



**2025 Asia-Pacific SDG Partnership Report**

# Delivering a Just Transition:

## Advancing Decent Work, Gender Equality, and Social Protection



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# Delivering a Just Transition: Advancing Decent Work, Gender Equality, and Social Protection

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# Foreword

The development journey of Asia and the Pacific is often seen as a monolithic success. Yet, with five years until the 2030 deadline, the region continues to lag in the achievement of the 17 Sustainable Development Goals. It is clear that the transition to green and blue economies is not just an environmental imperative, but a social and economic necessity to both reduce risks and invest in long-term prosperity. This challenge presents multiple opportunities. The transition is expected to generate millions of new jobs, revolutionize work, education, technological advances, and social protection coverage across the region.

To fully harness its benefits, these interconnected transformations must be guided by shared principles of justice and equity and hence create opportunities for vulnerable groups. We must remain conscious that the burdens of such transitions will fall unfairly on countries and communities that have contributed the least to the current interplay of crises, including climate change. There is an increasing societal cost if these transitions leave more people behind rather than helping to close the existing gaps we see today.

The path forward requires an integrated and adaptable approach. We must develop the workforce capabilities essential for emerging green and blue sectors while strengthening social protection systems to support workers and communities through this transformation. In practice this will require addressing critical skills gaps, expanding access to training, education, health, and social protection, and dismantling structural barriers that have long restricted opportunities, particularly for women and informal workers. The challenge is not merely technical; it is profoundly humane. It demands that we rethink how we enhance capacity, protect livelihoods, and ensure the equitable distribution of the benefits of transition.

Crucially, the transition must be approached through social dialogue and sustained commitment from governments, the private sector, workers' representatives, international organizations, and others who are creating development innovations and investments with high impact returns. To deliver on the Paris agreement and Agenda 2030, countries need to integrate a just energy transition into their national climate action plans, or Nationally Determined Contributions (NDCs), and national development strategies. Achieving progress will require new and innovative public and private financing mechanisms that complement and reinforce each other, alongside integrated, evidence-based policies. In addition, forward thinking approaches to skills development, digital transformation and social protection must be designed to reach those currently not covered. While these instruments hold immense potential to bridge existing gaps, they also need to be supported by sound regulatory frameworks and governance oversight to prevent the unintended disparities from widening.

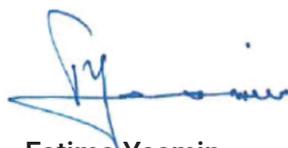
The experiences and solutions from across the region demonstrate that progress is possible when we tackle these challenges with coordination, creativity, and a steadfast commitment to leaving no one behind. As we present the 2025 SDG Partnership Report - providing a comprehensive analysis of workforce dynamics and just transition pathways - we call upon leaders across Asia and the Pacific to embrace this pivotal moment of transformation. The choices we make today will determine not only the environmental sustainability of our region, but also its social cohesion and long-term economic prospects. This region has the potential to set an example through a new development model, one that harmonises growing prosperity with sustainability.

We are pleased to present this joint report as we renew our collaborative efforts to strengthen regional and national systems and capabilities, ensuring the successful achievement of these outcomes for Asia and the Pacific.



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# Executive summary

The Asia-Pacific region has made insufficient progress on the 2030 Agenda for Sustainable Development. While some targets have advanced, none of the 17 Sustainable Development Goals (SDGs) are on track to be achieved by 2030. Progress on climate action (Goal 13) has regressed, with escalating climate impacts threatening the region. However, the current situation also presents an opportunity for transformation through the transition to low carbon, resource efficient, and socially inclusive economies, which protect and maintain diverse ecosystems in the management of oceans, coasts and freshwater ecosystems (hereafter green and blue economies). By simultaneously addressing climate change, resource sustainability, and social inclusion, the transition could create 180 million new and decent jobs by 2050, while delivering improved health outcomes and reduced environmental impacts.

The potential for job creation will be concentrated in key sectors driving the green and blue transition, with renewable energy leading the way. The Asia-Pacific region's renewable energy sector already supports 10.5 million jobs with upward potential. Rapid urban development is another opportunity for job growth, as cities prepare for a projected 350% jump in passenger transport demand by 2050, driving an expansion in green transportation infrastructure and services. In the waste management sector, particularly in recycling, the demand for green jobs will also rise, as the region generates 800 million tonnes of waste, annually, some 40% of the global total. Oceans and freshwater ecosystems are vitally important for the region socially, environmentally and economically. As such, the blue economy, a subset of green economy, requires specific attention. Sustainable fisheries are projected to grow rapidly, with the region's fish farms anticipated to produce over 60% of global fish supplies by 2030. The economic value of coastal tourism, particularly important for small island developing States, could double by 2030, bolstered by an increase in sustainable practices.

Notwithstanding this, the economic transformation comes with significant risks and challenges. The phase-out of non-renewable energy sectors will require around millions of coal industry workers to reskill. Moreover, moving towards sustainable or smart agriculture could put 13 million of the region's agricultural workforce at risk by 2030. These impacts disproportionately affect disadvantaged groups, including women and informal workers, who often lack access to state support or other safety nets. These uneven risks and impacts need to be addressed if the transition to green and blue economies is to be *just*, that is, as fair and inclusive as possible, creating opportunities for decent work and leaving no one behind.

The region's ability to deliver a just transition is challenged by large workforce skills gaps. In most developing countries in the region, the majority of workers are engaged in low- and middle-skilled occupational roles, especially in agriculture. Moreover, education, particularly in science, technology, engineering and mathematics (STEM), which is crucial for innovation, remains limited, especially among women. Two-thirds of the region's workforce are engaged in informal employment, which leaves many workers without access to social protection, training, or labour market support. Women face additional barriers, often confined to low-skilled roles despite the emergence of new job opportunities in green sectors. Inadequate healthcare coverage and social protection systems further complicate the transition, particularly for women, migrants and informal workers.

People-centred public policies with a focus on achieving decent work, workforce health and wellbeing, and gender equality are required to better prepare the workforce for the transition. While local contexts will shape governments' priorities for action, three priority areas stand out across the region: workforce development, transition-ready social protection, and gender equality.

*Workforce development:* A skilled and adaptable workforce is essential for driving changes in industries and businesses to decarbonise economies and protect and conserve natural resources. However, skills shortages are already slowing progress. For example, a lack of trained workers in the energy sector is stalling the expansion of renewable energy infrastructure. To close these gaps, governments must take a systematic approach to workforce development. This includes forecasting labour market needs, assessing skills gaps, strengthening public-private partnerships for skills development, and ensuring training opportunities are accessible to all. A growing demand for green skills also calls for new training infrastructure, more trainers, and support for micro, small and medium-sized enterprises (MSMEs), which, in most countries, are the largest employer.

*Transition-ready social protection:* The transition has distributional consequences, with many workers, especially in lower skilled jobs, at risk of unemployment and with limited resources and capacity to adapt. Strong social protection systems are needed to ensure that affected workers are financially more secure and can access essential services such as health and education, and reskilling opportunities for new decent green jobs, regardless of gender. With nearly half of the region's population lacking social protection, expanding coverage is crucial, which can be achieved through a blend of schemes, including unemployment benefits and affordable, universal healthcare. Social protection must also cover the region's sizable informal workforce. In addition, active labour market programmes with job matching, skills training and support for labour mobility, can help workers move into green jobs. Adaptive or shock-responsive social protection measures can also be used to reduce some of the adverse impacts of the transition.

*Gender equality:* For the green and blue transition to work for all, gender equality must be prioritised across the region. This includes support for inclusive education, skills development, leadership opportunities, and recognition and support for care work. Reforming public and private institutions with a focus on achieving gender transformative change will unlock the benefits of women's economic empowerment and increased participation in decision making. An inclusive focus on green skills and jobs will ensure employment associated with the transition does not replicate existing gender disparities.

The report identifies five enablers for a just transition underpinned by inclusive workforce development, transition-ready social protection, and gender equality in the region:

**First, policy development, coherence and coordination:** A just transition is a policy driven process. It calls for innovative policy development and integration across multiple areas of the public sector and jurisdictions. National climate action plans are an important way of embedding just transition policies. At the national and sub-national levels, governments must establish clear mandates and targets in their climate strategies for workforce planning and coordination. To achieve the targets set out in climate action plans, sectoral ministries must collaborate on policy development, planning and programming.

**Second, harnessing digitalization and technological innovation:** Digital solutions and technological innovations are key catalysts of a just transition because of their capacity to enhance efficiency, inclusiveness and accessibility in workforce development. Digital technologies can also enable more complex and timely data collection and more effective service delivery. Equitably extending the advantages of digitalization and technological innovation requires bridging the digital divide - by gender, rural-urban, or other characteristics - through additional investments in digital infrastructure and digital skills.

**Third, financing:** Significant financial resources are needed to support the transition, including for the phase out of carbon-intensive industries, workforce development, and the upgrading of social protection systems. While governments play a key role in providing policy certainty and a firm fiscal base for social investments, multilateral development banks and international

organizations must provide much of the targeted transition and development financing. New financing tools such as blended finance, sustainability bonds, carbon pricing, and private capital must be unlocked to support the transition and attract climate-related investments.

**Fourth, strengthening social dialogue and partnerships:** The scale and complexity of developing and building the capacity of the workforce for the transition requires strong and inclusive social dialogue among governments, employers and employees, among others, with a focus on employees and their organizations that are usually underrepresented in decision making processes. International partnerships and cooperation are also critical, not only because economies are interlinked, but also because developing countries have a right to transition support. Cooperation is key to ensuring that assistance is tailored to meet country needs.

