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PULCHRA

Participatory Urban Learning Community Hubs through
Research and Activation

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D8.1 Distance (open) learning course for the City Challenge Platform

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Executive summary

This report, i.e. the PULCHRA Deliverable 8.1, describes the Distance (open) learning course for the City Challenges Platform. The course may be followed distantly; it will be open to the users of the Platform. This deliverable relates to the PULCHRA Work Package 8 (WP8) “Distance (open) learning course on the City Challenges Platform and the educational resources”

Version History

Version	Date
0.1	30/07/2020
1.0	31/08/2020



1.Introduction

In Task 8.1 “Development of distance (open) learning course on the City Challenges Platform” a learning course is developed in support of the training of the members of the Open Schooling Network, the Science Teams, and the Science Reporters. The course particular focus on the use and exploitation of the City Challenges Platform through which teachers and students will have the possibility to be informed, learn and act according to their needs on the objectives and policies of the EU.

Our aim on the project is as follows:

- To provide with the state of the art scientific knowledge on the theme “Cities as urban ecosystems” and to shape opinion-making in terms of City Challenges (CC).
- To provide educational resources first to teachers and then to the students. Training of the members of the Open Schooling Network, the Science Teams, and the Science Reporters with on-site meetings at the schools and coordination of the actions that each school will undertake regarding the CCs.
- Prepare especially the young people for a future that will require good scientific knowledge, a solid understanding of the opportunities and challenges arising from modern technology and the willingness to actively participate in shaping the future
- Build an urban learning community for the participants to explore the concept of open schooling
- Involve the local communities to foster science education for all citizens
- Arising attention and public awareness of the importance of the urban ecosystem management among with the schooling community, scientists, policymakers, and general public
- Developing knowledgeable, innovative, and participatory communities able to cope with and actively contribute to addressing current and anticipated problems and challenges at the city scale.
- The participants though the actions will be able to act by themselves with relevant actions about the EU's target and the Sustainable Development Goals
- The use of the City Challenges Platform will boost the interest of young students for the project, especially taken their tendency to innovate.

2. Distance (open) learning course on the City Challenges Platform Features

2.1 City Challenges Platform Usage

The distance (open) learning course on the City Challenges Platform is a learning course developed to support and to train the members of the Open Schooling Network. The course in particular focuses on the use and exploitation of the City Challenges Platform and provides supporting educational material for the six (6) City



Challenges Themes described in Deliverable 5.1. The course will be followed distantly and it will be open to the users of the City Challenges Platform.

The supporting educational material is categorized per City Challenge Theme and focuses on the exploitation of the Sustainable Development Goals (SDGs) related to each Theme (see D5.1 for more information). The potential participants of the course i.e. schools, stakeholders, parents etc., will have access to it through the City Challenges Platform and the PULCHRA website (<https://pulchra-schools.eu/lessons/>). The course includes information in PDFs, Videos, and Presentations for each SDG so the participants of the City Challenges can be fully informed on them. A brief description of the City Challenges Themes and the related SDGs follows in section 2.2

2.2 City Challenges Description

Based on the main current environmental issues of the days and the needs of the society, we created six (6) City Challenges (Deliverable 5.1) related to the EU's targets and the Sustainable Development Goals (SDGs) (e.g. reducing air and noise pollution), to protect urban climate (e.g. with nature based solutions or the use of new materials in buildings), to showcase the merit of energy efficiency, to propagate waste recycling and resource efficiency, to redefine building and landscape architecture, to improve the efficiency of mass transportation (e.g. with smart management tools for a real time transit data and navigation), to promote smart energy management (e.g. smart grid, micro-grids, renewable energy, etc.), to introduce new technologies to improve the resilience of cities to extreme events, and to demonstrate the cumulative effect of individual action and stewardship.

3. User Guide for “Distance (open) learning course for the City Challenge Platform”

The course consists of six (6) parts each one related with one City Challenge Theme so the structure is easy for anyone to follow:

Part 1: City Challenge 1

Part 2. City Challenge 2

Part 3. City Challenge 3

Part 4. City Challenge 4

Part 5. City Challenge 5

Part 6. City Challenge 6

Since it is addressed to a wide range of potential participants (students, parents, stakeholders etc.) it was decided to not recommend a specific time schedule for the



completion of the course. Instead each participant can study and work with the material in his/her own pace.

The complete educational material can be found in the following link:

[Deliverable 8.1. Distance \(open\) learning course on the City Challenges Platform Features](#)

At the time of the completion of this deliverable, the City Challenge Platform is under construction so the exact link of the course in the City Challenges Platform is not available.

