euniwell European University for Well-Being

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EUROPEAN UNIVERSITIES

Workshop MiniCop26

UNIVERSITY OF BIRMINGHAM

UNIVERSITÀ DEGLI STUDI FIRENZE

Universität zu Köln

Universiteit Leiden

Linnæus University

UNIVERSITÉ DE NANTES

SEMMELWEIS UNIVERSITY

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Content

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1. What we do: EUniWell partners

EUniWell is leading the way to innovative solutions and should serve as an example that decisive climate action can be achieved.

EUniWell Partners Universities are at different level of awareness in the "actions" they take[1]. Hence, cooperation is essential to grow together with common goals and because of significative spillover effects that can be put in motion.

We should start with local actions in our campuses, activities that can include everyone, from students to staff, from researchers to professors. All should contribute to the sustainable development of our consortium.

To help partner universities to become more environmentally friendly EUniWell could encompass a list of sustainable actions related to areas like food, transportation, shopping, and campus life, amongst others. Riding a bike instead of driving, carpooling, recycling, turning off unnecessary lights, making double-sided copies, keeping the thermostat low in the winter and high in the summer – these are among the simple but meaningful acts that reduce environmental footprint. They are not enough. Particular attention should be put on waste, especially from labs.

A lot can be done. Proposing common actions, sharing best practices, building on each other experience can result in maximizing individual Universities efforts. This has been the main goal of the Arena Environment in setting up a workshop that could be innovative and concrete.

EUniWell wants to promote best practices in the consortium. To this end, the University of Firenze has done a symbolic step by planting seven trees, one for each university participants, to partially offset the emission of travelling to EUniWell Rectors' assembly. Since our work sometimes requires us to travel to consortium countries, we want to try to mitigate our emissions. According to the European Environment Agency, air travel is one of the most polluting. Flying produces 285 grams of CO2 per passenger for each kilometer flown.

[1] An appendix details what each University is doing, in which language the information is offered, when pages/documents were last updated.

The trees were selected to represent the countries: two *Quercus robur*, donated to the University of Cologne and University of Birmingham; *Hulmus x hollandica*, donated to Leiden University; *Tilia tomentosa*, donated to Semmelweis University; *Betula pendula*, donated to Linneaus University; *Platanus x acerifolia*, donated to Nantes University; *Tilia x europaea*, in representing the University of Florence and the entire EUniWell consortium) and a certificate was given to each university with the picture of the tree as well as the amount of CO2 each tree would assimilate (the "new" tree planted as well as the tree when it would be 60 years old). In giving the certificate, prof. Giovannetti suggested that planting trees (alternatively provide volunteering work for NGOs planting trees) should be generalized to each conference involving travel. It is a symbolic but important action.[2]

Why planting trees? Trees absorb co2 (through photosynthesis, in fact, trees transform CO2 into oxygen), they are also able to reduce the flow of rain, to increase the water table and specially to block pollutants before they reach the sea. Other two very important functions are the prevention of soil erosion, especially in hills and mountains, and help to regulate the temperature, especially in cities, reducing the heat island and mitigating the coldest winds.

2. Innovation competition Workshop

The objective of the MiniCop26 workshop was to outline a structure of values on sustainability common to the EUniWell consortium. The challenge of the workshop has been to build the future of EUniWell and take it to the next level, aligning the ideas of each individual university with their individual strengths, interests and values.

2.1 Event description

Nowadays, it is essential to steer the economy towards fully sustainable development. To this end, it is necessary to teach the new generations that the future of the environmental cause depends on the innovative proposals that will come to life during these years.

The EUniWell MiniCop26 event has been an opportunity for students, researchers and professors, to devise tangible answers to the global problems that are currently holding back economic, social and environmental well-being.

[2] Appendix B the leaflet explaining the trees and one of the certificates awarded

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The workshop aimed to create a simulation of COP26 (Conference of Parties), the annual meeting of the countries that have ratified the United Nations Framework Convention on Climate Change (UNFCCC). Following the guidelines dictated at the 2015 UN climate conference in Paris (COP21) and the goals set for COP26.

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The event was divided into three parts: an informative part, where the mission of the Conference of the Parties and the role of the negotiations were explained. In the second part, where experts explained some of the main themes of sustainable development addressed through the contribution of speakers from the University of Birmingham, University of Florence & University of Nantes:

- Net zero emission via sustainable decisions
- 1.5°C: how to reach it
- The role of universities in driving change at a local scale
- Research and Sustainable Development Goals: the importance of data

In the third part, participants were divided into 4 working tables where they could devise concrete solutions to the major challenges, covering topics such as climate change, sustainability and adaptation, with a focus on active citizenship and well-being. In this phase, participants had the opportunity to select specific goals and deadlines. At the end of the event, participants presented their ideas for making their universities sustainable, inclusive, and with innovative degree programs.

The primary goal of the workshop was to bring the climate challenge closer to the daily lives of European citizens, with the hope that participants will be led from awareness to proactivity, for example by changing established habits. Through the exchange and sharing of actions and initiatives, we hope to direct students towards concrete change at the local level in EUniWell locations.

In this action space, individuals are the agents and promoters of the sustainable development of their campuses. The proposals that have be formulated at the working tables follow the values and objectives of the European Green Deal and the United Nations Sustainable Development Goals.

3. Thematic Focuses

The event main goals have been to disseminate, connect, share and design good practices and initiatives at different levels.

The focus will be on specific issues related to Sustainable Development Goals:

SDG 4: Quality education. Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all;

SDG 11: Sustainable cities and communities. Make cities and human settlements inclusive, safe, resilient and sustainable;

SDG 13: Climate Action. Promote action, at all levels, to combat climate change;

SDG 15: Life on lend. Protect, restore and promote sustainable use of the Earth's ecosystem.

The themes were addressed through the contribution of experts. The event was geared towards raising awareness and **identifying tangible solutions for the EUniWell consortium in the field of sustainability also in relation to climate change mitigation.**

3.1 Speakers: bio and topics

Giorgia Giovannetti- Introduction to the miniCop26 and summary of what each university is actually doing to be sustainable (and reach zero emission).