**Fifth, overcoming biased social norms for gender equality:** Achieving gender equality requires transforming social norms and practices that impede women’s full and equal participation in the economy, including in green and blue sectors. This must be supported by gender-responsive skills development, career progression, entrepreneurship and leadership, alongside increased access to and ownership of resources. It is important that progress in addressing gender biases is measured through specific targets and outcomes.

The urgency for action is clear: A just transition to green and blue economies is critical for the region to improve environmental sustainability while supporting livelihoods and reducing inequalities. While there are considerable obstacles to achieving such a transition, solutions from the region show how these challenges can be overcome by focusing on workforce development, transition-ready social protection, and gender equality. The five enablers outlined in this report are instrumental in supporting countries across the region to replicate and scale up such solutions, thereby accelerating progress towards the Sustainable Development Goals.

The figure below summarises the framework of a just transition of the workforce and the key features of this process, as discussed in this report.



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# Abbreviations

|              |  |                      |  |
|--------------|--|----------------------|--|
| <b>ADB</b>   | Asian Development Bank   | <b>MSEs</b>          | Micro and Small Enterprises  |
| <b>A4AI</b>  | Alliance for Affordable Internet                                       | <b>MSMEs</b>         | Micro, Small and Medium Size Enterprises   |
| <b>AHRDI</b> | Automotive Human Resource Development Institute Programme              | <b>NAPs</b>          | National Adaptation Plans  |
| <b>AI</b>    | Artificial Intelligence  | <b>NCCP</b>          | National Climate Change Policy   |
| <b>ALMPs</b> | Active Labour Market Policies  | <b>NDCs</b>          | Nationally Determined Contributions  |
| <b>ASEAN</b> | Association of Southeast Asian Nations                                 | <b>NEET</b>          | Not in Employment, Education, or Training  |
| <b>CIF</b>   | Climate Investment Fund  | <b>NGO</b>           | Non-governmental Organization  |
| <b>CII</b>   | Confederation of Indian Industry                                       | <b>OECD</b>          | Organisation for Economic Co-operation and Development   |
| <b>COP</b>   | Conference of the Parties  | <b>OSH</b>           | Occupational Safety and Health   |
| <b>CSOs</b>  | Civil Society Organizations  | <b>PV</b>            | Photovoltaic   |
| <b>EA</b>    | East Asia  | <b>QIAFMC</b>        | Quinluban Island Agutaya Fisherfolk Marketing Co-operative   |
| <b>ESCAP</b> | United Nations Economic and Social Commission for Asia and the Pacific | <b>R&amp;D</b>       | Research and Development   |
| <b>ETM</b>   | Energy Transition Mechanism  | <b>REGAIN</b>        | Renewable Energy Generation and Access Increase  |
| <b>EU</b>    | European Union   | <b>RENEW</b>         | Regional Network in Energy for Women   |
| <b>EVs</b>   | Electric Vehicles  | <b>S.T.A.R.</b>      | Samoa and Tokelau Association of Recyclers   |
| <b>FAME</b>  | Faster Adoption and Manufacturing of Electric and Hybrid Vehicles      | <b>SA</b>            | South Asia   |
| <b>FAO</b>   | Food and Agriculture Organization                                      | <b>SCGJ</b>          | Skill Council for Green Jobs   |
| <b>FIAN</b>  | Food-first Information and Action Network                              | <b>SDGs</b>          | Sustainable Development Goals  |
| <b>GDP</b>   | Gross Domestic Product   | <b>SEA</b>           | South-East Asia  |
| <b>GHGs</b>  | Greenhouse Gases   | <b>SIDS</b>          | Small Island Development States  |
| <b>ICT</b>   | Information and Communication Technology                               | <b>SMEs</b>          | Small and Medium-sized Enterprises   |
| <b>ID</b>    | Identification   | <b>SRWMA</b>         | Samoa Recycling and Waste Management Association   |
| <b>ILO</b>   | International Labour Organization                                      | <b>STEM</b>          | Science, Technology, Engineering, and Mathematics  |
| <b>IPCC</b>  | Intergovernmental Panel on Climate Change                              | <b>TVET</b>          | Technical and Vocational Education   |
| <b>IRENA</b> | International Renewable Energy Agency                                  | <b>UHC</b>           | Universal Health Coverage  |
| <b>JKN</b>   | Jaminan Kesehatan Nasional   | <b>UNDP</b>          | United Nations Development Programme   |
| <b>JT</b>    | Just Transition  | <b>UNEP</b>          | United Nations Environment Programme   |
| <b>LGBT</b>  | Lesbian, gay, bisexual, and transgender                                | <b>UNESCO-UNEVOC</b> | United Nations Educational, Scientific and Cultural Organization International Project on Technical and Vocational Education |
| <b>M4C</b>   | Markets for Change   | <b>VET</b>           | Vocational Education and Training  |
| <b>MDBs</b>  | Multilateral development banks   | <b>WHO</b>           | World Health Organization  |
| <b>MENA</b>  | Middle East and North Africa Region                                    | <b>WoW</b>           | Women of Waste   |
| <b>MOOC</b>  | Massive Open Online Courses  |                      |  |
| <b>MoU</b>   | Memorandum of Understanding  |                      |  |

# Glossary of terms

**Blue economy:** The sustainable and connected management of our oceans, coasts and freshwater ecosystems in a way that provides essential benefits for current and future generations; restores, protects and maintains diverse, productive and resilient ecosystems; and is based on clean technologies, renewable energy and circular material flows.

**Decent work:** Refers to productive work for women and men in conditions of freedom, equity, security and human dignity. Work is considered decent if it pays fair compensation, provides job security, maintains safe and healthy working conditions, grants the potential for personal development, guarantees social protection, ensures equal opportunities and treatment for all, and allows workers freedom to organize and express concerns.

**Environmental sustainability:** Use of resources and the production of waste are equal to or slower than the speed at which these resources can be renewed and waste can be absorbed by the environment.

**Gender equality:** The concept that women and men, girls and boys have equal conditions, treatment and opportunities for realizing their full potential, human rights and dignity, and for contributing to and benefitting from economic, social, cultural and political development.

**Gender responsive:** Explicitly recognizes that specific gender groups face unique challenges due to existing gender inequalities and aims to intentionally address their specific needs and vulnerabilities and thus address gender disparities.

**Gender sensitive:** Recognizes different needs of women, men, boys and girls and acknowledges gender power dynamics but does not necessarily address these other than to try and integrate an understanding of these dynamics within programme design.

**Gender transformative:** Explicit and deliberate effort to address the root causes of gender inequalities, remove structural barriers and change social norms and power relations within society.

**Green economy:** A green economy is defined as low carbon, resource efficient and socially inclusive. In a green economy, growth in employment and income are driven by public and private investment into economic activities, infrastructure and assets that allow reduced carbon emissions and pollution, enhanced energy and resource efficiency, and prevention of the loss of biodiversity and ecosystem services.

**Green jobs:** Green jobs are decent jobs that contribute to environmental preservation or restoration, whether in conventional sectors like manufacturing or emerging green sectors such as renewable energy and energy efficiency. Green jobs can describe work in the blue economy as well – if they are decent and contribute positively to the environment. The analysis presented in this report also examines work in green sectors that may not yet meet decent work standards, highlighting areas where job quality improvements are crucial.

**Informal employment:** Working arrangements that are in practice or by law not subject to national labour legislation, income taxation, or entitlement to social protection or other employment guarantees.

**Just transition:** Greening the economy in a way that is as fair and inclusive as possible to everyone concerned, creating decent work opportunities and leaving no one behind. The term has gained particular importance in the context of climate change and the understanding that decent jobs can only exist on a living planet.

**Social dialogue:** All types of negotiation, consultation or simply exchange of information between, or among, representatives of governments, employers and workers, on issues of common interest relating to economic and social policy.

**Workforce:** The workforce refers to the labour force in this report and is the sum of persons in employment plus persons in unemployment. Together these two groups of the population represent the current supply of labour for the production of goods and services taking place in a country through market transactions in exchange for remuneration.

# Explanatory notes

The Asia-Pacific region, unless otherwise specified, refers to the group of members and associate members of the Economic and Social Commission for Asia and the Pacific (ESCAP) that are within the Asia and the Pacific geographic region (the Asian Development Bank and the United Nations Development Programme, partners in this publication, have differing regional compositions). Some countries are referred to by a shortened version of their official name in the figures, as indicated in brackets in the listing below.

**Geographic subregions** in this report are defined (unless otherwise specified), as follows: East and North-East Asia: China, Democratic People's Republic of Korea (DPR Korea), Japan, Mongolia, and Republic of Korea; South-East Asia: Brunei Darussalam, Cambodia, Indonesia, Lao People's Democratic Republic (Lao PDR), Malaysia, Myanmar, Philippines, Singapore, Thailand, Timor-Leste, and Viet Nam; South and South-West Asia: Afghanistan, Bangladesh, Bhutan, India, Islamic Republic of Iran, Maldives, Nepal, Pakistan, Sri Lanka, and Türkiye; North and Central Asia: Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyzstan, the Russian Federation, Tajikistan, Turkmenistan, and Uzbekistan; Pacific: American Samoa, Australia, Cook Islands, Fiji, French Polynesia, Guam, Kiribati, Marshall Islands, Federated States of Micronesia, Nauru, New Caledonia, New Zealand, Niue, Northern Mariana Islands, Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu, and Vanuatu.