A more detailed description of the material created for this course follows.

3.1 City Challenge 1 – Powering cities without harming the climate

One of the main targets of the European Green Deal is the renewable energies to account for 32% of energy production by the year 2030. As a matter in fact, clean energy production is only one side of the coin as there seems to be some underestimation of the importance of energy efficiency and energy saving. Needless to say, it will be much easier to meet the clean energy goals as far as the reduction of the emissions greenhouses gases is concerned, when the overall energy demand is much lower. Saying this, there is a strong need to push for Climate Neutral Cities. This CC is related to the following SDGs:

SDG7: Affordable and clean energy

SDG9: Industry, Innovation, and Infrastructure

SDG12: Responsible consumption and production

SDG13: Climate actions

The material created for this CC can be found in the following link:

[Part 1. City Challenge 1](#)

It consists of an introductory text about the specific City Challenge and four (4) folders containing the educational material for the four (4) related SDGs.

🏠 > . > . > DELIVERABLE 8.1 > Part 1. City Challenge 1

♥	Name	▲	Size	Type	Date added
•	📁 SDG 7 AFFORDABLE AND CLEAN ENERGY		90.5 MB	Folder	8/21/2020, 14:37
•	📁 SDG 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE		244.6 MB	Folder	8/21/2020, 14:37
•	📁 SDG 12 RESPONSIBLE CONSUMPTION AND PRODUCTION		138.9 MB	Folder	8/21/2020, 14:37
•	📁 SDG 13 CLIMATE ACTION		207.7 MB	Folder	8/21/2020, 14:37
•	📄 INTRODUCTION TO CHALLENGE 1.pdf		229 KB	PDF Document	8/21/2020, 14:37



Each of the four (4) folders contains:

- a) A detailed presentation about the specific SDG,
- b) A folder containing supportive material in .pdf format and
- c) A folder containing supportive videos

Name	Size	Type	Date added
PDFs	8.2 MB	Folder	8/21/2020, 14:37
VIDEOS	81.8 MB	Folder	8/21/2020, 14:37
SDG 7 INFOGRAPHIC.jpg	57 KB	JPEG Image	8/21/2020, 14:37
SDG 7 PRESENTATION.pdf	509 KB	PDF Document	8/21/2020, 14:37

Participants will be guided to first study the detailed presentation and then to deepen their knowledge with the supportive material.

3.2 City Challenge 2: Reforming the built environment for the future city

We spend a significant part of our lives in buildings, so they impact the life-attitude we have. Limited urban space makes us think about the buildings not only as providers of their usual services but also from the perspective of greening the city, thanks to e.g. green walls and roofs, and even as “carbon sinks” storing carbon dioxide.

Buildings and their vicinity are important for yet another reason. Different construction materials as used in cities, practically all of the infrastructure and buildings and everything we need to make our cities function, burden the thermal environment and generate the urban heat island. In such a case, the annual mean air temperature of a city with 1 million people or more can be 1-3°C warmer than its surroundings. Few degrees don't sound like a lot but in the evenings the difference can be as high as 8-12°C, especially in the southern European region. Heat islands can affect cities by increasing energy demand for cooling and costs for air conditioning, air pollution, and greenhouse gas emissions, water pollution and can also cause heat-related illness and mortality. This CC is related to the following SDGs which are developing:

SDG9: Industry, Innovation, and Infrastructure

SDG11: Sustainable cities and communities

SDG12: Responsible consumption and production

SDG13: Climate actions

SDGS15: Life on land



The material created for this CC can be found in the following link:

[Part 2. City Challenge 2](#)

Consistent with the first part it consists of an introductory text about the specific City Challenge and five (5) folders containing the educational material for the five (5) related SDGs.

📁 > Papers data > DELIVERABLE 8.1 > Part 2. City Challenge 2

♥	Name	▲	Size	Type	Date added
•	📁 SDG 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE		244.0 MB	Folder	8/21/2020, 14:37
•	📁 SDG 11 SUSTAINABLE CITIES AND COMMUNITIES		99.4 MB	Folder	8/21/2020, 14:37
•	📁 SDG 12 RESPONSIBLE CONSUMPTION AND PRODUCTION		138.9 MB	Folder	8/21/2020, 14:37
•	📁 SDG 13 CLIMATE ACTION		208.3 MB	Folder	8/21/2020, 14:37
•	📁 SDG 15 LIFE ON LAND		273.4 MB	Folder	8/21/2020, 14:37
•	📄 INTRODUCTION TO CHALLENGE 2.pdf		243 KB	PDF Document	8/21/2020, 14:37

Each SDG folder contains a detailed presentation of the specific SDG and supportive material in .pdf and video format.