B*io: University of Florence. Vice rector of International relations and Professor of Economics at the University of Florence, field of research: international economics, development with a focus on Africa. She is in charge of the management of EUniWell for the University of Florence.*

Ian Thomson- "Net zero emission via sustainable decisions";

Bio: University of Birmingham. Expert in climate change and on SDGs. Part of the Birmingham Plastics Network, an interdisciplinary team of more than 40 academics working together to shape the fate and sustainable future of plastics.

Marco Bindi- "1.5°C: how to reach it?".

Bio: University of Florence. Professor of Agroclimatology. He is referee of the several National and International Journals (European Journal of agronomy, Climate Reaserch, Climatic Change, Regional Enviromental Change, etc.).

Jonathan Radcliffe- "The role of universities in driving change at a local scale".

Bio: University of Birmingham. Expert in energy technologies and energy systems as part of the transition to net zero. He is part of the Resilient Cities for the university's Institute for Global Innovation.

Franck Schoefs- "Research and Sustainable Development Goals: the importance of data".

Bio: University of Nantes. Member of a regional working group on climate change and Director of the Master of Science in Civil Engineering.

The Participants were students from the Universities of the consortium: University of Florence (Italy), Leiden University (The Netherlands), Linnaeus University (Sweden), Semmelweis University (Hungary), University of Birmingham (England), University of Cologne (Germany), University of Nantes (France), but also selected students from the study abroad programmes of US universities in Florence.

4. Workshop outcomes

4.1 Why is it necessary to increase sustainable development at the local level?

Education should form a strong sustainability mindset, and push the community toward a transition. To do this, it is necessary to know today's reality and apply a new model of development and training. Human activities are estimated to cause approximately 1.0 °C of global warming above

pre-industrial levels, with a range of 0.8°C to 1.2°C. Global warming is likely to reach 1.5°C after 2030 and if it endures to increase at the current rate the damage will be extensive. Limiting global warming to 1.5°C compared to 2°C is projected to reduce increases in ocean temperature as well as associated increases in ocean acidity and decreases in ocean oxygen levels. Consequently, limiting global warming to 1.5°C is projected to reduce risks of permanent damage to marine biodiversity, fisheries, and ecosystems, and their functions and services to humans, as illustrated by recent changes to Arctic sea ice and warm-water coral reef ecosystems. Climate-related risks to health, livelihoods, food security, water supply, human security, and economic growth are projected to increase with global warming and increase further within the next years. Pathways **limiting global warming with no or limited overshoot would require rapid and far-reaching transitions in energy**, **land, urban and infrastructure** (including transport and buildings), and **industrial systems** These systems transitions are unprecedented in terms of scale, nonetheless not necessarily in terms of speed, and imply **rapid emissions decreases in all sectors, a wide portfolio of mitigation options and a significant upscaling of investments** in those options. Sustainable development supports, and often enables, the fundamental societal and systems transitions and transformations that help limit global warming to 1.5°C. Such changes facilitate the pursuit of climate-resilient development pathways that achieve ambitious mitigation and adaptation[3].

EUniWell wants to intervene and act to moderate climate change and global warming, giving a rightful contribution to the planet. The Minicop26 workshop aims to initiate a debate on environmental issues and to derive beneficial solutions for the environment and for people's well-being. Supporting virtuous practices in favor of the climate is the only way we have to limit global heating.

The following analysis proposes best practices to follow at the individual university level, but we are aware of geographic differentials in development and that even more can be done at the local level. The motivation for us to act together is definitely to act locally to have an impact globally.

[33] PCC, 2018: Summary for Policymakers. In: Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty [Masson-Delmotte, V., P. Zhai, H.-O. Pörtner, D. Roberts, J. Skea, P.R. Shukla, A. Pirani, W. Moufouma-Okia, C. Péan, R. Pidcock, S. Connors, J.B.R. Matthews, Y. Chen, X. Zhou, M.I. Gomis, E. Lonnoy, T. Maycock, M. Tignor, and T. Waterfield (eds.)]. In Press.

4.2 Proposals

The discussion was very lively, many examples and proposals were made. There are a few building blocks to achieving a **zero-emissions campus**, these include increasing energy efficiency through renovations, retrofits, and better sustainability practices; a shift from fossil fuels to renewable energy sources such as solar PV, geothermal, and wind; and investments in projects that offset emissions that cannot be eliminated. Of course, good practices such as bicycles, sustainable cafeterias, reduced travel (mobility), or travel by sustainable transportation should also be encouraged. In addition, the amount of paper used in research, teaching, and operations has decreased dramatically because people are exchanging much more information digitally.

The pandemic had a great impact on universities, but it also brought a number of positive changes, such as the digitization of teaching and research, and the ability to work remotely. The number of miles traveled by airplane to conferences will likely be less than before the pandemic. This has benefits, particularly for the climate. After the pandemic, the world will not be the same as it was before. Students will undoubtedly return to the university in person and staff to the office, but less time will likely be spent within the walls of academic buildings than before the pandemic. This has consequences for the energy, travelling and ultimately pollution. It is possible to reduce the carbon footprint[4] of our facilities and of every student, professor, researcher, and staff member, and to do this, universities must provide the tools to promote a sustainable lifestyle.

A practical example, already in use in the universities of Florence and Leiden, are a series of stickers scattered around the university with practical advices to be implemented within the university buildings. Memos, which remind everyone that small actions are essential and that we all should to give our contribution every day.

[4] is a parameter that is used to estimate the greenhouse gas emissions caused by a product, a service, or an individual, generally expressed in tons of CO2 equivalent (i.e. taking as a reference for all greenhouse gases the effect associated with CO2).

