



Education for Climate Action

Why education is critical for climate progress



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I. Foreword

Climate change is “widespread, rapid, and intensifying,” and without urgent action the world could hit a tipping point from which there is no return. That was the assessment of last year’s report from the UN’s Intergovernmental Panel on Climate Change (IPCC), which also left little room for doubt that human actions, even at the very local level, will determine the future course of climate change¹.

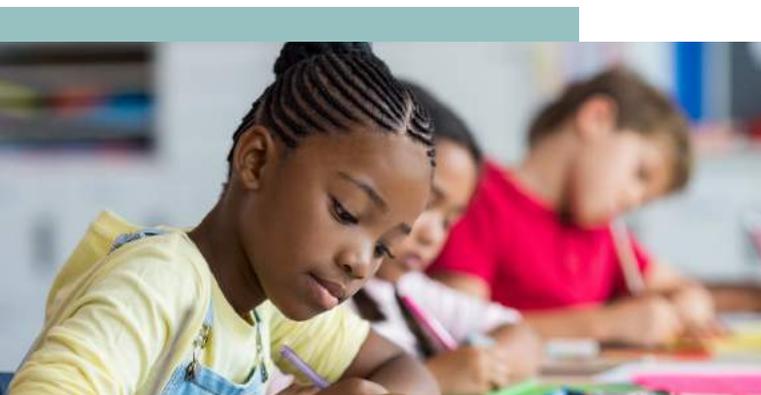
Last year’s COP26 climate meetings instilled some hope that it’s possible to avert the worst effects of climate change. The Nationally Determined Contributions (NDCs) unveiled during the talks—as well as sector goals—could deliver some of the emission reductions required to limit global warming. It was also encouraging that issues of adaptation, loss, and damage among low-income countries received more attention, although disappointing that developed countries fell short of the \$100 billion of monetary support that they had pledged². Also notable at COP26 was the growing and increasingly vocal youth movement calling on leaders to be more ambitious.³

Strangely, however, relatively little attention has been paid to how education can improve climate literacy, encourage behavioral change and be a critical part of other systemic climate-related initiatives. We believe that education must become a more central theme in the climate dialogues and the education sector needs to ratchet up its own ambitions to be part of the solution. While the push to teach climate literacy in schools has been gaining traction, with many new and established organizations devoted entirely to this goal, a more concerted effort is needed to make education part of every country’s climate strategy; that includes mobilizing high-level political support.

In addition to encouraging behavioral change through climate literacy, education can help build the necessary skills, knowledge and mindsets needed for a just and effective transition to a green economy, which is critical if there is any hope of shifting \$130 trillion of financial assets under management to net zero, as was pledged at COP26.⁴ Education is also important to teach adaptation strategies, especially now that the world has committed to doubling support for adaptation. Particular attention should be paid to the most vulnerable nations and populations who have generally contributed the least to climate change but are most likely to pay the heaviest price – and are already doing so today, in many cases. This includes the poor, women, refugees, and other marginalized populations. Poor women are 14 times more likely to die from climate disasters than men.⁵

So far, investments in adaptation have mostly gone toward seawalls, dams, new seed technology and irrigation systems as demonstrated in last year’s State and Trends in Adaptation Report 2021.⁶ These investments often lack flexibility, and their effectiveness is unclear given the highly uncertain future impact of climate change. But investments in education can help people and societies adapt to the everyday realities of climate change—such as developing sustainable systems of resource management (e.g., for scarce water) and nurturing mindsets that value environmental stewardship and social and gender equity. By centering education as a strategy for climate action, we can shift power through civic mindsets, empowerment, building learners’ agency, and creating opportunities for climate leadership and action.

In 2020, a group of global organizations called on the world to “[Save Our Future](#)” by forging the human capabilities necessary to create more sustainable and equitable economic systems, with the flexibility to adapt to the uncertain impacts of climate change.⁷ Before the pandemic there were projections that by the end of this decade half of the world’s young people would finish their education without the most basic secondary level skills. This generation will need to move into greener jobs and adapt to complex environmental and societal problems, so it’s urgent the educational community acts now. We must break down silos across education and climate spaces and explore win-win solutions that put the health of the planet and wellbeing of people at the center. The approach presented in this paper is a first step in this direction.



1 Intergovernmental Panel on Climate Change (IPCC), (2021). Climate Change 2021: The Physical Science Basis

2 Jordans, F. (2021). World set to miss goal of \$100B climate aid to poor. AP News, October 25.

3 The Associated Press, (2021). Clean up your mess, young activists tell leaders at COP26 climate summit. NPR, November 5

4 Alderman, L. & Nelson, E. (2021). Global finance industry says it has \$130 trillion to invest in efforts to tackle climate change. The New York Times, November 3.

5 CARE, (2020). Evicted by Climate Change: Confronting the Gendered Impacts of Climate-Induced Displacement. July 6.

6 Steer, L. (2021). COP26: a turning point for education as a key strategy for climate challenges. November 2021. <https://educationcommission.org/updates/a-turning-point-for-education-as-a-key-solution-for-climate-challenges/>

7 Save our Future (2021). Save our future: We are in the greatest education emergency of our times.



II. Executive summary

Education has not been prioritized as a solution to the climate crisis, yet we believe it is critical to reaching long-term mitigation and adaptation goals. Over 130 countries have targeted reaching net zero by 2050,⁹ which will require halving emissions each decade in the 2020s, 2030s and 2040s.¹⁰ While technological innovations are an important lever to accomplish this goal, especially for the first halving of emissions, reaching and sustaining net zero on the path to 1.5°C also requires relearning how to live on this planet and with each other, recognizing that our climate is already rapidly changing.

