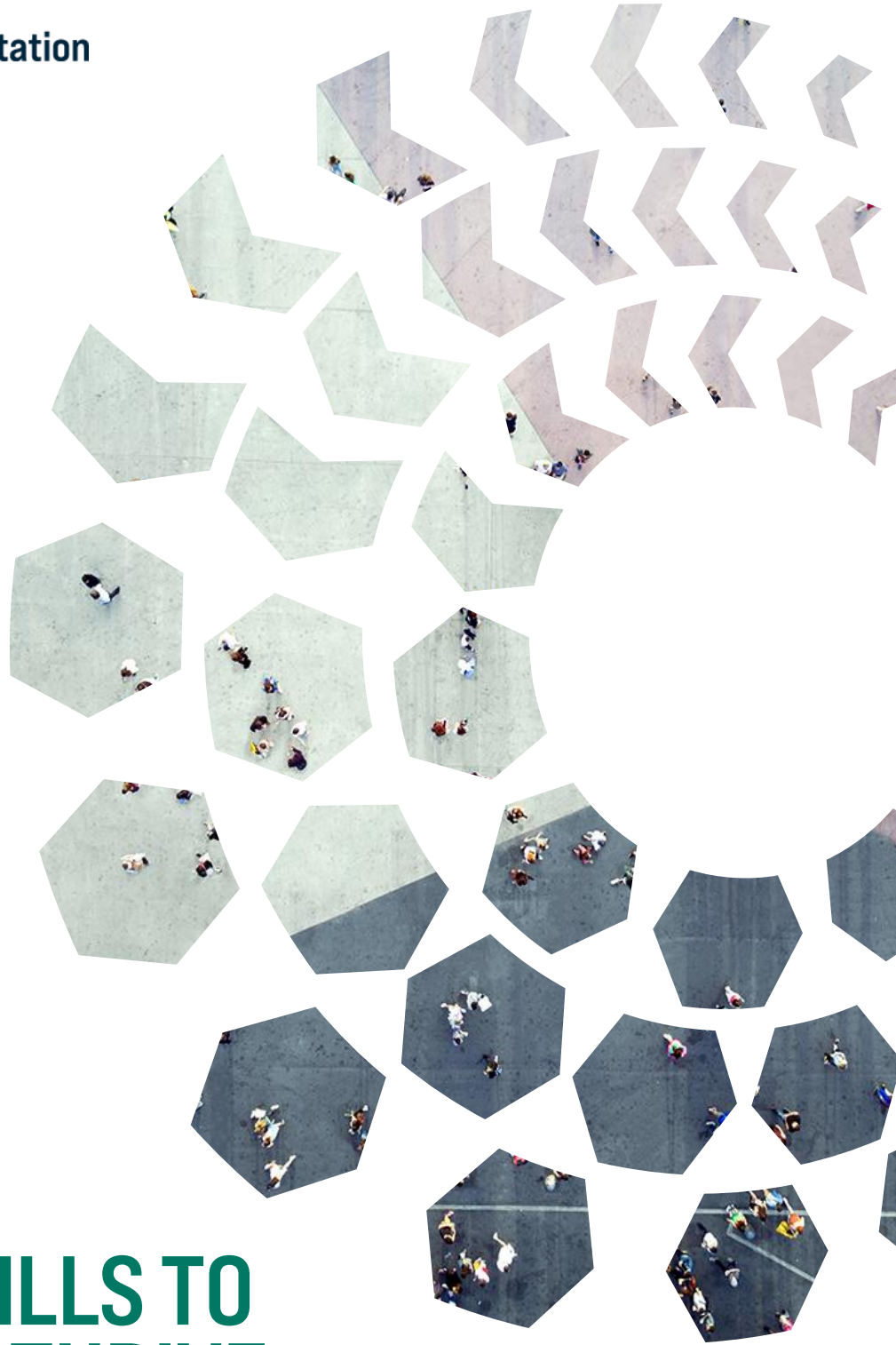




ISEP

Climate Change
Mitigation & Adaptation



CLIMATE SKILLS TO SURVIVE OR THRIVE: ANALYSIS OF UNFCCC NATIONALLY DETERMINED CONTRIBUTIONS

Chloe Fiddy
ISEP Senior Policy and Engagement Lead



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About ISEP

Sustainability Matters. Environmentally, economically and socially.

