PULCHRA

Participatory Urban Learning Community Hubs through Research and Activation

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D8.2 Distance (open) learning course for urban ecosystem

WP8	Distance (open) learning course on the City Challenges Platform and the educational resources
Due Date	31/08/2020
Submission Date	31/08/2020
Responsible Partner	OUC
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Dissemination Level	Public

Table of Contents

Executive summary

This report, i.e. the PULCHRA Deliverable 8.2, describes the Distance (open) learning course for urban ecosystems. The course will support the deepening of knowledge of the stakeholders and other end-users who follow the project, in terms of cities as urban ecosystems. 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 Draft	30/07/2020
1.0 Final	31/08/2020

1.Introduction

This distance open learning course will allow the widening of knowledge of the stakeholders and other end-users that participate or follow the project. Aim of the course is to provide the educational resources needed to approach the cities as urban ecosystems. Our aim on the project is as follows:

- Supporting open events on science, science education and open science debates on cities as urban ecosystems with the participation of the school community, formal and non-formal education providers, enterprises, parents and the general public

- Developing a "family positive mentality" towards science, through the participation of parents to campaigns/experiments (for instance at family

homes), open science events and pilot projects with the capacity for greater school – family synergies

- Provided with a state of the art scientific knowledge on the theme "Cities as urban ecosystems" and to shape opinion-making in terms of City Challenges

- Increasing the skills of individuals, groups, and communities to make better decisions for themselves, to understand and use opportunities for societal participation relevant to environmental decision-making.

2. User guide for "Distance (open) learning course for urban ecosystems"

2.1 City Challenges Platform Usage

Deliverable 8.2 "Distance (open) learning course for urban ecosystem", is a learning course developed to support and to educate all the citizens. The course in particular focuses on the important issues related to the EU's strategies and policies. The course will be followed distantly and it will be open to the users of the City Challenges Platform.

The educational material develop is categorized in 24 courses which are divided in two semesters. The participants can study the educational material at their own pace so the term semester should not be regarded as a strict time limit. For all of the 24 courses the participants will have access to PDFs, Videos, and Presentations so as to to be fully informed on them so that it is more understandable for each educational level and each age.

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

[Deliverable 8.2 Distance (open) learning course for urban ecosystems](#)

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 brief description about the structure of the Distance (open) learning course for urban ecosystem follows in the next sections.

2.2 Semesters Description

Deliverable 8.2 is structured in two semesters. Semester 1 consists of twelve (12) courses and focuses on eleven (11) of the seventeen (17) of the United Nations' Sustainable Development Goals (SDGs) which are related with the six (6) City Challenges Themes developed in Deliverable 5.1. Semester 2 consists also of twelve (12) courses and focuses on the current environmental issues to the EU strategy and

policies, most of them related with the mail elements of the six (6) City Challenges Themes developed in Deliverable 5.1.

♥	Name ▲	Size	Type	Date added
•	📁 SEMESTER 1	1.55 GB	Folder	8/21/2020, 14:37
•	📁 SEMESTER 2	1.69 GB	Folder	8/21/2020, 14:37

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All courses have a consistent structure and consist of:

a) A course overview in .pdf format which includes the objectives and the outcomes of the course, references and a self-assessment questionnaire so the participants can evaluate their progress,

b) A detailed presentation for the specific course,

c) A folder containing supportive material in .pdf format and

d) A folder containing supportive videos.

☁ › P. . .'. › DELIVERABLE 8.2 › SEMESTER 1 › COURSE 2 - SDG 3 GOOD HEALTH AND WELL-BEING

♥	Name ▲	Size	Type	Date added
•	📁 PDFs	31.7 MB	Folder	8/21/2020, 14:37
•	📁 VIDEOS	45.6 MB	Folder	8/21/2020, 14:37
•	🖼 INFOGRAPHIC SDG3.jpg	64 KB	JPEG Image	8/21/2020, 14:38
•	📄 SDG 3 PRESENTATION.pdf	599 KB	PDF Document	8/21/2020, 14:38
•	📄 SDG 3_Course Overview.pdf	206 KB	PDF Document	8/21/2020, 14:38

A more detailed description of the topics of the two semesters follows.

2.2.1 Semester 1 - Topics

The 17 Sustainable Development Goals are an urgent call for action by all countries – developed and developing in a global partnership. Eleven (11) of them are directly related with the City Challenges Themes that the PULCHRA's school network will deal with and each one them will be presented in this semester.

The educational material for Semester 1 can be found in the following link:

Semester 1

Course 1: The 17 sustainable development goals (SDGs) to transform our world

Promote and cultivate the 17 UN SDGs to enhance the knowledge of the public about the impacts they can have on the social, environmental, and economic sectors on a macro and micro scale.