We see three primary areas where education can play a major role addressing the climate crisis. While there is some momentum in each of these three areas, more is needed to meet the moment, including greater coordination, scale of activity, and funding.

Teaching climate literacy for behavior change & collective action:

Some estimate that as much as ~20-37% (~390-730 GT) of the emissions reduction needed to achieve net zero depends on individual and household behavior change.¹¹ Reaching a 1.5°C world calls for a climate literate population; yet only three countries have formally integrated climate literacy into their curricula.¹² This leaves the majority of teachers and students with a patchwork of resources for climate action, despite increasing calls for support by activists, teachers' unions, and students themselves.¹³ Inspiring behavior change among students and making them agents of change will require a deep commitment to robust, action-oriented, empowering programming as opposed to mere 'information dissemination' about climate change and action. Moreover, teachers will need quality training and support to implement the curricula.

Cultivating skills for a "just transition"¹⁴ to a green economy:

New economies will require transformative green skills, new forms of leadership and the re-skilling of those in impacted industries as well as communities that have historically endured social marginalization, including women and girls. In other words, these transition efforts should emphasize justice and equity, ensuring that barriers to entry, success, and leadership are eliminated, including harmful gender norms, structural racism, economic discrimination, and inequitable workplace policies. Handled correctly, this transition could deliver millions of new jobs in sustainable economies,¹⁵ while failure could result in mass structural unemployment, undermining public support for climate action. Yet fewer than 40% of NDCs reference skills training, and 1 in 5 have no plans for training or capacity development at all.¹⁶ Plans that do exist are often reactive rather than proactive, focusing narrowly on retraining for displaced workers rather than the transformative leadership skills needed at all levels of organizations and communities. Too narrow a focus on technical skills also risks reinforcing

the gendered nature of our current economy, and risks reinforcing a status quo where women and girls are excluded from economic opportunity. Teaching the technical and transformative skills needed for an equitable green transition will require significant investment from both domestic budgets and development financing. For the greatest impact, these efforts should be in partnership with the private sector, trade unions and civil society, and guided by the principles of justice, equity, and inclusion – when done well, such partnerships can offer win-wins that deliver more equitable education and employment at the same time as they further a green economic agenda.

Building the capacity to adapt: Education is strongly connected to a person's ability to adapt to changing circumstances – something that will be crucial for society as the effects of climate change intensify. But populations most vulnerable to climate change today are often those in developing countries with the least access to education—the majority of whom are women and girls. Improving access to education that builds adaptive capacity and removes barriers to empowerment is critical to building climate resilience. Moreover, schools that adapt themselves to be more resilient could provide protection, shelter in case of disaster, ensure food security through school meals and other support, bolster mental health and resilience, and help build the future workforce.

By leveraging the power of education to address these three areas, students are empowered to bring climate learnings from schools into communities, workers attain the technical and transformative skills necessary to thrive in the green economy, leaders are equipped to unleash the next tier of climate innovations and navigate a just transition, and citizens learn how to use their voice, consumer power, and political support to drive climate action. Make no mistake, if we don't mobilize education for climate action now, we put current and future generations at risk of being ill-equipped for one of society's most pressing challenges.

⁹ Energy & Climate Intelligence Unit, (2021). Net Zero Scorecard.

¹⁰ Rockström, J., Gaffney, O., Rogelj, J., Meinshausen, M., Nakicenovic, N., Schellnhuber, H. J. (2017). A roadmap for rapid decarbonization. *Science*.

¹¹ Williamson, K., Satre-Meloy, A., Velasco, K., & Green, K., (2018). Climate Change Needs Behavior Change: Making the Case for Behavioural Solutions to Reduce Global Warming. *Rare: Center for Behavior & The Environment*.

¹² Earth Day Network, (2019). Italy becomes first country to require climate change studies in schools. And Graham-McLay, C. (2020). New Zealand schools to teach students about climate crisis, activism and 'eco anxiety'. *The Guardian*, January 12.

¹³ Education International (2021). "Education International and UNESCO report: Teachers motivated to teach sustainable development and global citizenship but need more support." December 14.

¹⁴ Just transition is a framework developed by the trade union movement to encompass a range of social interventions needed to secure workers' rights and livelihoods when economies are shifting to sustainable production, primarily combating climate change and protecting biodiversity. In the context of education, just transition is important for considering the lifelong learning needed to support and sustain a green economy, beginning with foundational green skills developed in basic education (if not also early childhood) and continuing through to the breadth of green skills acquired through secondary education, higher education, and technical training.

¹⁵ For example, the International Labor Organization (2018) estimates that taking action in the energy sector could create ~24 million new jobs this century.

¹⁶ International Labor Organization, (2018). *World Employment Social Outlook 2018: Greening with jobs*.

