THE CANIE COP26 GLASGOW PAPER: A RESPONSE FROM THE INTERNATIONAL EDUCATION SECTOR TO THE CLIMATE EMERGENCY

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Executive Summary

The United Nations Intergovernmental Panel on Climate Change has affirmed that the extent and magnitude of the climate crisis are larger than previously estimated and will continue to accelerate human suffering and inequalities (IPCC, 2022). There is no longer room for doubt that the urgency of the climate crisis demands immediate action across every sector including international education.

This document, the Glasgow Paper, provides context to the CANIE Accord. Both are products of robust discussions between international education peak body and association leaders and serve to undergird a sector-wide alliance to reduce greenhouse gas emissions through guiding principles and commitment to bold climate action in five areas.

Leadership and Influencing

International educators have a unique opportunity to make meaningful decarbonization progress and emerge as climate leaders. Travel, as a defining characteristic of student mobility (Shields, 2019), gives international educators distinctive control over a carbon-intensive activity. The aim is not to reduce student mobility but to meet students' growing demand for higher education institutions and global education programs to center climate action in all that we do. We can ensure the resilience of the sector by influencing organizational visions, strategies, policies, and portfolios to align with student decision factors and the global ambition of net zero.

Emissions Accounting and Reduction

Climate action measures will vary in different contexts. To the degree possible, organizational-level emissions reporting should include all international education operations and activities including student travel. A process of creating an international education climate action plan should include establishing a baseline year, setting ambitious emission reduction targets, determining greenhouse gas measuring methods, and identifying the role of verified carbon credit projects in the strategy. While creating a comprehensive strategy may take time, it is critical that international educators undertake rapid emission reductions immediately, not as a final step to the planning process.

Travel

To continue making valuable contributions to society through internationalization, it is imperative that we find ways to reduce emissions from travel without reducing student mobility. Prioritizing high-impact travel and lower-carbon means of travel will be key to reaching decarbonization targets. Travel reductions should occur first in the area of international education business travel, not student travel necessary for participation in high-impact educational programs. Strategies including internationalization at home, virtual mobility, and transnational education can decrease emissions while increasing student access.

Facilities, Operations, and Procurement

International educators can reduce emissions in areas beyond travel including our buildings, commuting habits, printing and shipping practices, and procurement management. Conferences and other events represent major opportunities for the sector to decrease emissions. No-fly options and climate-conscious catering practices should be standard. Similarly, the procurement process is an opportunity to invest in, support, and influence

agents and other partners to reduce their negative climate impacts and increase positive climate action down the supply chain.

Climate Education

International educators should introduce or expand climate literacy among students, staff, partners, clients, and extended communities. Our work must support the development of students' global learning outcomes as well as their understanding of (and action for) climate issues. A sector-level transformation will require creating professional development training, open-access climate action materials, climate-focused conferences and workshops, supportive networking opportunities, research funding, and more.

Foreword

The Climate Action Network for International Educators (CANIE) is a grassroots initiative formed by international education practitioners from around the world who see the need and the opportunity for the sector to raise its collective ambition and act on climate.

In November 2021 in parallel with COP26 in Glasgow, CANIE convened a Leaders Forum of 57 international education peak body and association leaders. The aim of the Leaders Forum was to collaboratively articulate the sector's climate ambitions and commit to taking action. The intent of this paper is to capture the technical aspects of the Glasgow discussions as well as the prevailing collegial and collaborative spirit to decarbonize the sector with the utmost urgency. This paper serves as a reference for the CANIE Accord, which is a non-binding memorandum of understanding summarizing the principles and key actions put forth at the Leaders Forum.

The procedures under which this paper and the CANIE Accord were developed included:

1. Several CANIE members drafted an initial document to guide the Leaders Forum discussions.
2. During the Leaders Forum, scribes recorded discussion group comments.
3. The scribes' notes were analyzed using open coding to identify themes, which were incorporated into a first draft.
4. The draft was open for comment to the CANIE Accord Project Team.
5. The draft was revised and opened for comment to CANIE's Global Board, the CANIE Accord Expert Input Group, and CANIE's Climate Justice Working Group.
    a. In response to feedback, the single report was separated into two distinct documents: this paper and the CANIE Accord.
6. The further revised paper and the newly created CANIE Accord were open for comment to CANIE Chapter members and Leaders Forum participants before finalizing.

Attention is drawn to the groups not adequately represented in this process, which presents an obvious limitation. Future versions will address the paucity of input from students, members of Indigenous communities, researchers, and international educators in Africa, Asia, the Middle East, Latin America, and the Caribbean.

