JIGSAW

Environment Policy

Last reviewed	January 2023
Next review	April 2023

Purpose

At Jigsaw, our primary ambition is to contribute to lasting positive change in the world through building evidence for education. Actively tackling the climate and ecological crises by being environmentally conscious, reducing carbon emissions and prioritising sustainability are all central to this. Environmental sustainability is linked to all of our areas of technical work within the education sector (see Annex C for more details). In parallel, the work we do to build evidence should lead to a positive impact on the environment. This policy details how our operations and actions are designed to minimise negative environmental impacts and also contribute to positive impact, serving to outline the way that we work and our ongoing journey as a team towards more environmentally sustainable practices. We welcome any comments from those who have concerns or recommendations to further improve our approach.

Why this matters

Jigsaw fundamentally agrees with the global scientific consensus that we are in the midst of joint climate and ecological crises that are causing serious impact around the world. While this has a significant impact on everybody, the effects often disproportionately impacting those who are already the most disadvantaged. For an organisation like Jigsaw, we recognise that everything we do ultimately depends on environmental stability, and that organisations and individuals have the responsibility to take meaningful action to reduce their environmental impact and embrace sustainable practices, when they have the capability to do so. A full explanation of our position is detailed in Annex B.

Our work

Our technical work has strong links to the environment. For example, this K4D Emerging Issues report details the clear links between girls' education and climate change. The use of EdTech and digital technologies can also have a significant impact on the environment, particularly when the use of technology is not sustainable and prioritises the use of new devices. A full discussion of the intersections between the environment and our technical work is presented in Annex C.

In addition, Jigsaw is committed to upholding strong environmental principles during all client interactions:

1. We assess each client's environmental impact as part of our internal sales process to ensure we are not supporting environmentally harmful practices.
2. Our technical recommendations are driven by multiple factors, including environmental considerations. Our recommendations are always made with sustainability in mind, avoiding recommendations which may have negative environmental consequences.

How we operate

This section details how day-to-day operational decisions and actions aim to reduce our environmental impact. Where negative impacts are unavoidable, mitigation strategies are detailed.

Travel policy

We recognise that our work often necessitates international travel, which constitutes a significant part of our company emissions. Therefore, we have developed a clear travel policy to reduce our environmental impact through travel. The rationale and benefits underpinning this policy are fully explained in Annex D.

International flights

We are committed to reducing the number of flights through two action points:

1. We actively build long-term relationships with local research partners, reducing our need to travel.
2. We only fly when the trip would have a significant benefit to the work we are doing.

Alongside reducing the number of flights, we are further committed to mitigating the environmental impact of our flights through three main actions:.

1. We only fly economy class, and where possible direct (not multi-leg).
2. We will invest the equivalent of offsetting our annual flight emissions into Cool Earth, which works with indigenous communities to reforest local habitats critical for capturing emissions. We also plan to invest in additional offsetting and other environmental projects local to where we work.
3. We invest up to 5% of our annual profits into innovation and schemes that facilitate permanent carbon removal and storage (such as Sourceful Climate) and other nature-based solutions to restore critical natural habitats at risk from climate change.

Travelling to work

The following actions are designed to reduce emissions from commuting:

- The temporary and permanent UK office space locations were chosen to be easily accessible via public transport for all UK-based staff members.
- The office is fitted with showers and bicycle storage, and is located near multiple electric car charging stations.
- Jigsaw actively promotes a cycle-to-work scheme to make commuting by bicycle an affordable option.

Office space

In late 2023, Jigsaw will be moving into a new office space - 'The Lighthouse' - alongside REUK, based in Harlesden, London. Jigsaw provided a grant of £20,000 to be put towards sustainable design and development, with the following actions promoting a sustainable office space:

1. We have improved the thermal efficiency of the office through replacing all windows with either aluminium- or timber-framed double glazing, and adding an internal skin to the building to insulate all walls.
2. We are promoting sustainable energy consumption by running the building solely on electricity, obtained from a green energy provider.
    a. This includes heating the building through a mechanical ventilation system with inbuilt heat recovery, in addition to one or two small electric radiators.
3. We are promoting recycling through housing plants as active recyclers, in addition to fitting the office with general recycling bins and food waste bins, the use of which have considerable environmental benefits.
4. The office is fitted with a designated bicycle storage area and showers to encourage staff to safely travel to the office via bicycle.
5. Where possible we will limit the amount of new equipment and materials purchased for the office, endeavouring to reuse equipment or purchase second-hand, only buying new equipment when completely necessary. For example, the furniture for the office will be made using reclaimed wood.
6. When new equipment is purchased, preference will be given to products with a high energy efficiency rating and made using sustainable sourced materials. Preference will also be given to products proven to be durable with a long uselife and those sold by companies with strong environmental credentials.

A full explanation of the reasoning behind these points are explained in Annex E.

Additional operational actions

Alongside the office space and travel policy, the following operational actions are intended to reduce our day-to-day impact on the environment. These points are fully explained in Annex F.