The Institute of Sustainability and Environmental Professionals (ISEP) is the global membership body for anyone wanting to deliver sustainable change across government, business and society. ISEP members set the global standard in sustainability and environmental practice. Our networks around the world are influencing government policies, driving best-practice across business, advancing careers and nurturing talent.

1.1 Introduction

As the global membership body for sustainability professionals, ISEP is especially interested in green skills planning for the workforce, and the learning systems needed to deliver a low-carbon, climate-resilient future. ISEP operates globally and its team and individual members work with governments around the world to support with skills development with an 'all jobs greener' perspective.

The shift to a sustainable economy will create green jobs within new and emerging sectors, while those working in existing sectors will have to gain the requisite green skills to take advantage of, and sustain, economic growth potential.

We refer to green skills as the technical skills, knowledge, behaviours and capabilities required to tackle the environmental challenges we face, and to unlock new opportunities for growth. Green jobs are referenced as specialist roles that directly focus on specific domains or initiatives dedicated to improving environmental outcomes for an organisation or for the economy.

This analysis provides important insights into the way that Nationally Determined Contributions submitted to the UNFCCC regard green skills and green jobs, insights that ISEP professionals and others will be able to use in conversations and actions to influence the implementation of the current NDCs and the development of future updates.

This paper summarises the findings on green skills in three key international reviews:

- The UN Framework Convention on Climate Change (UNFCCC) synthesis report on Nationally Determined Contributions.
- The International Labour Organization's 2024 report *Mapping Just Transition in the NDCs*.
- The World Bank's 2024 report *Choosing our Future: Education for Climate Action*.

It then sets analyses the individual NDCs and identifies themes for further research and advocacy.

1.2 The UNFCCC synthesis report on NDCs

Nationally Determined Contributions and green skills

Nationally Determined Contributions (NDCs) are documents published by Parties to the Paris Agreement (i.e. countries that have signed up to the international treaty on climate change). Each Party's NDC sets out what it will do to reduce national emissions and to adapt to the impacts of climate change. Collectively, these submissions provide a forward-looking view on global progress towards climate change mitigation and adaptation.

The Action for Climate Empowerment (ACE) is a term used by the UNFCCC to describe work used to empower all members of society to engage in climate action, including via education and training. Under ACE, 'education' refers to



projects that aim to result in a population that understands the climate challenge, while 'training' refers to the development of practical skills to address the climate challenge. The ACE commitments, although not directly greenhouse gas emission (GHG) targets, are necessary for the targets' achievement and the UNFCCC says that they should 'be included in NDC target-setting in concrete and measurable ways'¹.

2025 Status of Nationally Determined Contributions

As countries prepare for COP30, the third round of NDCs, submitted throughout 2025, offers a timely window onto how governments are planning their decarbonisation journeys and the economies of the future. The UNFCCC's 2025 NDC Synthesis Report², which analyses NDCs recorded between 1 January 2024 and 30 September 2025, shows a clearer, more economy-wide ambition in many submissions, albeit from an incomplete set of NDCs.

As of the end of September, only 64 of the 195 Parties to the Paris Agreement had submitted their NDCs. The NDCs submitted cover only about 30 per cent of 2019's total global emissions. The report therefore acknowledges that the dataset is partial and uneven, limiting global generalisations. Within these submissions, green skills are given variable degrees of consideration:

- 22% of the submissions specifically referred to ACE as a necessary means of giving society the tools to deliver the mitigation and adaptation objectives in their NDCs.
- 30% of the submissions noted the link between capacity building, skills development, decent work and quality jobs with technological development.
- 55% of the submissions highlighted the role of academic institutions (often through knowledge hubs or partnerships with international networks) in training for sustainable skills, such climate and sectoral modelling, data provision, and technical skills.
- 59% of the submissions planned to address the unequal impacts of climate change on different groups of society and workforces through measures such as green skills and jobs strategies.
- 70% of the submissions referred to skills development, reskilling, and upskilling in the context of a just (or 'fair') transition. Some of these were limited to broad statements, while others referred to specific plans, such as skills and jobs strategies.
- 78% of the submissions included climate change education measures to equip learners with knowledge, skills, attitudes and values necessary to contribute to climate action.
- 80% of the submissions provided information on training measures, including skilling, reskilling and upskilling of the population to achieve a just transition and promote the uptake of green jobs.