Introduction

Internationalization in higher education is defined as "The intentional process of integrating an international, intercultural or global dimension into the purpose, functions and delivery of post-secondary education, in order to enhance the quality of education and research for all students and staff and to make a meaningful contribution to society" (de Wit et al., 2015), and this contribution to society is further enhanced through an appeal towards 'internationalization for society', shifting the focus from a more market oriented and neoliberal form of competitive international education towards a more inclusive socially responsible internationalization (Jones et al., 2021). A core purpose of the sector is to foster peace, security, and well-being by building understanding and respect among different peoples in order to transcend borders, cultures, and languages to jointly solve global problems. There is currently no greater global problem than the climate crisis. The consensus of the global scientific community is that the climate crisis is anthropogenic and poses an acute threat to all our planet's inhabitants. We are in a "code red for humanity" (IPCC, 2021) with Black, Brown, Indigenous, and low-income communities being impacted disproportionately (Climate Reality Project, 2021a). There is pervasive evidence that the climate crisis is exacerbating racial and socioeconomic inequalities thus undermining critical diversity, equity, and inclusion efforts at higher education institutions (HEIs) around the world.

The young people who populate our institutions, now and in the future, are alert to this threat and have taken to the streets to protest for their right to a future. It is therefore increasingly evident that we have both the responsibility and the power to take greater action to mitigate the effects of climate change. We have the power to educate – and be educated by – students on effective climate action. We have the power to lead by example, transforming our sector by finding climate-friendly ways to operate while ensuring that solutions advance justice, equity, and human rights. We are inspired and shaped by the growing demand from students for education institutions and global education programs to centre climate action in our strategies, our programming, and our operations.

Climate Action in the Context of Sustainable Development

In recent years, countless HEIs, governments, corporations, and others have taken up sustainable development initiatives. Such efforts aim to advance social, economic, and environmental sustainability while promoting continued development. The United Nations seventeen sustainable development goals (SDGs) provide a framework for impacting critical global issues such as eradicating poverty (SDG1), ending hunger (SDG2), reducing inequalities (SDG5 & SDG10), and preserving life below water and on land (SDG14 & SDG15). In contrast to holistic approaches that embrace all SDGs, climate action (SDG13) is the principal subject of this paper. There are two primary reasons for this focused approach.

Climate change multiplies the threat. The climate crisis is a threat multiplier. That is to say, failing to address the climate crisis undermines efforts to address all other SDGs.

The Urgency. The urgency of the climate crisis requires immediate and decisive action. One of the aims of the Paris Agreement, which was adopted in 2015, was to limit global average temperature rise to "well below 2℃ above pre-industrial levels and pursu[e] efforts to limit the temperature increase to 1.5 degrees" to "significantly reduce the risks and impacts of climate change" (UNFCCC, 2015). However, since the Paris Agreement was

adopted, data suggest that responses to climate change have been woefully inadequate and the global temperature has already risen to 1.1 to 1.2℃ (The World Meteorological Organization, 2021). Additionally, many of the identified climate change tipping points are expected to occur between 1 and 2℃ (Drijfhout et al., 2015).

Lessons from the COVID-19 Pandemic

The COVID-19 pandemic has demonstrated that profound changes in behavior and business models are possible. It has supercharged the sector's ingenuity resulting in increased student access, innovative remote global learning models, and programs that regenerate and restore the natural environment (Lee & Lundemo, 2021; Ponce-Taylor, 2021). The pandemic has also placed international educators at a fortuitous crossroads where we can look to the past and clearly see that returning to the same practices would continue to jeopardize our very existence. Looking forward, however, allows us to envision a cleaner, more equitable future. The pandemic has poignantly highlighted global human interconnectedness and that now, more than ever, cultural humility (Murray-Garcia & Tervalon, 2017) and global learning are needed to address our shared challenges. International educators are poised to guide this important work.

Scope

This paper provides the background and technical details to support the CANIE Accord. The CANIE Accord presents principles to guide the sector's response to the climate crisis and a suite of actions to lower greenhouse gas (GHG) emissions from international education activities to align the sector with the ambition of limiting global temperature rise to 1.5℃ above pre-industrial levels. The CANIE Accord serves as the sector's attestation to the urgency of the climate crisis and affirmation that international education leaders can become the climate leaders our students deserve and increasingly demand.

The CANIE Accord is applicable to the whole of the international education sector including, but not limited to, international units operating within higher education institutions, membership associations, international recruiters, and all other organizations and businesses operating within, or in support of, the sector. Heads of HEIs, associations, institutes, and departments are invited to sign the CANIE Accord on behalf of their institutions and units.

Terms and Definitions

For the purposes of this document, the following terms and definitions apply.

Carbon budget: a limit to global GHG production to no more than what can be absorbed by the planet's natural sinks[1].

Carbon footprint: "a measure of the exclusive total amount of carbon dioxide emissions that is directly and indirectly caused by an activity or is accumulated over the life stages of a product" (Wiedmann & Minx, 2008).