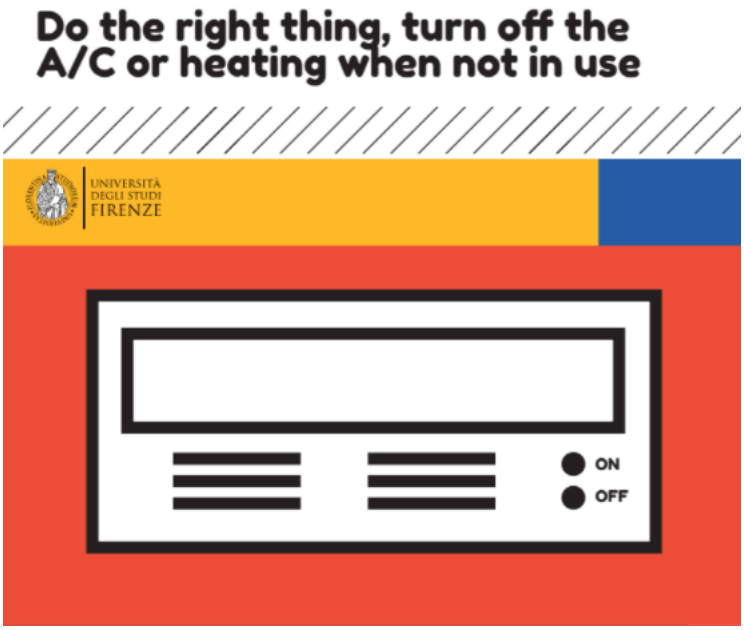

Figure 1-Unifi memo sticker

Several inputs were given during the workshop discussion, from which the following proposals emerged. Each university should put them into practice.

4.2.1 University Canteens should have a vegan/vegetarian menu at least one day a week

The discussion in the working group which has proposed this measure has addressed different issues related to this topic.

a) Animal farming is responsible for 15% of global greenhouse gas emissions, according to the Food and Agriculture Organization of the United Nations (FAO). This reality is easily converted by lowering demand. Universities can act through cafeterias and for that they should offer at least one vegan meal per week menu. Moreover, a plant-based menu is very easy to cook and has a very low price.

b) A predominant vegan/vegetarian offering promotes sustainability, as scientists at Oxford University have found that avoiding meat and dairy is the single most effective action an individual can take to help the planet. Vegan food is also inclusive as it is a suitable option for most dietary needs, such as vegetarians, followers of certain religions, those with allergies and intolerances, and those who simply want to eat healthier.

c) Some research has linked plant-based diets to well-being: a decrease the consumption of foods of animal origin lower blood pressure and cholesterol, as well as lower rates of heart disease,

type 2 diabetes, and some cancers. Offering nutritious, vegetarian-appropriate meals on every university canteen menu protects the planet and our health and promotes well-being. A healthy diet for young people is likely to result in a longer and healthy life as old and in a saving for the national health systems.

d) The contribution of animal foods to global warming cannot be ignored. Surely, veganism is not for everyone and depends a lot on where we live, and the truth is that global consumption of meat, dairy, and eggs is much more complex. For those of us in the developed world, the actions we take may have to be very different from those in the developing world who face a very different reality when it comes to food choices, health, livelihoods, and even experience of climate change. We cannot ignore the important role that animal-based foods play, especially in the developing world, when we talk about addressing climate change. Instead, we need to find a middle ground.

However, consumers in developed countries, and in European canteens, have a different set of experiences. Here, foods of animal origin are much more readily available. Meat consumption, for example, was essentially double that of developing countries at the turn of the century.

Consumers in the developed world who have access to a diverse set of food options may be able to get some of their calories and nutrients from alternative sources and have less of a climate impact as a result. If, for example, UK consumers reduced their meat consumption to be in line with World Health Organization guidelines, then greenhouse gas emissions would decrease by 17% in the UK alone. Customers in the developed world can also work to reduce the amount of food they waste. It is estimated that about 20% of meat and milk is wasted globally; in Europe, about half of this occurs at the "consumption" stage, in other words after these foods have already been produced, processed and distributed. This means that consumers can play an important role in reducing the overall carbon footprint of livestock simply by lowering the amount of this food they waste [5].

In the EUniWell consortium, we can recognize that we are in a privileged position compared to the countries in the south of the world and certainly we can implement more sustainable eating behaviors, starting from our canteens and cafeterias.

[5] https://www.euractiv.com/section/agriculture-food/opinion/lets-meat-in-the-middle-on-climate-change/

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4.2.2 Open education: digital Libraries and the reduction of paper

All the separate discussion tables have addressed the issue of paper reduction at Universities, noting however that a lot has already been done in the recent past. Different proposals and ideas have been put forward:

a) Universities rely on the texts and sources of the greatest authors, and libraries have the potential to offer most resources. Supporting e-learning in a consortium of 7 universities with dozens of libraries would be an ambitious but rewarding project.

b) Learning through technological means can be supported by a set of digital libraries and common platforms. The growth of e-learning media, has created new opportunities to expand educational media through library services: e-learners and traditional students now have access to a universe of information. New technologies allow for the evaluation of alternative methods for education and communication, so it comes naturally to require educational systems to reevaluate how they develop, manage, and deliver resources and services. The opportunities that digital libraries can offer to support e-learners are many and the introduction of these would be a mere natural process following the distance education of recent years.

   The digital library should not be seen as simply a digitalized collection of information objects plus associated management tools, but as an environment that brings together collections, services, and people to support the full cycle of creation, dissemination, use, and preservation of data, information, and knowledge [6]. A number of intermediate goals have been formulated for digital libraries and how they can support e-learning, including: Improving student achievement; increasing the quantity, and comprehensiveness of Internet-based educational resources; making these resources easy to discover and retrieve for students, parents, and educators; and dramatically decreasing the consumption and misuse of paper, as well as the plastic components of book covers and the use of printer toner.

   E-Books, tablets, and computers are practical alternative means for the education of students and avoiding the use of books. In addition, are very practical: updating book editions online allows an up-to-date material without the obligation to reprint.

A network like EUniWell can bring together these multiple sources, have a common platform, provide e-copies of book and pave the way for the university of the future.

[6] 2014, How digital libraries can support e-learning, The Electronic Library R. Sharifabadi Saeed.

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4.2.3 The establishment of the Environment Academy and Climate Centers in the single universities

Discussion was very lively on the idea of having an environment academy. All participants agreed on the importance of joining forces. To act locally and jointly at the same time, it is essential to implement a detailed and strategic plan. To do this we propose the design of an Academy of the Environment, divided into local subgroups called "Climate Centers" in which professors and researchers play a key role in education, research and local monitoring.

a) **Multilevel Education**: Professors will be responsible for educating students, who in turn will act as a vehicle for outreach other students (Young Climate Center).