**Least developed countries:** Afghanistan, Bangladesh, Cambodia, Kiribati, Lao People's Democratic Republic, Myanmar, Nepal, Solomon Islands, Timor-Leste and Tuvalu.

**Landlocked developing countries:** Afghanistan, Armenia, Azerbaijan, Bhutan, Kazakhstan, Kyrgyzstan, Lao People's Democratic Republic, Mongolia, Nepal, Tajikistan, Turkmenistan and Uzbekistan.

**Small island developing States:** Cook Islands, Fiji, Kiribati, Maldives, Marshall Islands, Federated States of Micronesia, Nauru, Niue, Palau, Papua New Guinea, Samoa, Singapore, Solomon Islands, Timor-Leste, Tonga, Tuvalu and Vanuatu. Developing Asia and the Pacific: ESCAP region, excluding Australia, Japan and New Zealand. Developed Asia and the Pacific: Australia, Japan and New Zealand. The classification of countries into income groups is from the World Bank.

## Symbols and units

References to dollars (\$) are to United States dollars, unless otherwise stated. The dash (–) between dates signifies the full period involved, including the beginning and end year.

# Introduction

**Asia and the Pacific is at a critical juncture on its path to sustainable development.**

Despite some progress, particularly on poverty reduction, none of the 17 Sustainable Development Goals (SDGs) are on track to be achieved in the region by 2030.<sup>1</sup> The region is rapidly falling behind on achieving environment-related goals.

**The impacts from climate change are escalating and so are the costs of inaction.**

Asia and the Pacific is highly vulnerable to climate change, including sea-level rise, glacier melt, temperature increases and intensifying storms and floods. The impacts are concentrated in the agriculture, fisheries, and forestry sectors with major knock-on effects on food security, poverty, and livelihoods, disproportionately affecting the most vulnerable and those in resource-intensive sectors. Around 850 million workers, or almost half of all jobs in the region, depend on natural systems for their livelihoods.<sup>2</sup> By 2070, climate change impacts could reduce the region's economic output by 17%.<sup>3</sup> A rapid shift to green and blue economies is not only the lowest cost option, but also has the potential to create new jobs, increase prosperity and enhance resilience.

**Governments have begun to step up their climate action ambitions but not enough to be able to avert serious climate impacts.**

While the emissions intensity of developing economies has more than halved since 2000, rising consumption, production and energy use continue to drive emissions.<sup>4</sup> In 2023, the Asia-Pacific region accounted for 60% of global greenhouse gas (GHG) emissions and in the previous year its material footprint

made up nearly 59% of the global total.<sup>5, 6</sup> Across the region, countries are augmenting plans for decarbonisation as part of their national emissions-reductions commitments under the Paris Agreement, Nationally Determined Contributions (NDCs), and National Adaptation Plans (NAPs). However, these plans fall considerably short of global climate commitments. To meet the targets, the upcoming 2025 NDCs need to align with the Intergovernmental Panel on Climate Change (IPCC) guidelines, which call for actions to limit the increase in temperature to 1.5 degrees Celsius. In Asia and the Pacific, this requires a 48% reduction in CO<sub>2</sub> emissions by 2030, 65% by 2035, and 99% by 2050.<sup>7</sup>

**In addition to mitigating climate risks, the green and blue transition has major socio-economic benefits.**

Sectors such as renewable energy, waste management, and marine conservation hold significant potential to create jobs, especially if the region's strong manufacturing base can adapt rapidly to the changes that lie ahead.

**Notwithstanding this, the transition is bound to trigger workforce disruptions and unemployment, especially in carbon-intensive industries.**

The challenge for the region will be to seize the social and economic opportunities of the transition while managing transition-induced risks to jobs and livelihoods. Public policies that mainstream a just transition can help ensure that those most vulnerable to disruption are not left behind.

**A just transition must be achieved across the region so that risks and opportunities can**

**be shared.** The local context will shape the transition priorities of governments, especially in the areas of workforce development, social protection and gender equality. International and regional collaboration can be useful for exchanging learnings and promoting an equitable sharing of burdens and benefits.

**The 2025 Asia-Pacific SDG Partnership report analyses the workforce dynamics of the green and blue transition in the context of a just transition.** It highlights impacts on key sectors and explores issues and policy responses in three areas: workforce development, transition-ready social protection and gender equality.

**A skilled and adaptable workforce is critical for green and blue economies.** Ensuring that the region's population, regardless of gender or socio-economic status, has the right skills and competencies is essential. These skills are the basis for navigating the changes in industries, services, and products that decarbonise economies, and protect and conserve livelihoods and natural resources.

**Workforce development is crucial** but ensuring that people have the capacity to navigate the transition is equally important. In practice, this necessitates secure basic incomes, adequate social protection and services, access to training and reskilling for new decent green jobs, and policies that make opportunities available to all regardless of gender. Such measures help workers and communities cope with the negative impacts of the transition and empower them to adapt to changes without being further disadvantaged.

**Tackling structural barriers to gender equality is essential for achieving a just transition.**

Bringing about gender equality requires a concerted effort and interventions in workforce development, capacities and protections. At the same time, empowering workers and communities, especially women and those who are left behind, is critical to preparing for change, by equipping them with the necessary skills, resources, and protections to navigate the transition.

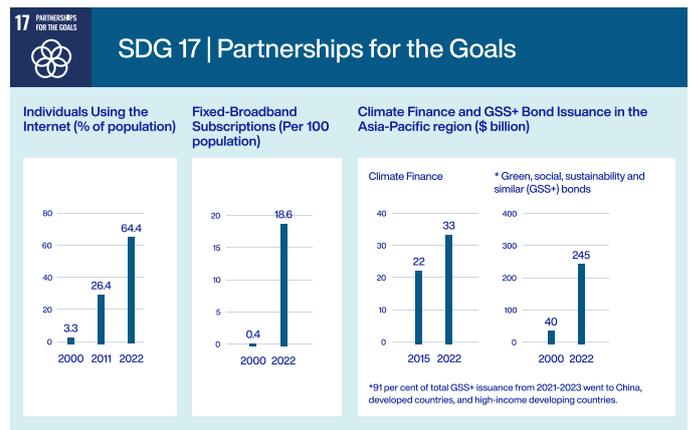
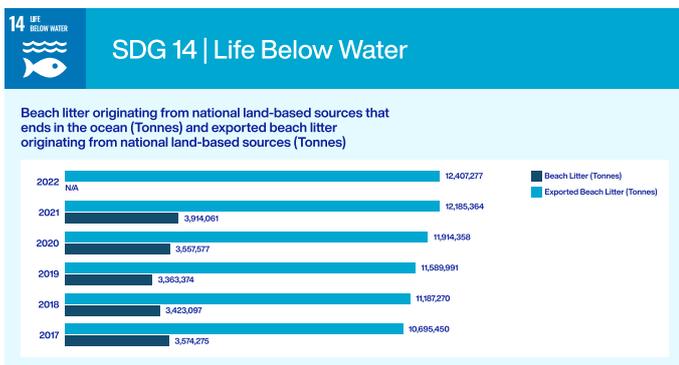
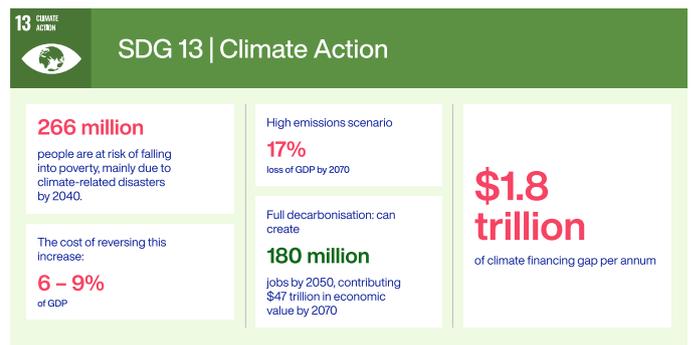
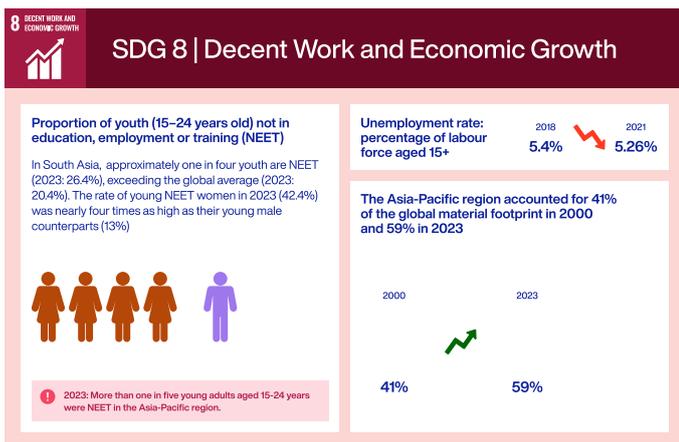
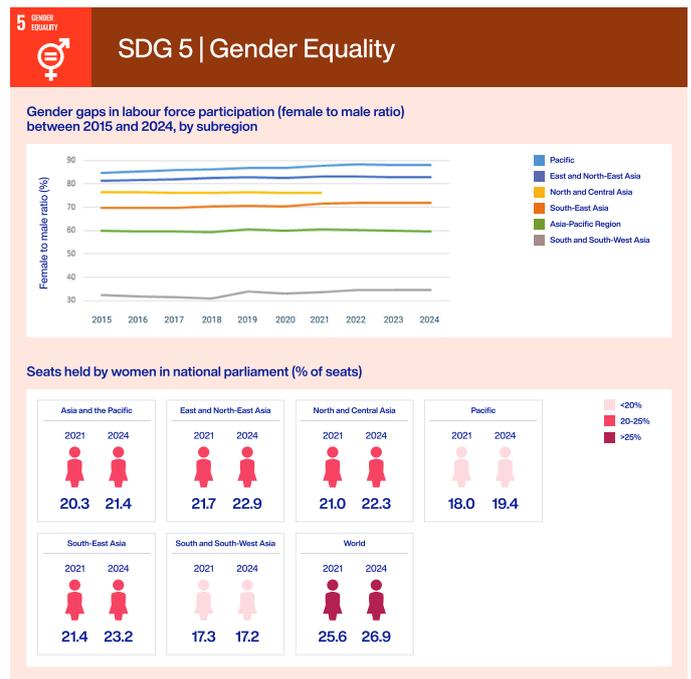
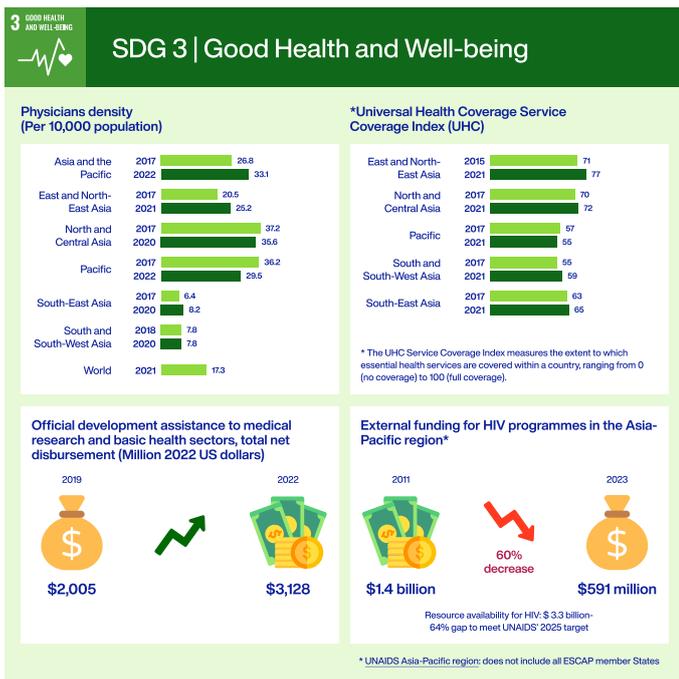
Chapter 1 presents data and analysis on the employment and other labour market impacts of the green and blue transition. It also considers how labour market informality and gender inequality can undermine workforce readiness for the transition.