Carbon handprint: "the reduced amount of greenhouse gas emissions due to the use of a specific product or a service" (Grönman et al., 2020) or "the beneficial climate impact that

[1] Currently, natural sinks sequester 41% of global emissions leaving 59% of emissions in the atmosphere (Drawdown, 2020a) meaning any budget has already been exceeded.

organizations can achieve and communicate by providing products or services that reduce the carbon footprints of customers" (Grönman et al., 2019).

Carbon offsets: paying others to sequester carbon from the atmosphere (through tactics like reforestation and renewable energy development) as a way of counteracting harmful emissions (Project Drawdown, 2021).

Carbon insets: similar to carbon offsets, insets pay others to remove carbon from the atmosphere. The difference is that insets are coordinated with existing partners to invest in and restore the ecosystems upon which they depend, increasing resiliency and providing benefits to communities surrounding an organization's value chain.

Climate anxiety: chronic emotional distress induced by global warming-related events that stems from the growing awareness of direct and indirect environmental impacts on individual lives (Campbell et al., 2021).

Climate change: pollution from burning fossil fuels that is warming our planet and throwing natural systems out of balance (Climate Reality Project, n.d.).

Climate change tipping point: "a critical threshold beyond which a system reorganizes, often abruptly and/or irreversibly" (IPCC, 2021) or when a climate system has been pushed to its point of no return, leading to major changes in the system that we are unlikely to ever undo.

Climate crisis: the devastating consequences of climate change.

COP26: 26th session of the United Nations Framework Convention on Climate Change Conference of the Parties to the Convention.

Feedback loops: processes that make the impacts of key climate factors stronger or weaker, starting a cyclical chain reaction that repeats again and again (Climate Reality Project, n.d.).

Greenhouse gas (GHG): The GHGs defined in the Kyoto Protocol (1997) are Carbon dioxide (CO2), Methane (CH4), Nitrous oxide (N2O), Hydrofluorocarbons (HFCs), Perfluorocarbons (PFCs), and Sulphur hexafluoride (SF6). When released, these gases warm the planet by creating an effect similar to that of a greenhouse.

Greenhouse gas emissions: the release or discharge of GHGs into the atmosphere.

Greenhouse gas equivalent (GHGe): the result of a calculation meant to translate GHG emissions into concrete terms such as a number of trees planted.

Greenhouse gas sink: sinks remove GHGs from the atmosphere. Earth's natural sinks include soil, mangroves, salt marshes, and seagrass meadows.

Greenhouse gas scopes: a GHG accounting and reporting concept to help delineate direct and indirect emission sources, improve transparency, and provide utility for different types of

organizations (World Business Council for Sustainable Development & World Resources Institute, 2004)

> **Scope 1**: the category for GHG emissions from sources that are owned or controlled by an organization. For example, emissions from combustion in owned or controlled boilers, furnaces, vehicles, etc.
>
> **Scope 2**: the category for GHG emissions from the generation of purchased electricity consumed by the organization. Purchased electricity is generated off-site and purchased or otherwise brought into the organizational boundary.
>
> **Scope 3**: the category for GHG emissions that are a consequence of the activities of an organization, but occur from sources not owned or controlled by the company.

Internationalization at home (IaH): "the purposeful integration of international and intercultural dimensions into the formal and informal curriculum for all students within domestic learning environments" (Beelen & Jones, 2015).

Nature-based solutions: projects that manage, protect, and restore ecosystems (Girardin, et al., 2021).

Net Zero: also known as 'carbon neutral', net zero is when the amount of GHG emitted by an entity is equal to the GHG removed by that entity[2].

Paris Agreement: a legally binding international treaty on climate change. It was adopted by 196 Parties at COP21 in Paris, on 12 December 2015 and entered into force on 4 November 2016.

Regenerativity: actively conserving and enhancing the natural environment and the well-being of the people who depend on it (Lee & Lundemo, 2021).

Science-based targets: measurable, actionable, and time-bound objectives, based on the best available science, that allow actors to align with Earth's limits and societal sustainability goals (SBTi, nd).

Sustainability: the long-term maintenance and enhancement of human well-being within finite planetary resources.

Sustainable development: "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (United Nations Brundtland Commission, 1987).

Sustainable development goals (SDGs): seventeen goals, which were adopted by all United Nations Member States in 2015, that represent a set of priorities to guide all countries in tackling the world's most pressing challenges.

[2] CANIE encourages international educators to prioritize decarbonization rather than achieving net zero through carbon credit projects, which may perpetuate the dangerous status quo.

Transnational education: "all types of higher education study programmes, or sets of courses of study, or educational services (including those of distance education) in which the learners are located in a country different from the one where the awarding institution is based" (UNESCO, 2002).

