



Labs Procurement Category – incorporating SRS considerations

Summer 2018 update

A full implementation plan is available from the Department for Social Responsibility and Sustainability.

What this category includes:

Procurement in the labs category covers a wide range of goods and services, including:

- Biochemical and chemical Reagents
- Analysis kits (DNA/RNA/Protein)
- Glassware
- Industrial and medical gases
- Lab apparatus
- Low volume produced products and custom products
- Mass produced media
- Pharmaceuticals
- Plastic-ware
- Protective clothing/textiles
- Sharps and surgical metals
- Solvents
- Large lab equipment

Total category spend – £50M p.a.

Key issues

Products in this category share some common issues: high energy consumption and associated carbon emissions, use of finite raw materials, long supply chains with unknown working conditions and hazardous materials.

Climate change

Many items of lab equipment are high **energy** consumers. For some items modern models provide a significant efficiency improvement. Further capacity should be sought through rationalisation of usage of existing equipment before purchasing new. Many lab consumables require temperature-controlled storage (fridge/freezer/incubator). For some of these consumables techniques exist which keep the product stable at room temperature, reducing the need for equipment. Animal lab facilities must tightly control air temperature and humidity – new cage designs and air handling units can reduce energy consumption for this.

Many items in the labs category have a substantial **embedded carbon** factor from a variety of sources: mineral extraction, processing and manufacturing, and transportation of items. This was noted as especially acute for analysis kits, plastic-ware, and large lab equipment, but almost all lab items have a reasonably high embedded carbon.

- Pharmaceuticals: 0.155 kgCO₂e / £
- Medical equipment: 0.412 kgCO₂e / £

Materials

Many products in the labs category may include **conflict minerals** (notably tin, tungsten, tantalum, and gold – “3Ts + G”). Those are minerals mined in conditions of armed conflict and human rights abuses, which are sold or traded by armed groups, effectively fuelling wars. This has for some years been a particular problem in the Democratic Republic of Congo, where over 5.4M people died in civil war between 1998 and 2008.

The University has a Conflict Minerals Policy which commits the University to continue its collaborative work to eradicate conflict minerals from its supply chains.

Labs may use so called **rare earths** – minerals which are particularly scarce and which can be mined in only a few countries around the world. Due to their scarcity, efforts should be made to ensure responsible



and minimal use of such minerals. Helium is also a finite and increasingly depleted resource. Many products in labs are produced from oil, another finite and depleting resource.

Some materials, such as bovine products, are produced predominantly by one country or company and market forces can create **scarcity** for customers.

Waste

Many lab activities produce waste, some of which is recyclable. Uncontaminated and decontaminated waste streams should be **recycled** and equipment should be advertised for **re-use**.

Many lab activities produce **hazardous wastes**. These require energy and resource intensive processing during disposal. It is important that no non-hazardous waste enters the hazardous waste streams to avoid unnecessary processing.

Polystyrene, used for packaging equipment and temperature sensitive products is particularly problematic, as there is little that can practically be done with it in terms of recycling or reuse.

The University is engaging suppliers on what can be done to eliminate polystyrene packaging.

Hazardous materials

The supply chains for some hazardous materials require further investigation to determine the sustainability impacts of **production**. Many suppliers of materials for laboratories will manufacture in countries with substantial amounts of well enforced legislation around hazardous material practices, but this may not be true for all products. Some non-hazardous products could involve hazardous materials during the manufacturing process (e.g. dyes and coatings). Many oil derived products will involve hazardous materials during process/manufacturing.

Biological or chemical reagents and industrial gases can be particularly hazardous and extra care must be taken in relation to storage, transport, **use** and disposal of hazardous materials. Some lab activities require radioactive materials.

Biodiversity

The extraction or growth of raw materials for the production of many items of lab procurement could have a negative impact on biodiversity (e.g. mining, oil extraction, mono-culture crop growing cotton for lab coats).

Genetically modified organisms (GMOs) may be used in some lab activities. Some GMOs have the capacity to impact on biodiversity through competition with native species.

Many waste products from labs have the potential to adversely affect biodiversity through pollution if not disposed of appropriately. To counter this, the university is legally obliged to ensure its waste is disposed of appropriately.

Heritage

There are no obvious considerations here.

Water

Many lab products will require water in the raw material extraction and manufacturing process (e.g. biochemical and chemical reagents, media, pharmaceuticals, cotton, oil derivatives).

Items of lab equipment, glassware, etc. will require waste consumption during sterilisation and decontamination processes (washing, autoclaving, etc.).

Various methods are used to purify water in labs (de-ionisation, reverse osmosis, filtration, distillation). Some of these processes are inefficient and produce little pure water compared to the impure water input (e.g. distillation).

Production of hydrogen as a lab gas requires consumption of water for electrolysis.

Water may be used to remove heat from experiments. This should be undertaken on a closed loop basis.

Waterbodies and clean water supplies are at risk from improper disposal of lab wastes (see waste section).



Employment, skills and training

There are some opportunities to improve new skills or jobs especially in sales and manufacture.

Health and wellbeing

Many lab activities and products pose risks throughout their lifecycle. Risk assessments and mitigation strategies are developed to address these by the appropriate body (manufacturer, transporter, user, disposer).

Communities

Risks to communities are mostly at extraction and manufacturing on an international scale. Please check the Fairly and ethically traded section to find out what we do about labour standards in our supply chains. Some volatile substances pose a risk to local communities around university campuses. Risk is mitigated through appropriate ventilation.

Security and crime

Risk of storing a variety of controlled substances which could be used to make narcotics or weaponised. Appropriate security practices are required (often by law) to mitigate risk.

Fairly and ethically traded

Manufacturing of electronics goods has a reputation of having very poor **working conditions**. Working 12 hrs/day, 6days/week, with no overtime pay, wages significantly lower than living wage, withholding documents, compulsory expensive living quarters, high recruitment fees, gender and nationality discrimination are all common in some supply chain countries (<http://electronicswatch.org>). There are reports of bonded or forced labour within electronics supply chains. There are also reports of child labour in medical devices supply chains.

The University is actively addressing those issues with suppliers and is a member of Electronics Watch (EW), however EW is currently only addressing ICT equipment, not lab equipment. There is a need to engage with suppliers of labs electronic equipment on

the same grounds, as many of the same issues apply as for ICT equipment.

Slavery still exists in the world today, from trafficking to bonded or forced labour, and affects a broad range of industries both overseas and within the UK. The International Labour Organization (ILO) estimates that over 20 Million people around the world are victims of forced labour. The University now has a duty to report annually on what it is doing to reduce modern slavery, under the UK Modern Slavery Act and has associated action plans.

Equality

Equalities factors including age, gender, sexuality, disability etc. must be considered regarding the workforce in supply chains for all goods – unfair discrimination must not take place. There are particular risks in the Medical Apparatus, Equipment and Instruments category. Male dominated market may limit options for women in relation to Personal and Protective Equipment, especially during pregnancy. Some lab activities (e.g. solvents) have an additional risk during pregnancy. Clean rooms are likely to be difficult to access for those with reduced mobility.

Fair work

There are some opportunities to implement fair work duties related to local working conditions, as some resellers and warehouses operate in the local economy.