Chapter 2 highlights solutions and responses from the region with a focus on three drivers of the just transition to green and blue economies: anticipating and implementing workforce development, social protection for workforce health and wellbeing, and gender transformative change.

Chapter 3 presents five key enablers to accelerate a just transition: policy development, coherence and coordination; harnessing digitalization and technological innovations; financing; strengthening social dialogue and partnerships; and overcoming biased social norms for gender equality.

The report concludes with practical recommendations for workforce development, transition-ready social protection and gender transformative change.

**Figure 1: Progress of key Sustainable Development Goals, 2015-2024**



Source: ILO (2024). Global Employment Trends for Youth 2024. Decent Work, Brighter Futures, International Labour Office: Geneva, Switzerland.  
 UNAIDS (2024). The Urgency of Now: AIDS at a Crossroads.  
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**The transition to green and blue economies: Workforce implications and preparedness**



## Key messages

- **The escalating impacts of climate change underscore the urgency for accelerating the transition to green and blue economies in Asia and the Pacific. The transition holds great potential for job creation and sustainable livelihoods but also carries the risk of job displacement and disruption. Vulnerable groups and those reliant on carbon- and resource-intensive sectors are disproportionately at risk. Projected job losses in certain sectors underline the need for targeted reskilling aligned with evolving sector demands.**
- **The transition requires a more skilled workforce, yet stark disparities persist between and within countries affecting the pace and inclusivity of the transition. Developing countries face significant challenges in workforce preparedness, particularly among groups that are risk of exclusion—such as women, youth, low-income workers, and those in informal employment. Efforts to upgrade STEM qualifications and digital literacy and skills in a gender sensitive and inclusive manner are essential to bridge these gaps.**
- **Unequal labour market access and gender barriers, rooted in structural, socio-cultural and economic factors, limit women’s participation and advancement in key transitional sectors, constraining their ability to benefit from emerging opportunities and exacerbating existing gender inequalities.**
- **A high prevalence of informal employment in the region presents significant challenges to a just transition, leaving most workers without social protection and reskilling opportunities. Targeted policies are needed to improve working conditions, extend protections, and foster formalization.**
- **Health and social protection are crucial to supporting workers through the transition, yet gaps remain widespread, underscoring uneven readiness of social protection systems to sufficiently support a just transition. Current gaps in social protection leave many without access to essential services and benefits, including health care and sickness benefits. Moreover, limited occupational health and safety measures are in place to mitigate intensifying occupational hazards.**

**Economic development in Asia and the Pacific, while impressive and widely lauded, has come at significant environmental and social costs, requiring a concerted effort to accelerate a just transition to green and blue economies.** This transformative shift will shape the region’s prospects for environmental sustainability, economic prosperity, and social inclusion in profound ways. Alongside the promise of new jobs and economic opportunities in key sectors, job losses and

labour market disruptions in carbon-intensive sectors will disproportionately affect groups that are at risk of exclusion—such as women, low-income workers, and those in informal employment—who often face insecure work and limited rights and receive inadequate support to adapt.

**This chapter examines the workforce implications of the green and blue transition, focusing on job creation and**

**the risk of job losses as well as workforce readiness.** It analyses key sectors driving the transition, including renewable energy, waste management, green transportation, sustainable fisheries and aquaculture, and coastal tourism, highlighting their potential to generate jobs, reduce emissions, and advance the SDGs (Box 1). It also examines the challenges faced by non-renewable energy sectors, such as oil and gas, as well as conventional agriculture,

where the transition poses significant risks of job losses and disruptions. Furthermore, the chapter explores workforce readiness, highlighting structural barriers faced by vulnerable groups—such as informal workers, low-income populations, and women—while considering the role of reskilling, education, and gender equality, health and social protection in fostering an equitable and just transition.

### Box 1: Priority sectors for the green and blue transition

- **Renewable energy:** Central to the green transition, renewable energy sources such as solar, wind, and geothermal provide critical alternatives to fossil fuels. The sector is a significant job creator, encompassing energy production, infrastructure development, and clean technology innovations.
- **Waste management:** Effective waste management reduces environmental damage and supports a circular economy. It plays a crucial role in reducing landfill use and greenhouse gas emissions, thereby aiding in climate change mitigation. Urban areas that adopt robust waste systems not only reduce environmental damage but also generate employment opportunities in waste collection, recycling, and processing.
- **Sustainable agriculture:** As a cornerstone of food security, biodiversity, and climate resilience, agriculture employed around 600 million people in Asia and the Pacific in 2023, predominantly in the informal sector. Practices such as agroforestry and organic farming enhance ecosystem services, reduce emissions, and provide sustainable livelihoods in rural areas.
- **Green transportation:** The transport sector, accounting for 12% of regional GHG emissions in 2023, urgently needs sustainable solutions. Expanding electric vehicles, public transit, and bicycle infrastructure can lower emissions, reduce congestion, and improve air quality, while creating jobs in manufacturing, infrastructure development, and transport operations in megacities such as Jakarta and Manila.
- **Sustainable fisheries and aquaculture:** These key blue economy sectors are vital for supporting coastal livelihoods and ensuring food security, especially in countries like Bangladesh, Indonesia, Maldives, the Philippines, Viet Nam and Pacific small island developing States. Embracing sustainable practices is crucial to safeguard marine ecosystems and maintain the economic viability of coastal communities.
- **Coastal tourism:** Coastal tourism, crucial in locations such as Southeast Asia and the Pacific small island developing States, supports local economies and provides extensive employment opportunities. Sustainable practices in this sector, including eco-tourism and marine conservation, help preserve environments like coral reefs and mangroves, ensuring economic resilience and long-term ecological benefits.

Sources: IRENA (2024). Renewable Energy and Jobs: Annual Review 2024; ILO (2024). ILOSTAT Data Explorer, available at: <https://rshiny.ilo.org/dataexplorer/?lang=en>

## 1.1. Anticipated job creation and pressure from the green and blue transition

**The transition to green and blue economies in Asia and the Pacific has the potential to create millions of jobs, but managing job displacement in conventional industries is essential to making the shift balanced and inclusive.** While projections vary, they consistently highlight the potential for net job creation, underscoring the transformative opportunities of transitioning to green and blue economies. Global decarbonisation could generate up to 25 million green jobs by 2030—predominantly in Asia—but it is also expected to lead to 6 million job losses in carbon-intensive sectors.<sup>8</sup> The transition must be managed effectively to minimise social and economic disruptions, particularly for low-skilled and informal workers. Looking further ahead, full decarbonisation in Asia and the Pacific could create 180 million jobs by 2050 and contribute tens of trillions of dollars in economic value by 2070.<sup>9</sup>

