Complete list of propositions

Collection of revised propositions

This document contains the revised version of the Greener Biophore technical part outcomes. For each of the 5 areas, we compiled a list of **identified problems**, some **missing data**, and a **collection of propositions**. We also included a section of Transversal Solutions, that is, some overarching propositions that could foster improvement in various areas.

While we tried to maintain the propositions as close as possible to the form in which participants expressed them, we also wanted them to be clear and actionable. We thereby decided to **make some choices and some text changes**: improve readability, group similar propositions, attribute an actor (someone responsible for implementing the propositions), choose a perimeter (group rule, department policy, building coordinated effort, influence on the institutional perimeter, influence on the extended perimeter), attribute some time coordinates (a timeline or a frequency) where appropriate. The original version, as formulated by participants, is available in Annex 9 - Outcomes of the workshop technical part.

# TRANSVERSAL SOLUTIONS

* Create the **Biophore sustainability task force** (with representatives from the task forces of the 3 departments if they exist, or with 1 person per group from all groups), with the mandate to propose and coordinate sustainability efforts at the building level and potentially organise yearly/biyearly a Greener Biophore event.
* Appoint **one sustainability representative** (e.g., vice-director sustainability, the equivalent of the vice-rector at UNIL level and vice-dean in each Faculty) **in each department**, with the mandate to call a sustainability task force meeting twice per year, supervise its initiatives and coordinate with the repr. of the other departments.
* **Allow PhD students to devote part of their working time to extra-curricular activities** (e.g., collecting and analyzing data, organizing initiatives…) and writing a chapter of their thesis or a publication on the topic. Negotiate with the doctoral school the possibility of giving credits for such initiatives. Extra-curricular activities: sustainability, science communication, art & science, any sort of volunteering or public good in which science or the department is at least indirectly involved.
* **New hiring practices**: PIs address at least qualitatively the topic of sustainability in hiring interviews. It should not be a reason for exclusion, but it could be an extra point to distinguish among two equally valuable candidates.

# EXPERIMENTAL RESEARCH RESOURCES

LIST OF IDENTIFIED PROBLEMS

* **Over consumption of plastic and machines**. Due to abundant funding and consumables availability, ease of access and purchase, it is common to consume more plastic items than needed, or to purchase more machines than needed.
* **Lack of knowledge and awareness.** Researchers often have limited knowledge of the best practices to carry out sustainable research (materials, protocols, available alternatives…). Even when aware of alternatives, some researchers stick with their regular practices due to inertia or to the ‘superstition’ that certain resource-intensive protocols are better than low-tech alternatives. They are generally unaware of the financial and environmental cost of consumables and machines.
* Researchers **underestimate or undervalue** the precious work of technical staff in the kitchen and laveries. Since they do not see the labour-intensive and resource-intensive process that is behind media/buffers/chemicals preparation, they tend to ask for more than they actually need.
* **Inefficient or sub-optimal use of existing resources** and their maintenance. Resources are mostly managed at the group level, thereby there is a lack of sharing of equipment and chemicals. While there is some spontaneous intra-department sharing, the inter-department sharing is basically inexistent.
* **Waste and individualism**. Some of the underlying values of our consumerist society are reflected in the way we approach our research: focusing mostly on ourselves and the importance of our work, and using more resources than needed, considering waste as a mere externality that someone else will take care of.
* **Overconfidence about current or past efforts towards sustainability in research practices.** Some researchers believe our department/building/University have already taken great steps towards sustainability, and that we do not need further efforts. In particular, they argue that most efforts from research institutions are useless if bigger polluters do not commit to reduce their emissions.
* **Lack of resources for sustainability based projects**. There are not enough resources (money, time, expertise…) to carry out sustainability based projects.

MISSING DATA

We would need:

* more detail on the **consumables category ‘others’ or ‘mixed’**. We should change the ordering system so that only consumables belonging to the same category can be purchased in the same order. The official request could come from the CCD.
* more refined data on consumable usage at department / group level.
* Life cycle analysis (LCA) for the different consumables & machines. The data should be made easily accessible to users.