1. All of the information technology systems used by Jigsaw are run by external services with strong environmental commitments. All of our internal document, email and calendar services are run by Google Services that are powered 100% by renewable energy. The Jigsaw website is hosted on Amazon Web Services (AWS) who used 65% renewable energy in 2021 and are committed to 100% renewable energy by 2025 and net zero carbon by 2040.
2. Part of Jigsaw's external-facing communication strategy will include posts on our social media channels on important sustainability and climate issues. Additionally, our annual Year in Review will contain a section detailing our environmental impact and key decisions taken relating to the environment.
3. Once we are fully operational in the new office space, we will undertake a rigorous assessment of our company emissions to identify our main weaknesses and scope strategies and specific targets to strengthen areas that require improvement.. We will then engage with a rhythm of annual reporting against these targets.
4. We are committed to actively promoting and encouraging digital clean-up activities[1]. A full list of examples can be found in Annex F.
5. Internally, we will run training and workshops to staff members who are interested in learning about sustainable practices. All staff members will further be encouraged to dedicate paid internal time to focus on sustainability and environmental issues, if they are interested.

Future priorities

It is anticipated that, as climate change continues to occur, our travel policy will become more rigorous. The reality of a changing climate has already:

- reduced the amount of international travel undertaken by Jigsaw staff members;
- increased emphasis on building relationships with enumerators and research partners;
- improved approaches and expertise in remote data collection to substitute for in-person data collection without quality loss;
- placed greater importance on the environmental credentials of new clients and projects within sales processes.

Listed below are the priority actions that are being considered internally to further strengthen the policy:

- Development and external certification of an environmental management strategy (EMS):
- Creation of an internal Trello board of environmental activities to monitor progress more closely and regularly

These action points are fully explained in Annex G.

[1]https://www.euronews.com/green/2020/04/22/sending-one-less-email-a-day-could-help-reduce-the-carbon-footprint-of-your-inbox

Annex A: Purpose

Article 2.2.4 of our Articles of Association requires the Directors to have regard for “the impact of the Company's operations on the community and the environment”. This policy explains how this is done in practice and details the ways in which our work, actions, and operations are designed to minimise our environmental impact in line with current evidence. This policy will never be a finalised document, but instead demonstrates our current way of thinking regarding environmental issues that are relevant to Jigsaw’s core work. The ambition is for the policy to be a ‘live’ document that is continuously updated based on emerging evidence and the practical realities of the drafted policies.

Annex B: Why this matters

There is global scientific consensus that we are in the midst of a critical climate crisis. The last decade (2011 - 2020) was the warmest on record, and it is indicative of the alarming, persistent and long-term trend of warming that the last 7 years have been the 7 warmest on record[2]. Jigsaw recognises that this warming has been driven largely by human-induced greenhouse gas emissions. In 2019, atmospheric carbon dioxide (CO_2) concentrations were higher than at any time in at least 2 million years, and concentrations of methane (CH_4) and nitrogen dioxide (NO_2) were higher than at any time in at least 800,000 years[3]. This demonstrates the extent of the crisis that the entire planet is currently facing.

Despite agreements to try to limit global warming to 1.5°C above pre-industrial levels, most recently at COP27 in November 2022, international commitments often fail to overcome the real challenges and deliver the compromise that is needed to limit warming to this temperature [4]. It is therefore essential that organisations take the appropriate action that they are able to, to prevent continued warming. Without further action, it is estimated there will be 2.7°C warming above pre-industrial levels by the end of the century[5]. As a result, we recognise the importance of taking important and meaningful action. In particular, we accept the scientific consensus that:

- our climate is changing rapidly;
- unless carbon emissions reduce more quickly than currently predicted before 2050 we will see global warming of 1.5°C above pre-industrial levels;
- global warming of this magnitude will do long-term damage to our planet that is irreversible for millennia and make life difficult for many people; and
- the impacts of climate change will be felt disproportionately by the poorest people on the planet;
- this is despite the drivers of climate change being largely driven by the wealthiest people on the planet. The 100 least-emitting countries generate just 3% of total emissions, compared to the 10 countries with the largest emissions contributing 68%[6].

In particular, it is important to recognise that warming is just one effect of the current dramatic climate shift. Impacts include but are not limited to:

- melting polar ice and rising sea levels. Changes in the ocean, ice sheets and global sea level are expected to be the longest lasting impacts of climate change[7];
- more varied water patterns characterised by longer and more intense periods of drought and water scarcity, and intense rainfall and flooding;
- declining biodiversity;

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[2] https://news.un.org/en/story/2022/01/1110022
[3] https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_SPM_final.pdf
[4] https://www.un.org/en/climatechange/cop26
[5] https://www.un.org/en/climatechange/what-is-climate-change
[6] Ibid.
[7] https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_Headline_Statements.pdf

- more extreme weather events.