Key terms

Net zero as a path to a 1.5°C world

In 2018, the IPCC released a Special Report¹⁷ illustrating the difference in the impacts of a world that limits average global temperature rise by 2100 to 1.5°C versus 2°C above pre-industrial levels. The evidence is clear that a 0.5°C difference in warming can be the difference between 14% and 37% of the global population experiencing extreme heat waves at least once every five years, or a difference nearly 2.5 times in the reduction of crop yields globally that will push millions of people into food insecurity. We are already approximately 1°C above pre-industrial levels and are well on our way to a 1.5°C world by 2030 and we may easily go beyond.

Nonetheless, holding average temperature rise to 1.5°C is the goal that the Paris Agreement aims to keep alive. The IPCC suggests that to meet this goal, the world must rapidly decarbonize, reducing emissions by 45% from 2010 levels by 2030 and reaching net zero emissions by 2050. Achieving net zero means that the amount of greenhouse gases released into the atmosphere equals the amount removed by sequestration or other green technologies. While net zero is intended to be a benchmark on the path to a 1.5°C world, much of the public and private sector have now adopted net zero as the goal. This has been a big concern for climate activists and critiqued heavily for its reliance on future technological salvation and its subsequent effect of postponing action, reducing policy ambition, and diminishing the political will to decarbonize today.

There are other terms to describe plausible emissions pathways to a 1.5°C world, including achieving a zero-carbon economy, a low-carbon economy, or even more generically a green economy. Each term comes with its own understanding of what level of greenhouse gas emissions is politically tolerable, what economic and social transformations are required, and on what timeline the goal can be achieved. Because net zero is a term that most people are familiar with-it is also the dominant term in UNFCCC processes-we use this term in the paper not as the goal to which we should aspire, but as a benchmark for countries and businesses to achieve on a path to a 1.5°C world.

Climate justice

There is growing recognition by the global community that the impacts of climate change are borne disproportionately by those populations and countries that have historically been the least responsible for present-day emissions. Not only are they hit first and the worst, but they also shoulder unique vulnerabilities as a result of a confluence of factors, including poverty, gender inequality, legacies of colonialism, structural racism, among others, that not only amplify their climate risks but also affect their ability to respond and adapt to the impacts of climate change.

Achieving climate justice means not only recognizing these historic and systemic inequities that structure the experience of climate change among the most climate vulnerable, it also means ensuring responses to the climate crisis address the disproportionate impact on marginalized groups, including girls and women, people of color, Indigenous peoples, and low-income communities and countries. More importantly, achieving climate justice means climate action is focused on removing or transforming the underlying root causes of vulnerability, exclusion, and marginalization, while empowering and shifting power, including decision making and leadership, to those that have been historically marginalized.

Climate literacy

Climate literacy is understanding one's influence on climate and the influence of climate on oneself and broader society.¹⁸ It includes knowledge of climate change, its system of anthropogenic causes, its system of impacts (including social, economic, health, and environmental), and its system of solutions (both technical and adaptive). Climate literacy is also the capacity to act by leveraging a breadth of green skills to identify climate problems and solutions and to engage in individual and collective behaviors that contribute to climate mitigation and adaptation, just transition, and societal transformation.¹⁹ This breadth of green skills includes technical skills like environmental engineering, socioemotional skills like empathy, and civic skills like political agency and advocacy. Finally, climate literacy also entails the pro-environmental and pro-social attitudes that are necessary to drive climate action toward a more equitable and just society that upholds human rights and roots economic activity within planetary boundaries. Climate literacy can be achieved through experiential problem-based learning opportunities aimed at empowering action, while also acknowledging and addressing the psychosocial effects of climate learning (e.g., eco-anxiety).



17 The Intergovernmental Panel On Climate Change (IPCC), (2021). Special report: Global Warming of 1.5°C.
18 NOAA (2009). "What is climate science literacy?"
19 Kwauk, C & O. Casey. A new green learning agenda. Approaches to quality education for climate action. Brookings Institution. January 2021.

III. The challenges at hand, and how the education sector can help

It is demonstrably unfair that individuals and societies that have contributed the least carbon emissions are set to endure the worst effects of a changing climate. This is true both geographically – with countries in the global south affected more than the north, in addition to disparity within countries – and intergenerationally, with young people’s futures negatively affected by decisions they could not influence. Nevertheless, the global community must now come together to achieve net zero by 2050, which will require halving emissions each decade in the 2020s, 2030s, and 2040s²⁰ while simultaneously building resilience and adaptive capacity for the impacts of climate change already underway, while simultaneously catalyzing structural transformations and social change for a more sustainable economy and socially just society.²¹ This is a monumental challenge, and education is critical to reaching our long-term mitigation and adaptation goals equitably, rapidly, and at scale.

While some organizations and individuals have been working at the intersection of education and the environment for decades, education as a whole has rarely been prioritized as a solution to the climate crisis. In this paper we argue that this needs to change. Education must take a more central place in the global climate dialogues and national climate and adaptation strategies, and the global education sector must mobilize itself for climate action.

20 Rockström, J., Gaffney, O., Rogelj, J., Meinshausen, M., Nakicenovic, N., Schellnhuber, H. J. (2017). A roadmap for rapid decarbonization. Science.
21 Education International (2021). Education International, the OECD, and UNESCO join forces to support teacher collaboration on climate education. September 8.



While some organizations and individuals have been working at the intersection of education and the environment for decades, education as a whole has rarely been prioritized as a solution to the climate crisis. In this paper we argue that this needs to change.