GROUP RULES

* One member (either the department sustainability task force representative or a lab technician) takes the lead to **prepare / re-organize common stocks of consumables**, and make sure the stock system is clear to everyone (which consumables are available, where they are located, how to correctly handle, separate, clean, store or dispose of them, how to refill when running short…).

DEPARTMENT POLICY

* **Increase the use of glassware**. The department sustainability task force identifies where the potential for replacement lies (which practices, which groups…) and supports people from the laveries to implement a washing and reusing system (collection, re-staking, distribution to users…).
* The department sustainability task force is responsible for organising every 3-4 months **a sustainability training for all newcomers** and regularly updates its content (sustainable practices, where to find and how to handle glassware and other autoclavable/reusable items, raise awareness about the precious work of people from the kitchens and about the financial cost of machines & consumables…). The training is highly recommended or even mandatory.
* The department hires **1-2 more people in the laverie** to ensure the correct washing and reusing of glassware.
* The department purchases a machine (and the appropriate adaptors, if needed) to **pour solid media in small Petri dishes** instead of regular ones.

BUILDING COORDINATED EFFORT

* 2-3 members per each department meet yearly and re-think the **Biophore magasin’s list to be more sustainable** (e.g., 10x10 glycerol stock boxes, paper ‘boats’ to weigh chemicals, local suppliers…). They coordinate with Christophe to remove or add items.
* The dept Directors assign the mandate to create **a database and a calendar for all machines at the building level**, to increase interdepartmental sharing. The database can serve as a logbook for the machine (info upon purchase, reports of malfunctioning and repair, …). Take inspiration from the system of *Ecole des sciences criminelles*.
* The dept Directors agree to hire and/or train **skilled professionals capable of repairing expensive equipment**, instead of buying new or being dependent on the provider for repair. Get advice from EPFL’s repair team for logistics and bureaucratic issues.
* PAT representatives of the 3 departments propose a pilot project to **share highly energy-intensive machines** (e.g. autoclaves) for 1 month. After the pilot, they evaluate the feasibility of a long-term interdepartmental sharing system.
* The dept Directors undertake or assign the mandate to negotiate with the appropriate interlocutor (e.g. *Ecole de Biologie*) a way to **encourage student’s projects on sustainability** (e.g. collecting and analyzing data, comparing equipment efficiency or footprint of different practices…). Students could be MLS, Essanté, but also engineers or others.
* The department sustainability task force creates **explanatory posters** that describe the environmental impact and the price of commonly used consumables or machines. Posters are hung in visible locations, like the Biophore hall. Alternatively, the price and the environmental impact of a machine could be written on the machine itself.

INFLUENCE ON INSTITUTIONAL PERIMETER

* The dept Directors negotiate with the FBM Decanat / Direction to have **more flexibility in the allocation of fundings according to real needs**. In particular, they ask to remove or modify the rule about reallocation based on previous year expenses, that incentives spending without real need (e.g. use the 5 previous years instead).
* The dept Directors undertake or assign the mandate to negotiate with the FBM Decanat / Direction **funding to use specifically for sustainability projects** (e.g. hiring specialized staff, purchasing special equipment for washing reusable items).
* The 3 departments collectively agree on a rule to **prioritize sustainability**, as opposed to lower cost, **when purchasing a new machine**, and invite the FBM Decanat to recommend (or to enforce) the same policy at the faculty level.

OPEN POINTS AND PHILOSOPHICAL QUESTIONS

* **What does it mean to have privileges in the academic world?** Having ‘too much money’ or extensive technical support (from kitchens, facilities and units…) gives invaluable opportunities, but results in over-using resources (spending without consideration, choosing the easiest/fastest option regardless of its impact, using machines just because we have them, doing experiments or starting projects just because we can afford them). **How can we use our privilege in a meaningful way?**
* There won’t be much research in a world at +3°C. **Can we redefine the concept of research quality in a way that includes the value of sustainability?** How can we rethink academic productivity, the publishing process and the university purpose?
* **How can we encourage low tech/sufficiency in research practices?**
* Greener Biophore participants felt there is a lack of resources for sustainability-based projects.