As a result, environmental sustainability goes beyond the much discussed issue of greenhouse gas emissions, but encompasses a broad set of ecological considerations. Our planet and ecological sphere is a finite capital resource that should be carefully stewarded and is as important as other capital resources under our influence (money, people, intellectual property, etc.). To achieve ecological sustainability, it is imperative to not overextend the Earth's natural resources and remain within its planetary boundaries, which define the environmental limits and resource use within which humanity can safely operate[8]. There is recognition that we are currently overextending many of these boundaries[9], with the current use of natural resources generating unsustainable stress on the ecological sphere.

The quality of our natural environment is also an important factor in determining human wellbeing, and is intrinsically linked to multiple social indicators. One conceptual tool denoting this relationship is that of a 'doughnut economy'[10] which spells out the key challenge facing current decision-makers. Current resource distribution is overextending natural resources and surpassing the 'ecological ceiling', whilst there is a shortfall in many social indicators such as education, particularly in low-income contexts. There is a crucial need to address this shortfall and improve global standards of social indicators such as education and gender equality, while simultaneously reducing the current overexhaustion of natural resources. This policy details Jigsaw's approach to this complex issue.

[8] https://www.science.org/doi/10.1126/science.1259855

[9] https://www.stockholmresilience.org/research/planetary-boundaries/the-nine-planetary-boundaries.html

[10] https://doughnuteconomics.org/about-doughnut-economics

Annex C: Our work

Girls' education and climate change

The majority of Jigsaw's work engages directly or indirectly with promoting access to education for marginalised girls. This is recognised as one of the most effective ways to address climate change. Evidence from this Wired article and analysis from Project Drawdown (which positions girls' education as 6th most significant global strategy for tackling climate change) details the clear link between girls' education and climate change.

Evidence on the links between girls' education and climate change, such as those in reports published by the Malala Fund and K4D, highlights four significant reasons why focusing on girls' education is important for addressing climate change. These are: education increases the opportunities for women to enter political and social leadership positions where evidence shows they are more likely than their male counterparts to make environmentally conscious decisions; education equips women with the skills to increase household and community level resilience to the impacts of climate change; increased education opportunities (particularly STEM opportunities) equips girls better to participate in low-carbon economies; and recognising that unmitigated climate change will disproportionately impact education for girls.

Some evidence (such as this analysis from Project Drawdown) also highlights the role of education in terms of impacting reproductive health and choice, and its benefit to the environment through reducing population growth. However, this is problematic as it risks oversimplifying the links between education and reproductive health[11], and fails to address the patterns of emissions that are responsible for driving climate change by instead focusing only on the number of emitters[12]. Additionally, this focus can distract attention from the need to take the most significant action in regions of low population growth but significantly higher levels of carbon emissions per capita, with it being essential to recognise that the vast majority of emissions are centred on a small number of countries and corporations with decision making personnel based in the Global North.

However, we recognise the clear interdependent relationship between the education of marginalised communities (especially girls) and climate change, particularly:

- "the effects of climate change and environmental degradation are generally not gender neutral, typically affecting women and girls more than their male counterparts".[13]

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11 https://plan-international.org/publications/climate-change-focus-on-girls-and-young-women/#download-options

12 https://www.devex.com/news/opinion-girls-education-as-a-solution-to-climate-change-is-about-more-than-fertility-96867

13 https://opendocs.ids.ac.uk/opendocs/bitstream/handle/20.500.12413/16523/EIR_29_Education_Girls

- "when girls and women are better educated and included in decision-making at all levels, their families and communities are more resilient and adaptable to economic and environmental shocks and are better able to plan for, cope with, and rebound from climate crises".[14]

We therefore view our work within girls' education as an important contribution to the fight against climate change more broadly. We will continue to seek work which falls within this area. Jigsaw's work in education also addresses the sustainable development goals, in particular SDG4 to "ensure inclusive and equitable quality education and promote lifelong learning opportunities for all".[15] By advancing the sustainable development goals, Jigsaw is indirectly supporting a global policy shift that prioritises sustainability within a range of environmental and social indicators.

EdTech and climate change

The relationship between EdTech (and digital technologies more generally) and the environment is complex. While there are many identifiable environmental benefits of increasing the use of digital technologies in learning, such as reducing the emissions associated with campus-based learning, and reducing the need to reproduce paper-based resources, the use of EdTech and digital technologies can also have a significant negative impact on the environment, particularly when the use of technology is not sustained and prioritises the use of new devices. Resultantly, there are currently significant questions being asked of the EdTech sector on how to engage with digital technologies in a more sustainable way, but there is a lack of sufficient evidence for how EdTech could and should be used more sustainably to address these pressing concerns.

To ensure that the use of EdTech has as low an environmental impact as possible, Jigsaw endorses and actively promotes the Principles for Digital Development in our work with clients. Several of the principles are directly focused on promoting environmentally conscious use of digital technologies, such as #2 understand the existing ecosystem, #4 build for sustainability, and #7 reuse and improve. Promoting these principles ensures that the resources and environmental impact necessary to deliver EdTech interventions are minimised as much as possible. Jigsaw will also always include the environment when discussing the sustainability of EdTech interventions.

