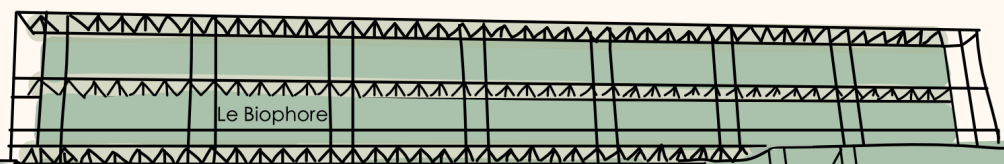# GREENER BIOPHORE

Greener Biophore
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Summary for Department Directors

Conversation on sustainable science

Le Biophore

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Summary for Department Directors

This document contains a selection of the policies proposed by Greener Biophore participants to reduce the environmental impact of our research practices. The first section '**Missing data**' highlights the gaps that would need to be addressed in order to propose data-driven, informed policies. While many measures addressed the individual and group behaviours, in this selection we collected some **high-impact propositions** that require inter-department cooperation, coordination with the Faculty, the University and other Units, and some degree of political power. We believe that this selection reflects the efforts that part of **the community** is willing to undertake, and **asks its governance for help in putting them into practice**.

Missing data

To clarify the footprint of <u>**Experimental research resources**</u>, 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.

- 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.

To clarify the footprint of <u>**Computational research resources**</u>, we would need more data on:

- **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.

To clarify the footprint of <u>**Professional mobility**</u>, we would need to address the 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.

Transversal propositions

1. 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.

2. 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 representatives of the other departments

3. **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.

4. The Dept Directors undertake or assign the mandate to negotiate with the appropriate interlocutor (e.g. Ecole de Biologie) a way to **encourage students' 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.

Experimental research resources

1. 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.

2. 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.

3. The Dept Directors negotiate with the FBM Decanat / Direction to have **more flexibility in the allocation of funding 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).

4. 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).

5. 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.

Computational research resources

1. 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.

2. 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.

3. 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.

Energy and Spaces

1. **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.

2. **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.

3. **Space allocation based on needs**. Attribute space based on needs rather than status. Rather 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.

4. **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.

5. **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.

Professional mobility

1. 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.

2. 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). The Dept Directors propose to implement the same guideline at the Faculty or University level.

3. 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.

4. **All departments implement the DEE flight policy**. The Dept 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.

5. 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.

Beyond research: food and commuting

1. **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**, and encourage participants to bring containers and take home food leftovers to **reduce food waste**.