# COMPUTATIONAL RESEARCH RESOURCES

LIST OF IDENTIFIED PROBLEMS

* **Lack of awareness or knowledge** of the ecological cost of computing tools and of ways to diminish it.
* **Practical problems**. Hardware acquisition at UNIL does not consider how components are created/assembled, if it is possible to repair or upcycle parts (e.g. parts cannot be replaced to better fit higher computing needs). This leads to accumulation of old laptops due to purchases of more recent hardware even though the old equipment is still functional.
* **Over-consumption** of computing infrastructure (HPC cluster), data storage infrastructure, AI (in particular LLMs for research and education). Due to their large availability, ease of access, and very limited cost, it is easy to use more computational research resources than needed.
* **Disincentives or lack of incentives that lead to overconsumption**. In most aspects of computational research, there is no incentive for best practices, nor disincentive for worst practices. 1) UNIL lacks clear guidelines on how efficient programs should be written, and how the HPC cluster should be used, and a framework to implement such guidelines. 2) The process of archiving data on celluloid (Long Term Storage, LTS) and retrieving it from the archives is slow, thereby researchers do not archive data nor take time to do data management and rather store it. 3) Computing is very cheap with respect to other research resources (e.g. lab material), thereby it is not the first area to be considered when savings need to be made.
* **Systemic problems**. Research objectives do not include low/efficient resource usage, while they include abundance of research output, which is often closely tied to overuse of resources. There is a systemic pressure to run fast analyses to produce research output, without reflecting too much on the appropriateness of the approach, the efficiency of the process, and the relevance of the specific analysis. These are rather considered in retrospect, after the analysis is done.
* **Research culture and personal values**. 1) Replicability in science means that data is stored multiple times and at different locations (similar to samples in freezers), because the risk of data loss is considered unacceptable. 2) Standards are too high, thereby too many resources are used. For example, it is considered unacceptable for platforms (data, computing) not to be available 100% of the time. 3) Individualism: sharing hardware is considered uncomfortable, so researchers prefer having their own laptops. 4) Building green algorithms/failure-free programs is not valued morally by researchers. Researchers do not use existing offers to improve their code because time/comfort is valued more.

MISSING DATA

We believe a series of data and information would be necessary to have a better understanding of the problem and make informed decisions (e.g. carry out cost-benefit analyses).

* + **Hardware purchases**: historical data should be available in each department’s order list / reimbursement forms.
  + **Computational resources**: we need more refined data about cluster usage and data storage (which kind of data, frequency of access…).
  + **AI**: we suggest implementing a survey about the usage of AI (which models, which tasks, how frequently) in daily research practices. Also, we need better data on the environmental impact of AI (both training models and everyday usage).
* **Specific needs of computational resources for research**: a combination of hard data and researchers’ perception should be used, to clarify whether resources are used ‘just because they are available’ or because they are really needed.

Such a broad investigation could be carried out by the CCD with the support of some members of the DCSR service and some computational researchers working in Biophore.

PERSONAL BEHAVIOURS

* Each researcher should **limit the amount of computational resources** (computing power, data storage and AI, in particular Large Language Models) **to what is really necessary for their work**. Tension: Usage of computing resources responds to needs and a thorough analysis of the costs and benefits should be conducted: what would be the impact on research output?
* Each researcher should test their code before running it on a large dataset to avoid failure and over requesting memory. The **efficiency of a job submitted on the cluster** can be checked with the command *seff job\_id.*
* Prioritize the use of **shared desktops** instead of personal laptops.

DEPARTMENT POLICY

* The secretariat is responsible for **reallocating IT equipment** (laptops, desktops…) when new items are purchased. If an item is not suitable for computational research any more, it should be repurposed for less intense tasks. If an item is not suitable for any kind of work, it should be properly disposed of to ensure recycling.

BUILDING COORDINATED EFFORT

* The dept Directors agree to allocate one (or more) **room(s) where workstations can be shared** in multiseat configuration. Each group has fixed computers (desktops) and each new member does NOT receive a new laptop, but rather gets their own profile on the group's desktops. Such space should be designed in a way that minimizes privacy risks, especially for sensitive research data.