Jigsaw also recognises that the currently available empirical evidence on the specific impact that education technology is having on the environment is very limited. Jigsaw is therefore actively committed to furthering the evidence base of the environmental implications of EdTech, and where appropriate to providing input to the EdTech sector more broadly to

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%27_Education_and_Climate_Change.pdf?sequence=1&isAllowed=y#:~:text=This%20study%20found%20that%20for,19)

[14] https://www.brookings.edu/wp-content/uploads/2017/09/platforms-for-girls-education-in-climate-strategies.pdf

[15] https://sdgs.un.org/goals

further the conversation on how the environmental consequences of using EdTech can become more central to decision-making and policy within the sector.

Refugee education and climate change

The continuing impacts of climate change are significantly affecting education for refugees in two main ways. First, the changing climate is resulting in an increased number of climate migrants who are defined as "persons or groups of persons who, for compelling reasons of sudden or progressive changes in the environment that adversely affect their lives or living conditions, are obliged to leave their homes or choose to do so, either temporarily or permanently, and who move either within their country or abroad".[16]

In 2021, 23.7 million people were internally displaced due to natural disasters and extreme weather events. This number is expected to continue to increase, and could even reach as high as 1 billion people by 2025.[17] The catastrophic effects of climate change are no longer isolated emergencies but have become the new global norm, and this is a reality that is only intensifying each year. Those who are displaced by the effects of climate change face significant additional vulnerabilities in terms of accessing education, for example being taught in a non-native language or missing legal documentation required for school registration, as well as other socio-economic barriers (which are listed in UNICEF's Agenda for Action for Refugee and Migrant Children).

Second, climate change and extreme weather events are increasing interruptions to education, and reducing access to education (particularly safe learning environments) for refugee children. Increasingly extreme weather conditions are increasing infrastructural damage to educational facilities (such as schools) as well as to roads and other systems that facilitate access to education. This means that education systems have reduced resilience to absorb refugee children and provide a non-disruptive learning environment for refugees who have already experienced disproportionately high disruption to their education.

To tackle these challenges, climate change induced migration and its impact on refugee education requires support both before and after displacement. By continuing to work across the refugee education sector, Jigsaw can help build the evidence for effective strategies to tackle or mitigate these challenges, and improve education opportunities for refugees.

Contracts and sales process

Jigsaw works closely with a range of clients, and each new piece of work is carefully considered following an internal sales process. Each client will have their own environmental impact and policy, and by engaging with them Jigsaw is indirectly promoting or accepting their environmental practices. To ensure that these values are aligned with our commitment to

[16] https://www.unicef.org.uk/policy/climate-migration-and-education/
[17] ibid.

sustainability, each client's environmental impact (to the extent known) will be considered within our internal sales process and decision-making.

Our primary work is to build evidence in education in low-income settings, and work towards this objective will remain the primary focus of any sales process. However, by more consciously engaging with the sustainability and environmental impact of our clients, we can begin to further minimise the negative environmental impacts resulting from our work, and ensure the impact we have in building evidence for education is done with conscious consideration of environmental consequences.

Recommendations

The focus of our research, evaluation, and strategy technical work is to generate recommendations that outline evidence-based, strategic next steps for programmes, organisations, and decision-makers in education. One core aspect of our recommendations is to focus on the sustainability of any intervention, as this is how long-term impact and change is achieved. Focusing on this continued usage also has an environmental implication, whereby resources are stretched and used as far as possible, and any negative environmental impacts associated with those resources are less wasteful and achieve maximum impact. We are often asked to assess 'sustainability', but this does not usually include an explicit assessment of the environmental sustainability of a given programme. It is important that where possible we will endeavour to encompass the environment in assessments of sustainability.

Our recommendations regarding the effective use of technology in low-income contexts are driven by multiple factors, including environmental ones. For example, within education, we advocate for technology to be used primarily at systems level rather than in expensive and wasteful distribution of new hardware on a 'one per child' basis. We also advocate that, more often than not, interventions should be focused on technology that communities already have access to, rather than actively introducing new devices. Our recommendations will also be made with environmental good practice and sustainability in mind, and we will avoid recommendations that may lead to negative environmental impacts. In particular, when we are considering the sustainability of an education programme, particularly in relation to evaluations or Value for Money assessments, environmental sustainability will always be a core component of our definition of 'sustainability' that will be assessed.

Annex D: Travel Policy

Flights

Aviation emissions are a significant driver of climate change. Although the aviation industry is only responsible for around 2.5% of global CO_2 emissions[18], other emissions from air travel have a broad impact on climate change, contributing to both cooling and warming as seen in this chart. Overall, Lee et al. (2020) calculated the 'radiative forcing' (i.e. the difference between incoming and outgoing radiation energy to space) of air travel, approximating that it accounts for 3.5% of radiative forcing, or 3.5% of total warming. Two thirds of this warming is driven by non-carbon forcings, in particular water-vapour and contrails.