Finance requirements for green skills development

The information on the climate finance needed to implement the skills aspect of NDCs is largely uncoded. Of the 64 NDCs submitted, 56 provided financial information. Of these 56, 15 NDCs noted that support would be needed but was uncoded. 33 NDCs had coded the support needed, but not in a granular detail that would separate out ACE from other cross-cutting elements (of which there are 12, such as gender and international co-operation). More granular climate finance requirements are difficult to calculate due to limitations on data availability and institutional and technical capacity.

Even when coded, the financial requirements are not necessarily available due to the difficulties of mobilising climate finance where the activity is deemed to have low profitability. ACE activities must also compete with other more urgent demands where the existing debt burden is already high.

¹ For further reading: [Action for Climate Empowerment | UNFCCC](#)

² Data sources: [2025 NDC Synthesis Report | UNFCCC](#)

1.3 International Labour Organization green skills and just transition

The published NDCs demonstrate that many Parties continue to recognise capacity-building and ‘human resources’ as an essential means of implementation; but references to concrete education and skills measures are often high-level, dispersed across sections on adaptation, just transition or youth engagement, rather than integrated into national education and training plans. The International Labour Organization’s 2024 report *Mapping Just Transition in NDCs* has already recognised the practical limitations of this approach - skills and training are included, but typically without clear targets, budget lines or delivery pathways.³ This does not meet the UNFCCC recommendations on ACE.

1.4 The World Bank’s education for climate action

The published NDCs tend to mention education and skills within two clusters, mirroring the ACE definitions: (i) formal climate-change education and climate literacy (policy signals, curricula, teacher training), and (ii) technical and vocational education and training (TVET), apprenticeships and reskilling/upskilling designed to support green jobs in energy, buildings, transport and nature-based sectors.

The World Bank 2024 report *Choosing our future: Education for Climate Action*⁴ estimates that, globally, moving economies to more sustainable development trajectories would require an estimated 100 million new jobs, up-skilled workers for existing jobs, and re-skilled workers for about 78 million jobs which will disappear. The report points out that education is a critical propeller of climate action, and is currently massively under-used. It makes three recommendations on school-system climate education:

- 1) Harness school education for pro-climate behaviour-change – invest in foundational skills and STEM education, delivering well-designed climate education, and building teacher capacity.
- 2) Harness tertiary education for green skilling and innovation by fostering student adaptability through strong foundations, flexible pathways, and information flows.
- 3) Protect education systems by making them more adaptable and resilient to a changing climate.

³ For further reading: [Mapping Just Transition in NDCs | International Labour Organization](#)

⁴ Data source and for further reading: [Choosing Our Future: Education for Climate Action](#)

2.1 Analysis of NDC trends

A review of the published NDCs reveals several strong trends and themes in the treatment of green skills. The themes identified will underpin ISEP's work in supporting and advising governments and non-state organisations to develop the green skills and green job capacities needed to support sustainable growth.

Vulnerable countries must educate their citizens to survive; wealthier countries can enable their citizens to thrive.

Vulnerable countries focus on general education for adaptive survival

Small islands and countries with higher climate impacts and less advanced economies tend to focus on general education on climate change, damage repair, and adaptive survival.

As an example, the low-lying Solomon Islands have contributed next to nothing in terms of global greenhouse gas emissions, yet are already experiencing significant climate change impacts including extreme rainfall events, loss of critical fish catch and, in some areas, permanent inundation.⁵ Despite these challenges, the Ministry of Education and Human Resources Development (MEHRD) has developed a multi-faceted approach to adaptation. It has developed a School Disaster Risk Handbook to help address school-level risks and preparedness. The Ministry is also actively enhancing the secondary school curriculum to focus on skills and jobs that enable climate adaptation and resilience.

It is not the only low-lying country that is adapting schools and curricula as a hand-in-hand approach - where the simultaneous development of skills and climate-resilient education facilities are helping people to both comprehend and tackle climate change in the immediate term.