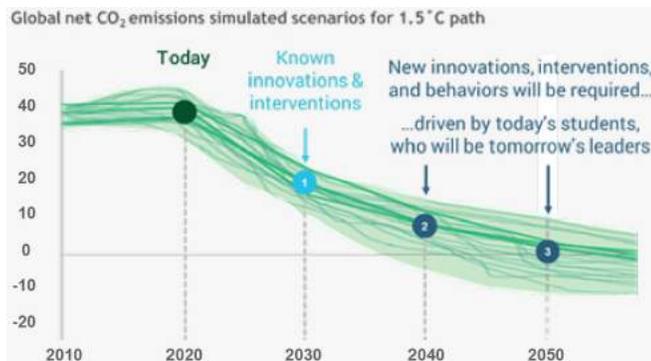
We see three primary areas where education and climate action intersect and where education can be a powerful driver of change: 1) Teaching climate literacy for behavior change and collective action, 2) Cultivating skills for a “just transition” to a green economy, and 3) Building the capacity to adapt. Across all these areas, it’s critical that education empowers local communities to define and execute their own climate agendas. This is a core tenet of climate justice. And, it’s critical that education enables the skills, mindsets, and opportunities to name and address systems of inequality and ultimately to shift power inequities. As the imperative for climate actions grows in the future, climate justice and education empowerment will become even more inextricably intertwined (see exhibit 1).

Education does more than respond to challenges in a changing world - education has the power to transform the world. Absent much greater progress on education, there will be no chance of reaching net zero and holding warming to a global average of 1.5°C.

Exhibit 1: Three opportunity areas for education & climate action



1. Teaching climate literacy for behavior change & collective action



The transition to a 1.5°C world, especially in high-emitting countries, will require that individuals continually make thoughtful choices in a range of areas, including buying green products and investing in green assets to incentivize pro-climate actions in the private sector, choosing green transportation, voting for green political candidates, and engaging in activism to keep pressure on other actors. While the onus of change should not only be on the individual, some estimate that 20-37% (~390-730 GT) of the emissions reduction needed to get to net zero by 2050 can be influenced by individual behavior change.²² In short, day-to-day habits and practices matter, especially in high-emitting countries, and education can help to spur this shift.

By increasing students' awareness and understanding of climate change and climate action, education can empower young people to become agents of change in their local communities, instilling new norms and inspiring a sense of the possible. Climate action projects, where students learn hands-on about climate change and what they can do to address it, may be particularly powerful.²³ Early studies suggest that once young people become climate literate, they help to educate their families, which has a multiplier effect on their communities.²⁴ The effect appears to be particularly strong when young women receive this education.²⁵ And, young people are often some of the strongest advocates for climate action that is deeply rooted in climate justice. Of course, simply exposing students to climate issues is not sufficient for behavior change, but it is certainly a prerequisite.

While more research is needed, some studies have found that school districts are often the optimal size to scale climate action at the local level and so represent a very promising lever for change.²⁶ Moreover, education systems can be large-scale 'buyers' of green tech, helping to 'guarantee' the demand needed to speed innovations. Consider, for instance, the US's allocation of \$7.5 billion in infrastructure funds to spur adoption of green school buses²⁷. When paired with the experiential learning, such investments can have a double-impact. For example, UNESCO ASPnet's whole-school approach to climate change led to initiatives for solar panels, reusing sewage water, and alternative modes of school transformation, in addition to uptake of climate curricula.²⁸

Focusing on climate literacy is also a way to build on an already growing student movement. Many students feel an imperative to act and have organized advocacy groups such as Fridays for the Future, the Sunrise Movement, and Youth for Climate. And nearly 1.4 million participated in the 2019 student-led Global Climate Strikes²⁹. With respect to climate change, students are often ahead of their schools and the education establishment.

As one young female activist said, "Governments need to take systemic action to make climate a subject at school"³⁰. Another lamented, "to date, I have learned more cursive than I have about the climate"³¹. Now is the time to empower educators to change the narrative.

Cultivating green skills for a just transition to a sustainable economy

As economies transition from 'brown' to 'green,' education has a critical role to play both in equipping current workers through reskilling and continuing education, and in laying the groundwork for the students who will work in (and redefine) the jobs of tomorrow. The stakes are high. A just transition could deliver millions of new jobs in sustainable economies and enable those who have been historically excluded from participating in well-paying jobs to enter;³² failure could result in structural unemployment, undermine public support for climate action, and foment societal unrest.

Although some workers must transition into green jobs, others will simply need to move into alternative sustainable forms of employment, or transition from informal or unpaid labor into well-paying jobs. While the timing and degree of these impacts are highly localized by industry and geography, estimates suggest that nearly 77 million jobs are at risk globally without reskilling;³³ in addition, nearly 1.2 billion jobs are in industries dependent on a healthy climate and ecosystem (e.g., forestry, fishing, agriculture)³⁴. Moreover, if there are not enough skilled workers to scale innovations, the goal of keeping to 1.5°C warming will be put at risk (e.g., consider today's shortage of qualified wind turbine technicians, which is slowing adoption of a proven renewable technology³⁵). The green transition offers an opportunity to rebalance economic opportunity and disrupt the gendered and biased norms of our current state; however, if we do not proactively address it, we risk losing out on the opportunity in addition to slowing climate action.