It is important to recognise that Jigsaw's work often necessitates international travel . Despite this, we are taking important steps to reduce the number of annual flights we take, and reduce the negative environmental impacts associated with taking flights.

The first point to consider is our policy to justify whether flights are necessary. We have spent time building up relationships with excellent local research partners in regions, such as Research and Development Management Ltd (RDM) based in Uganda, with whom we have collaborated to deliver high quality research in the region. Actively building research partnerships reduces the need for Jigsaw staff members to fly internationally in addition to enhancing the quality of our work and transferring greater ownership of research practices to the Global South. During Covid-19 we have also developed and utilised considerable expertise of virtual data collection methods, which will continue to be used in preference to face-to-face data collection if there will be no discernible impact on the quality of data.

Another step is that we do not fly business class even when our clients offer to pay for business class tickets. This is because flying business uses around three times as much carbon as economy class. Each individual decision not to fly business class also has a positive impact on the overall market demand. Full details of these benefits can be seen in a BBC article here and an Independent article here. Table 1 summarises the differences in emissions.

Table 1: Aviation emissions for long-haul flights departing from the UK (Source: DBEIS and DEFRA, 2021)

Class	All emissions Including indirect effects of non-CO_2 emissions ($gC0_2e$), per passenger per km	Direct effects of CO_2, CH_4 and N_20 emissions only (gCO_2e), per passenger per km
Economy class	145	78.2

[18] https://ourworldindata.org/co2-emissions-from-aviation

Premium economy class	237	125
Business class	429	227
First class	591	313

In addition to this, we try to fly direct rather than multi-leg even when this is more expensive, because takeoff and landing are the most carbon-intensive elements of flight.

Offsetting and mitigating emissions

Despite this, we recognise that there is still a significant environmental impact when we do choose to fly, and that it is essential to manage and mitigate these negative environmental impacts as appropriately as possible. Given that air travel is the most significant aspect of our emissions, particularly avoidable emissions, it is appropriate to discuss our broader mitigation strategies within this section.

One approach we are taking is being committed to offsetting our flights. As previously mentioned, due to the variety of emissions associated with international travel by air, we recognise offsetting carbon emissions alone is insufficient as a mitigation strategy to counter the negative environmental impacts of flying, and other mitigation strategies are discussed in the subsection below.

Our core position is that offsetting and other mitigation strategies, when accompanied with a conscious descaling of activities that generate negative environmental impacts, is a powerful approach. This descaling of activities leads to a more rigorous consideration of whether we partake in environmentally damaging practices and activities. We are committed to scaling back on our environmentally unfriendly practices where we can, without compromising our main priority to build evidence in education in low-income settings.

However, offsetting needs to be done correctly. There are a number of considerable issues with offsetting, detailed in this excellent Friends of the Earth article which we recommend reading in full, particularly when offsetting is adopted as a primary mitigation strategy. In particular, we agree with the sentiments detailed in this article that:

- Offsetting is currently being used as the primary strategy of reaching net zero for many governments and businesses that want to avoid tough decisions and avoid actively seeking to re-evaluate their environmentally harmful practices, allowing them to perpetuate business-as-usual long term strategies. Take for example UEFA who are outwardly committed to 'net-zero' emissions by 2040 in a strategy primarily focused on offsetting, yet are actively expanding their European competitions serving to increase aviation emissions. Prioritising offsetting over other broader nature based solutions is also reported to be accelerating the rates of climate change.
- Offsetting alone fails to address the problems with removing carbon from permanent stores (fossil fuel extraction) and adding it to more fragile and short-term methods of

storage (tree planting). The best way to reduce carbon emissions is therefore to actively reduce fossil fuel consumption as much as possible.
- Simply investing in nature restoration to offset carbon emissions is therefore not a viable solution; offsetting and similar investments should not be presented as an excuse to continue fossil fuel-based business as usual, and is insufficient to achieve true net zero.
- In particular, aviation is difficult to decarbonise, and so constraining demand for flights is essential.

One additional consideration is that the popularity of offsetting requires a significant volume of land, which is often purchased in the Global South. This creates an ethical issue of 'green grabbing' where land in the Global South is being primarily used, due to its availability and price, to prioritise prevailing Global North environmental perspectives (needing land to plant trees) over those in the Global South (needing land to grow food, as an example). Oxfam estimated that this repurposing of land for tree planting over food production could push food prices up 80% by 2050. As a result it is also important that offsetting programmes do not displace communities or subvert their needs for land, and are approved by local communities.

A 2021 FAO review of 250 studies demonstrated that indigenous and tribal communities are essential to the protection of Latin American forests and ecosystems, with significantly lower deforestation rates where governments formally recognised indigenous and tribal people's collective land rights. As a result, we are committed to investing the equivalent cost of offsetting our air travel with Cool Earth, which works with indigenous communities. We will continue to evaluate the scheme to ensure it is working with communities in the right way, as these schemes can still create issues, such as through 'grabbing' land.