Kenya is another country that has historically contributed little to global GHG emissions, but is ranked 152 out of 181 countries in the 2019 ND-GAIN Index which measures vulnerability to climate change impacts.⁶ Key climate risks include unpredictable rainfall, leading to droughts and floods. Kenya's NDC refers to disruptions in education due to extreme climate events, and the need to strengthen education infrastructure resilience accordingly. It is also mainstreaming climate adaptation in the education system, as well as ensuring that young people develop the climate literacy and skills to drive climate action, as the country transitions to an industrialised economy.

These approaches are based on the already-evident impacts on vulnerable countries, for which climate change is not an abstract concept, but a lived reality.

Wealthier countries look for the economic benefits of green skills

Many wealthier countries are not yet as immediately impacted by climate change as the more vulnerable countries. This can be because of more temperate baseline climates, a degree of wealth that enables the deployment of expensive technological solutions, or more advantageous topography. Although many wealthier countries are feeling the costs of climate change, with extreme weather events causing loss of life and considerable economic damages, many continue to have a sense that they are more insulated from the immediate concerns of adaptation. As they can leverage an existing industrialised base, these countries are looking at climate change education and skills more as an economic opportunity than an existential risk to existence.

As an example, Australia's NDC makes nine references to skills, each in the context of economic growth. Referring to its renewable resources and rich metal and mineral deposits, it assesses that it is in a strong position to maintain economic growth in the transition to a lower emission economy. The reskilling and retraining of workers are forecast

⁵ Further reading: [World Bank Group: Country Risk Profile for Solomon Islands](#)

⁶ Further reading: [World Bank Group: Country Risk Profile for Kenya](#)



to drive clean industry growth, and the plan makes references to informing students on the basics of climate change and its impacts and an apprenticeship programme, which will incentivise the uptake of careers in the priority industries of the net zero transition.

Canada's NDC consistently references 'skills' and 'training' in the context of preparing for the job opportunities – by re-skilling and up-skilling – in the low carbon economy. Similarly, the United States' NDC says that it leads on efforts to address climate change through research, education, training and workforce development, so that all Americans can participate in the economic opportunities of the clean energy economy. However, 'skill[s]' is not cited at all in its NDC – 'training' only has one entry and 'education' two.

The EU submits its NDC as a block. Its NDC recognises the role of climate education and training as an enabler for the green transition so that citizens understand the climate crisis and so that there is a sustainability-skilled workforce available to meet the growing demands of the growing green-tech labour market.

Acknowledgement of local knowledge and skills limited to indigenous knowledge

Countries with indigenous peoples always reference in their NDCs the skills and knowledge of their peoples as a critical source of education and learning on climate change, with reference to both climate change mitigation and adaptation. Many countries that do not have indigenous peoples nonetheless have communities – for instance rural or coastal – with strong historical and generational links to their surrounding natural resources. These communities may be able to provide useful local knowledge on climate change mitigation, repair and adaptation. No NDCs reference this resource, which – if not already vanished – would be precious.

Leadership on green skills is not limited to advanced economies

Leadership and cooperation

The UK NDC references a range of measures at home and abroad designed to include climate change in the education system. Domestically (and across devolved nations) the skills system is designed to enable people to access green careers and 'live, work and succeed in a sustainable future'. Climate change is planned to be added to the school-age curricula and onwards through the different levels of education settings. Post-education skills and re-skilling are (as with other wealthier countries referenced above) focused on capturing the economic benefits of the energy transition. Ensuring the resilience of physical educational settings is also referenced, which is unusual compared to other advanced economy NDCs. Overall, the UK's NDC expresses a good range of ambitions on 'green skills'.

Although not often referenced in NDCs, international cooperation on capacity-building and the transfer of knowledge are key to achieving the goals of the Paris Agreement. The Greening Education Partnership (GEP)⁷ is a collaborative global platform which aims to support education systems worldwide to prepare learners to tackle climate change and promote sustainable development. The United Arab Emirates' NDC refers to its resolution *Strengthening the Role of Culture and Education for Climate Action and Resilience* adopted by the UNESCO board in 2023, with the aim of strengthening the GEP.

The UK NDC also refers to its role in establishing the Common Agenda for Climate and Education Declaration launched at COP28⁸. This was signed by 41 founding partners at COP28 and a further 50 Parties have since joined as signatories.