### 1.1.1 Workforce dynamics in key transitional sectors

#### *Renewable energy*

**The renewable energy sector is already a major source of job growth in Asia and the Pacific, supporting around 10.5 million jobs in 2023.** Many more new jobs are expected to be created in the coming decades. Solar photovoltaic (PV) leads the sector, employing 5.4 million workers, followed by hydropower (1.7 million), bioenergy (1.6 million), and wind energy (0.8 million). Emerging technologies, including solar heating and cooling, contribute an additional one million jobs. Despite rapid growth of jobs in recent years, the renewable energy sector accounts for less than half of the total energy sector workforce.<sup>10,11</sup> While the energy sector still remains heavily dependent on fossil fuels, renewable energy investments may generate more than double of the economic output per dollar compared to that of fossil fuels.<sup>12</sup> Furthermore, some renewable energy technologies are more labour intensive and pay is higher relative to jobs in the traditional energy sector.<sup>13</sup> Under a 1.5°C scenario, it

is projected that employment in renewable energy could triple globally by 2050, potentially creating 26 million jobs in the region.<sup>14</sup>

#### **Asia and the Pacific accounts for nearly two-thirds of renewable energy jobs globally.**

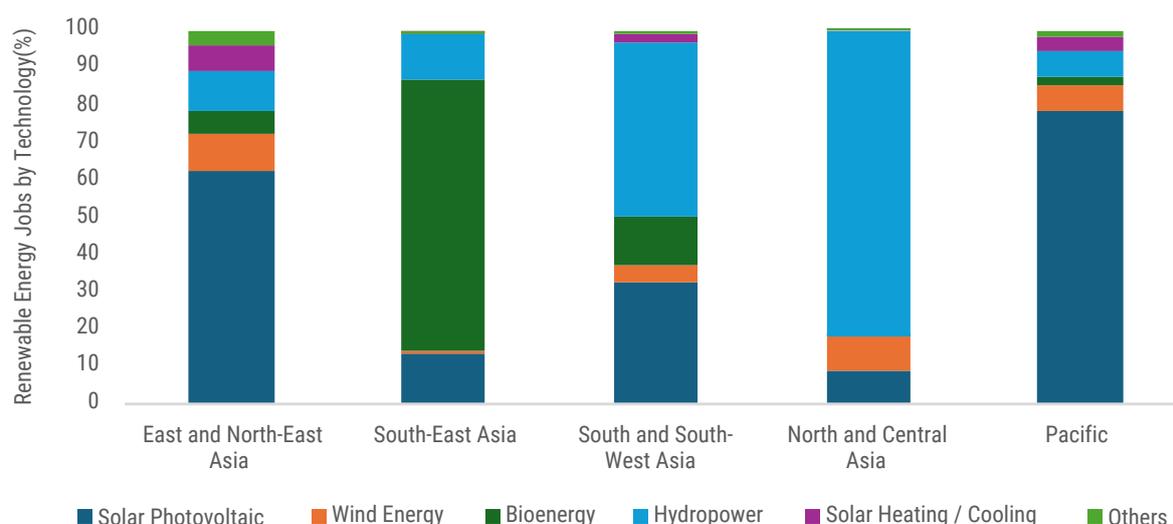
The distribution of renewable energy jobs varies across the subregions. As shown in Figure 2, solar photovoltaic (PV) and wind energy account for 72% of East and North-East Asia's renewable energy jobs, most of them in solar PV (4.7 million jobs, 62.5% of these jobs), followed by hydropower and wind energy (around 10% each). In South-East Asia, bioenergy dominates the renewable sector with 72.2% of the jobs (1 million jobs). South and South-West Asia rely on hydropower as the leading renewable technology. Hydropower is also the main source of renewable energy in North and Central Asia. In the Pacific, solar PV dominates and accounts for nearly eight out of ten jobs in the renewable energy sector.

Going forward, the number of new jobs in the renewable energy sector will depend on the speed of technology adoption which in turn is determined by, among other factors, cost, policies and regulations. The renewable technology transitions hold great potential, particularly for job creation, but hinge on supportive regulations and policy frameworks that open the door for higher adoption.

**The renewable energy sector in Asia and the Pacific, particularly through manufacturing led by China's solar PV industry, substantially boosts job creation and the uptake of new technologies.** Hosting 96% of global wafer and 88% of cell capacity in 2023, China not only supports extensive merchandise exports but also drives significant job creation.<sup>15</sup> The expansion of local manufacturing capabilities enhances job quality and is critical for energy security, underlining the importance of supportive policies to maintain positive momentum in the global energy transition.

**Despite these opportunities, job quality in the region's renewable energy sectors varies significantly, highlighting the need for policies to improve working conditions alongside advancements in clean energy.** Informal roles in South-East Asia's bioenergy and small-scale

**Figure 2: Distribution of renewable energy jobs by type in Asia and the Pacific, 2023**



Source: Authors based on IRENA (2024). Renewable Energy and Jobs: Annual Review 2024.<sup>71</sup>

Note: Data depicted in this figure are modelled estimates sourced from the International Renewable Energy Agency (IRENA) and are intended as indicative rather than definitive representations of job distributions across renewable energy sectors. Users should interpret these figures with caution, acknowledging the inherent variability in modelling assumptions and the dynamic nature of technology and market developments. For comprehensive details on the methodologies and underlying data, refer to the IRENA Annual Review 2024.

solar sectors often lack employment contracts and social protection, while formal, unionised jobs are common in high income countries like Japan and Australia.<sup>16</sup> With robust government support, clean energy jobs in developing countries can set new benchmarks for job quality, advancing decent work principles, fair labour practices, and equitable growth in the transition to greener energy sources.

### **Waste management and the circular economy**

**Waste management and the circular economy also offer transformative opportunities for job creation and environmental sustainability across Asia and the Pacific.** Transitioning from linear waste disposal to circular methods—like recycling, repurposing, and resource recovery—can significantly boost employment, while reducing adverse environmental impacts. Resource efficiency can improve alongside gross domestic product (GDP), with one study predicting employment gains of up to 7% by 2030.<sup>17</sup> Moreover, managing 1,000 tonnes of waste can create six jobs in landfill, 36 in recycling, and 70 in reuse, demonstrating the job creation potential of circular models, particularly in reuse sectors.<sup>18</sup>

**The region produces over 800 million tonnes of waste annually—40% of the global total—yet sustainable management practices remain underdeveloped, revealing significant untapped potential.**<sup>19</sup> Assuming that 70 jobs are created by recycling per 1,000 tonnes of waste, circular economy strategies could support an estimated 56 million jobs.<sup>20</sup> However, the waste management and recycling industry faces persistent challenges, such as high informality, with rates reaching 96% in Cambodia, 88% in Nepal, and 86% in Indonesia.<sup>21</sup>

**The gendered division of labour in the waste management sector reflects traditional stereotypes of male and female roles, with women disproportionately engaged in informal and lower-paid work.** Men generally have greater access to equipment and dominate more formal roles, such as municipal waste collection, while women are often employed to carry out repetitive, time-intensive tasks like sorting and separating recyclables.<sup>22</sup> Regardless of gender, all workers in this sector face significant challenges, including health risks and the social stigma associated with waste sector work. However, women are further burdened by domestic responsibilities

and concerns about physical safety, which limit their opportunities and reinforce gender inequalities in the sector. Addressing these disparities by improving working conditions in informal employment and expanding formal employment, safety measures, and social protections are crucial for ensuring a just transition in the circular economy.

**In some parts of the region, mismanaged waste poses significant risks to ocean health and livelihoods in the blue economy.** Asia produces nearly half of the world's plastics and is responsible for over 80% of ocean plastic waste, even though some of it is imported. Regardless of the source, existing efforts are insufficient to address this systemic issue.<sup>23</sup> The South Asia subregion alone mismanages an estimated 334 million tonnes of waste annually, with up to 15 million tonnes of plastic ending up in the Indian Ocean, damaging biodiversity and degrading fisheries essential to coastal communities.<sup>24</sup> Plastic pollution also impacts coastal tourism, where environmental degradation threatens the sector's economic health and the livelihoods it supports.

### **Green transportation**

**Transportation has the potential to create many new green jobs, complementing renewable energy and waste management.** Investments in sustainable transport systems are opening up diverse workforce opportunities across construction, manufacturing, and supply chains. The electrification of public transport illustrates this potential, with projects like the Delhi Metro employing over 14,000 people and generating additional jobs in rolling stock and subsystem production.<sup>25</sup> Similarly, India's "Faster Adoption and Manufacturing of Electric and Hybrid Vehicles" (FAME) scheme has added 5,600 electric buses in 64 Indian cities, creating jobs in manufacturing and infrastructure. Thailand has seen registrations of electric buses jump more than 700% between 2017 and 2022.<sup>26</sup> Similar initiatives are found across the region, such as the launch of 380 electric buses in Davao City in the Philippines, which not only reduce emissions but also generate local employment.<sup>27</sup>