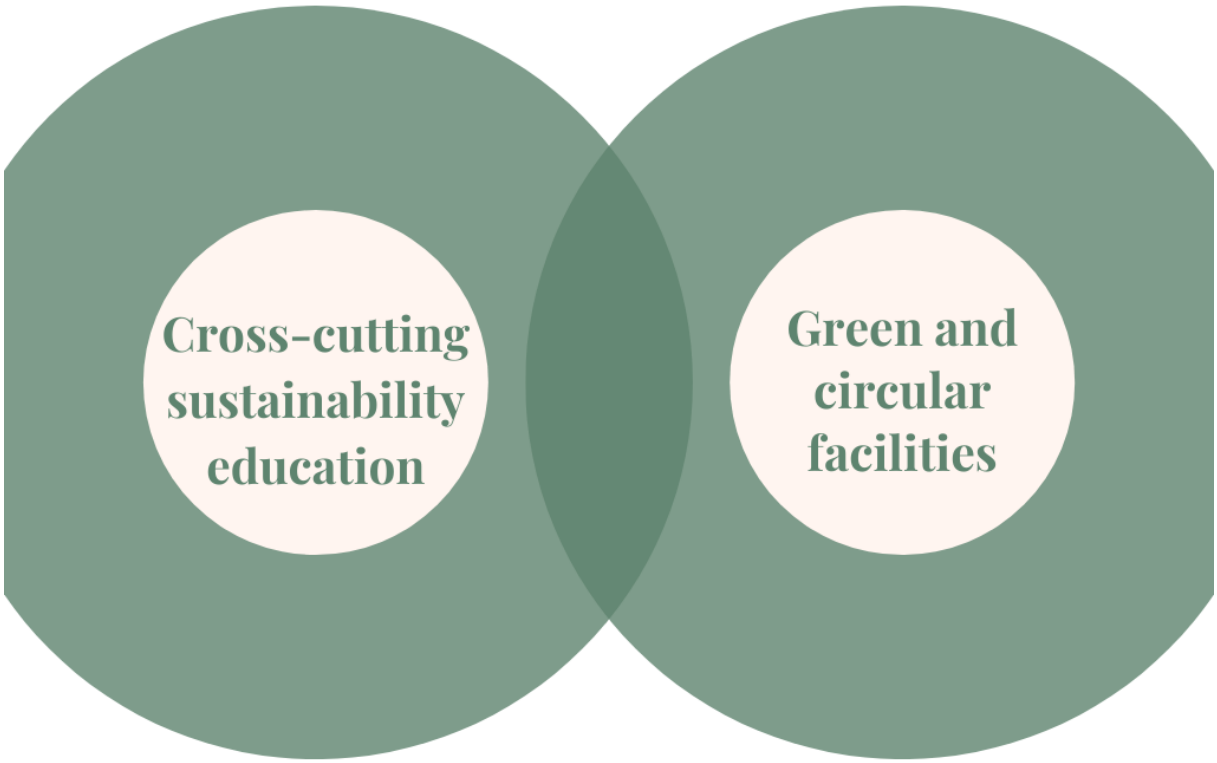
b) **Research:** The Climate Center should be envisioned as a research hub, a *think tank* that promotes research in the fields of environment, climate change, urbanity, and well-being and contributes to innovative, interdisciplinary, and rigorous research in the public and private sectors through analytical studies and scientific dissemination.

c) **Local monitoring:** Local Climate Centers that belong to the Environment Academy must provide a system for monitoring and evaluating the objectives set. Goals must be set in the first year and achieved in subsequent years. For example, if we pursue the previous goal of reducing paper consumption through the establishment of an online library that promotes open education, the local monitoring system must include a way to assess the impact this has on paper consumption and book printing.

EUniWell has already done the first step in this direction, with a joint decision of establishing an Environment Academy. Now we have to speed up the process and link it with the local climate centres as suggested by the discussion tables.

4.2.4 Practical goals for sustainable universities

EUniWell has an important role in working together for a sustainable future. During the general discussion many concepts emerged that were grouped into two macro-groups: cross-cutting education on sustainability and green and circular facilities.



Below are practical ideas that can be implemented in the coming years to implement and entrench a new culture on sustainability in universities.

Cross-cutting sustainability education

Traineeships for students in the University "**green offices**" across the different partners

I. Prizes for thesis on "**green research**"

II. **Increase the number of courses and programs** related to SDGs and sustainability, also in degree courses that normally do not address these issues

III. Prepare a short **guide** for "sustainable behaviour" for students and professor to be given to all in the different universities

IV. Prepare **microcredentials** and badges on sustainability (across partners)

V. Organize at least an **event** a year to inform and propose "good practices" based on research in the different partner universities We will invite alumni working in sustainability industries

to participate in the event and speak with current students. Organize student challenges with the best ideas for EUniWell campuses.

VI. Involve students, researchers and administrative staff in programs with **sustainability Centers**

VII. Provide reusable objects: take a reusable bottle, bag, and utensils.

Green and circular facilities

I. The **energy** used should come from **renewable sources** (e.g. Own solar energy production on the university roof)

II. Creation of **green areas** on university buildings to promote biodiversity

III. Implement a circular economy model through which material flows should be divided into 2 types: biological ones, capable of being reintegrated into the biosphere, and technical ones, intended to be transformed without impacting the biosphere. Following this path all **food waste** from canteens converted to **compost or biogas** and the other materials should be reused, recycling them in a proper way

IV. **Substitute** traditional cleansers (toxic for the environment and health): swap for greener alternatives and washing in the laundry should be set to wash cold

V. Create events that encourage **reuse or recycling** (markets for used clothes and objects)

VI. Provide for a system of **water reuse:** enables prioritization of the distribution of freshwater resources to meet global water needs

VII. Support the use of alternatives to the car such as **bicycles** and **public transportation** (providing secure locking for the bikes)

VIII. Substitute lamps with energy efficient **LED bulb** all through University buildings and provide a power down system (turn off lights and power down electronics when no one is inside the facilities).

IX. **Shared urban gardens** in universities to work on cooperation and well-being. Shared gardens aim to grow seasonal products and involve people in the project: students, professors and administrative staff collaborate to create a new place of production and meeting. Depending on the country, the garden can be designed in a greenhouse or outdoors.