Abbreviated Terms

CANIE	Climate Action Network of International Educators
CO_2	Carbon Dioxide
COP	Conference of the Parties
GHG	Greenhouse Gas
GHGe	Greenhouse Gas Equivalents
HEI	Higher Education Institution
IE	International Education
IPCC	Intergovernmental Panel on Climate Change
SDG	Sustainable Development Goal
TNE	Transnational Education
UN	United Nations
UNFCCC	United Nations Framework Convention on Climate Change

Principles of Climate Action in International Education

Recognizing that the climate crisis poses an acute threat to the economy, nature, and society, each Signatory to the CANIE Accord commits to actionable steps to combat global temperature rise in the context of their unique circumstances. While each Signatory's committed actions vary, all are informed by the principles defined in Article 3 of the CANIE Accord.

Leadership and Influencing

International educators are uniquely positioned to lead on climate. Prior to the pandemic, we were not alone in producing planet-warming emissions through activities such as traveling to enormous international conferences or by using polluting energy to light, heat, and cool our offices. However, we are unique in that international travel (which, to date, has been dominated by carbon-intensive flying) has been a prerequisite to the outcomes we aim to achieve in our students. Because we control the programs and activities we create for our students, we also control their associated climate impacts. The nature of our work gives us the power to meaningfully reduce our GHG emissions, which positions us to take the important, albeit uncomfortable, initial steps to lead. In doing so, we will ensure the resilience of our sector by meeting the rapidly changing expectations of our students (THE Student Pulse, 2021) and we will serve as a model for others as they decarbonize.

International education units often operate within the broader context of a HEI or other organizations. Consequently, to successfully decarbonize we must leverage our influence to embed climate action in organizational-level missions and strategies, build it into policies and frameworks, and ensure it is adopted into all official strategic documents. Recognizing that the level of influence of individual international educators and their units varies greatly across institutions, forming alliances with other units may be necessary.

Aligning Resources with Student Decision Factors

Leaders Forum participants indicated that their greatest barriers to climate action were not lack of interest, knowledge, or organizational support but rather insufficient staff time (61%) and funding (55%) (Lamont, 2021). Yet, data show that student expectations are rapidly shifting and climate action and sustainability are increasingly influential in their decision making. For example, a 2021 Times Higher Education Student Pulse survey revealed that 71% of respondents had assessed their preferred university's overall commitment to, and reputation for, sustainability (THE Student Pulse, 2021). Moreover, 9% of respondents indicated that an institution's commitment to, and reputation for, sustainability was the single most important factor in determining where to apply. Of the various factors rated, graduate employability also came in at 9% as the most important. The results of this survey, among others, clearly demonstrate the need for HEIs to realign budgets with student decision factors.

Climate Action Reporting

Publicly reporting decarbonization targets, timelines, strategies, and progress is integral to climate leadership and has far-reaching benefits. Not only does transparent public reporting establish the sector as serious about leading on climate, it helps others understand the significant and disproportionate risks of inaction as well as the opportunities that come with meeting the challenge. Public reporting is an important tool in holding ourselves accountable and makes students, parents, partners, policy makers, and others aware of our priorities, which will weigh in their decisions to engage with us.

Magnitude of the Challenge

It is important to acknowledge, and prepare for, the inevitable difficulties of leading monumental change. Decarbonizing the sector is likely the greatest challenge we will face in our lifetimes and we ought to expect resistance. We would be wise to prepare to lead frank conversations about shifting priorities. We will need to remind our colleagues, and ourselves, that the financial models that served us in the past must be reevaluated for a planet in crisis.

There exists an untapped economy of scale of internationally mobile students with potential influence extending far beyond higher education. For example, even after a 27% decrease due to the pandemic, international students in the U.S.A. contributed $28.4 billion USD to the economy in the 2020/2021 academic year (NAFSA, 2021). Because air travel is a defining characteristic of international education – and we would like the number of international students to increase rather than decrease – the sector ought to leverage our influence to put pressure on airlines to lower emissions.

Leadership and influencing actions are defined in Article 4 of the CANIE Accord.

Emissions Accounting and Reduction

Immediate, systematic, and permanent reductions of GHG emissions are required to bring the sector in alignment with the global aim of keeping temperature rise below 1.5℃. Emissions from all international education operations and activities should be incorporated in emissions reporting inclusive of business travel and student travel – both related to academic programs and personal. International student non-program related travel, such as touristic visits and holidays, is a consequence of being outside their home country and, therefore, would not take place otherwise. For this reason, emissions from student personal travel are

the result of international education activity and should be included in IE GHG accounting. The same holds true for emissions from travel from visits from students' family and friends. International educators should also account for differences in personal energy consumption while abroad compared to likely consumption at home (Shields, 2019).

