

CHALLENGES FOR 2020/2021

Challenge 1: Powering cities without harming the climate

One of the main targets of the European Green Deal is renewable energies to account for 32% of energy production by the year 2030. As a matter of 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; yet some important questions are still to be answered e.g. What improvements are necessary to improve energy efficiency at the city scale? How do we introduce renewable energy in the city operation? How should we shape our energy mix to avoid problems related to instability of some of the renewable energy sources? Do we perceive coal or nuclear power as a recommended solutions for providing energy? Keywords: Energy production and consumption, energy efficiency, decarbonization and Climate Neutral Cities, clean energy, air pollution

Proposed discussion points:

- What are the energy sources used to supply your city?
- What is the impact of each energy source to climate as far as the production of greenhouse gases is concerned?
- What is a Climate Neutral City?
- Which are the goals of the European Union for energy production and consumption;
- How do these goals relate to climate change?
- In what way can you use less energy while retaining high quality of home and school-life? Which of these solutions have a scale-up potential?
- How can we include renewable energy in the city operations?
- What are the challenges (e.g. environmental, economic) in scaling-up the development of renewables and how can we overcome them?

Exemplar Science Team's projects:

Towards climate-friendly cities. How to turn our city into Climate Neutral one?

Science Teams investigate the energy status of their city – which are the energy sources used to supply the city at present, how do they affect the state of the environment (potential pollution, use of non-renewable resources, emissions of air pollutants) as well as human lives (quality of air, smell/noise etc.), what is the average energy consumption per person? etc. Following, the Science Teams research for solutions to decrease energy demand and supply the city with clean energy.



Let's work with energy! How to reduce energy consumption of our city or our neighborhood or our school?

Science Teams investigate the energy status of their city/neighborhood/school – which activities are the most energy-consuming ones? What can people change to save more energy? Afterwards, Science Teams look for solutions to reduce energy consumption of the city/neighborhood/school.

Resources to find out more about this Challenge:

- Information about The European Green Deal <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM%3A2019%3A640%3AFIN> (available in 23 European languages);
- Urban Agenda for the EU <https://ec.europa.eu/futurium/en/urban-agenda-eu/what-urban-agenda-eu> ;
- Clean Energy for all Europeans https://ec.europa.eu/energy/topics/energy-strategy/clean-energy-all-europeans_en ;
- A Roadmap for moving to a competitive low carbon economy in 2050 – factsheet in EN https://ec.europa.eu/clima/sites/clima/files/strategies/2050/docs/roadmap_fact_sheet_en.pdf ; full document <https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A52011DC0112> (available in 23 European languages).

Linked to Sustainable Development Goals (SDGs):



Projekt współfinansowany z programu Unii Europejskiej „Horyzont 2020”

Partner projektu w Polsce



Challenge 2: 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. Thankfully our perception is already changing – not all of the infrastructure has to be built and be the so-called grey one. 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.

Keywords: nature-based solutions, green areas, urban biodiversity, water management, air pollution, urban microclimate and climate change, public health, urban farming, public spaces, social cohesion.

Proposed discussion points:

- How has your city and the wider region changed in the past years? What much has it expanded in the last 10-20-30 years?
- Has the city center changed (new buildings, change in land use or land cover) and what are the impacts to the city's identity and to the quality of life?
- What new modes of transport or other infrastructure were developed recently?
- Do you remember a situation in which there was a conflict between a city investment and urban nature? What was its outcome? Would you resolve it in a different way?
- How and where would you create new green spaces in your city? And how does a green space close to home or at school improve quality of life?
- Do you know about parts of your city in which the quality of life is particularly low?
- Is there a pollution source close to the place you live or study that you find particularly disturbing?
- In what way, regenerating urban space can influence less privileged communities?
- Do you consider biodiversity protection an important part of urban policy?

Exemplar Science Team's projects:

Warm, warmer, hot! How to cool down our city?

Science Teams investigate temperature conditions in their city (air temperature / surface temperature – different parts of the city / different times of a day, a year etc.) looking for the specific places where a heat island effect is the most visible and how it affects citizens. Afterwards, Science Teams look for solutions cool down those spaces using nature-based solutions (green solutions) at the first place.

Stay green – stay connected. How to create a city with a good social climate?

Science Teams investigate location of different green spaces in their city and how they affect the quality of local residents' life (How do they use those spaces? What do they think about them?). Afterwards, Science Teams look for solutions to redesign/regenerate those green spaces (or create new ones) so they can help local communities (particularly those less privileged) to flourish.

History of growing cities. How to provide equal place for humans and nature in the city?

Science Teams investigate how the city and the wider region have changed in the past years – how much has it expanded in the last 10-20-30-50 years? (Students are looking for maps for 50 years ago. They choose few most characteristic maps to work with. Then they make coverage map of the city as it grows so as to assess the changing patterns of the city. How has the location/status of green spaces, local biodiversity centres, changed over the years? Has the city center changed (new buildings, change in land use or land cover) and what are the impacts to the city's identity and to the quality of life? What are the plans for development of i.e. their school surrounding? Afterwards, Science Teams look for solutions to redesign particularly "grey" part of their city (or maybe the one which will be revitalized by the city council in the next few years?) so as to provide equal space for humans and nature. The greatest attention should be paid to the development or disappearance of green areas and its impact to healthy environment and healthy people. The task is also to predict how city will be growing in a future.

Resources to find out more about this Challenge:

- Urban Agenda for the EU

<https://ec.europa.eu/futurium/en/urban-agenda-eu/what-urban-agenda-eu> ;

- European resources on Nature-Based Solutions

<https://ec.europa.eu/research/environment/index.cfm?pg=nbs> .

Linked to Sustainable Development Goals (SDGs):

