

Environmental sustainability and scientific publishing: *a manifesto*

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Human impacts on the Earth have become so pervasive as to drive global scale changes leading some scientists to propose a new geological Epoch, the Anthropocene. A name which reflects the huge and sweeping changes human activities have caused to the Earth. Furthermore, these rapidly expanding and accelerating activities threaten to push aspects of the Earth system beyond the relatively stable and safe space in which the entirety of human history occurred, the Holocene. This safe operating space is characterised by a set of nine planetary boundaries (link <https://www.stockholmresilience.org/research/planetary-boundaries.html>) within which humanity should be able to continue to develop and thrive for generations to come. These include, Climate change, biosphere integrity, biogeochemical flows and freshwater use. Crossing these boundaries risks generating large-scale, rapid or irreversible environmental changes.

Reducing the environmental impact of our activities in order to keep within a safe operating space for humanity and the linked goal of providing a basic social foundation for everyone requires global actions. Every individual, company, institution and organisation, whether large or small, public or private, needs to contribute – ‘think global, act local’. Scientific publishing as a key player in discussing and disseminating research on climate heating and the biodiversity crisis has transformed from print to digital journals and e-books over recent decades but we must do more.

The European Association of Science Editors (EASE) is an international community of individuals and associations engaged in science communication and editing. As such, EASE can help and support its members to engage in different ways to achieve and communicate efforts to reduce our environmental footprints for example by becoming carbon-neutral (or even carbon negative) irrespective of the type of organisation they work in.

Below are some suggestions for how editors can take steps to reduce their environmental footprint in their own particular circumstances and thereby contribute to the overall effort to reduce environmental damages. Not all suggestions will be relevant to everyone and structural or organisational change will have a greater impact than individual actions, but together we can make a difference.

Environmental policy

Does your organisation have a written environmental policy? The scope and scale of the policy will depend on the size and nature of the organisation, from a couple of short paragraphs to a major strategy. Each initiative, for instance, actions to reduce single use plastic, or schemes to enable workers to work from home, should be monitored and its effectiveness evaluated. Good practice should be communicated widely, for example [SpringerNature](#)¹ and [Macmillan Publishers](#)². The policy should be reviewed regularly, with

the goal of gradually improving environmental performance. Even small changes can sum up substantially, and in the end will in many cases also save money and enhance reputation hence improving the competitiveness of a company.

The UN SDG Publishers compact provides a voluntary initiative, based on a ten step process, to support the UN sustainable development goals. EASE are a signatory and members may want to consider signing up and/or referencing the online guidance to support their own efforts <https://www.un.org/sustainabledevelopment/sdg-publishers-compact/>.

What should a policy contain? The following ideas are relevant to most editing/publishing organisations.

Go digital

Does your journal still have a print edition? If so, is it really necessary? If copies are printed for marketing purposes, can these be replaced by social media campaigns? Where print is appropriate, use recycled paper or that marked FSC (Forest Stewardship Council). In the European Union the manufacturing of pulp, paper, and printing is the fourth largest industrial energy user³. In addition, many readers still print pdfs so it is good to minimize borders and white space to reduce paper waste by readers.

Print journal distribution

Avoid plastic wrappers and carrier sheets. Paper is readily recyclable and the new potato starch wrappers which are biodegradable are increasingly popular, although these materials compete with the cultivation of staples and should therefore not be used in large scale. Alternatively, is your journal suitable to be distributed 'naked' with address details printed on it directly. Talk to your printer about what is best for your needs.

Office management

Switch to an environmentally aware search engine provider, such as [Ecosia](https://www.ecosia.com/). This eco-conscious search engine is entirely powered by solar energy and on average plants a tree in deforested areas around the world for every 45 searches made. In most cases the search results are comparable with Google. Find out more here <https://en.wikipedia.org/wiki/Ecosia>

Choose energy-efficient appliances, such as printers and computers. Choose devices which can be repaired and offer long lasting software support. Recycle printer cartridges, batteries and redundant computer equipment. Many office supplies outlets provide recycling services for these products.

Consider instituting restricted printing allocation to reduce unnecessary printing.

LED bulbs consume just one-tenth of electricity needed by their halogen equivalents, so small changes can provide big benefits. Lights which automatically turn off when no-one is in the room, are a great investment, and policies to not light buildings overnight should be considered. Encourage staff to turn off equipment before going home: many appliances, like laser printers, use considerable amounts of energy when in stand-by mode.