Other mitigation strategies

Alongside offsetting, we are committed to wider policy that recognises that the impact and drivers of climate change go beyond carbon emissions. To achieve this, offsetting alone will not be the extent of our contribution to mitigating negative environmental impacts produced through our air travel and broader work. We hope in this document to have demonstrated that we are actively and fundamentally committed to changing company practice to reduce the fossil fuel consumption necessary to operate as a business, and are not using offsetting to enable long-term 'business-as-usual' practice.

One important challenge highlighted in a recent report by UCL and Trove Research is that current voluntary carbon offsets are extremely cheap, with a current cost of between £2 - £3.50 per tonne. This low rate is problematic as it attracts significant investment, which can hinder the financial support necessary for the innovation and deployment of more expensive, yet more effective innovation and mitigation strategies. The research argues that a higher level of investment is needed in voluntary carbon markets, to allow investment in projects that permanently remove carbon to flourish, to facilitate real emissions reductions and carbon removal.

Therefore, alongside offsetting flights we are also committed to investing 5% of our annual profits, as part of our mandate as a social enterprise, into innovation and schemes that facilitate permanent carbon removal and storage, such as Sourceful Climate. Additionally, some of this investment will go towards broader nature-based solutions, which not only act as carbon stores but also repair and restore critical natural habitats being damaged through climate change. This is because we recognise that the impacts of climate change are already being experienced, and a sole focus on carbon removes attention from other important ecological issues that exist. Similarly to offsetting, we agree that investment in such schemes are only effective when accompanied by a broader shift in practice to actively reduce the volume of fossil fuels used, and these schemes need to be of a high quality.[19]

Seddon et al. (2021) detail important considerations for investing or supporting nature-based solutions. Most importantly, they should encompass a broad range of ecosystems (not just trees and forests), should be implemented with the full engagement and support of local communities, and should be beneficial for biodiversity. We will endeavour to invest in projects that follow these principles, and the IUCN's Global Standard for nature-based solutions when investing in nature-based solutions.

Travelling to work

The new office space is based in London, a city which has excellent transport links to facilitate easy travel within the city, and is also easily accessible by public transport to other UK cities. This means there is no requirement for staff to use a car, even for those staff who are commuting from outside of London. The office is easily accessible by National Rail and Transport for London services including buses and the underground. The environmental benefits of using public transport over a personal vehicle are outlined in Table 2.

Table 2: Emissions levels for different transport modes (Source: DBEIS and DEFRA, 2021)

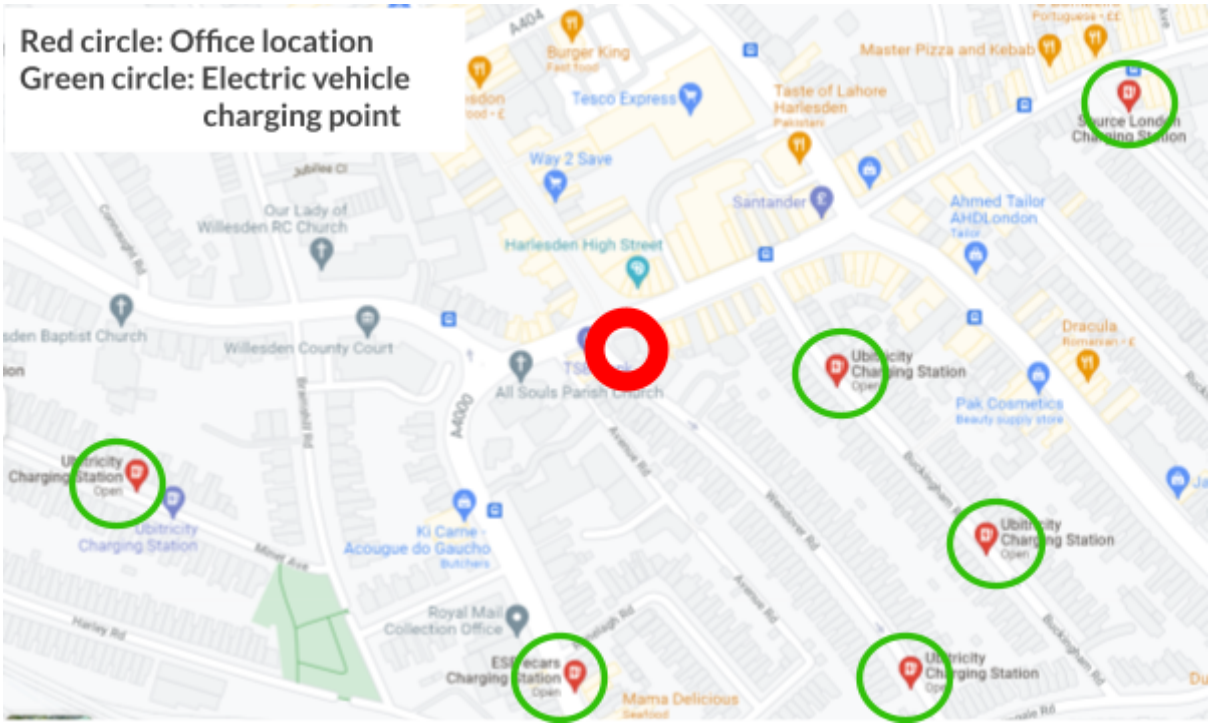
Vehicle type	Emissions (gCO_2e), per passenger per km (including average electricity recharging emissions for electric vehicles)
'Average' battery electric vehicle	5
'Average' diesel car	168
'Average' petrol car	174
'Average' plug-in Hybrid car	97
Local London bus	77
London Underground	28