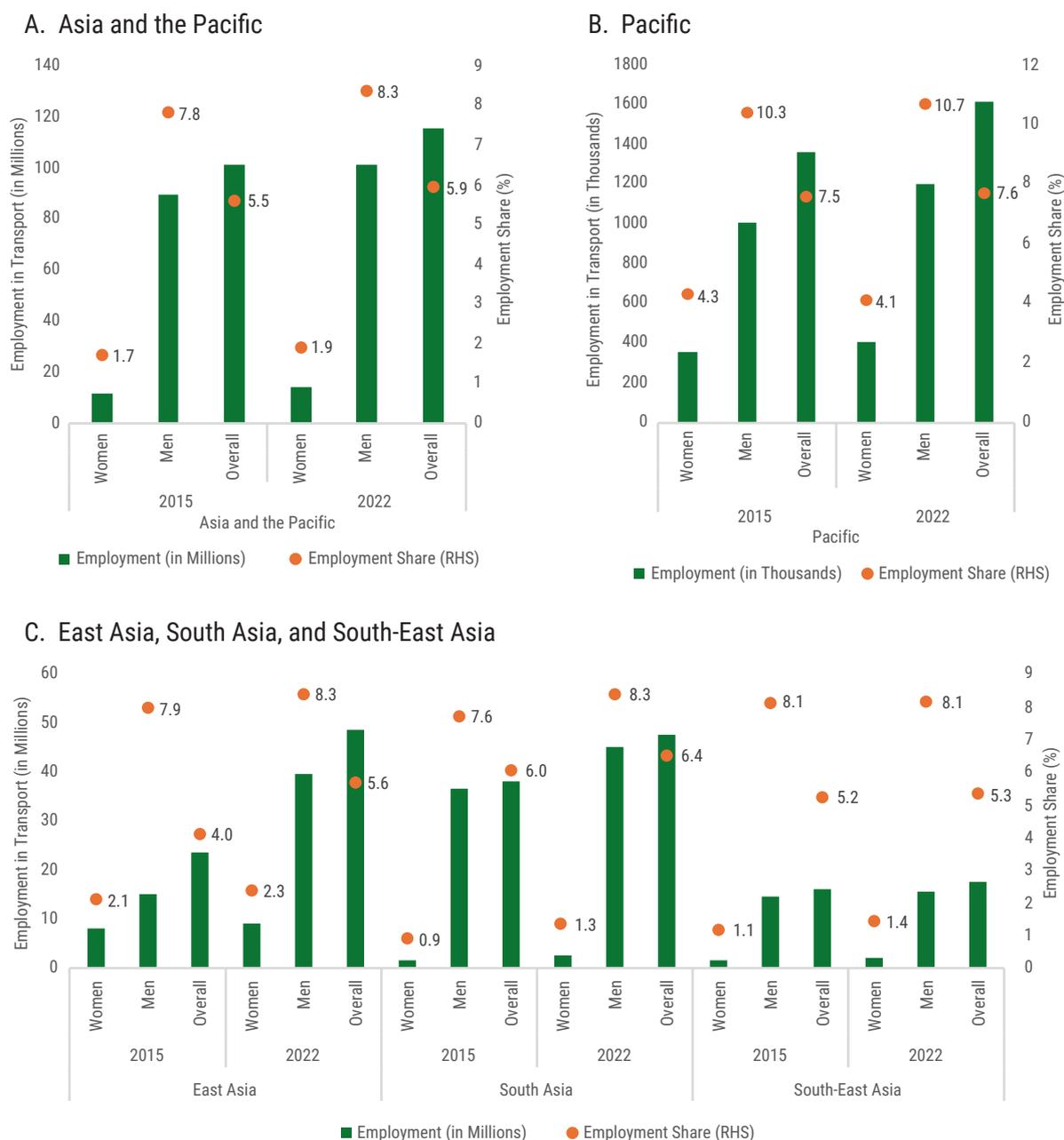
**With around half the region's population projected to live in cities by 2050, driving a 350% rise in urban passenger transport demand, green transport will play a critical role in strengthening economic resilience.**<sup>28</sup>

Investments in cycling infrastructure and shared mobility create opportunities for low-income workers, while advancing multimodal mobility systems could significantly benefit the region's workforce.<sup>29</sup> The electrification of private and commercial vehicles is a source of new employment, with China at the forefront of e-mobility adoption. Operating 95% of the world's 700,000 electric buses and primarily responsible for EV and battery production, China supports extensive jobs in design, manufacturing, and installation.<sup>30</sup> One study estimates that vehicle electrification could create 10 million new jobs globally, with further employment gains anticipated as internal combustion engines are phased out.<sup>31</sup>

**The transport sector is already a major employer in Asia and the Pacific, with its role expanding across subregions.** In 2022, the sector employed over 115 million people in services, manufacturing, and related industries, accounting for 5.9% of the region's total employment (Figure 3, Panel A). Employment in transport has grown rapidly across subregions between 2015 and 2022. The sharpest increase, at 105%, was observed in East Asia (23.6 million to 48.5 million), followed by 24.6% in South Asia (38.1 million to 47.4 million), 14.2% in the Pacific (1.4 million to 1.6 million), and 9.9% in South-East Asia (16.1 million to 17.7 million). The fast-increasing trend underscores the sector's vital role in regional employment and its potential to expand further through green transportation initiatives. Investments in sustainable transport systems, including public transport electrification and active mobility infrastructure, could spur this momentum, creating even more jobs while addressing urbanisation challenges and strengthening economic resilience.

**Women remain markedly underrepresented in the transport sector across Asia and the Pacific, with the sector accounting for just 1.9% of women's overall employment in 2022,**

**Figure 3: Employment in transportation by sex, Asia and the Pacific and its subregions, 2015 and 2022**



Source: ILO modelled estimates retrieved from ILOSTAT.

compared to 8.3% for men. Across the subregions, the share of men and women in overall employment is similar to that of the region overall. Regional and subregional gender gaps in employment in the transport sector reflect structural barriers, such as occupational segregation and access to higher-paying roles, which restrict women’s participation.

**A high degree of informal work in the transport sector compounds challenges, with informality in this sector in many countries higher than national averages and disproportionately affecting men.** To illustrate, in India, 92.6% of men working in the transport sector are informally employed, compared to 88.8% nationally. The share of

**Figure 4: Comparison of informal employment rates in the transport sector vs. national averages by gender and country, 2023**



Source: Authors using various labour force surveys.

Note: Employment data were sourced from national labour force surveys. Survey years for all countries are 2023.

female informal employment stands at just 27.1%, reflecting either limited participation or higher formalisation (Figure 4). In Mongolia, men's share in informal employment (47.8%) surpasses the national informal employment average (41.9%), whereas the share for women is 9.6%. In contrast, Türkiye demonstrates progress, with informal employment in the transport sector below national averages for men (20.4%) and women (19.6%). These trends highlight the persistent gender disparities and systemic challenges of informality, which often involve inadequate pay and labour protections. Practical strategies are needed to improve productivity and working conditions in informal employment while also promoting formalisation. Given the persistence of informal employment, efforts should focus on enhancing job quality and addressing gender barriers, ensuring equitable access to jobs as the transport sector moves towards greener, more sustainable practices.

#### *Sustainable fisheries and aquaculture*

**Sustainable fisheries and aquaculture are key pillars of the blue economy, supporting livelihoods, food security, and ecosystem health across Asia and the Pacific.** With

over 85% of the world's fishers and fish farmers residing in the region, fisheries and aquaculture sustain around 52.7 million people in fish capture and aquaculture activities.<sup>32</sup> The significant role of fisheries and aquaculture in countries such as Indonesia, Viet Nam, and the Pacific small island developing States underscores the economic significance of the sector for the region. Transitioning to sustainable practices, including enhanced aquaculture and marine resource management, offers the opportunity to create jobs and preserve the ecosystem. To illustrate, Indonesia's aquaculture sector has generated over 3 million jobs, alleviating pressure on wild fish stocks while fostering economic resilience.<sup>33</sup>

**Although employment projections for sustainable fisheries in the region are limited, global trends provide some insights into future workforce developments.** By 2030, aquaculture is expected to supply over 60% of fish for human consumption globally, creating substantial opportunities in production, processing, and logistics.<sup>34</sup> Simultaneously, a projected stabilization in capture fisheries production, estimated at 93 million tonnes globally, suggests some potential for workforce shifts

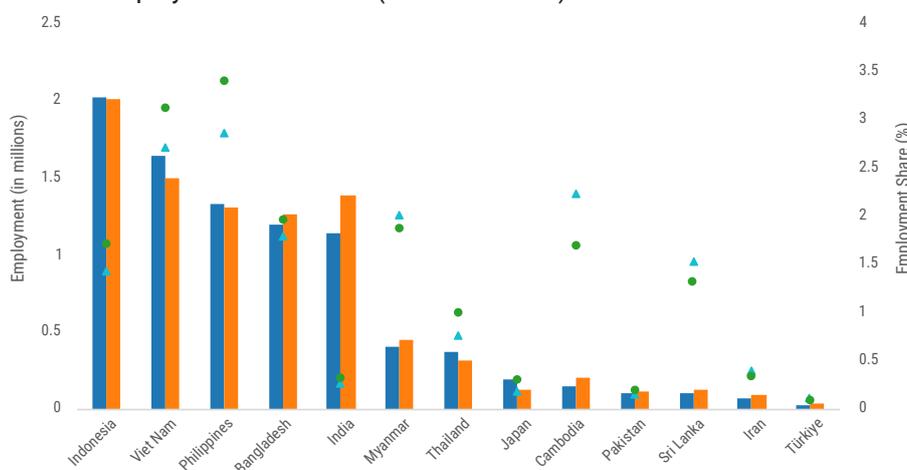
toward sustainable resource management.<sup>35</sup> Programmes such as the Philippine Fisheries and Coastal Resiliency Project, aim to improve the management of fisheries resources and enhance the value of fisheries production in coastal communities, illustrating the transformative potential of targeted interventions. Projects like this have the potential to increase incomes, reduce overfishing, and create high-quality, formal jobs.<sup>36</sup>

**Employment patterns in fisheries point to both stability and transformation, underscoring the sector’s dynamic role in local economies.**