3.3 City Challenge 3: Regenerating urban space to connect people in a healthy environment

Infrastructure is not only about the construction sites and the materials that are used in the process, but also about the shift in the way we imagine how infrastructure looks like. Wider applications of Nature-Based Solutions are necessary, especially for urban dense neighborhoods or the already overloaded sewage systems, not to mention urban heat or heat waves. Nature-Based Solutions are a key aspect for protecting the city's biodiversity as well as balancing its microclimate. They must also be seen as an integral part of caring for public health. Green and blue infrastructure offers solutions to a wide range of environmental, climate and social problems – from limiting the urban heat island effect to ameliorating the impacts of extreme weather conditions, also associated to climate change.

Regenerating urban spaces to green areas contributes to a balanced thermal environment with less air pollution; a healthy environment is thus developed for all city residents, especially the most vulnerable ones. At the same time, green areas support social exchange and to this end they can ameliorate social divides.

This CC is related to the following SDGs which are developing:

SDG 1: No poverty

SDG2: Zero Hunger

SDG3: Good health and well- being

SDG6: Clean water and sanitation



SDG7: Affordable and clean energy

SDG9: Industry, Innovation, and Infrastructure

SDG10: Reduce Inequality

SDG15: Life on Land

The material created for this CC can be found in the following link:

[Part3. City Challenge 3](#)

Consistent with the first two parts it consists of an introductory text about the specific City Challenge and eight (8) folders containing the educational material for the eight (8) related SDGs.

DELIVERABLE 8.1 > Part 3. City Challenge 3

Name	Size	Type	Date added
SDG 1 NO POVERTY	136.6 MB	Folder	8/21/2020, 14:37
SDG 2 ZERO HUNGER	201.9 MB	Folder	8/21/2020, 14:37
SDG 3 GOOD HEALTH AND WELL-BEING	78.0 MB	Folder	8/21/2020, 14:37
SDG 6 CLEAN WATER AND SANITATION	58.1 MB	Folder	8/21/2020, 14:37
SDG 7 AFFORDABLE AND CLEAN ENERGY	90.5 MB	Folder	8/21/2020, 14:37
SDG 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE	244.0 MB	Folder	8/21/2020, 14:37
SDG 10 REDUCED INEQUALITIES	95.0 MB	Folder	8/21/2020, 14:37
SDG 15 LIFE ON LAND	273.4 MB	Folder	8/21/2020, 14:37
INTRODUCTION TO CHALLENGE 3.pdf	233 KB	PDF Document	8/21/2020, 14:37

Each SDG folder contains a detailed presentation of the specific SDG and supportive material in .pdf and video format.

3.4 City Challenge 4: From waste disposal to resource efficiency – circular economy at the city scale

Many natural resources are fundamental to our health, well-being and quality of life, so it is essential that we respect the natural limits of the planet. Growing global demand is adding pressure on the environment, whereas the quest for more resources is increasing. Resource efficiency means using the Earth's limited resources in a sustainable manner while minimizing impacts on the environment. It also supports the shift towards sustainable growth via a resource-efficient, low-carbon economy and promotes a fundamental transition towards the reuse of resources as well as the minimization of waste, thus away from a linear economy where resources are simply extracted, used and disposed.

A circular economy is an economic system aimed at eliminating waste and the continual use of resources. Circular systems employ reuse, sharing, repair, refurbishment, remanufacturing and recycling to create a close-loop system, thus minimizing the excessive and unnecessary use of resources and the production of waste, pollution and carbon emissions. This regenerative approach is in contrast to the



traditional linear economy, which pursues a "take, make, dispose" model of production.

This CC is related to the following SDGs which are developing:

SDG 8:Decent work and economy growth

SDG9: Industry, Innovation, and Infrastructure

SDG12: Responsible consumption and production

SDG 17: Partnership for the goals

The material created for this CC can be found in the following link:

[Part4. City Challenge 4](#)

Consistent with the first three parts it consists of an introductory text about the specific City Challenge and four (4) folders containing the educational material for the four (4) related SDGs.

Name	Size	Type	Date added
SDG 8 DECENT WORK AND ECONOMIC GROWTH	353.2 MB	Folder	8/21/2020, 14:37
SDG 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE	244.0 MB	Folder	8/21/2020, 14:37
SDG 12 RESPONSIBLE CONSUMPTION AND PRODUCTION	138.9 MB	Folder	8/21/2020, 14:37
SDG 17 PARTNERSHIPS TO ACHIEVE THE GOAL	116.0 MB	Folder	8/21/2020, 14:37
INTRODUCTION TO CHALLENGE 4.pdf	225 KB	PDF Document	8/21/2020, 14:37

Each SDG folder contains a detailed presentation of the specific SDG and supportive material in .pdf and video format.