Beyond technical skills, a just transition also requires new 'transformative' leadership skills across organizations to navigate the transition and manage climate-related risks. These skills include systems thinking, coalition-building, and the resilience to steer through ambiguity. These leadership skills must not be confined to senior positions; they should be normalized across middle management and others responsible for day-to-day decision-making, and nurtured in the next generation from a young age. Consider, for instance, a middle manager in a consumer-packaged goods company tasked with addressing a sudden climate-induced shortage of raw materials, or a local government employee answering media inquiries about how reforestation will impact local jobs, or a secondary school student choosing a career path that will allow her to direct her eco-anxiety into action that will sustain both the planet and her own livelihood.

22 Williamson, K., Satre-Meloy, A., Velasco, K., & Green, K. (2018). Climate Change Needs Behavior Change: Making the Case for Behavioural Solutions to Reduce Global Warming. *Rare: Center for Behavior & The Environment*.

23 Kwauk, C., and Winthrop, R. (2021). Unleashing the Creativity of teachers and students to combat climate change: an opportunity for global leadership. *Brookings*. March 26.

24 Lawson, D.F., Stevenson, K.T., Nils Peterson, M., Carrier, S.J., Strnad, R.L., & Seekamp, E. (2019). Children can foster climate change concern among their parents. *Nature Climate Change*, Vol. 9, pp. 458-462.

25 Lawson, D.F., Stevenson, K.T., Nils Peterson, M., Carrier, S.J., Strnad, R.L., & Seekamp, E. (2019). Children can foster climate change concern among their parents. *Nature Climate Change*, Vol. 9, pp. 458-462. Note – study conducted in the US.

26 Kwauk, C., and Winthrop, R. (2021). Unleashing the Creativity of teachers and students to combat climate change: an opportunity for global leadership. *Brookings*. March 26.

27 Caprez, K.M. (2021). H.R. 3684: Infrastructure Investment and Jobs Act. *The National Law Review*, November 8.

28 UNESCO Associated Schools Network, (N/D). Implementing a Whole-School Approach to Climate Change.

29 Carrington, D. (2019). School climate strikes: 1.4 million people took part, say campaigners. *The Guardian*, March 19.

30 Mahmoud, Farah (2021). "Youth Speaks: Our message to World Leaders on Earth Day 2020. April 20.

31 Al-Kaaby, Nour (2021). "Youth Speaks: Our message to World Leaders on Earth Day 2020. April 20.

32 International Labour Association, (2018). *World Employment Social Outlook 2018: Greening with jobs*.

33 International Labour Organization (2018). *World Employment Social Outlook 2018: Greening with Jobs*. And The Adecco Group (2021). *Skills for the Green Economy*. January 25.

34 International Labour Organization, (2014). *The employment impact of climate change adaptation*.

35 Rowe, Tom (2013). "EU Wind industry faces critical worker shortage." *The European Wind Energy Association*. August 05

The 'Gilets Jaunes' protests in France in 2018 serve as just one reminder that citizens are unlikely to support policy changes if they result in a loss of jobs, particularly if those losses are acute in specific communities or geographies³⁶. The climate efforts to stop 'the end of the world' must not disproportionately affect those struggling to see the 'end of the month'³⁷. Education is a key lever to ensure equity as societies undergo necessary economic and social change.

Building the capacity to adapt

Quality education increases communities' adaptability and resilience to climate disasters, particularly when women and girls are the beneficiaries of this education. That's because women in low-income communities are often closest to many of the levers for behavior change, such as using scarce water resources, farming techniques, and cooking and heating habits, in addition to being core pillars of local communities. Analysis of the ND-GAIN index shows that for each additional year of education that girls acquire, a country's resilience to climate disasters increases 1.6-3.2 average points³⁸. One study also projects a 60% lower death toll from extreme weather events by 2050 if the share of women receiving a lower-secondary education increased from 30% to 70%³⁹.

To date, many investments to improve adaptability and resilience have focused on infrastructure. But given the uncertainties of future climate patterns, these investments might have the unintended consequences of locking countries into certain strategies for coping with climate change that might prove ineffective, ultimately hurting economic development. We believe that investing in education and human capacity is a critical strategy to enhance societies' adaptive capacities over the long term and more reliably improve economic development.⁴⁰ Education is perhaps the single most effective investment to promote long-term resilience and adaptive capacity, while also addressing underlying vulnerabilities and inequalities that heighten climate risks for some more than others. In fact, a recent survey of private companies in Africa highlights that the lack of education and training is one of the most significant adaptation barriers for businesses in Africa.⁴¹

Improvements in adaptation are possible even if the education does not explicitly address climate topics. By generally increasing literacy and economic opportunity, vulnerable populations are better equipped to respond to climate related challenges, such as floods that might force them to move or poor harvests that might force them to find other work.

Lamia's story, Bangladesh

When Cyclone Sidr struck Bangladesh in 2007, Lamia Akter, then a 7-year-old student, passed on a cyclone warning she heard at school to her fellow villagers, many of whom were reluctant to leave their homes.

She knew what might happen if they failed to heed the warning. She also knew from her classes to bury important papers and possessions—and mark their locations with bamboo cane—and to herd livestock to higher ground.

She managed to convince her family members to leave the shelter, and everyone survived.⁴²

36 Bouye, M. & Dagnet, Y. (2018). The Yellow Vests Movement Isn't Anti-Climate Action; It's Pro-Social Justice. The World Resources Institute.

