	laptop, projector, smooth wall surface.	Create a welcoming learning environment. Make students feel	Yes.	http://environmentalissuesinafrica.weebly.com/desertification-humans--animals.html

	nature, etc.			comfortable.		https://www.unccd.int/actions/united-nations-decade-deserts-2010-2020-and-fight-against-desertification https://www.un.org/sustainabledevelopment/biodiversity/ https://www.bbc.co.uk/bitesize/guides/zctymnb/revision/5
Individual work.	True or False.	10 minutes.	Worksheet.			
World cafe.	Make café tables for: land loss, natural disasters, global warming.	40 minutes.	papers, pens, flipchart papers, flipchart pens, 4 cafe table with chairs.	Express your personal opinion, present examples of your area, talk about your anxiety.		

Presentation, use PPT material slide 12-13.	Stress the importance of prevention.	10 minutes.	laptop, projector, smooth wall surface.	You are already familiar with the students, encourage them to interact.		
Self-experiment – World Atlas of Desertification Participants are asked to experiment to the following scenarios through the usage of the interactive map ● Night Lights ● Transportation and Accessibility ● Population Distribution, Trends and Projections ● Migration ● The Urban Planet ● Urban Clusters ● Extent of Global Agriculture ● Impacts on Global Forests ● Human Appropriation of Land's Biological Production Environmental	In solo or teams of 2-3.	10 minutes.	Smartphone, Tablet, Internet connection.			https://wad.jrc.ec.europa.eu/GLOBALPATTERNSOFHUMANDOMINATION

Globalisation ● Virtual Water ● Anthromes.					
Discussion, closing unit desertification.	Divide students to groups of five and encourage them to build upon the gained knowledge regarding prevention of desertification and present their ideas.	15 minutes.		Use video to enforce the discussion: https://www.youtube.com/watch?v=vpTHi7O66pI https://www.youtube.com/watch?v=q7pI7IYaJLI		https://everfi.com/blog/k-12/leading-brainstorming-activities-for-students/

M3. U2 Climate Change and Extreme Weather Events

Learning Outcomes

On successful completion of this resource, youth workers, youth trainers and youth leaders will be able to:	Knowledge	Skills	Attitudes
Climate change and extreme weather events - direct link.	Interpret the correlation between climate elements and climate change.	Make decisions, change their habits.	Be open to supportyoung people to enhance their knowledge and tools on the issue.
Climate change and extreme weather events – indirect link.	Comprehend the indirect correlation between the climate elements and climate change.	Recognise climate anxiety.	Willingness to support young people through the knowledge gained on the climate change and extreme weather events issue.
Climate change fluctuation.	Be aware that acting against climate change is a common responsibility.	Explore the different climate fluctuation scenarios.	Voice their opinion, debate about climate change based on facts of extreme weather.

Lesson Plan:

Icebreaker activity on climate elements and weather – What you like about the weather/climate in your region, describe. This icebreaking activity is for the participants to get to know one another deeper and focus on the topic.	Discussion is a large group/plenar. Each participant should talk about what kind of weather they like and why they like it. The participant will have 3 minutes to think, afterwards, the facilitator should ask them to sit in a circle and one by one to start sharing their thoughts and feelings. Each participant should talk about what kind of weather they like and why they like it. The participant will have 3 minutes to think, afterwards, the facilitator should ask them to sit in a circle and one by one to start sharing their	10 minutes.			N/A	

	thoughts and feelings.				
Presentation, use PPT material slide 15-24	Discuss weather elements, define climate. Understand the difference between weather and extreme weather, between climate and climate change.	20 minutes.	laptop, projector, smooth wall surface.	Be interactive, discuss as much as possible.	For trainer all about topic: https://www.ipcc.ch/report/managing-the-risks-of-extreme-events-and-disasters-to-advance-climate-change-adaptation/ https://public.wmo.int/en/resources/bulletin/unnatural-disasters-communicating-linkages-between-extreme-events-and-climate
World Café.	Make 4 café tables for the 4 extreme weather event topics.	40 minutes.	Papers, pens, flipchart pens, flipchart papers, 4 cafe table with chairs.	Talk about the climate in your region, your experiences with each extreme weather. Discuss if you feel	For trainer: http://www.theworldcafe.com/wp-content/uploads/2015/07/Cafe-To-Go-Revised.pdf

				changes. Find examples in your region and in the word. You may search the Internet and collect your findings on flipchart. Discuss the dangers of each extreme weather scenario.		
Individual work.	Decide if true or false, work on a worksheet. As finished, discuss.	10 minutes.	Worksheet - True/false questions about climate change, extreme weather events: https://docs.google.com/document/d/1qj7xDnZAT1MeJpz_vzMbVhyLdfcmLAbSrry5xQG-sql/edit		Yes.	