INFLUENCE ON INSTITUTIONAL PERIMETER

* UNIL puts in place **a coordinated strategy to create awareness about the environmental impact of research resources** and how to limit it:

1. The Dicastére Transition & Campus organizes a campaign to inform researchers about the ecological costs of computing (e.g. with conferences, posters or interactive installations)
2. The DCSR service implements an automatic feedback email to periodically (e.g. yearly or twice a year) inform researchers or group leaders about their usage of cluster computing or storage space (e.g. a few relevant technical numbers, the aggregated emissions over the period of time, and how it compares to previous years, to UNIL average and to the department average)
3. The DCSR service includes, at the end of the cluster training, a mandatory training about computational best practices, including environmentally-friendly computing (e.g. routinely using the green algorithms footprint calculator)
4. The DCSR carries out routine checks on particularly resource-intensive jobs, to make sure they are not over consuming resources due to inefficient code. Tension 1: Mandatory checks of building green algorithms/not using LLMs could slow research down significantly. Tension 2: do they have the capacity and the right to look into someone’s jobs and codes? Would it risk being perceived as a policing state?

* The dept Directors undertake or assign the mandate to negotiate with the Direction **an increase in the financial cost of data storage and cluster computing**, as a strategy to disincentive misuse.
* The dept Directors undertake or assign the mandate to negotiate with the Direction the possibility of **UNIL employees purchasing the IT items they have used** (desktops, laptops, tablets…) upon contract termination.

INFLUENCE ON EXTENDED PERIMETER

* UNIL should **advocate** for a system in which research groups **share data, analyses and results**, to learn from other’s processes and to avoid running the same process twice. Data, code and results could be available on the Github account of the group, which should be easily linked to the webpage of the group. Such a system should be designed in a way that ensures confidentiality and intellectual property and minimizes risk of ‘scooping’.
* UNIL should lobby/take political actions to **pressure technology companies** into producing environmentally and socially friendly hardware.
* UNIL should lobby/take political actions to make **producers internalize (pay for) the ecological cost** of computing resources
* UNIL should advocate for **data deletion** after 10-15 years of its creation if considered not necessary for more research. The metadata should be stored such that if someone needs the data, they know how to re-generate it. A structured policy should be formulated by the [data stewards](https://www.unil.ch/unil/en/home/menuinst/recherche/open-science/open-research-data/help/data-stewards.html) depending on the specific need of each faculty.

OPEN POINTS AND PHILOSOPHICAL QUESTIONS

* Researchers feel a **systemic pressure to run fast analyses** to produce research output. Is this healthy for research? Is this the kind of research we want in 2050?
* How can researchers define their research projects based on a **cost-benefit analysis of ecological cost vs. how research output contributes to society**? How can research objectives include low/efficient resource usage?
* A series of **personal values and research structural factors** disincentivize researchers to prioritize sustainability in their computational research practices:
* Replicability in science means that data is stored multiple times and at different locations (similar to samples duplicates in backup freezers). Risk of loss is considered unacceptable.
* Standards and expectations are too high, thereby excessive resources are used. For example, it is considered unacceptable for platforms (data servers, cluster computers) not to be available 100% of the time
* Individualism: sharing hardware is considered uncomfortable
* Building green algorithms/failure-free programs is not valued morally by researchers
* Researchers don’t use existing offers to improve their code because they value that they can spend their time better and are reluctant to change the way they work.