37 Rerolle, R. (2018). "Yellow vests": "The elites speak of the end of the world, when we speak of the end of the month" [translated]. La Monde, November 24.

38 Kwauk, C. & Braga, A. (2017). Three platforms for girls' education in climate strategies.

39 Streissnig, E., Lutz, W. & Patt, A.G. (2013). Effects of Educational Attainment on Climate Risk Vulnerability.

40 Lutz, W., Muttarak, R. & Streissnig, E. (2014). Universal Education is the key to adaptation: fund more educators rather than just engineers. Science Magazine, vol. 346, Issue 6213, pp.1063-1062.

41 Global Center On Adaptation, (2021). State and Trends Report in Adaptation Report 2021: Africa

42 Cimons, Marlene. (2020). "Want to stop climate change? Educate girls." PBS, Peril and Promise: The Challenge of Climate Change. March 9.



IV. Promising momentum, but more is needed to meet the urgency of this moment

While many have been working at the intersection of education and the environment for decades, and there are promising examples of momentum across all of the above areas, more is needed to equip stakeholders with the tools, knowledge, and funding to enable climate action reliably and at scale.

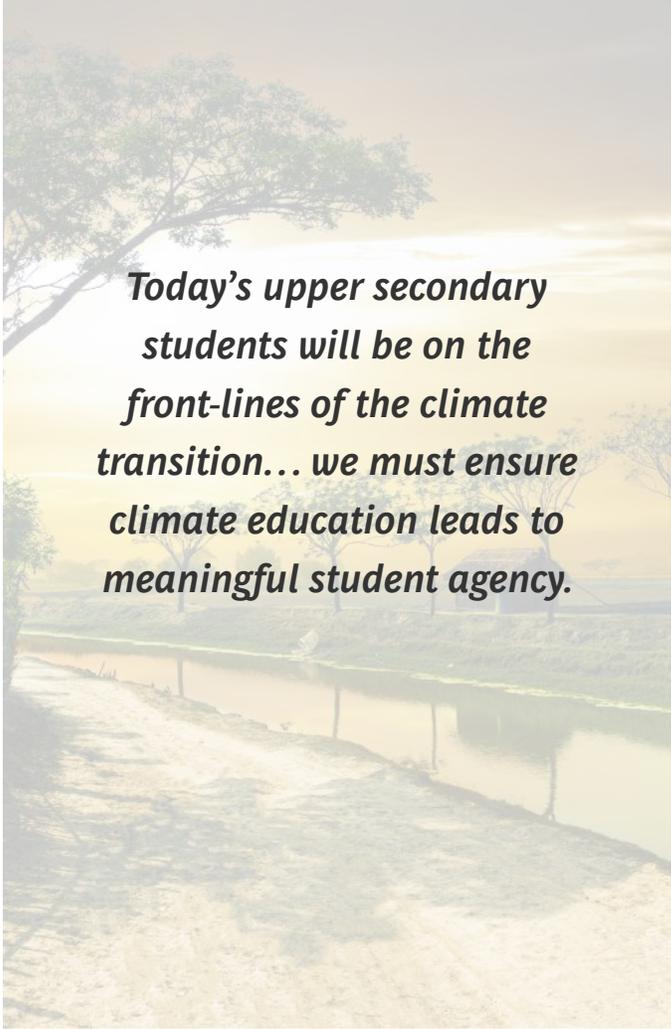
Teaching climate literacy for behavior change & collective action

It may be tempting to address educational deficiencies through curriculum adjustments, but the issue is only partly with curricular coverage; it also includes curriculum implementation and the design of learning environments. While only three countries have formally integrated climate literacy into their curricula, 90% of teachers globally believe sustainable development topics are important, and one in four reports needing more support and training to teach them effectively.⁴³

The problem is that climate issues are taught like any other school subject and don't stimulate student agency.

A report from the OECD Program for International Student Assessment (PISA) found that a large share of 15-year-old students don't feel empowered to make a difference on climate issues⁴⁴. Even though programmatic resources abound (from UNESCO, Brookings, NASA, National Geographic, the Alliance for Climate Education, Project Drawdown, to name just a few), they don't receive formal time in school schedules or benefit from teacher training for implementation. Other resources focus too narrowly on defining climate change instead of examining its implications across subjects and empowering students to act.

Many educators are eager to make changes and incorporate more climate action into their curriculums, but they are unsure about how to tailor lessons to education levels and local context, or in ways that lead to meaningful student agency.⁴⁵ For example, today's upper secondary students will be on the frontlines of the climate transition, so their education should focus on how to support reaching national targets and understanding policies. Meanwhile, by the time today's kindergarteners grow up, net zero targets will hopefully be nearly met. New challenges for them await. Without this contextualization, students may struggle to translate education into action. Locally contextualized programming such as the Climate Action Project, the Carbon Literacy Project, or the Green Schools Program, simultaneously inform students about climate change and take tangible action in students' local communities.



Today's upper secondary students will be on the front-lines of the climate transition... we must ensure climate education leads to meaningful student agency.