A four-step approach to creating an organization-specific climate action plan could include 1) establishing a baseline year, 2) setting science-based targets, 3) determining GHG measuring methods, and 4) identifying the role of verified carbon credit projects in the strategy. While determining a comprehensive strategy may take time, it is critical that international educators undertake rapid emission reductions immediately, not as a final step to the planning process.

Establish a Baseline Year

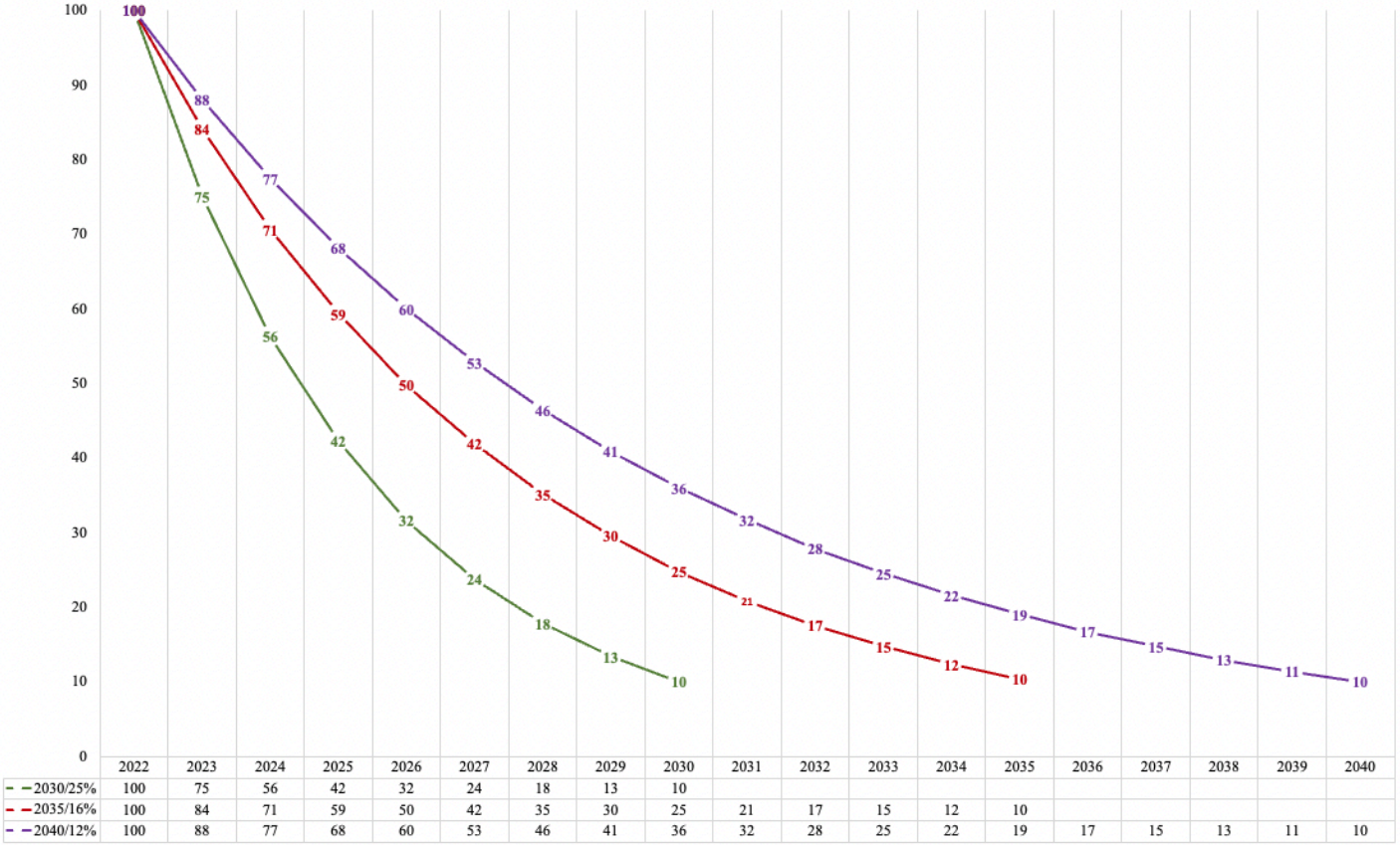
Measuring and reporting GHG emissions should occur regularly, preferably on an annual basis. The academic year, fiscal year, or calendar year may be most appropriate in different organizational contexts. International units operating within a broader organizational structure should select the term that coincides with established timelines, as appropriate. The baseline year should represent peak emissions and serve as a reference point to demonstrate progress. Historical emission reductions (those prior to the baseline year) should not be included in reduction reporting.