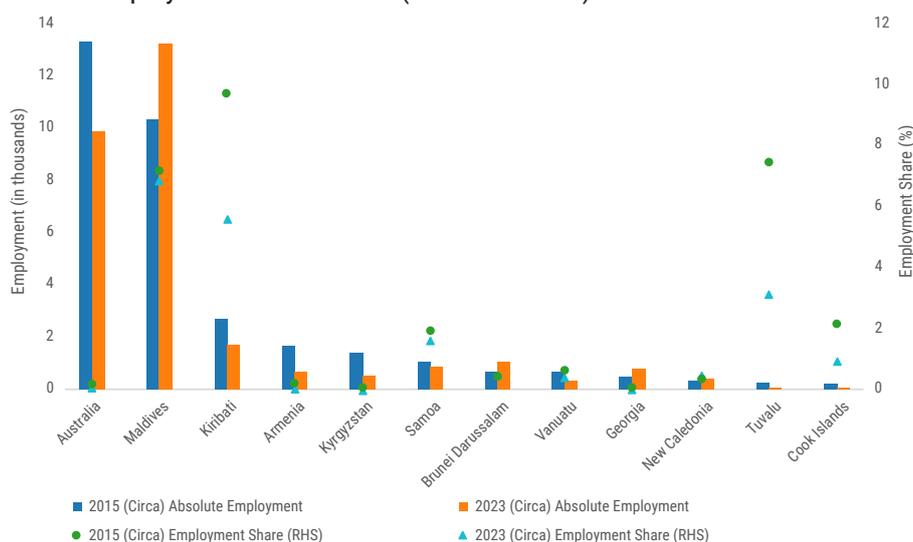
In Indonesia, the region’s largest fisheries employer, the number of jobs fell from 2.03 million to 2.01 million between 2015 and 2023. During the same period, the sector’s share of total employment dropped from 1.7% to 1.4%, reflecting shifts to other sectors (Figure 5, formal jobs).<sup>36</sup>

**Figure 5: Employment in fishing and aquaculture in selected countries, circa 2015 and 2023**

**A. Countries with employment in millions (2015 and 2023)**



**B. Countries with employment in thousands (2015 and 2023)**



Source: Authors using various labour force surveys.

Note: Employment data were sourced from national labour force surveys, with survey years varying by country: Armenia (2015, 2021), Australia (2018, 2023), Bangladesh (2017, 2022), Brunei Darussalam (2017, 2023), Cambodia (2015, 2021), Cook Islands (2016, 2023), Georgia (2017, 2020), India (2018, 2023), Indonesia (2015, 2023), Iran (2015, 2022), Japan (2015, 2022), Kiribati (2015, 2020), Kyrgyzstan (2018, 2022), Lao PDR (2017, 2022), Maldives (2016, 2019), Myanmar (2015, 2020), New Caledonia (2017, 2020), Pakistan (2015, 2021), Philippines (2015, 2022), Samoa (2017, 2022), Sri Lanka (2015, 2022), Thailand (2015, 2023), Türkiye (2015, 2023), Tuvalu (2016, 2022), Viet Nam (2015, 2023).

Panel A). Conversely, Bangladesh and Maldives have experienced notable employment growth over the same period.

**In smaller countries, the share of fisheries in total employment often fails to reflect the critical importance of the sector for these economies.** In Maldives, jobs in fisheries rose some 28% to 13,254 between 2015 and 2023, with the sector retaining a share of total employment of just 6.9% (Figure 5, Panel B). Similarly, Kiribati and Tuvalu continue to rely heavily on fisheries even though the sector's employment shares dropped from 9.7% to 5.6% in Kiribati and more than halved to 3.1% in Tuvalu, pointing to overall economic change but also to the vulnerabilities small island economies face due to resource depletion and environmental pressures.

**These dynamics underscore the need for targeted investments in sustainable fisheries that safeguard livelihoods and strengthen economic resilience.** Supporting transitions to sustainable practices and enhancing the economic viability of small-scale fisheries is key to tackling these challenges while ensuring that fisheries continue to play their important role as the mainstay of regional food security and economic resilience.

**Women play an integral but undervalued role in fisheries across Asia and the Pacific, particularly in post-harvest activities such as processing, drying, and retailing.** In Indonesia, women hold 61% of fish processing jobs and 59% of marketing roles, yet they earn less than two thirds of what men in similar roles earn.<sup>37</sup> Structural barriers, including limited access to resources, training, and decision-making, restrict women's advancement into higher-value positions or leadership roles.

**Environmental degradation and overexploitation of fish stocks pose considerable risks to the workforce and the sustainability of fisheries.** Globally, more than one third of fish stocks are overfished, with Asia and the Pacific particularly affected due to its heavy reliance on wild capture fisheries.<sup>38</sup> Unsustainable practices threaten millions of jobs, highlighting the urgent need for sustainable management to safeguard ecosystems and livelihoods. Adopting

responsible fishing practices, strengthening community resource management, and promoting aquaculture can ensure the sector remains intact as an anchor of economic development and ecological preservation.

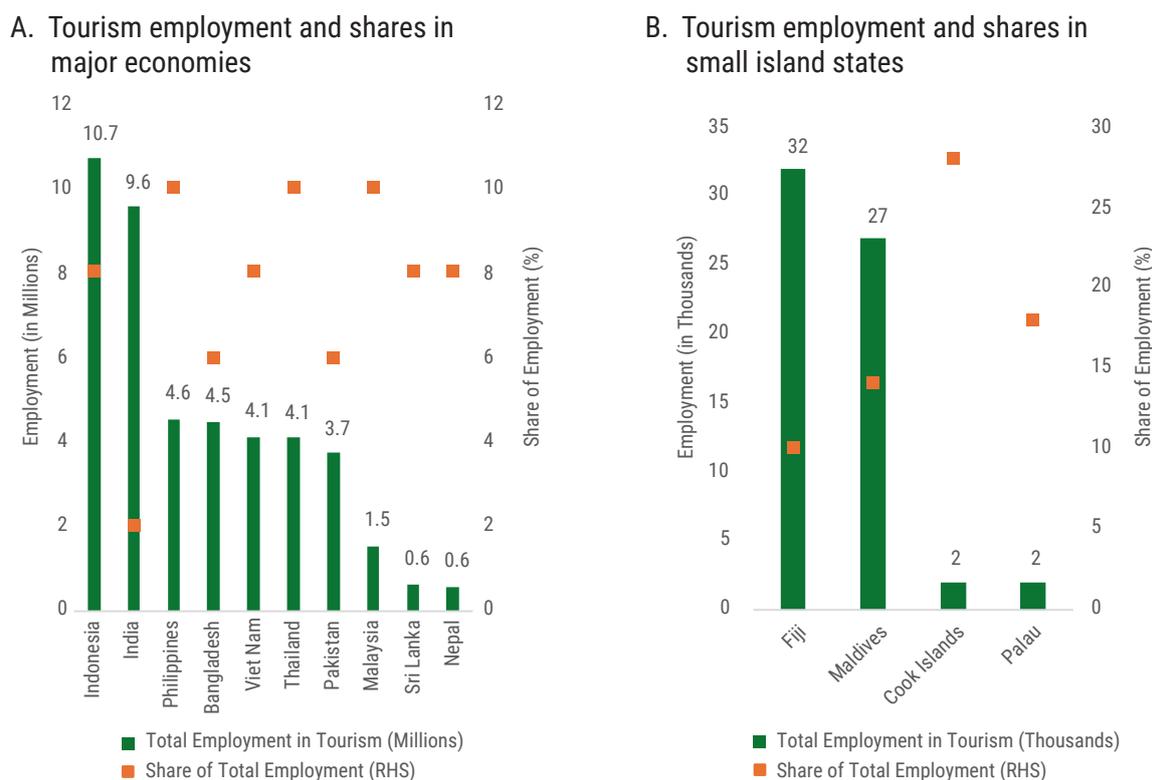
### *Coastal tourism*

**Coastal tourism is another driver of job creation in Asia and the Pacific, offering employment opportunities and enhancing local livelihoods.** While official data tends to capture employment in tourism as a whole, it is well-established that coastal tourism plays a significant role in regional economies. The challenge for many countries is to limit the impacts of unsustainable coastal tourism and encourage more sustainable coastal tourism. This is particularly important because coastal tourism will continue to be a major source of employment and economic activity. In many economies of the region the sector employs millions of people. Indonesia leads with over 10.7 million tourism-related jobs, representing 8% of total employment (Figure 6, Panel A). In Malaysia, the Philippines, and Thailand tourism accounts for one in ten jobs, and in Bangladesh and Viet Nam tourism contributes 6% and 8% of employment, respectively. Coastal tourism has become indispensable for these economies, providing a critical source of income and fostering service-oriented skills at local and community levels.

**Small island States rely even more on tourism.** In the Cook Islands, 28% of all jobs are in tourism, compared with 18% in Palau and 14% in Maldives (Figure 6, Panel B). In Fiji, one in ten jobs are in tourism, illustrating the sector's role in sustaining livelihoods across the Pacific islands.

**Projections show that, with sustainable management, the economic value of coastal tourism could more than double by 2030.<sup>39</sup>** This growth underscores the sector's dynamism, especially as an engine of job growth, and highlights the critical need for targeted investment in workforce training. However, many jobs in the sector are seasonal or informal, with issues ranging from variable working hours and low wages to limited social protection. Local businesses in the informal

**Figure 6: Tourism employment and shares in Asia and the Pacific: Major economies and small island States, 2024**



Source: Authors using various labour force surveys.

Note: Bangladesh (2022), Cook Islands (2019), Fiji (2016), India (2023), Indonesia (2023), Malaysia (2022), Maldives (2019), Nepal (2017), Pakistan (2021), Palau (2020), Philippines (2022), Sri Lanka (2022), Thailand (2023), and Viet Nam (2023).

sector, engaged in activities such as handicraft sales, food vending, and small-scale guiding, are particularly affected by these challenges. Additionally, adverse environmental impacts such as sea level rise and coral bleaching further threaten coastal tourism, compounding the vulnerabilities faced by workers and businesses in the sector.