What's needed? To accelerate climate literacy for behavior change and collective action, educators, institutions, and governments must commit to creating interdisciplinary curricula for action-oriented, empowering programming (as opposed to mere 'information dissemination'), and training teachers accordingly. In parallel, schools must invest in greening their own infrastructure (transportation, food, energy, etc.), lead by example, and offer experiential learning opportunities for students. Also, leaders should rigorously evaluate the spill-over effects that climate literacy in schools have on the broader community in terms of advocacy and collective action.

⁴³ Earth Day Network, (2019). Italy becomes first country to require climate change studies in schools. And Graham-McLay, C. (2022). New Zealand schools to teach students about climate crisis, activism and 'eco anxiety'. The Guardian, January 12. And Education International (2021). "Education International and UNESCO report: Teachers motivated to teach sustainable development and global citizenship but need more support." December 14.

⁴⁴ Schleicher, A. (2021). Green at fifteen – what schools can do to support the climate. OECD.

⁴⁵ Taylor, M (2019). Teachers want climate crisis training, poll shows. The Guardian. June 21.

Cultivating skills for a “just transition” to a green economy

Efforts to ensure a just transition to a green-skills economy are underway in many impacted geographies (e.g., South Africa’s efforts to transition away from coal) but these are often reactive rather than proactive, or they are led by private industry and governments rather than the education sector. Consider the state of Colorado’s Just Transition office, set up to help facilitate the transition away from coal,⁴⁶ or negotiations between Enel, an Italian multinational manufacturer and distributor of electricity and gas, and about 68,000 workers as the company closed or transitioned 18 coal power plants.⁴⁷

Education systems can and must do more to proactively support a just transition to a 1.5°C world by building explicit programming (e.g., many universities have recently started climate-related masters’ programs), and by adapting curricula to identify and teach the green skills of the future (e.g., San Antonio’s educational institutions back-mapping the curricular changes needed to support future local green jobs⁴⁸). This work includes building ‘green skills’ and sustainability into traditional TVET and skills-for-work programs, in concert with employers, and ensuring such programs are gender transformative rather than reinforcing current workplace biases/inequities. In parallel, educators can join green-blue alliances⁴⁹ between labor and climate activists to amplify their collective voice calling for just transition policies, programming, and funding.

What’s needed? To facilitate a just transition, educators must adopt an expansive view of ‘climate literacy’ that includes both the technical and leadership skills that the future demands, and they must apply climate literacy across primary, secondary, tertiary, and continuing education. However, attention to green skills alone is insufficient to guarantee a just transition. Corporate and government leaders must also invest in playbooks and learning networks to scale best-in-class, locally contextualized practices for multi-sector partnerships across educators, government, and industry, and must do so with an eye to ensuring opportunities are equitable for all communities, and do not reinforce existing economic biases across race and gender. Although the specifics of each industry and region’s transition will differ, executing coalitions can and must learn from each other as they tackle this challenge.

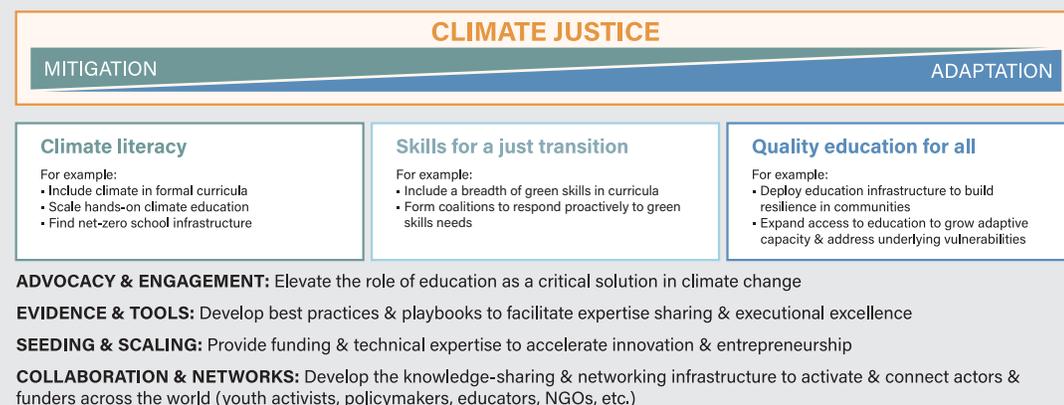
Building the capacity to adapt

A growing number of organizations in the education sector have been working to integrate climate action into their efforts, even if informally, based on the needs heard directly from the communities they serve. Save the Children, for example, is working on gaining accreditation with the Green Climate Fund to increase its ability to deliver adaptation/resilience projects at the intersection of education and climate.⁵⁰ Meanwhile, Educate Girls, Send My Friend to School, Malala Fund, and others are using their voices and advocacy to promote investments in education, especially for girls, as a key strategy to increase climate resilience.⁵¹ The Education Commission and the Global Center on Adaptation are developing a global alliance to seed education as a core part of adaptation strategies and action in Africa.

What’s needed? To build a stronger case for educational investment in adaptation and resilience, particularly for the most vulnerable (including girls and women, people of color, Indigenous peoples, and low-income communities and countries), more research is needed linking these investments with demonstrated impact on adaptation, improved resiliency, and increased economic opportunity. This evidence could strengthen and broaden governments’ national adaptation plans, and help those in the field to unlock flexible, sustainable funding from governments and philanthropies. The combination of analysis, on the ground action, and financing could help engage both climate and education communities and fuel a global movement for change.