# ENERGY AND SPACES

LIST OF IDENTIFIED PROBLEMS

* **Unequal space distribution based on status.** In many departments, workspace allocation is often influenced by academic status rather than functional need. Professors often have spacious offices to themselves, while students and technical staff work in crowded spaces. This creates inequality in working conditions and undermines the principle of fair access to resources.
* **Desire for comfort vs. limitations of infrastructure.** Most people want a comfortable and quiet working environment. However, the layout and capacity of the Biophore doesn’t meet these expectations. This may be due to the building hosting more people than they were originally designed for, leading to overcrowded labs and shared spaces.
* **Outdated attitudes about home office.** Remote work is sometimes perceived as a sign of laziness or lack of seriousness. These attitudes discourage flexible working arrangements, even when home office can reduce energy usage, relieve pressure on physical space, and improve individual productivity.
* **Preference for cutting down over replacing.** Cutting down energy consumption is seen as more straightforward than replacing it with greener energy sources.When it comes to reducing energy use, there is often a tendency to simply cut access (e.g. restrict heating or limit shared equipment use) instead of exploring creative alternatives or energy-efficient upgrades. Sensitisation efforts, visual reminders, and educational signage can help shift this mindset.
* **A pessimistic outlook on small actions.** There is a common belief that individual or small group actions are negligible in the face of global environmental issues. This pessimism erodes motivation and delays collective efforts. Building a culture that values every action, no matter how small, can be a powerful driver of change.

MISSING DATA

* **Perceived Lack of clarity on energy sources and usage.** While UNIL has set ambitious goals for reducing energy consumption, there has been less effort toward replacing our current energy sources with more sustainable ones. We need to allocate more time, funding, and political will to understanding where our energy comes from and how much of it we use. Note from Greener Biophore organizers: information on this is available, so this is rather a lack of communication or perceived lack of information.
* **Absence of disaggregated energy data in Biophore.** At the Biophore building, we lack detailed information on electricity and heating consumption. Without knowing how energy is used by floor or department, it becomes difficult to identify major contributors or opportunities for reduction. Gathering floor-level data, especially since floors roughly correspond to departments, would allow for more targeted and transparent action. Note from Greener Biophore organizers: information on this is available, so this is rather a lack of communication or perceived lack of information.

PERSONAL BEHAVIOURS

* **Turning off lights at night.** A simple yet effective individual practice is to ensure lights in labs, offices, and corridors are turned off when not needed, especially overnight. Raising awareness about this low-effort action can lead to significant savings.

GROUP RULES

* **Encouraging trust in home office practices.** Groups are encouraged to adopt policies that allow and normalize working from home when appropriate. To do so, a foundation of trust must be built, where remote work is not equated with avoidance but recognized as a valid and sometimes more efficient way of contributing.

DEPARTMENT POLICY

* **Sharing lab equipment and storage space.** To reduce the duplication of high-energy devices (e.g. freezers, incubators…), departments should incentivize the sharing of both equipment and storage space across research groups. Not only does this reduce energy use, but it also maximizes the utility of existing resources. Tension: it is hard to attribute the cost of shared equipment, and its responsibility for maintenance.

BUILDING COORDINATED EFFORT

* **Space allocation based on needs.** Attribute space based on needs not on statusRather than assigning space based on academic hierarchy, office and lab space should be distributed based on actual work needs. This approach ensures fairness and better use of the available infrastructure. Tension 1: PIs do have a factual need of private space to have conversations more frequently than others. Tension 2: work needs change heavily depending on the time of the year, or even within the same week.
* **Shared and bookable spaces.** The building should offer shared office space and meeting rooms that can be booked online. This encourages better space utilization and helps decongest personal offices. A pilot test for people that want to try sharing, potentially with a system of rewards, could be implemented.
* **Transparent sharing of energy consumption data.** By sharing energy usage data at the group or department level, we can foster transparency, create peer accountability, and encourage friendly competition to reduce energy footprints.

INFLUENCE ON INSTITUTIONAL PERIMETER

* **Exploring more sustainable energy sources.** Departments should work with university-level infrastructure teams to identify and propose the adoption of alternative, low-carbon energy sources. This could include solar, district heating, or even partnerships with local renewable energy providers.
* **More motion detectors for lighting.** To minimize unnecessary electricity use, motion detectors should be installed more broadly in corridors, common areas, and bathrooms. These systems have already proven effective in several buildings and could be scaled up.