X. Sustainable university laboratories: EUniWell could, develop a common framework for labs and properly manage **Laboratory Waste.**

a. SUSTAINABLE PRODUCTS CATALOG: It is important to consider the environmental impact of products before the time comes to dispose of them. To aid in the decision-making process, a catalog of commonly used laboratory supplies and equipment is needed and evaluated for their sustainability characteristics. The catalog includes cleaning products, equipment, disposable lab supplies, toxic substances, packaging and storage.
b. LABORATORY RECYCLING BINS: Many lab items can be recycled, including boxes for pipette tips, bottles and containers, and packaging materials. Therefore, custom recycling bins must be provided to meet the needs of many different lab spaces.
c. LABORATORY GLOVES RECYCLING: In this case, it is necessary to collect Kimberly-Clark nitrile gloves that are uncontaminated and therefore can be recycled. Uncontaminated means: not used in a BSL3 laboratory and not used with a BSL2 agent, no contact with radioactive materials, not used with acutely toxic materials, not stained with hazardous chemicals and not used to clean up a hazardous chemical spill.
d. RECHARGEABLE PIPETTE TIPS: Pipette tips are a common laboratory item used to transfer small volumes of liquid accurately, precisely and sterilely. While reducing the net number of used tips is not practical, labs can still reduce plastic waste related to tips by reusing the boxes that contain them. There are reusable boxes that can hold racks for pipette tips. Refillable tip racks are often a fraction of the cost and require half the plastic to manufacture. Consider ordering refillable tip boxes for your lab to save money and reduce plastic waste.
e. GENERAL DIFFERENTIATED LAB WASTE COLLECTION: for the other materials, is needed a proper disposal of lab materials.

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A. Appendix

Birmingham University (https://www.birmingham.ac.uk/university/social-responsibility/index.aspx)

The University approach is to create a sustainable place to learn, develop, teach, conduct research, and to work and live productively.

UoB was England's first civic university, one where students from all social and cultural backgrounds were accepted on an equal basis, and it is that strong spirit of social responsibility and commitment to community that has allowed us to grow and thrive ever since.

As a civic university, UoB has a unique role in contributing to the United Nations Sustainable Development Goals (SDGs). The goals are "the blueprint to achieve a better and more sustainable future for all. They address the global challenges we face, including those related to poverty, inequality, climate change, environmental degradation, peace and justice."

UoB Roadmap to 2025/26. The Roadmap identifies impact areas that will be developed; the Roadmap to 2025/26 builds on the **significant work delivered to date**: v**Global impact through our SDG Research. In 2019 >30% publications dealt with SDG themes.** In 2019 over **700 course modules aligned to SDG priorities**, contributing to world class graduates with sustainability in mind. As the first Civic University UoB engagement with the region is paramount. UoB contributes over £3.5billion to the local economy. Wellbeing services including UoB programmes with Pause, delivered in partnership with Forward Thinking Birmingham. Inclusivity, equality and diversity underpinned by UoB commitment to work towards charters including Athena Swan, Race Equality and the Diversity Forum. Sustainable operations have achieved a 20% emissions reduction on a 2005/06 baseline, leading ULEV fleets and a green student community.

UoB has several plans, some recently discussed (e.g. Responsible investment policy - September 2020; Staff expenses policy– September 2020; Sustainable procurement policy - August 2020; Catering charter - June 2020; Sustainable food procurement policy - January 2019; Travel plan - March 2019) Others are "older": Sustainability policy – 2018; Carbon management plan - April 2014; Biodiversity policy - February 2012

Several services (from ink and toner recycling to reuse, from coffee recycling to clinical waste etc) are listed https://intranet.birmingham.ac.uk/campus-services/environmental-services/Our-Services.aspx?_ga=2.122510659.977170369.1634478481-124614864.1634113905
All entries: Battery Recycling; Cardboard Recycling; Clinical Waste; Coffee Recycling; Confidential Waste; Dust Mats; General Waste; Glass Recycling; Hand Dryers; Hazardous Waste; Ink and Toner Recycling; Paper Recycling; Pest Control; Re-Use; Roller Towels; Sanitary Waste; UniGreenScheme-Resale-Services; Warp-It; Waste Electrical and Electronic Equipment; Window Cleaning

Birmingham University
Roadmap to 2025/26: identifies impact areas and builds on the significant work delivered to date. The main areas are: • SDGs Research • Responsible investment policy • Sustainable food procurement policy • Carbon management plan • Biodiversity policy *Actions concern Battery Recycling; Cardboard Recycling; Clinical Waste; Coffee Recycling; Confidential Waste; Dust Mats; General Waste; Glass Recycling; Hand Dryers; Hazardous Waste; Ink and Toner Recycling; Paper Recycling; Pest Control; Re-Use; Roller Towels; Sanitary Waste; UniGreenScheme-Resale-Services; Warp-It; Waste Electrical and Electronic Equipment; Window Cleaning…*

University of Cologne (https://sustainability.uni-koeln.de/)

The Sustainability Task Force founded by the Materials Research Society (MRS) aims to raise the awareness on sustainability across the international material scientist community.

Hands-on activities on recycling, ethics and green energy alternatives are UoK key resources for educating sustainability during conferences.

PhD students are part of the local Sustainable Chemical Synthesis (SusChemSys) Network that brings together PhD students in NRW that focus their research towards sustainability and organizes local activities such as excursions to industry partners, soft-skill workshops and meetings.

Cologne University
Be sustainable action plan: • material scientists investigating on development of nano-materials for renewable energy resources and health applications. • SDGs research • Activities to bring together scientists, policy makers and businesses for a more coordinated transition to sustainable energy and mobility using the power of information systems management • Sustainability Ambassadors

Leiden University (https://www.universiteitleiden.nl/en/dossiers/the-sustainable-university)

Has an environmental plan 2016-2020; computes the CO2 emission. In 2014 the largest were due to waste production, 2017-2020 to commuting; From mid-March onwards the Covid pandemic changed everything. Students and staff mainly worked and studied at home, and the university cafés and restaurant were closed, as was the Sports Centre. This made a difference at the university on all fronts: in gas, water and electricity consumption, and in the amount of waste produced. The decrease in business trips and commuting also meant sustainability gains. The figures show a clear reduction in the university's CO2 footprint in 2020. This decreased by 30% compared to 2019.