Course 2: SDG 3 - Good Health and Well Being

Good health is essential to sustainable development and the 2030 Agenda reflects the complexity and interconnectedness of the two. It takes into account widening economic and social inequalities, rapid urbanization, threats to the climate and the environment, the continuing burden of HIV and other infectious diseases, and emerging challenges such as non-communicable diseases. Universal health coverage will be integral to achieving SDG 3, ending poverty, and reducing inequalities.

Course 3: SDG 4 – Quality Education

Education enables upward socioeconomic mobility and is a key to escaping poverty. Education is also essential to achieving many other Sustainable Development Goals (SDGs). When people can get the quality education they can break from the cycle of poverty. Education helps to reduce inequalities and to reach gender equality. In fact, one extra year of education is associated with a reduction of the Gini coefficient by 1.4 percentage points. Education empowers people everywhere to live more healthy and sustainable lives. Education is also crucial to fostering tolerance between people and contributes to more peaceful societies.

Course 4: SDG 6 – Clean Water and Sanitation

Water scarcity affects more than 40 percent of people, an alarming figure that is projected to rise as temperatures do. More and more countries are experiencing water stress, and increasing drought and desertification is already worsening these trends.

By 2050, it is projected that at least one in four people will suffer recurring water shortages.

Safe and affordable drinking water for all by 2030 requires we invest in adequate infrastructure, provide sanitation facilities, and encourage hygiene. Protecting and restoring water-related ecosystems is essential.

Ensuring universal safe and affordable drinking water involves reaching over 800 million people who lack basic services and improving accessibility and safety of services for over two billion.

Course 5: SDG 7– Affordable and Clean Energy

At the current time, there are approximately 3 billion people who lack access to clean cooking solutions and are exposed to dangerous levels of air pollution. Additionally, slightly less than 1 billion people are functioning without electricity. the challenge is far from being solved and there needs to be more access to clean fuel and technology and more progress needs to be made regarding integrating renewable energy into end-use applications in buildings, transport and industry

Course 6: SDG 9- Industry, Innovation, and Infrastructure

Investment in infrastructure and innovation are crucial drivers of economic growth and development. With over half the world population now living in cities, mass transport and renewable energy are becoming ever more important, as are the growth of new industries and information and communication technologies.

Technological progress is also key to finding lasting solutions to both economic and environmental challenges, such as providing new jobs and promoting energy efficiency. More than 4 billion people still do not have access to the Internet, and 90 percent are from the developing world. Bridging this digital divide is crucial to ensure equal access to information and knowledge, as well as foster innovation and entrepreneurship.

Course 7: SDG 11: Sustainable Cities and Community

Cities are hubs for ideas, commerce, culture, science, productivity, social development and much more. At their best, cities have enabled people to advance socially and economically. With the number of people living within cities projected to rise to 5 billion people by 2030, it's important that efficient urban planning and management practices are in place to deal with the challenges brought by urbanization. Common urban challenges include congestion, lack of funds to provide basic services, a shortage of adequate housing, declining infrastructure and rising air pollution within cities. There needs to be a future in which cities provide opportunities for all, with access to basic services, energy, housing, transportation and more.

Course 8: SDG 12- Responsible Consumption and Production

Sustainable consumption and production is about promoting resource and energy efficiency, sustainable infrastructure, and providing access to basic services, green and decent jobs and a better quality of life for all. Its implementation helps to achieve overall development plans, reduce future economic, environmental and social costs, strengthen economic competitiveness and reduce poverty. Countries are also continuing to address challenges regarding air, water and soil pollution. here also needs to be significant focus on operating on supply chain, involvingeveryone from producer to final consumer. This includes educating consumers on sustainable consumption and lifestyles, providing them with adequate information through standards and labels and engaging in sustainable public procurement, among others.

Course 9: SDG 13 – Climate Action

Climate change is now affecting every country on every continent. It is disrupting national economies and affecting lives, costing people, communities and countries dearly today and even more tomorrow. Weather patterns are changing, sea levels are rising, weather events are becoming more extreme and greenhouse gas emissions are now at their highest levels in history. Without action, the world's average surface temperature is likely to surpass 3 degrees centigrade this century. The poorest and most vulnerable people are being affected the most. Climate change, however, is a global challenge that does not respect national borders.

Course 10: SDG 14 – Life Below Water

Careful management of this essential global resource is a key feature of a sustainable future. However, at the current time, there is a continuous deterioration of coastal waters owing to pollution and ocean acidification is having an adversarial effect on the functioning of ecosystems and biodiversity. This is also negatively impacting small scale fisheries.

Marine protected areas need to be effectively managed and well-resourced and regulations need to be put in place to reduce overfishing, marine pollution and ocean acidification.