OPEN POINTS AND PHILOSOPHICAL QUESTIONS

* Who is **responsible** for the cost and maintenance of **shared** machines, resources, and spaces? Clarifying this would ease intergroup collaborations.
* How can we balance the need for personal **comfort** with the imperative to **share space** and reduce our environmental footprint?
* How do we shift cultural perceptions that stigmatize **home office**?
* How do we shift cultural perceptions that underestimate **small individual efforts**? How can we counteract pessimism and **make visible** the value of incremental, collective change?

# PROFESSIONAL MOBILITY

LIST OF IDENTIFIED PROBLEMS

* Some members of the community, particularly professors, travel frequently and often **exceed the needs of their academic responsibilities**. This leads to an unnecessarily large carbon footprint.
* In some cases, when researchers choose to **decline an invitation** to present at an international event explaining to the organizing committee that the reason is to reduce their carbon footprint, they are still asked to **recommend someone else** to take their place, which makes the researcher’s decision pointless.
* Factors that prompt researchers to take **a flight instead of the train** include: trip cost (the plane is cheaper), trip time (they cannot afford to spend too much time travelling), time for planning the itinerary (planning a flight is less time consuming).
* Many individuals choose to continue traveling because attending international conferences brings **prestige** not only to the researcher but also to other members of their research group, and it is beneficial for building **a strong CV**.
* People who value sustainability may feel **afraid of being judged** by others.

MISSING DATA

There is an apparent **inconsistency between the impact of aviation at the University and at the Biophore level**, which seems to be proportionally smaller. The current method used to estimate the impact of aviation at the Biophore level consists of considering the reimbursement forms for flights. **This method might not take into account certain trips** such as the ones paid by other institutions, or personally paid flights. We propose to:

* Clarify if the current figures on air travel are correct or an underestimate.
* Implement a yearly survey to declare all flights and check for flights potentially not captured by the system (e.g. flights when invited elsewhere, personally paid flights, students field trip…)

This could be done by the Department Sustainability Task Force in collaboration with the CCD.

DEPARTMENT POLICY

At the department level, the following measures could be implemented:

* The Dept Director and the PIs agree on a **limit to the number of authorized flights per person**, or to the amount of miles travelled. Tension: Restricting a student’s or professor’s ability to travel might restrict their professional development.
* When forming a **PhD committee**, the PI and the student preferentially **select experts that can travel** to Lausanne **by train**, otherwise they clarify from the beginning that **attending virtually** will be highly encouraged over coming in person (at least for the 8 month and the mid-thesis evaluation).
* When someone invites an external speaker that needs to fly, they are responsible to **ensure the speaker combines various activities**, instead of flying here - presenting - flying back. For example, they could organize a tour of talks with other interested departments/universities. Potentially, the reimbursement of the flight should be bound to a minimum number of days between the speaker's arrival and departure. The same principle should be applied when we are invited or travel for conferences elsewhere.
* **All departments implement the DEE flight policy.** The Department Directors are responsible for ensuring that the policy is respected. They need to have access to the flight related emissions of each group, and with the help of the department sustainability task forces they should calculate a fair carbon budget per group, once or twice per year. Each group is free to decide how to allocate their carbon budget. Tension: potential risk of inequalities among group members.
* Each PhD student is allowed only **one intercontinental flight per year**, but they are highly encouraged to make **a 6 month stay** in the country of destination.

BUILDING COORDINATED EFFORT

The following indirect measures could be implemented (at the department, building, and University level) to increase awareness about alternative solutions to air travel:

* Raise awareness of **train discounts** like interrail, eurorail, etc.
* Encourage an increase in the number of **virtual and hub-based conferences**, and reserve slots for virtual lectures during in-person congresses. Tension: There is a general belief that virtual conferences cannot substitute the value of face-to-face interactions and the superior networking opportunities that in-person events provide.
* Empower researchers to **respect their values** and be true to their decision to attend congresses virtually. Encourage communication between PIs and researchers to respect their decision of not traveling abroad due to climate anxiety.