Targets achieved: Work continued unabated in 2020 to improve processes and implement measures to promote sustainability. The main targets from the Sustainability Vision, which the university began work on in 2016, have been achieved:

- The university's environmental impact is in line with that of other broad-based universities;
- The university's environmental and sustainability policy is more visible to students and staff, and their participation in this has increased. A sustainability network was launched in 2020, for instance, with 150 staff members signing up. The Leiden University Green Office, which is run by students, has a strong presence and has started many projects;
- By achieving 31 of the 37 sub-objectives, the university has more than halved its CO2 footprint. Twenty-eight per cent of this was achieved by actually reducing the total emissions. The remaining reduction was due to purchasing compensation certificates.

The sustainability report is in Dutch; a summary is in English.

A number of concrete achievements in 2020 are: (next plan due 2021, expected soon)

Coronavirus pandemic: The coronavirus pandemic had a favourable effect on Leiden University's CO2 footprint. This is largely because less energy and water were used in 2020 in university buildings, and commuter traffic and business travel were at a far lower level.

Sustainable housing: Leiden University uses the BREEAM-NL method to assess the sustainability of its real estate portfolio. A preliminary BREEAM-NL score has been determined for 27 existing university buildings, and opportunities for improvement have been identified that the university can work on. The municipality, the university and the West Holland Environment Service have drawn up a biodiversity plan for the Leiden Bio Science Park. One area where sustainable demolition is visible is in the re-use of materials. An example of this is the structural steel from the Gorlaeus Building that has been used in the design of the Bio Partner 5 Building. As a further example, the lower storeys of the Gorlaeus high-rise building were retained during the demolition, and will be used to create a new, green bicycle storage.

Energy: In 2020, Leiden University's energy consumption was 10 per cent lower than in 2018 and 2019. The greening of electricity consumption is achieved by purchasing GOs (Guarantees of Origin), and 1.56 per cent of the total annual consumption is generated by our own solar panels. The use of thermal energy storage in current and future renovation projects will generate a saving of around a quarter of the natural gas used. The university is making its gas consumption greener by purchasing VERs (Voluntary Emission Rights).

Water: Water consumption in 2020 was 30 per cent lower than in the previous years. This was due to the limited use of university buildings as a result of the coronavirus pandemic and working from home.

Sustainable procurement and investment: All investments and procurement arranged via University Procurement Leiden (UIL, in Dutch) are in line with the procurement criteria of PIANOo

(the Dutch Public Procurement Expertise Centre). Over 80 per cent of the University's catering is sustainably sourced and is offered under the Pure label. Cafés in the Kamerlingh Onnes, Lipsius and Pieter de la Court Buildings have a range of food products that are completely vegetarian. Focusing attention on food waste within the restaurants and cafés has resulted in an average food waste of 1 per cent, which is considerably lower than the national average (10 per cent).

Waste: Leiden University produced 40 per cent less waste in 2020 than in 2019. The separation of different

waste flows is encouraged by having our own recycling centres at the larger university locations.

Mobility: As a result of the restrictions on travel in 2020, the CO2 footprint from commuting and business travel was just 30 per cent of the 2019 level. In 2020, the last company vehicles of the University Services Department were replaced by 100% electric vehicles, representing an annual saving of 10 tons of CO2. The distribution hub between university buildings has reduced transport movements, resulting in a CO2 saving of 65%.

Sustainability in education and research: In 2020, various initiatives, such as the Sustainability Knowledge Workshop, the Sustainable Business Battle, the Learning with the City project and the Sustainability and Law course, have contributed to integrating issues relating to sustainability in teaching programmes at Leiden University. In the area of research, the Liveable Planet incentive programme has started, which encourages interdisciplinary collaboration on sustainability issues.

Appendix B of the 2020 Sustainability Report includes an overview of the courses, tracks and programmes on the theme of sustainability.

Sustainability: awareness and involvement

In 2020, efforts were made to raise the awareness and involvement of students and staff by communicating on sustainability initiatives and organising meetings, including online meetings. These include the public symposium on 'Sustainable Energy' and a lecture by Diederik Samsom on the Green Deal. The coronavirus crisis meant that less attention was paid to sustainable activities and initiatives within the university, and consequently less was communicated on this issue on the university website than in 2019.

Activities of the Leiden University Green Office (LUGO). Since September 2020, LUGO has organised an online event for students and staff every month on different sustainability themes. LUGO has also initiated a partnership with the student and staff participation councils, and has written a Green Paper setting out its input for the Strategic Plan. Since September 2020, LUGO has offered an online Sustainability Network for staff via MS Teams.

Leiden University
Environmental plan: aims at improving processes and implement measures to promote sustainability: • university's environmental impact • university's environmental and sustainability policy • Sustainable housing • Energy & water consumption regulation • The main targets from the Sustainability Vision, which the university began work on in 2016, have been achieved. The Covid pandemic helped to achieve also CO2 reduction due to mobility

University of Florence (https://www.ateneosostenibile.unifi.it/) (in Italian)

Energy saving and alternative energy production, Actions taken: thermal insulation actions of buildings; installations of photovoltaic systems, new lighting, heating and air conditioning systems, reduction of the consumption of computers and other electronic devices. Unifi promoted the study of **LED lighting solutions** at the Multifunctional Complex in Viale Morgagni. This action can be replicated in the other buildings of the University. UNIFI produces from **renewable sources** and self-consumes 57,954 kWh for its facilities. **Future objectives**: the future development programs are oriented towards an even greater use of renewable sources and, to this end, a study was presented to equip the Sesto Fiorentino Scientific Center with a 1.3 MWp photovoltaic carport system for an estimated annual production of about 1,500 MWh.

Waste management and reduction, Action taken: incentives for separate collection; substitution of plastic cutlery with washable in canteen; creation of 7 "ecotappe" for separate collection and special waste; provision of containers for the separate collection of plastic and paper in all university buildings;

Use of water, Action taken: installation of drinking fountains for the distribution of chilled and sparkling water: 24 in the universities, 3 in the Residences; installation of sustainable whiteboards (painted on the wall); distribution of water bottles to enrolled students.