⁷ Further reading: [Greening Education Partnership | UNESCO](#)

⁸ Launched in partnership with the United Nations Educational, Scientific and Cultural Organization (UNESCO) and Global Partnership for Education. [The Declaration on the common agenda for education and climate change](#)



Lack of information and best practice exemplar to learn from

Aside from the UK and Canada, the G7 countries barely or do not cover education or green skills in their NDCs. As noted above, the US plans for green skills are limited. The European Union submits one NDC on behalf of all member states, some of which are G7 countries, and as mentioned above, education and training are recognised as a “strategic enabler for the green transition, essential for fostering an informed understanding of the climate crisis, building resilience to disinformation and creating a sustainability-skilled workforce to meet the growing demands of the growing green-tech labour market”. Japan’s does not mention skills, education or training.

Of all the submissions this year, one country stands out in terms of its understanding and utilisation of education and training: Cambodia. Cambodia is highly vulnerable to climate change, with high projected warming against baselines, and starker increases in minimum and maximum temperatures. As well as extreme heat events, major river floods are expected to cause risk to life, loss of fisheries and yields from staple crops.⁹

Cambodia’s NDC stands out because it adds KPIs and names the Line Ministries responsible for each action. In a well-defined table, it sets out 15 packages of actions linked to education, information and awareness raising. This includes measures such as 1,000 schools implementing the National Guidelines on Eco-schools (climate mitigation), 1,000 schools implementing the Guidelines for Safe School Framework (climate resilience), 50 lifelong learning centres adopting updated climate change curricula, and educators, pre-service teachers, and in-service teachers in early childhood, primary and secondary education being trained on climate change. Fake news and misinformation will be combated.

2.2 Conclusions and recommendations

The recommendations that follow set out pragmatic steps for governments, ISEP members, and education providers to translate NDC ambition into workforce outcomes that are inclusive, credible and deliverable.

1. There is no fixed format for NDC reports and there are considerable differences between submissions. Many countries submit their information in the form of a table, with the basic requirements of the NDC content set out in short form, while others take a more detailed and descriptive approach. These variances inevitably result in different countries presenting different depths of information. Going forward, and to increase countries’ ability to learn from one another, the NDC process would be enhanced by more consistently including references to skills, training and education, as they are critical enablers for countries to fairly transition their economies to a decarbonised future.

RECOMMENDATION: NDCs should include a common template for content on education and green skills to enable international comparisons and a clearer view on progress.

2. In the main, curricula and skills development programmes vary in their goals. For vulnerable countries, these are designed to enable their citizens to survive, while wealthier countries plan them as a means for their citizens to thrive. This imbalance will simply exacerbate inequalities between rich and poor countries. As supply chains for wealthy economies often rely on the resources located in developing and emerging economies, it is important that this discrepancy is addressed so that opportunities and risks associated with the net zero transition are better understood.

RECOMMENDATION: Wealthier countries should be focusing skills resources to take a more global outlook on climate change mitigation and adaptation.

3. Local skills do not need to be held by a group that would fit an ‘indigenous’ definition to be of environmental value. Rural and coastal communities have members who can contribute to local decisions on climate mitigation, environmental repair and adaptation. These local skills that are not ‘indigenous’ are not referenced in NDCs, which overlooks a precious resource.

RECOMMENDATION: Local, or ‘folk’, skills should be explored so that they are not lost.

⁹ Further reading: [World Bank Group: Country Risk Profile for Cambodia](#)

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4. Leadership and co-operation are an important way for countries to share good practice and make faster progress than they would by working alone. International initiatives such as the Greening Education Partnership provide comprehensive resources and opportunities for partnership.

RECOMMENDATION: Leaders, and ISEP members, should encourage their national governments to participate in The Greening Education Partnership where they are not already participating.

5. Standout NDCs are clear on their goals and have accountable governmental leads for each. This supports transparency and enables progress to be monitored and evaluated. Good practice is to publish KPIs and the responsible government ministries. Funding sources for the actions should also be clarified to ensure that delivery is timely.

RECOMMENDATION: NDCs should move beyond broad statements on capacity-building to embed education and skills as measurable pillars of climate policy, with targets, funding pathways, and accountability mechanisms linked to national education strategies.

2.3 APPENDIX: Which countries have submitted?

Few countries have submitted an NDC since 1 January 2024. As of early November 2025, these are the submissions, split by the International Monetary Fund's *World Economic Outlook Database*¹⁰ classifications of Advanced Economies and Emerging and Developing Economies.