[19] https://www.naturebasedsolutionsinitiative.org/news/on-the-misuse-of-nature-based-carbon-offsets/

National Rail	35

Table 2 also demonstrates that, if a personal vehicle is necessary for travel, using a battery or hybrid electric vehicle produces significantly fewer emissions than a fossil fuel powered car. The new office space is located near multiple spaces for charging electric vehicles, as shown in Figure 1, so that commuting using an electric vehicle is a possibility.

Figure 1: Location of electric vehicle charging points near the new office building.



The new office is also fitted with showers and bicycle storage space to encourage travel into work via bicycle or exercise, to encourage staff to cut-out emissions when travelling into work if they can. Alongside this, Jigsaw actively promotes a cycle-to-work scheme to make commuting by bicycle an affordable option for staff.

Annex E: Office space

Office space

In 2023, Jigsaw will be moving into a new office space 'The Lighthouse' alongside REUK, based in Harlesden, London. There were many sustainability considerations and actions taken during the development of the building. While the office space redevelopment has primarily been the responsibility of REUK, Jigsaw provided a grant of £20,000 to be put towards sustainable design and development. It is worth noting that the redevelopment has not yet been completed, and it is anticipated that steps taken to improve the sustainability of the office space will continue to be taken once both organisations are operating within the building.

Sustainable design

A sustainability consultant was hired to advise on how to make the refurbishment of the office space as sustainable as possible. The main recommendation to emerge was improving the fabric of the building to make it more thermally efficient. As a result, the following steps have been taken to improve the thermal efficiency of the office space:

1. All windows are being replaced with either aluminium- or timber-framed double glazing
2. The building is single brick, and so an internal skin has been added throughout the building, except from in the basement, allowing insulation to be added to all walls of the building.

Sustainable energy consumption

To promote sustainable energy consumption, all gas supply has been removed from the building, which will run solely on electricity. The office space will use a green energy provider, ensuring that electricity usage is sustainable and carbon neutral to as large an extent as possible.

The building will also be heated through a mechanical ventilation system and one or two small electric radiators. The mechanical ventilation system is necessary due to local pollution levels in Harlesden. However, the mechanical ventilation system will have heat recovery built into it, to minimise the energy that is required to appropriately ventilate the building.

Active recycling

The office will include food waste bins, for organic food and drink waste, with the collection of foodbins being a service that is already provided by Brent Council. Using a food waste bin with Brent Council ensures organic waste is recycled into compost, reducing the volume of greenhouse gas emissions from landfill.

The 2021 greenhouse gas conversion factor data provided by DBEIS and DEFRA demonstrate how powerful using a food waste bin can be. Organic food and waste drink emits 626.875kg of CO_2 (equivalent)[20] per tonne, in comparison to just 8.951kg CO_2 (equivalent) per tonne when composted. Using the food waste bins in the office to be recycled into compost therefore contributes just 1.43% of the emissions that would be released if organic waste was sent to landfill. This is due to the high quantities of methane released by organic waste sent to landfill.

Office facilities

Office facilities can help to promote sustainability and environmentally friendly practices::

1. The office will be fitted with showers to encourage and enable staff and visitors to travel to the office on foot or by bicycle.
2. The office will have a designated bicycle storage area so that staff can safely secure their bicycles during the day.

[20] Note that CO_2 equivalent expresses the impact of other greenhouse gases, in terms of the volume of CO_2 that would create the equivalent amount of warming.

Annex F: Additional operational actions

Information technology

All of our internal document, email and calendar systems are run by Google. Google services are powered 100% by renewable energy achieved through large purchases of renewable energy. However, this does not mean that it is totally carbon neutral, as recognised by Google's own policy of aiming to operate entirely on carbon-free energy by 2030.

The Jigsaw website is hosted on Amazon Web Services (AWS). AWS used 65% renewable energy in 2021 and is committed to 100% renewable energy by 2025 and net zero carbon by 2040. In May 2021 AWS also launched a clean energy accelerator for start-ups, providing $50,000 and 75 hours of technical support to finalists.