Course 11: SDG 15 – Life on Land

Forests cover 30.7 per cent of the Earth's surface and, in addition to providing food security and shelter, they are key to combating climate change, protecting biodiversity. At the current time, thirteen million hectares of forests are being lost every year while the persistent degradation of drylands has led to the desertification of 3.6 billion hectares. Even though up to 15% of land is currently under protection, biodiversity is still at risk. Deforestation and desertification – caused by human activities and climate change – pose major challenges to sustainable development and

have affected the lives and livelihoods of millions of people in the fight against poverty.

Course 12: SDG 17 – Partnerships to achieve the goal

A successful sustainable development agenda requires partnerships between governments, the private sector, and civil society. These inclusive partnerships built upon principles and values, a shared vision, and shared goals that place people and the planet at the center, are needed at the global, regional, national and local levels.

Urgent action is needed to mobilize, redirect and unlock the transformative power of trillions of dollars of private resources to deliver on sustainable development objectives

2.2.2 Semester 2 – Topics

The second semester focuses on the current environmental issues to the EU strategy and policies. Below the courses of this semester are mentioned.

The educational material for Semester 1 can be found in the following link:

[Semester 2](#)

Name	Size	Type	Date added
COURSE 13 - THE ISSUE OF PLASTIC POLLUTION	83.7 MB	Folder	8/21/2020, 14:37
COURSE 14 - GREEN DEAL	145.0 MB	Folder	8/21/2020, 14:37
COURSE 15 - CORPORATE SOCIAL RESPONSIBILITY	167.2 MB	Folder	8/21/2020, 14:37
COURSE 16 - BIG DATA MINING AND ANALYTICS	52.5 MB	Folder	8/21/2020, 14:37
COURSE 17 - EU URBAN AGENDA	132.2 MB	Folder	8/21/2020, 14:37
COURSE 18 - SUSTAINABLE MOBILITY	131.2 MB	Folder	8/21/2020, 14:37
COURSE 19 - ZERO CARBON TECHNOLOGIES LOW CARBON ECONOMY	103.8 MB	Folder	8/21/2020, 14:37
COURSE 20 - GEOINFORMATICS	115.8 MB	Folder	8/21/2020, 14:37
COURSE 21 - CIRCULAR ECONOMY WASTE MANAGEMENT	88.1 MB	Folder	8/21/2020, 14:37
COURSE 22 - SMART CITIES	134.2 MB	Folder	8/21/2020, 14:37
COURSE 23 - ENVIRONMENTAL CERTIFICATIONS EMAS & ISO14001	76.7 MB	Folder	8/21/2020, 14:37
COURSE 24 - NATURE BASED SOLUTIONS	505.1 MB	Folder	8/21/2020, 14:37

Course 13: The issue of plastic pollution

Plastic waste is an increasing problem around the world. Given the durability and stability of plastics in the environment, these particles may remain in the environment for a long time, which probably facilitates the widespread of plastics in the whole world. The production of plastic has grown exponentially in just a few decades - from 1.5 million of tonnes in 1950 to 322 million of tonnes in 2015 worldwide – and with it the amount of plastic waste. Each year, the production and incineration of plastic emit about 400 million tonnes of CO_2 globally, a part of which could be avoided through better recycling.

Course 14: Green Deal

The European Green Deal resets the Commission's commitment to tackling climate and environmental-related challenges that is this generation's defining task. It is a new growth strategy that aims to transform the EU into a fair and prosperous society, with a modern, resource-efficient and competitive economy where there are no net emissions of greenhouse gases in 2050 and where economic growth is decoupled from resource use. It also aims to protect, conserve and enhance the EU's natural capital, and protect the health and well-being of citizens from environment-related risks and impacts (energy, buildings, industry and mobility).

Course 15: Corporate Social Responsibility

The Corporate Social Responsibility (CSR) is a management concept whereby companies integrate social and environmental concerns in their business operation and interaction with stakeholders. Explains a commitment to society's values and contribute to society's social, environmental and economic goals through action. Protects society from the negative impacts of company operation, products and services. Demonstrates that the company can kame more money by doing the right thing regarding four responsibilities: economic, legal, ethical, and philanthropic.

Course 16: Big Data mining and Analytics

Big Data concerns large-volume, complex, growing data sets with multiple, autonomous sources. With the fast development of networking, data storage, and the data collection capacity, Big Data is now rapidly expanding in all science and engineering domains, including physical, biological and biomedical science. Such combined characteristics suggest that Big Data requires a "big mind" to consolidate data for maximum values.

Course 17: EU Urban Agenda

In order to realize the full potential of the European Union and deliver on its strategic objectives, the Urban Agenda for the EU strives to involve Urban Authorities in achieving Better Regulation, Better Funding and Better Knowledge.