Set Science-Based Targets

Decarbonization targets are considered to be "science-based" if they align with what the latest climate science deems necessary to meet the goals of the Paris Agreement (see SBTi and the latest from the IPCC). In all cases, targets shall represent a progression beyond the baseline year and reflect the highest possible ambition and shortest possible time frame.

Examples of science-based targets are illustrated in Figure 1. Achieving net zero by 2030 requires GHG emissions reductions of at least 25% every year. Achieving net zero by 2035 requires reductions of 16% every year. Achieving net zero by 2040 requires reductions of 12% every year. In all examples, the reductions required in the initial years are the largest.

Figure 1
Achieving Net Zero by 2030, 2035, or 2040.



	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
2030/25%	100	75	56	42	32	24	18	13	10										
2035/16%	100	84	71	59	50	42	35	30	25	21	17	15	12	10					
2040/12%	100	88	77	68	60	53	46	41	36	32	28	25	22	19	17	15	13	11	10

Determine Methods of Measuring Greenhouse Gas Emissions

Numerous GHG calculators (or 'carbon footprint calculators') are available online at no cost. Organizations that have developed calculators include the Greenhouse Gas Protocol, Carbon Independent, Atmosfair, and others. A simple internet search will yield many more results. When selecting, or developing, a calculator to measure emissions, international educators at HEIs and others who are part of broader organizations, should consult with their colleagues in sustainability offices and facilities units to ensure their data is formulated in a manner that supports organizational reporting. At the time of this writing, a CANIE project is underway to develop guidance for IE emissions calculations at the program level.

Carefully Determine the Role of Verified Carbon Credit Projects

Climate action plans should focus on permanently reducing emissions today and reaching near-term decarbonization targets. However, climate action plans often include financing carbon credit projects (via insetting and/or offsetting) with the aim of counterbalancing continued emissions. Importantly, carbon credit projects should be carefully vetted and should never be used as a substitute for decarbonization measures nor as justification for delaying emissions reductions (Exponential Roadmap Initiative, Race to Zero, & SME Climate HUB, 2020). As indicated by Project Drawdown (2021), "When companies delay or offset feasible emissions reductions, they are inadvertently contributing to an extractive economy that has disproportionately put people at risk based on race, age, gender, location, economic standing, and other social categorizations."

Carbon credit projects should be verifiable, additional, and permanent. To determine if the project removes additional GHG emissions, it may be useful to ask, "Would these emissions reductions have taken place without the project?" (Project Drawdown, 2021). For example, replacing gas stoves, which leak methane, with electric stoves would immediately and permanently reduce emissions. While tempting, do not invest in unproven technology or future promises. Instead, choose to remove emissions today and permanently. Also consider that carbon credit projects within your local community are more easily monitored and verified than those taking place farther away.

Tree planting has become common in offsetting schemes. However, critiques of planting trees include the time it takes for them to sequester GHGs, issues around displacement of local communities and wildlife, the appropriateness of the type of tree planted, the increased frequency and intensity of wildfires, and many others. For example, the GHGe of driving a standard passenger vehicle for one year would take more than 76 saplings ten years to sequester (US EPA, 2015). This assumes that all 76 saplings survive the 10 years and they contribute to the well-being of the land, plants, animals, and humans in the area. International educators are strongly cautioned to closely examine prospective carbon credit projects and evaluate them regularly as best practices evolve.

Carefully selected and verified carbon credit projects may be employed in tandem with reducing emissions. Projects may account for a larger than ideal percentage of baseline year emissions early in a plan then taper in later years as emissions decline. In other words, there should be an inverse relationship between GHG emissions and the emissions accounted for in carbon credit projects. Ultimately, it will likely be impossible to mitigate all emissions from international education activities and residual emissions may be balanced with high-quality carbon credit projects. Figure 1 assumes residual emissions of no more than 10% of the baseline year.

Emissions accounting and reduction actions are defined in Article 5 of the CANIE Accord.

Travel

Transportation accounts for approximately 14% of global GHG emissions with air travel responsible for approximately 2.5% (Project Drawdown, 2020a). At present, this appears relatively low compared to other industries such as food, agriculture, and land use, which stands at approximately 24%. However, emissions from air travel are projected to grow sharply with the expansion of low-cost airlines (Pidcock & Yeo, 2016) and post-COVID "revenge travel" (Associated Press, 2021). Consequently, if the aviation industry meets its emissions targets, it would consume 12% of the global "carbon budget" by midcentury. If it fails to reach its targets, its share could be as high as 27%. (Pidcock & Yeo, 2016). Prior to the pandemic, research suggested that emissions from international degree seeking student mobility were comparable to those of Croatia or Tunisia and projected to increase at a greater rate than global GHG emissions (Shields, 2019). While additional research is needed in this area, it can be assumed that the emissions from all student travel, and related international education business travel, is significantly higher than the sample examined by Shields. Until the introduction of sustainable aviation fuels, reducing emissions from air travel represents the sector's greatest opportunity for meaningful climate action.