Agricultural and green management, Action taken: creation of university gardens for the student residence in Viale Morgagni and in the botanical garden.

City mobility, Action taken: discounted rate for the use of public transport for student card holders;

Mondo Bike - alternative mobility project: transformation of a bike into electric thanks to a special kit; Cycle path – Florence center -Scientific Center-Prato

Accessibility, Action taken: elimination of architectural barriers (physical and perceptual); improvement of quality of living.

Access to knowledge, Action taken: creation of an OpenUniFI coordination group composed of staff involved in Open Source Software, Open Source Hardware, Open Data, Open Access, Open Science, Open Innovation, Open Education; organization of meetings and seminars on the free transfer of knowledge.

As far as teaching is concerned, some degree courses, single and post-graduate exams are active and others are planned. These courses allow students to train as a "sustainability specialist" in various fields. As far as research is concerned, UNIFI participates in national, European and international projects related to sustainability. The University is active in technological transfer at the training level, with master's courses, with third party, through the promotion of "spin-off" companies, supported by the university incubator, by university laboratories / companies, from national technology clusters on the subject.

To deal with all the demands on sustainability, Unifi has created a technical monitoring structure - Green Office) and the sustainability portal, around which an informal sustainable Unifi discussion group has been formed, in which teachers' students and citizens participate

The University of Florence has activated a series of strategies designed specifically to intervene directly on the macro-context (on the need to raise public awareness, incentivize investments in terms of research, technical and technological innovations of the latest generation) and on micro-context (on the behavior and habits of individual citizens).

Also, the so-called "sportello della scienza" (science desk) in the spirit of a civic university aims at bringing to the citizens proposals coming from UNIFI students (https://www.ateneosostenibile.unifi.it/p161.htm). It is a channel that allows citizens to ask

questions, express needs and submit requests to the University. The university analyzes the requests received together with the proponents, trying to broaden the audience of interested citizens and, if possible, elaborates research projects which will then be carried out by students under the supervision of a researcher. Researchers are asked to include social aspects related to their research field; students to participate in internships, write dissertations on selected topics and put into practice what they have studied by participating in socially relevant research; the results of the research are returned to the citizens in participatory events, such as the "Caffè-Scienza" or through the website, facebook, youtube.

University of Firenze
Sustainable Campus: series of strategies designed specifically to intervene on the macro-context: • Water & Energy saving and alternative energy production • Waste management and reduction • City mobility (discounted rate for the use of public transport for student card holders; alternative mobility project: transformation of a bike into electric thanks to a special kit; Cycle paths) • Science desk (citizens proposals coming from UNIFI students)

Linnaeus University (https://lnu.se/en/meet-linnaeus-university/a-sustainable-university/)

LU wants to be a role model by reducing its emissions of greenhouse gases. Therefore, has signed a national climate framework together with other universities and university colleges. This means that LU takes it upon itself to contribute to society meeting established objectives and that will reduce its climate impact in line with national and international agreements (*can learn more about the Climate framework, in Swedish*). Examples of measures to reduce climate impact: good support and working methods for digital meetings and distance education to reduce climate impact from travels; members of staff always travel by train between Kalmar and Växjö; in order to promote sustainable travel to and from Kalmar UL runs the EU project "Sustainable travel choices Kalmar" together with Kalmar municipality; in order to reduce the climate impact from travels in Kronoberg LU takes part in the EU project "Sustainable mobility in green Kronoberg"; when LU books rental cars and taxis always chooses environmentally friendly vehicles; many transportation vehicles run on biogas.

The policies for sustainable development are only in Swedish. Linnaeus University's direct and indirect environmental impact is mapped out in an environmental study (in Swedish); most material available is in Swedish.

As a university, Linneaus has an important role to play in the common work for a sustainable future. Through research and programmes, and by practicing what is preached, Linneaus creates a sustainable university – ecologically, economically, and socially.

In addition to the work carried out for a sustainable future within education and research, Linneaus also practices: All energy that is used in LU facilities comes from renewable source; Many offices are LGBTQ certified; LU has solar energy production on the roof of the university; LU takes part in Växjö Pride and Kalmarsund Pride every year; has green roofs on university buildings in Kalmar to promote biodiversity; has environmental stations for differentiated collection of waste in the buildings; LU toilets are gender neutral; all food waste becomes biogas; LU has gender neutral shower rooms; LU offers to teachers the course "Learning for sustainable development" to increase integration of sustainable development on courses and programmes.

Linnaeus University has a strong profile in environment and sustainability. Through the knowledge that is created on our courses and programmes and through our research, we contribute to the necessary climate conversion.

Linneaus University
A sustainable university : • All energy used comes from renewable sources • Own solar energy production on the roof of the university. • Green roofs on university buildings in Kalmar to promote biodiversity. • All food waste becomes biogas *The sustainability work comprises everything from internal sustainability work (e.g. university's direct impact on the environment) to a broader take on sustainability issues in education, research, and collaboration with the surrounding society. Sustainable development should be integrated into our activities on all levels and in all parts of the organization*

Nantes University (https://www.univ-nantes.fr/decouvrir-luniversite/vision-strategie-et-grands-projets/developpement-durable)

The University is in the top 3 in France in terms of SDGs. The energy transition is the transition from an economic model that consumes a lot of energy to a soberer and more sustainable model. For the University of Nantes, aware of the challenges linked to the energy transition, it is important to act in this area. In order to successfully complete its energy transition, the university has set itself 4 objectives: Objective 1: Participate in achieving the objectives set at international, national and local level; Objective 2: Be a driving force in research, training and innovation for the territory; Objective 3: Anchor a culture of "Living" by making the user an actor in their building; Objective 4: Control the energy bill. The action scenario is focused on three components: the rehabilitation of the most dilapidated buildings, the development of renewable energies (RE) and the strengthening of energy management. Installation of a photovoltaic power plant at Polytech; Installation of co-generation equipment on the Lombarderie campus; Deployment of a counting plan for university buildings; Setting up of an "Energy efficiency" unit made up of two energy managers; Make the user an actor of his building: The program provides for the experimentation, on five representative buildings, of action plans on the uses of energy drawn up by the users themselves, followed by the deployment of a major campaign of sensitization. Communication Campaign very nice and effective. The last Sustainability Report (in French) is that of 2019.