The priorities of the EU 2020 strategy for smart, sustainable and inclusive growth, the initial list of Priority Themes (in no particular order) for the Urban Agenda for the EU is as follows :

10.1 Inclusion of migrants and refugees.

10.2 Air quality.

10.3 Urban poverty.

10.4 Housing.

10.5 Circular economy.

10.6 Jobs and skills in the local economy.

10.7 Climate adaptation (including green infrastructure solutions).

10.8 Energy transition.

10.9 Sustainable use of land and Nature-Based solutions.

10.10 Urban mobility.

10.11 Digital transition.

10.12 Innovative and responsible public procurement.

These Priority Themes will guide the actions of the Urban Agenda for the EU. The complexity of urban challenges requires integrating different policy aspects to avoid contradictory consequences and make interventions in Urban Areas more effective.

Course 18: Sustainable Mobility

Transport plays an important role in a country's environmental performance and the sustainability of its development. Transport plays an important role in a country's environmental performance and the sustainability of its development. It has many effects on the environment and on human health; these depend on the transport mode, its energy efficiency, the type of fuel used, and the rate of increase in related passenger and freight traffic volumes. However, environmental impacts are not solely caused by the operation and use of transport means, but also by the production and maintenance of vehicles, the construction of infrastructure, the provision of energy and fuel, and the disposal and decommissioning of vehicles. Inappropriately designed transport systems can damage the living environment of people.

Course 19: Zero carbon technologies low carbon economy

Halting global warming is a global challenge that will generate economic opportunities for the innovation leaders. Addressing climate change requires urgent policy action to drive an unprecedented global infrastructure and technological transformation. More countries are implementing core climate policies: carbon pricing and market-based instruments, regulatory intervention and targeted support to innovation in low-carbon sustainable technologies. But global greenhouse gas emissions have risen rapidly and remain too high to avoid severe and irreversible climate change impacts.

Course 20: Geoinformatics

It allows users to map multiple different sources of geographic data within a single computerised environment. It allows users to employ many different and powerful

tools to analyse the spatial distribution of their data. This spatial analysis can provide a route into discovering and unlocking previously unseen patterns in our data, shedding new light on unknown aspects of the past.

Course 21: Circular economy

The circular economy is a new way of creating value, and ultimately prosperity. It works by extending product lifespan through improved design and servicing, and relocating waste from the end of the supply chain to the beginning—in effect, using resources more efficiently by using them over and over, not only once.

By and large, today's manufacturing takes raw materials from the environment and turns them into new products, which are then disposed into the environment after use. It's a linear process with a beginning and an end. In this system, limited raw materials eventually run out. In a circular economy, however, products are designed for durability, reuse and recyclability, and materials for new products come from old products. As much as possible, everything is reused, remanufactured, recycled back into a raw material, used as a source of energy, or as a last resort, disposed of.

Course 22: Smart Cities

Smart cities are forward-looking, progressive and resource-efficient while providing at the same time a high quality of life. They promote social and technological innovations and link existing infrastructures. They incorporate new energy, traffic and transport concepts that go easy on the environment. Their focus is on new forms of governance and public participation. Intelligent decisions need to be taken at the strategic level if cities want to become smart. It takes more than individual projects but careful decisions on long-term implementations. Considering cities as entire systems can help them achieve their ultimate goal of becoming smart. Smart cities forcefully tackle the current global challenges, such as climate change and scarcity of resources.

Course 23: Environmental Certifications EMAS and ISO 14000

EMAS and ISO/EN ISO 14001 share the same objective: to provide good environmental management. Yet, they are too often seen as competitors.

	EMAS	ISO/EN ISO 14001
Preliminary environmental review	Verified initial review	No review
External communication and verification	Environmental policy, objectives, environmental management system and details of organisation's performance made public	Environmental policy made public
Audits	Frequency and methodology of audits of the environmental management system and of environmental performance	Audits of the environmental management system (frequency or methodology not specified)
Contractors and suppliers	Required influence over contractors and suppliers	Relevant procedures are communicated to contractors and suppliers
Commitments and requirements	Employee involvement, continuous improvement of environmental performance and compliance with environmental legislation	Commitment of continual improvement of the environmental management system rather than a demonstration of continual improvement of environmental performance

Course 24: Biodiversity in the urban environment nature based solution

Nature-based solutions harness the power and sophistication of nature to turn environmental, social, and economic challenges into innovation opportunities. They can address a variety of societal challenges in sustainable ways, with the potential to contribute to green growth, 'future-proofing' society, fostering citizen well-being, providing business opportunities.

The smart component is the inclusion of ecological and leisure value in risk management: with solutions of this kind, animals and plants flourish and give cities extra allure. They make life, work, and leisure pleasant and healthy. Maintaining and enhancing natural capital, therefore, is of crucial importance, as it forms the basis for implementing solutions.

3. 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.