Presentation, use PPT material slide 27.	Discuss climate anxiety.	15 minutes.	laptop, projector, smooth wall surface.	Be interactive, discuss as much as possible.	Yes.	For trainer all about topic: https://humusz.hu/blog/eletmod/tehetsz-e-klimaszorongas-klimapanik-ellen https://www.theguardian.com/environment/2021/apr/20/climate-emergency-anxiety-threapists https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7826965/
Workshop, make MindMap.	Make 4 groups on the 4 extreme weather topics and ask participants to make MindMap posters for actions and solutions.	40 minutes.	Flipchart paper, pen, chalk, scissors, newspapers, pictures, glu, etc.	Use art, draw, write, glue pictures cutted from newspapers.		Sample MindMap: https://docs.google.com/document/d/1bLyY41TTiHWRpQM8Cw_2SrpPizjGxJ7sHHnB3Fy6c3w/edit

|					
IPCC WGI Interactive Atlas: Regional information. Participants experiment with the given scenarios and create their own sample map with the variables of: ● Atmosphere ● Ocean ● Other ● Temperature ● Season	Participants self exercise evaluation.	10 minutes.	Tablet, smartphone, internet connection.		shorturl.at/cgnF1
Closing, take away.	Work individually, participants write their Climate Changemaker message for themselves, in the end share it with others.	15 minutes.	Pen and worksheet - My commitments: https://docs.google.com/document/d/1GUNoanNC1uiIPF-udy_k_Agp4QaTzpyS2_hMYkKfKzc/edit	Focus on positive outcomes and commitments.	Yes.

ANNEXES:

Annex 1

MindMap activity, work in groups

Create a MINDMAP about solutions for climate change. You can choose sub topics according to the needs of the group. Share your thoughts and outcomes. Work in groups, as finished share with the others.
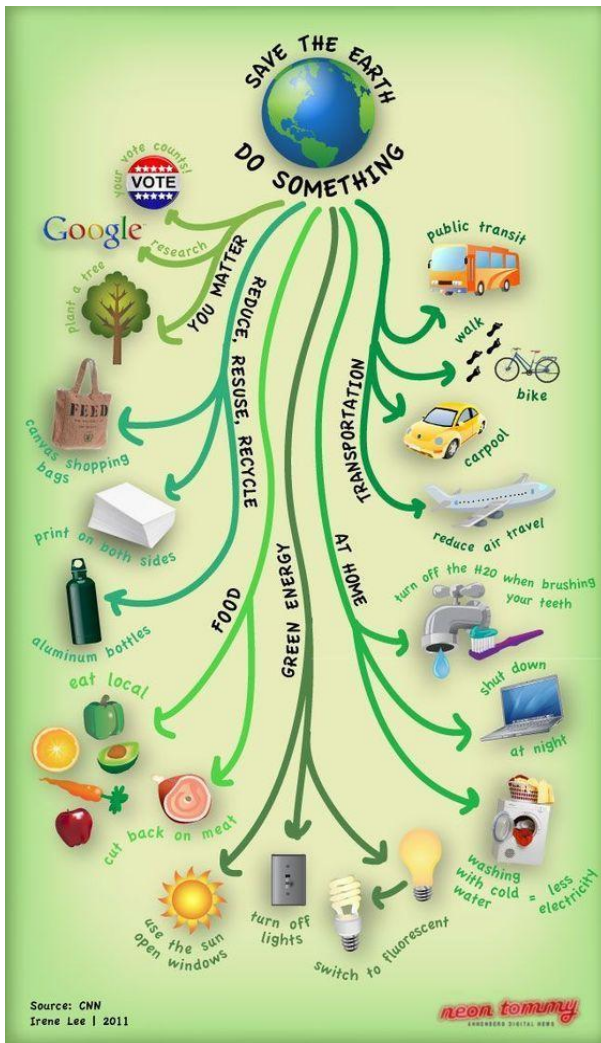
Annex 2

WORKSHEET

Questions: examples

Landloss act monthly, yearly, ideas	
Global warming your feelings about the future, consequences etc	
Natural disaster and desertification, you feel that you can handle?	

Annex 3

True/false questions about desertification

No.	Question	True	False
1.	The overexploitation of soil is a result of human activity.		
2.	Deforestation is a climatic variation		
3.	Desertification occurs on all continents except Antarctica		
4.	Approximately 1/3 of the people worldwide who live below the poverty line live in affected areas.		
5.	Africa is the continent most affected by desertification		
6.	Habitat loss and deterioration, largely caused by human actions, have reduced global terrestrial habitat integrity by 25 per cent relative to an unimpacted baseline		
7.	Dust emanating from the East Asian region and the Sahara has affected coral reefs in the Caribbean.		
8.	Events such as flash floods, landslides and dust storms, become		

Annex 4

WORKSHEET

My commitments:

I ACT today	
I ACT this week	
I ACT this month	
I ACT this year	

Annex 5:

True/false questions about climate change, extreme weather events

No.	Question	True	False
1.	People are responsible for climate change.		
2.	Climate change is OK, no need to worry or change our behavior.		
3.	Every single person is responsible for stopping climate change.		
4.	Bushfires are responsible for climate change.		
5.	Every day we dress according to the daily weather.		
6.	We have clothes according to the climate in which we live.		
7.	The challenge of climate change must be tackled by politicians.		
8.	Climate is about the future of Planet Earth.		
9.	In the event that Europe has a very cold winter compared to the previous one, it means that we have solved global warming, there is no climate change.		
10.	Everyone needs to understand that		