ADVANCED ECONOMIES

Andorra ✓
 Australia ✓
 Austria ✓
 Belgium ✓
 Canada ✓
 Croatia ✓
 Cyprus
 Czech Republic ✓
 Denmark ✓
 Estonia ✓
 Finland ✓
 France ✓
 Germany ✓
 Greece ✓

Hong Kong SAR
 Iceland ✓
 Ireland ✓
 Israel
 Italy ✓
 Japan ✓
 Korea
 Latvia ✓
 Lithuania ✓
 Luxembourg ✓
 Macao SAR
 Malta ✓
 The Netherlands ✓
 New Zealand ✓

Norway ✓
 Portugal ✓
 Puerto Rico
 San Marino
 Singapore ✓
 Slovak Republic ✓
 Slovenia ✓
 Spain ✓
 Sweden ✓
 Switzerland ✓
 Taiwan Province
 of China
 United Kingdom ✓
 United States ✓

EMERGING AND DEVELOPING ECONOMIES

Afghanistan
 Albania
 Algeria
 Angola ✓
 Antigua and
 Barbuda
 Argentina
 Armenia
 Aruba
 Azerbaijan
 The Bahamas
 Bahrain
 Bangladesh ✓
 Barbados ✓
 Belarus
 Belize ✓
 Benin
 Bhutan
 Bolivia ✓
 Bosnia and
 Herzegovina
 Botswana ✓
 Brazil ✓
 Brunei Darussalam ✓

Georgia
 Ghana
 Grenada
 Guatemala
 Guinea
 Guinea-Bissau
 Guyana
 Haiti
 Honduras ✓
 Hungary ✓
 India
 Indonesia ✓
 Iran
 Iraq
 Jamaica ✓
 Jordan ✓
 Kazakhstan
 Kenya ✓
 Kiribati
 Kosovo
 Kuwait
 Kyrgyz Republic ✓
 Lao P.D.R.
 Lebanon ✓

Paraguay
 Peru
 Philippines
 Poland ✓
 Qatar
 Romania ✓
 Russia ✓
 Rwanda
 Samoa
 São Tomé and
 Príncipe ✓
 Saudi Arabia
 Senegal
 Serbia ✓
 Seychelles ✓
 Sierra Leone
 Solomon Islands ✓
 Somalia ✓
 South Africa ✓
 South Sudan
 Sri Lanka ✓
 St. Kitts and Nevis
 St. Lucia ✓
 St. Vincent and the

¹⁰ Data source – most recent data, 2023: [World Economic Outlook Database - Groups and Aggregates](#)



Bulgaria ✓	Lesotho ✓	Grenadines
Burkina Faso	Liberia ✓	Sudan
Burundi	Libya	Suriname
Cabo Verde ✓	Madagascar ✓	Syria
Cambodia ✓	Malawi	Tajikistan
Cameroon	Malaysia ✓	Tanzania
Central African Republic	Maldives ✓	Thailand ✓
Chad	Mali	Timor-Leste
Chile ✓	Marshall Islands ✓	Togo
China ✓	Mauritania ✓	Tonga ✓
Colombia ✓	Mauritius ✓	Trinidad and Tobago
Comoros	Mexico	Tunisia ✓
Democratic Republic of the Congo	Micronesia ✓	Türkiye
Republic of Congo	Moldova ✓	Turkmenistan
Costa Rica	Mongolia ✓	Tuvalu ✓
Côte d'Ivoire ✓	Montenegro ✓	Uganda
Djibouti	Morocco ✓	Ukraine
Dominica	Mozambique ✓	United Arab Emirates ✓
Dominican Republic	Myanmar	Uruguay ✓
Ecuador ✓	Namibia ✓	Uzbekistan
Egypt	Nauru	Vanuatu ✓
El Salvador	Nepal ✓	Venezuela ✓
Equatorial Guinea	Nicaragua ✓	Vietnam
Eritrea	Niger	West Bank and Gaza
Eswatini ✓	Nigeria ✓	Yemen
Ethiopia ✓	North Macedonia	Zambia ✓
Fiji	Oman	Zimbabwe ✓
Gabon	Pakistan ✓	
The Gambia	Palau	
	Panama ✓	
	Papua New Guinea	