Exhibit 2: The What and How of education for climate action



46 Colorado Department of Labor, (2021). The Office of Just Transition.

47 World Resources Institute, (2021). Italy: Enel’s Just Transition Framework and Future project.

48 The Council for Adult and Experiential Learning (2009). Building Green Skills: A Green Jobs Program for San Antonio. Mission Verde.

49 For example, consider the Blue-Green alliance in the US: <https://www.bluegreenalliance.org/>

50 Green Climate Fund, (2021). Save the Children Australia.

51 Send My Friend to School (2020). The Right to Climate Learn. Malala Fund, (2021). A greener, fairer future.

V. How each stakeholder group can help

By teaching climate literacy for behavior change and collective action, cultivating skills for a just transition to a green economy, and building the capacity to adapt and change systems, it's possible to have a transformative impact. Students are empowered to reduce and respond to the adverse effects of climate change, and to bring their learnings from the classroom to their communities. Workers possess the technical and transformative green skills necessary to thrive in the new green economy. Leaders are equipped to unleash the next tier of climate innovations and navigate a just transition. And citizens can use their collective voice, consumer power, and political support to drive climate action and climate justice.

But these positive outcomes require a broad coalition of actors exerting their influence in the education sphere to mobilize climate action.

Educators and education leaders should incorporate locally contextualized, action-oriented climate education into the classroom at all levels (primary, secondary, tertiary) and across subject areas; advocate for formal integration into curricula and funding for teacher training; support green school infrastructure investments (transport, food, energy, buildings), including hands-on, student-led climate action projects; participate in cross-sector just transition reskilling efforts with government and private sector partners.

Governments should integrate robust climate/education commitments into National Adaptation Programs of Action and NDCs (e.g., formalizing climate education in curricula, funding green school infrastructure investments); cultivate a climate-literate workforce across all levels of government (city, state, county, etc.); foster formal collaboration mechanisms between education and environment ministers; and consider multi-sector, cross-government just transition offices to reskill and upskill impacted citizens, and to mobilize cross-sectoral financing to support education efforts.

Employers and corporate citizens should cultivate a climate-literate employee base ready to drive the climate agenda from within (analogous to organization-wide investments in diversity, equity, and inclusion); partner with local educators and governments to create cross-sectoral partnerships to facilitate a just transition; and proactively invest in green reskilling and upskilling for the workforce as a whole – both impacted employees and potential new/non-traditional workers.



Philanthropies should provide flexible, patient funding at the intersection of climate and education, including risk-tolerant seed capital for new innovations; help to build the evidence base for what works, including over longer time horizons; scale proof points to give governments the confidence to act; and amplify attention to best-in-class practices and partnerships.

Civil Society Organizations and Non-Governmental Organizations should help translate high-level ambition and vision into actionable, ground-level impact by, for example, advocating and convening across stakeholder groups.

Students, parents, and activists must continue to advocate for greater expansion and integration of the climate and education sectors and hold decision makers to account.

Across all of the above, efforts must prioritize a targeted focus on support and enablement for those who have been historically marginalized, including women, in order to avoid perpetuating the inequities of the status quo.

...positive outcomes require a broad coalition of actors exerting their influence in the education sphere to mobilize climate action



VI. No time to waste

When trying to bring education to climate and climate to education, many focus too narrowly on explaining the concept of climate change, or greening school infrastructure. The power of education for climate action is vastly broader than that. While the authors of this publication represent only a small fraction of the myriad actors across the globe already working collectively on this effort, it's clear to us that all organizations have a role to play if we are to achieve our potential as a sector and as a lever for cross-sectoral collaboration and sustainable transformation. The time is now to unleash the power of education for climate action. If we do not, we risk failing to protect the most vulnerable and preserving a harmful status quo, when this moment demands that we empower future generations with the tools and mindsets they need to tackle the climate crisis.



Climate change, racial inequality, violence, poverty, discrimination — these are just some of the global challenges we cannot hope to solve without including the voices of girls and young women. When we educate girls, we empower them to lead in a world affected by climate change. And providing quality climate education is key to addressing the devastating impacts of the climate crisis today.

—Suzanne Ehlers,
CEO, Malala Fund



The world must recognize education's vital role in preparing people for the green economy and helping them adapt and build resilience in the face of climate shocks. Education has been virtually absent from critical conversations around climate action and it must urgently become a more central strategy to unlock the [system transformations](#) required for a more sustainable and just world. The [evidence](#) is clear: we must fund educators, not just engineers!

—Liesbet Steer,
Executive Director, the Education Commission



Women are 14 times more likely to die in climate disasters than men (CARE 2021), a staggering fact that illustrates how the poorest women and girls, who contribute the least to the climate crisis, bear the highest burden.

However, we know, that if you educate these girls, they are more likely to survive and become more climate resilient. And not only that, they will educate the next generation thereby breaking the cycle of poverty and illiteracy and underpinning any of our mitigation and adaptation strategies.

The future of the planet lies in the hands of the next generation and that generation has to have access to quality education if we are to not only survive but thrive in a climate-adjusted world.

— Safeena Husain,
Founder and Board Member, Educate Girls



Schools need to provide the space and structure for children to act on climate now. They have the potential to be communities where students come together to work on actionable climate solutions, rather than leaving students striking for change outside of them.

—Amel Karboul,
Founder and CEO, The Education Outcomes Fund



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