Degree-seeking international students represent a major segment of the IE sector so we can assume that their travel accounts for a significant portion of the sector's overall emissions. Consequently, to continue making valuable contributions to society through internationalization, it is imperative that we find ways to reduce emissions from travel without reducing student mobility. Prioritizing high-impact travel and lower-carbon means of travel will be key to reaching our science-based targets.

High-impact Travel

Evidence of the societal benefits of international education abound. However, we currently lack data on the climate impacts, both positive and negative, of the sector as a whole. The concept of the carbon handprint is helpful when considering the impacts of IE. Where the footprint is a measure of negative climate impact, the handprint is a measure of positive climate impact. The handprint shifts focus away from the overwhelming devastation of the climate crisis toward taking action and effect positive change. Future research assessing the positive and negative climate impacts of the international education sector is needed. Until then, we must ensure that climate impact becomes an integral part of the decision making when planning business travel and that learning outcomes from overseas study programs are clearly demonstrated.

Lower-carbon Travel

There are numerous ways to reduce GHG emissions from travel. The efficiency of different modes of travel is greatly influenced by many factors including the number of passengers in a vehicle, the altitude of a flight, the distance traveled, and many others. A passenger on a long-haul flight, for example, would reduce their emissions by 399% by choosing economy class instead of first class (Our World in Data, 2019). For international educators accustomed to flying first or business class, this simple change can aid significantly in reaching decarbonization targets.

International educators should consider coordinating student travel to ensure a balance between affordability and the lowest climate impact. Examples include arranging bus or train travel to major transportation hubs to mitigate short domestic flights and to ensure the most direct route. Similarly, when advising student groups and independent travelers, we should provide the lowest emission travel mode as the preferred option. Directing students to GHG calculators can help them incorporate climate impact in their transportation planning and should be a standard practice.

Reducing Air Travel

Reductions in GHG emissions from IE travel should first occur in the area of business travel, not student travel necessary for participation in high-impact educational programs. Prior to the COVID-19 pandemic, international educators enjoyed frequent international trips to conduct site visits, attend conferences, conduct student outreach and recruitment, and engage with partners. We have benefited immensely from international travel, find great enjoyment in it, and have created a sector-wide travel culture that celebrates frequent flyers. However, if we are to make meaningful progress toward reducing the sector's GHG emissions, we must dramatically reduce IE business travel and reserve any residual emissions for those who will likely benefit the most; students and junior faculty and staff. de Wit and Altbach (2021) have suggested that international educators reduce travel to at least 40% of pre-pandemic levels until 2024 then by at least 60% for the subsequent 5 years. Doing so

could allow carefully considered student travel to continue, or grow, while reducing overall emissions across the sector.

Internationalization without travel. The climate crisis paired with the pandemic and increasingly charged political climates all point to the advantages of redoubling internationalization at home (IaH) efforts. Beelen and Jones (2015) emphasized that IaH intentionally includes intercultural components into curricula in a purposeful way and benefits students across all programs of study regardless of their desire or ability to travel. In today's technologically advanced and culturally diverse societies, students no longer need to traverse the globe to encounter deep cultural differences. So we must ask ourselves, is it now possible to achieve the student learning and development outcomes we seek through IaH, virtual mobility, transnational education (TNE), or all of the above? Leveraging various internationalization strategies will result in decreased GHG emissions as well as increased student access to the transformative benefits of IE.

Travel actions are defined in Article 6 of the CANIE Accord.

Facilities, Operations, and Procurement

The climate crisis is the single problem that undermines all other priorities. As such, we must dedicate human and financial resources to identifying every opportunity to tackle it. While air travel rightly receives attention as the area with the greatest potential for decarbonization in the sector, we can also reduce emissions in other areas including our buildings, commuting habits, printing and shipping practices, procurement management, and more.

As is the case with other sectors, we can increase energy efficiency by retrofitting buildings and optimizing our use of space. We must insist on low-carbon heating and cooling at all sites where we operate and turn off climate control when not in use. Other actions include installing passive solar to eliminate the need for artificial lights during daylight hours and in the evenings lights should be operated by motion sensors. Emissions from daily commutes can be dramatically reduced by permanently adopting flexible and equitable work-from-home policies. Similarly, when delivering conferences and other events, virtual attendance options and climate-conscious catering practices should be standard.