Moreover, the internet could be exploited both as a means of promoting certain values, as well as a substitute for creating networks without traveling. In this regard the proposed measures are:

* On the university’s database with research groups (or ORCID, Researchgate, etc.), **share values and ethics of each lab**, as well as if they form collaborations with universities outside EU for their research.
* Create **a database of groups** by research subject **to promote local collaborations**. Implement a software that automatically creates a network of potential collaborations with people everywhere in the world, prioritizing local collaborations. Tension: the software should be trained such that it does not have a bias towards the western world. The Department Sustainability Task Force could try to implement a trial version of the database that is relevant for the Department groups.

INFLUENCE ON INSTITUTIONAL PERIMETER

The Department Directors might also push for changes at the University level by asking for:

* Implementing the following guideline: When forming a **PhD committee**, the PI and the student preferentially **select experts that can travel** to Lausanne **by train**, otherwise they clarify from the beginning that **attending virtually** will be highly encouraged over coming in person (at least for the 8 month and the mid-thesis evaluation).
* A platform for academics that provides tools allowing to find the **most optimal train itineraries below 9h-long**
* Making travel payment or **reimbursement** contingent upon selecting the option with the **lowest carbon footprint**.
* **Relaxing the mandatory mobility requirement** of some graduate programs: in some graduate programs, it is a requirement for students to complete research stays at different universities or research centers during their studies. As a result, students are often required to travel. Note from Greener Biophore organizers: we are not aware of any program (bachelor, master or PhD) within UNIL FBM for which mobility is a mandatory requirement. The proposition probably refers to programs in other faculties or other Universities

INFLUENCE ON EXTENDED PERIMETER

* All Biophore members could keep in mind their potential of influencing the extended perimeter by **raising awareness about the impact of air-travel and the importance of virtual talks**. For example, they could mention these topics after congresses talks, on their group websites or in publications.

OPEN POINTS AND PHILOSOPHICAL QUESTIONS

* Should the University footprint take into account, at least partially, the **emissions linked to personal travels**? How to balance the value of internationality and the value of sustainability?
* **Empower researchers** to respect their values and be true to their decision to attend congresses virtually.
* People who value sustainability may feel **afraid of being judged** by others.
* How to overcome the perception that **virtual conferences are substantially less appealing** than in-person conferences?

# BEYOND RESEARCH: FOOD

LIST OF IDENTIFIED PROBLEMS

* **Meat contributes disproportionately to CO2 emissions.** While representing only 9% of the mass of food consumed in the cafeterias, meat products contribute to more than ⅓ of the CO2 emissions linked to food.
* **Substitution of meat with eggs and dairy products.** The increased consumption of eggs and dairy products between 2019 and 2023 partly compensated the decrease in emissions achieved by reducing meat consumption
* **Centrality of meat.** For many people, meat is an irreplaceable element in a meal.
* **Large availability of meat options.** Many people decide not to cook their own meal, for a variety of reasons. Thereby they purchase their meals from the cafeteria, and options with meat are higher in number, making it an easier choice.
* **Poor quality and excessive price of vegetarian options.** The offer of vegetarian and vegan meals in the cafeterias is limited in number, excessively expensive for its content, and often not very good in terms of quality (taste and nutritiousness)
* **Consuming local, organic food is not an excuse for other impacts.** Often people have the perception that consuming organic or local food is sufficient to compensate for other impacts (e.g. that consuming a local organic steak is better than consuming non-local plant-based products, or that consuming local organic food offsets their emissions due to commuting by car).
* Clash with **guidelines and labels** (e.g. fourchette verte)

BUILDING COORDINATED EFFORT

* **For events** organized in Biophore (talks, conferences, networking sessions, team building sessions, thesis defenses, farewell apéros…), the organizer(s) should preferentially choose a **vegetarian or vegan menu**.
* For events organized in Biophore, organizer(s) should encourage participants to bring their tupperwares to **bring home potential food leftovers** to avoid food waste.
* The Department sustainability task force organizes (or reaches out to associations that can help organize) an **awareness campaign** to inform about the impact of meat and promote alternatives to meat. Tension: people might feel judged for eating meat.