Make recycling easy by providing plenty of bins, clearly labelled and regularly emptied. Find out what happens to recycled items in your area. Many areas simply ship bales of recycled products to other parts of the world which might be self-defeating. You may be able to put some pressure on your MP or local council to find an alternative. Reducing and reusing is always preferable to recycling.

Use teleconferences for meetings whenever possible. This saves time, money and a lot of human energy. New technologies are proving to be powerful enablers in new ways of attending training, professional meetings and conferences. Organisers are becoming more astute at creating ways of enabling remote attendees, to not only see and hear speakers, but also to participate through channels like Twitter.

Food and drink

Provide large collective water coolers, from which people can top up their own water bottles, or install water fountains. Governments spend considerable resources ensuring tap water is safe to drink, so use it whenever you can. Encourage staff to bring their own reusable cups, both for drinks in the office and for when buying drinks on the way to work: outlets are increasingly willing to accommodate this and even reduce the price of the drink as a reward.

Food choices are some of the most significant for determining the size of an organisations carbon footprint but also freshwater use, and habitat destruction so meal choice is an important area for consideration. Source locally produced and seasonal food to reduce food miles. Purchase predominantly plant based food and if you wish to maintain choice make the higher impact options opt-in rather than opt-out. Think about what happens to leftover food, eg sandwiches or fruit so that waste can be reduced. Encourage the use of washable crockery and cutlery, rather than single use paper or plastic plates and cutlery. Provide suitable washing up and storage facilities.

Employee management

Encourage employees to use public transport, for example through interest-free loans or subsidies for rail season tickets. Provide cycle racks and changing/showering facilities for those cycling to work. The use of electric company cars and provision of charger equipment for e-bikes and e-cars are further options to reduce the carbon footprint. Car sharing with colleagues is also effective.

Flexible working hours help reduce commuting during rush hours. A home office option might be welcome by many employees with options to work at home perhaps one day per week or even full time. With teleconferencing and digital file sharing, remote working can be as or more efficient as being in the office, as many people have experienced during the pandemic.

Air travel has a particularly high carbon footprint. Employees should be encouraged to travel by train where possible, for example within a country or state: companies should consider whether to make such policies mandatory.

Building management

First, the carbon footprint of the building/office has to be determined and from there a policy can be developed to introduce changes to help it to be operated more sustainably. A properly insulated building will save significant energy for heating and cooling. The European Commission announced that approximately 50% of the energy used in Europe is wasted for this purpose⁴, and 84% of the energy used to heat our buildings comes from fossil fuels. In total, buildings are responsible for 36% of all CO₂ emissions in the EU⁴. Electricity is a key resource. Can it be produced on site, either to power the organisation or to sell to the grid? Most buildings have scope to install solar panels on the roof. The price of solar panels continues to fall and their efficiency is increasing. The self-produced energy can be used in the offices, the printing house, and to charge e-bikes and e-cars for employees or sold to raise revenue. For those unable to produce their own electricity, renewable energy can be purchased from a reputable provider through the grid, thus reducing the use of fossil fuels.

What actions are specific to editors as gatekeepers?

Editors have a strong influence on the public discussion of science. In collaboration with researchers editors can set new topics and substantiate political discussions. In light of the climate and ecological crises they have a crucial role in communicating nuanced messages which are in accordance with the best available evidence. All editors working on scholarly communication are gatekeepers who take responsibility for ensuring that published research has been conducted according to high quality procedures, is well reported and well communicated. In addition, editors are in a privileged position that allows them to advocate for high ethical and environmental standards in research and reporting.

To this end, EASE believes that editors should actively take steps to advocate for, and implement, strategies to promote environmentally sustainable behaviour and research and mainstream these ideas into their respective fields.

Editors can contribute by inviting articles that deal with the consequences of environmental change within their discipline, or by publishing special, themed issues that tackle aspects of sustainability. The diverse backgrounds and activities of EASE members offer the opportunity to drive awareness and change in all areas from humanities to pure and applied science. Editors are ideally placed to challenge authors and researchers to consider the environmental implications of their workflows and research, and to strive for continual improvement.

The sharing of good practice examples and novel concepts will help to raise awareness, inspire new ideas and create a proactive community at a local level which is vital if we are to succeed at a global level.

Please submit any comments, suggestions or examples of good practice to:

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References

1. <https://group.springernature.com/gp/group/responsible-business>
2. <http://sustainability.macmillan.com/>
3. <https://ec.europa.eu/energy/en/topics/energy-efficiency/heating-and-cooling>
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