3.5 City Challenge 5: Moving around the city – green transport and mobility patterns for community development

Despite the fact that more and more activities, especially related to work, can be done at home, it is hard to imagine a significant decrease in demand for transport around the city. The growing number of urban inhabitants will make us rethink our transportation habits. New, environmentally friendly, modes of transport are needed, taking advantage of new technologies and better fuels. In addition, the redesign of the urban space may allow the necessary facilities such as shops, schools and greenery within walking/cycling range so as to reduce motorized transport. The latter produces noise and air pollution, increases energy consumption and contributes to the emission of air pollutants and greenhouse gases. It is important to note that revitalizing neighborhoods has positive environmental and social effects.

This CC is related to the following SDGs which are developing:

SDG 8:Decent work and economy growth



SDG9: Industry, Innovation, and Infrastructure

SDG10: Reduce Inequality

SDG13: Climate actions

The material created for this CC can be found in the following link:

[Part5. City Challenge 5](#)

Consistent with the first four parts it consists of an introductory text about the specific City Challenge and four (4) folders containing the educational material for the four (4) related SDGs.

☁ > 📁 > DELIVERABLE 8.1 > Part 5. City Challenge 5

♥	Name	▲	Size	Type	Date added
•	📁 SDG 8 DECENT WORK AND ECONOMIC GROWTH		353.2 MB	Folder	8/21/2020, 14:37
•	📁 SDG 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE		244.0 MB	Folder	8/21/2020, 14:37
•	📁 SDG 10 REDUCED INEQUALITIES		95.0 MB	Folder	8/21/2020, 14:37
•	📁 SDG 13 CLIMATE ACTION		207.7 MB	Folder	8/21/2020, 14:37
•	📄 INTRODUCTION TO CHALLENGE 5.pdf		220 KB	PDF Document	8/21/2020, 14:37

Each SDG folder contains a detailed presentation of the specific SDG and supportive material in .pdf and video format.

3.6 City Challenge 6: Innovation for social and environmental benefit

While innovations cannot by themselves solve each and every challenge people face in cities, they can be a useful tool in a varied array of topics - from fighting the climate crisis up to broadening possibilities for civic participation in urban life. While most innovations are technological, they also may be also social or governance ones.

A smart city uses innovative data collection and assimilation systems (earth observation, ground sensors, geographic information systems) as well as information and communication technologies (ICT) for better resource use, less emissions of greenhouse gases and improved air quality, smarter urban transport networks, upgraded water supply and waste disposal facilities and more efficient ways to light and heat buildings. It also means a more interactive and responsive city administration, safer public spaces and meeting the needs of an ageing population. To get the most out of the virtues of innovation we must not only be open to experimentation, but also to democratic control over open, public data.

This CC is related to the following SDGs which are developing:

SDG9: Industry, Innovation, and Infrastructure

SDG12: Responsible consumption and production

SDG13: Climate actions



SDG16: Peace, justice and strong institutions

SDG 17: Partnership for the goals

The material created for this CC can be found in the following link:

[Part 6. City Challenge 6](#)

Consistent with the first four parts it consists of an introductory text about the specific City Challenge and five (5) folders containing the educational material for the five (5) related SDGs.

Name	Size	Type	Date added
SDG 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE	244.0 MB	Folder	8/21/2020, 14:37
SDG 12 RESPONSIBLE CONSUMPTION AND PRODUCTION	138.9 MB	Folder	8/21/2020, 14:37
SDG 13 CLIMATE ACTION	207.7 MB	Folder	8/21/2020, 14:37
SDG 16 PEACE JUSTICE AND STRONG INSTITUTIONS	65.0 MB	Folder	8/21/2020, 14:37
SDG 17 PARTNERSHIPS TO ACHIEVE THE GOAL	116.0 MB	Folder	8/21/2020, 14:37
INTRODUCTION TO CHALLENGE 6.pdf	230 KB	PDF Document	8/21/2020, 14:37

Each SDG folder contains a detailed presentation of the specific SDG and supportive material in .pdf and video format.

4. Further development

During the course of the project and specifically the implementation of the City Challenges between 2020 and 2022 this course may be extended by the PULCHRA teams from the partner countries following the comments of the participants, the assessment report of the City Challenges (Task 10.2 of the project's Work Plan) and the evaluation procedures related with Work Package 13.