The work of international education is inherently collaborative with colleagues around the globe intertwined by individual responsibilities contributing to shared outcomes. As such, international educators ought to conduct risk-mapping exercises to determine the social, economic, and environmental impacts of the climate crisis on key markets and destinations. Likewise, the contracts that outline the terms and conditions of our partnerships and purchases can be instruments of positive influence when they communicate each party's climate commitments, actions, and expectations. HEIs should leverage the procurement process to invest in, support, and influence agents and other partners to reduce their carbon footprint and increase their carbon handprint. By adding climate action criteria to the contract and procurement process, international educators signal their desire to work with suppliers who have established strong climate action strategies.

If implemented uniformly across the sector, digital marketing materials could effectively replace printing and shipping of brochures while avoiding the creation of an unfair advantage. In addition to significantly reducing waste (and the GHG and raw materials

required to create brochures), this would free up much-needed funds to support climate-focused positions and other solutions. Additionally, rapidly changing student expectations suggest that those who continue to print materials and give away disposable trinkets may soon be in stark misalignment with students' values and, therefore, at a market disadvantage.

Although the footprint of virtual communication and digital marketing technologies is vastly lower than traditional forms, it is not zero. On the contrary, emissions from virtual communications are projected to increase rapidly as more areas of our lives move online. Therefore, to avoid increasing emissions, virtual options should replace in-person communication and print marketing; not added to existing practices.

Facilities, operations, and procurement actions are defined in Article 7 of the CANIE Accord.

Climate Education

International educators have the responsibility to balance the immense benefits of IE with the acute threat of continued insufficient climate action. We can achieve this crucial balance by ensuring that climate literacy accompanies our decarbonization efforts and permeates all that we do. By introducing, or expanding, climate literacy among students, staff, partners, clients and extended communities, we amplify our climate action work while generating support, which in turn, facilitates progress. As one Leader Forum participant put it, we have the opportunity to "[t]each our species to see itself as part of nature rather than above it". Climate literacy, especially within the framework of international education, can shift mindsets away from an extractive view of the planet toward one that emphasizes a reciprocal relationship where humans take care of the earth and it continues to take care of us.

Opportunities to infuse climate education in IE activities for students include orientations, pre-departure briefings, inbound and outbound mobility programming, and of course, integration in coursework. When preparing students for their international experience, advisors can help them consider the climate impacts of their travel choices as well as the anticipated changes in consumption between their home and host communities (Shields, 2019). Ideally, awareness of the climate impacts of their daily activities (e.g. transportation choices, diet, etc.) will influence their behavior wherever they are in the world and long after graduation. The actions and behaviors of alumni after graduation will have a greater impact than their actions and behaviors during their studies. Consequently, international educators should aim to create, or strengthen, students' lifelong commitment to caring for the planet by embedding climate literacy throughout academic programs.

Programs developed for inbound, outbound, and place-bound students in all academic disciplines ought to center climate issues such as the implications of dwindling biodiversity, the critical role of women and girls in the well-being of entire communities (Patterson et al., 2021), and the benefits of nature-based solutions. Experiential programs can protect and restore natural carbon sinks or prevent plastic waste in watersheds from ever reaching the shore. When creating climate conscious activities, it may be helpful to adopt the Iroquois[3] concept of considering the potential impact of our immediate actions on seven generations into the future. For example, this concept may inspire replacing a student excursion to a local

[3] Iroquois or Haudenosaunee are an Indigenous confederacy in northeast North America.

shopping center with an invasive species removal activity to provide the opportunity to contribute to the long-term vitality of the land.

A growing body of research suggests that climate change has mental health implications for the general population (Stanley et al., 2021) and among international education practitioners (Campbell et al., 2021). Relationships between these mental health implications and climate action are beginning to be explored. In one study, for example, experiencing eco-anger was a predictor of greater engagement with pro-climate activism (Stanley et al., 2021). This study did not consider the role of climate education, or other interventions, in moving from eco-anger to climate action and, thus, presents an opportunity for future research. Additional research is needed to understand the role, if any, of climate education in transforming anxiety, fear, anger, and depression evoked by climate change into positive climate action among various populations. Commissioned research has an important role in advancing the sector's collective understanding of climate change issues, implications, and potential solutions and is sorely needed.

International educators at all levels should have access to climate literacy training in order to make the important connections between social justice and climate action issues and to shift business models to fit within planetary boundaries (Drawdown, 2021). At CANIE events, it is common to hear from well-intentioned practitioners who care deeply about the effects of climate change and want to take action but feel ill-prepared to begin. A sector-level transformation requires professional development training, creation of open-access climate action materials, conferences and workshops, supportive networking opportunities, funding for climate action research, and more. Regardless of the type of organization we represent or our individual subject matter expertise, we all have important roles to play in collectively moving the sector toward true and lasting climate solutions.

Climate education actions are defined in Article 8 of the CANIE Accord.

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