INFLUENCE ON INSTITUTIONAL PERIMETER

A series of measures could be implemented **in UNIL cafeterias**:

* Propose “**CAP2037 meals**”, a series of meals with a low environmental impact. They can include a small amount of meat (e.g. chicken) as long as the total impact is lower than the threshold needed to achieve the CAP2037 objectives linked to cafeterias’ food.
* Make meals with low environmental impacts cheaper than meals with high impact, and potentially **subsidise low impact meals** by increasing the price of high impact meals.
* **Remove beef and lamb** from all menus.
* Increase the number of **vegetarian days** during the week.
* Reduce the number of non-vegetarian options and increase the **number of vegetarian and vegan options**.
* Increase the number of choices and the **quality (taste and nutritiousness)** of vegetarian and vegan menus.
* **Share** vegetarian and vegan **recipes** with the UNIL community, to inspire them.
* Propose **courses and training** specialized in plant-based diets to their employees.

OPEN POINTS AND PHILOSOPHICAL QUESTIONS

* The **perceived importance of meat** (cultural, nutritional…) is very high, especially in a rich country where cows are so iconic. How can we change the perception that meat is the only good/practical source of proteins? How can we disentangle the alimentation choices from the culture and values?
* When discussing the impact of meat and promoting alternatives to meat, some people **feel judged** and they are **worried of being punished for eating meat**. How can we encourage people to change their dietary habits without creating serious tensions?
* Often people have the perception that **consuming organic or local food is sufficient to compensate for other impacts** (e.g. that consuming a local organic steak is better than consuming non-local plant-based products, or that consuming local organic food offsets their emissions due to commuting by car). How can we replace perceptions with data-driven information and shift dietary habits accordingly?

# BEYOND RESEARCH: COMMUTING

LIST OF IDENTIFIED PROBLEMS

* **Cars contribute disproportionately to emissions.** Even though less than 10% of the UNIL community commutes by car, the cumulative CO2 emissions linked to car trips are more than half of the total.
* **Differences in commuting habits** between UNIL members. There are marked differences in the commuting habits of the UNIL community, **depending on their status** (PAT, students, PI). Measures targeted to each group might be needed to reduce the impact of commuting.
* **Comfort.** Commuting by car remains one of the most comfortable ways of moving (flexibility of timing, speed, independence from weather conditions, safety, avoiding cross…). It is hard for other forms of commuting to be competitive.
* **Poor infrastructures for low-impact commuting**. Since the infrastructures for mobility are planned and built around cars, driving remains the most practical way to move. Alternative ways of commuting (bike, scooter…) often lack enough safety in the streets, and the resulting feeling of danger is enough to discourage many people. In addition, there is very limited, if not at all, infrastructure for people with impaired mobility.

MISSING DATA

* It would be important to know the **motivations** that lead people **to commute by car**, to know which levers to use to change commuting habits. For example, would people care if the parkings were more expensive? Or if public transport was less crowded?

INFLUENCE ON INSTITUTIONAL PERIMETER

The University could implement a series of measures to reduce the environmental impact linked to commuting:

* Coordinate with the local municipalities and the city of Lausanne to create **more bike lanes** around UNIL, to increase safety and comfort of people commuting by bike.
* Provide **financial help** for public transport (e.g. subsidise the half-fare card) or electric bikes, or implement **week trial periods** for people that want to test an alternative way of commuting before committing to it (e.g. 1 week of public transport subscription).
* Promote **car sharing** among UNIL employees, for example by implementing an app, or making parking slots cheaper for people that do car sharing.
* **Reduce the number of parking slots, and increase their price.** Tension: this might negatively impact families or people that have no other option than commuting by car (for socio-economical, geographical or health reasons)
* Propose cheaper **parking subscription** that ensures access to parking slots **for 4 days per week**, to encourage home office or low impact commuting on at least 1 day per week. Or, implement **a cashback system** that rewards users for each parking day not used.
* Install **e-bike charging stations** in all buildings.
* Implement initiatives to **make low-impact commuting fun**, along the line of the bike to work initiative (friendly challenges, prize draw, events…)
* Implement a system of **shuttles** between UNIL and the main train stations (Lausanne and Renens)