Procurement

When we purchase materials, such as tablets and office equipment, a number of environmental considerations will be made before final purchase:

Shorten following bullet points:

- There will be in-depth consideration of whether buying new equipment is necessary, or whether we can reuse equipment or purchase second-hand. Where possible, we will limit the volume of new equipment purchased.
- The durability of equipment is an important factor alongside functionality. We will endeavour to use products that are proven to have a long uselife.
- A consideration of the energy efficiency of products when purchasing new equipment. We will only purchase equipment with an energy efficiency rating of A or B on UK and EU energy efficiency rated equipment produced after March 2021 (although this new rating scale does not currently extend to regular office or digital equipment), or A+ and above on EU energy efficiency rated equipment that predates this.

Comms strategy

Jigsaw's external-facing communication strategy will remain primarily focused on promoting articles and work relevant to Jigsaw's core technical focus, and generating exposure for the company. However there is scope for posting on Jigsaw's social media channels on important sustainability and climate issues, although this will always remain a secondary focus.

Each year we publish a Year in Review, a key public document that is actively published and forwarded to a wide audience. Within the Year in Review there will be a section detailing our

environmental impact, major changes to environmental policy, and detailing important environmental decisions taken.

External audit

Once we are fully operational in the new office space, and have completed a thorough internal assessment of our practices, an external organisation will be hired to run an environmental audit of our company. The aim is to have an independent expert assessment of our current practice, activities and policy to ensure they are as sustainable as possible. Additionally it will enable us to build a picture of our direct and indirect carbon impacts, and where we should focus our reduction efforts or changes to the environmental policy.

We also intend to engage externally with a company to calculate our Scope 1, 2, and 3 emissions so we can actively measure the impact our policies are having on the environment, and take appropriate action if they are not having the desired effect. We are aiming to publish our emissions annually, so we can be explicit and transparent on the environmental impact of our work.

Digital clean-up activities

We are committed to actively promoting and encourage digital clean-up activities[21]. While we use Google services, they are not yet entirely carbon neutral, and so it is important to limit the traffic we deliver to the Google server. This includes actions such as:

- Regularly deleting old emails
- Removing old and duplicate files from Google Drive
- Unsubscribing from unnecessary mailing lists
- Avoiding sending one-word and short emails
- Avoiding spending long amounts of time on media-heavy web pages
- Whenever possible, downloading online files (such as journal articles) as local PDFs to reduce the burden on external web hosting services.
- Default video downloads to Standard Definition instead of High Definition on devices[22]

Internal learning

All staff members will also be encouraged to dedicate some internal time focus to sustainability and environmental issues if they are interested in doing so. Paid internal time will also be allocated for staff to have the opportunity to become involved in aspects of the environmental policy, and gaining sustainability sector knowledge. Part of the induction process for all

[21] https://www.euronews.com/green/2020/04/22/sending-one-less-email-a-day-could-help-reduce-the-carbon-footprint-of-your-inbox
[22] https://www.greenmatters.com/p/hdtv-environmental-impact

onboarding team members will also involve a list of key environmental and sustainability resources to ensure new staff are familiar with the environmental values of Jigsaw.

Annex G: Future priorities

This section details how the reality of a changing climate affects our work and planning. It is anticipated that as climate change continues to occur, our policy for justifying flights and international travel becomes more rigorous. The reality of a changing climate has already, and will continue to:

- reduce the amount of international travel undertaken by Jigsaw staff members;
- increase emphasis on building relationships with enumerators and research partners to reduce the need to travel;
- continue to improve approaches and expertise in remote data collection to substitute for in-person data collection without quality loss;
- evaluate the environmental credentials of new clients and projects within sales processes.

It is important to remember that this document reflects our current thinking, and it is difficult to assess the practical and policy landscape on environmentally dangerous practices over the coming years. These are actions that we think will provide resilience for our operations with regard to a continually changing climate, but we will continue to engage with the latest evidence on climate change and update this document accordingly.

Next priorities and operations

Listed below are priority actions that are being considered to further strengthen the policy:

- Development and external certification of an environmental management strategy (EMS):
    - Formally assessing Jigsaw's environmental impact
    - Developing appropriate KPIs
    - Setting fixed targets for positive environmental impact and reduction of negative environmental impact
    - Reviewing targets regularly
    - Annual reporting on scope 1, 2 and 3 emissions
    - Annual reporting of investment in innovation and nature-based solutions to mitigate emissions
- Internal trello board of environmental activities
    - Engage the core staff team in environmental and sustainability actions
    - Assign ownership of areas of the policy to small 'core' teams
    - These teams to continue to develop the environmental policy
- Internal assessment of actions to be taken in the new office space
    - Identify possible actions to improve the sustainability of the office space
    - Once finalised, consult with external to validate and approve final actions for the new office space
- External audit of Jigsaw's environmental policy

- Assessment of all aspects of Jigsaw's environmental policy when it has been fully developed