Nantes University
Sustainability report: • SDGs Research • Energy management & transition: three different actions, the main being the implementation of a photovoltaic power plant • Very effective communication campain

Semmelweis University

Green University Report from the students' Union, main aims:

- develop the education about environmental sustainability
- create an environmentally conscious thinking and integrate it into our everyday life
- fight as a unity for a better and sustainable future
- Connect to the city and organize common activities

Actions: secure bike storage; organize Meat-free Mondays at the university canteens, with many vegetarian alternatives; community compost; minimize plastic usage at the university, banning plastic bottles and non-recycled cups; choose second hand books, provide e-book; enhance collaboration with companies that care about environment; organize second hand fairs.

Semmelweis University
Green University Report from the students' Union, main aims: • develop the education about environmental sustainability • create an environmentally conscious thinking and integrate it into our everyday life • fight as a unity for a better and sustainable future • Connect to the city and organize common activities *Actions: secure bike storage; organize Meat-free Mondays at the university canteens, with many vegetarian alternatives; community compost; minimize plastic usage at the university, banning plastic bottles and non-recycled cups; choose second hand books, provide e-book; enhance collaboration with companies that care about environment; organize second hand fairs.*

B. Appendix

The University of Florence has decided to offset the carbon emission for participants coming to the Rectors' Assembly by plane, by a symbolic planting of a tree for each University. The trees were chosen to represent the country where the University is located amongst those that can reasonably be planted in Firenze. Our choice has therefore been:

Gift from the Associazione Vivaisti Italiani, referring organization of the Distretto Rurale Vivaistico-ornamentale di Pistoia.

Quercus robur (2 units), planted to symbolic compensate the travel emission of the **University of Cologne** & **University of Birmingham.**

Also known as Common Oak or English Oak, it was chosen because it's the one of icons of the English landscape where it's a national symbol of strength and also the symbol of Germany where the oak tree is used as a typical object and symbol in romanticism. Oak branches are displayed on the reverse of coins of German-issue Euro currency coins (1 through 5 cents). It's a large and deciduous tree, and it can grow up to 20/40 m tall. Its leaves are round-lobed with smooth edges. The flowering occurs in April/May and the leaves grow in bunches. Its flowers are long and yellow. Acorns are 2 cm long; as the ripen, the acorns turn from green to brown and they fall.

	Co2 stored	**Co2 assimilated**
New plant	6	5
Mature plant	6918	436

Pollutants abatement	**O3**	**NO2**	**So2**	**PM10**
Mature plant	0.2	0.3	0.4	0.2

Hulmus x hollandica, planted to symbolic compensate the travel emission of **Leiden University**.

Also known as Dutch Elm, a natural hybrid between Wych elm *Ulmus glabra* and field elm *Ulmus minor* which commonly occurs across Europe wherever the ranges of the parent species overlap, it's a deciduous tree and it can grow up to 40 m tall. The leaves of Dutch elm are slender egg-shaped with a long tip and the leaf margin is double serrated. The flowering occurs in February/March. The blossoms of the Dutch Elm are yellow and its fruits are samaras; they are elliptical with board wings.

	Co2 stored	**Co2 assimilated**
New plant	4	4
Mature plant	2842	259

Pollutants abatement	**O3**	**NO2**	**So2**	**PM10**
Mature plant	0.3	1.5	0.2	0.1

Tilia tomentosa, planted to symbolic compensate the travel emission of **Semmelweis University**.

Commonly known as Silver Lime or Hungarian linden, it is a deciduous tree and it can grow up to 30 m tall. The leaves of Silver Lime are heart-shaped, the inside of the leaf is snow-white and the leaf margins are sharp serrated. The flowering occurs in summer, from June to August. Its blossoms are yellow and its fruits are greenish spherical nutlets.

	Co2 stored	Co2 assimilated
New plant	3	6
Mature plant	2751	231

Pollutants abatement	**O3**	**NO2**	**So2**	**PM10**
Mature plant	0.3	0.6	0.2	0.1

Betula pendula, planted to symbolic compensate the travel emission of **Linneaus University**.

Also known as White Birch, Silver birch or Swedish Ornäsbjörk, it is a deciduous tree and it can grow up to 25 m tall. It's widely spread across the Scandinavian countries. The leaves of the White Birch are long and pointed, they are dull green on top and lighter green and slightly hairy underneath; the leaf margin is serrated. The flowering occurs in March/April. Its blossoms are yellow. Its fruits are catkins.

	Co2 stored		Co2 assimilated
New plant	8		4
Mature plant	1644		358

Pollutants abatement	**O3**	**NO2**	**So2**	**PM10**
Mature plant	0.1	0.1	0.2	0.1

Platanus x acerifolia, planted to symbolic compensate the travel emission of **University of Nantes**.

Commonly known as London Plane tree or hybrid plane, it is a deciduous tree and it can grow up to 40 m tall. It was largely planted across Europe during the XVIII and XIX century and it can be considered a symbol tree for the whole continent. The leaves of the London Plane Tree are deep green and yellow in autumn. The leaf base is often straight and the leaf margin is smooth. The flowering occurs in March/April. The male blossoms are greenish and the female blossoms are bright red. Its fruit is a spherical collecting fruit.

	Co2 stored	**Co2 assimilated**
New plant	6	5
Mature plant	6918	436

Pollutants abatement	**O3**	**NO2**	**So2**	**PM10**
Mature plant	0.2	0.3	0.4	0.2

Tilia x europaea, planted to symbolic compensate the emission of the students and professors of the **University of Florence**.

Also known as Common lime or Common linden, it is a deciduous tree and it can grow up to 40 m tall. The leaves of the Common Lime are heart-shaped, dark green on the upside and yellowish-green in the underside; the leaf margin is sharp serrated. The flowering occurs in June/July. The flowers are very scented, yellow and form cymes with up to 10 flowers. The fruits are green spherical nutlets. It was chosen because of its latin name that reminds Europe and it **symbolises the entire EUniWell consortium.**

	Co2 stored	**Co2 assimilated**
New plant	3	3
Mature plant	3237	231

Pollutants abatement	**O3**	**NO2**	**So2**	**PM10**
Mature plant	0.2	0.2	0.1	0.05