### 1.1.2 Job pressures in conventional sectors

As the green and blue transition gathers pace, labour market pressures are intensifying in sectors such as non-renewable energy and agriculture. These pressures are underpinned by advancements in efficiency and tightening regulations. In the coal and petroleum sectors, significant job losses (over 7 million in the coal sector alone) and growing instability are emerging challenges.<sup>40</sup> There is an urgent need for reskilling workers in these industries

as economies pivot towards greener energy solutions. Similarly, in agriculture, the adoption of sustainable practices is leading to reduced labour demand in conventional farming, prompting workers to adapt and seek out new roles in sustainable agriculture or look for jobs in other sectors.

#### *Non-renewable energy sector*

There are significant job pressures in conventional energy sectors with employment in non-renewable energy steadily declining across much of the region. ILO projects 6 million job losses globally in carbon-intensive sectors by 2030.<sup>41</sup> This trend underscores the critical importance of managing workforce transitions. At the same time, the potential creation of 14.2 million green jobs in the region highlights the opportunities of the energy transition, provided that it is managed inclusively and effectively.<sup>42</sup>

**Employment is falling in the non-renewable energy sectors in Australia, Thailand, and Viet Nam, reflecting progress towards cleaner energy sources.**

In Australia, the number of jobs in the fossil fuel energy sector fell 17.3% to 74,800 between 2015 and 2023, with the sector's share of total jobs declining from 0.7% to 0.5%. Thailand experienced a similar trend, with nearly one in four jobs in the non-renewable energy sector disappearing and the sector's share falling from 0.2% to 0.1%. Viet Nam also recorded a drop, with the number of jobs in the traditional energy sectors down nearly 12% to 93,400 over the same period, reflecting an ongoing diversification of the country's energy mix (Figure 7).

**However, some countries in the region experience the opposite trend with their non-renewable energy workforce expanding.**

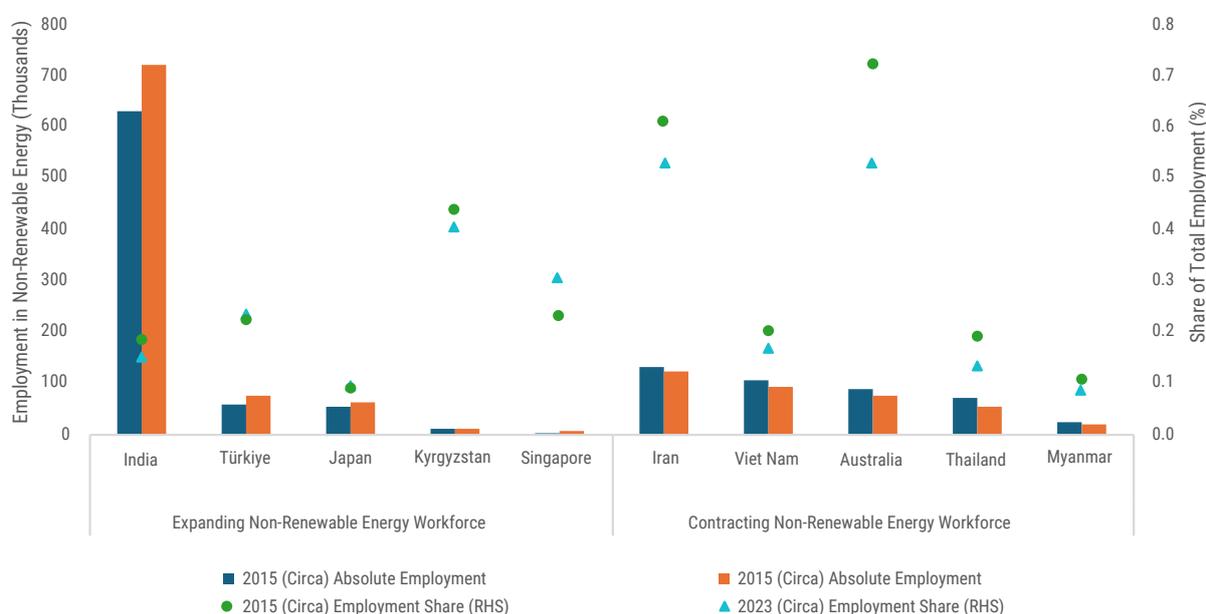
This dynamic is seen in India, where jobs in the non-renewable energy sector increased 14.0% to 719,800 between 2015 and 2023. Similarly, Türkiye saw an increase in employment of

more than one fourth to 75,300. In both India and Türkiye, the share of non-renewable jobs remains steady. Singapore is a unique case in the region. The number of jobs in the island State's traditional energy sectors jumped 35.8% to 7,200 along with a slight rise in the employment share, suggesting rising investments in conventional energy alongside efforts to expand renewable energy sources.

**The shifting trends in the energy sector underscore the urgent need for tailored policies to smooth workforce transitions.**

For countries with declining employment in traditional fossil fuel-based energy production, such as Australia, Viet Nam, and Thailand, creating more jobs in the renewable energy sector and supporting reskilling initiatives are critical. Conversely, in India and Türkiye, where the conventional energy workforce is expanding, long-term strategies are needed to reduce their economies' reliance on fossil fuels while mitigating immediate labour market disruptions.

**Figure 7: Employment in non-renewable energy sectors across countries in Asia and the Pacific, 2015 and 2023**



Source: Authors using various labour force surveys.

Notes: This chart shows total employment (in thousands) in non-renewable energy sectors across selected Asia and the Pacific countries, comparing figures from circa 2015 and circa 2023. These sectors include coal mining, petroleum and gas extraction, and coke and refined petroleum manufacturing, categorised under the ISIC codes 05, 06, and 19. Employment data were sourced from national labour force surveys, with survey years varying by country: Australia (2018, 2023), India (2018, 2023), Iran (2016, 2022), Japan (2016, 2022), Kyrgyzstan (2016, 2022), Myanmar (2017, 2020), Singapore (2021, 2023), Thailand (2016, 2023), Türkiye (2016, 2023), and Viet Nam (2015, 2023). These employment figures were used as the numerator in calculating shares within the broader energy sector, enabling a simple analysis of shifts in fossil fuel employment relative to the total energy workforce as part of the green transition, as described in the main text.

## Agriculture

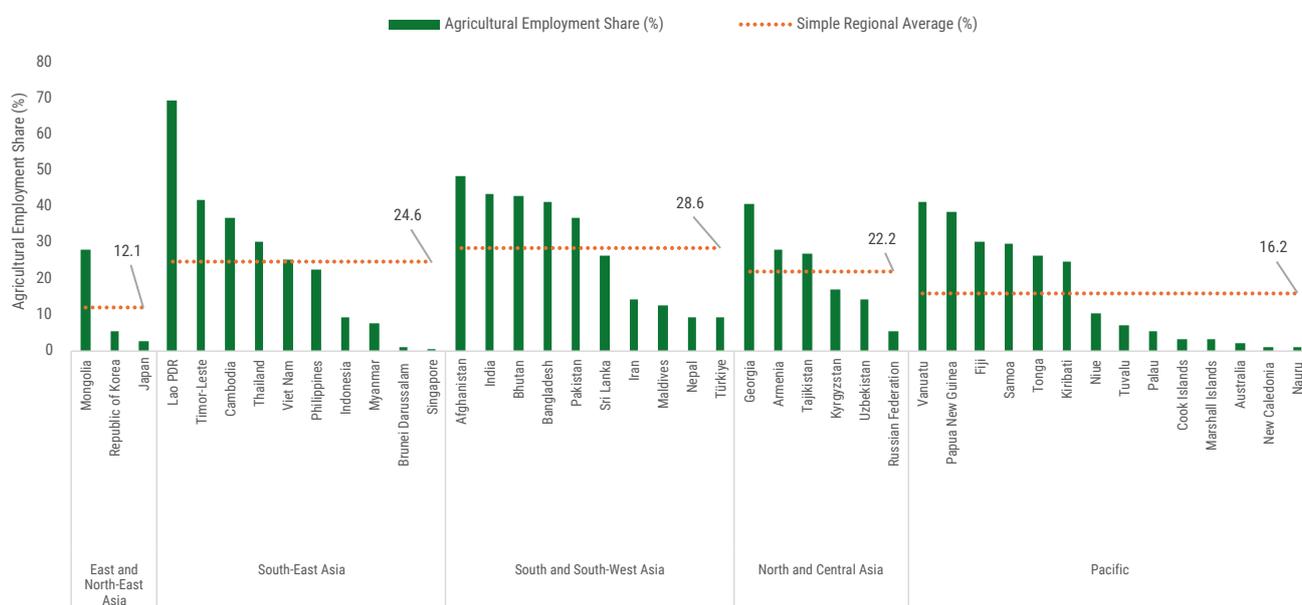
The agricultural sector in Asia and the Pacific faces significant disruptions due to ongoing economic and environmental changes. As of 2023, agriculture employed around 600 million people, or some 30% of the region's workforce. However, the share of agriculture in total employment varies across subregions.<sup>43</sup> In South and South-West Asia, which have a large primary sector, the share of agriculture in total employment is 28.6%. By contrast, in East and North-East Asia and the Pacific, agriculture's employment shares are much lower at 12.1% and 16.2%, respectively. These disparities are even larger at the country level, with agriculture accounting for 69.5% of total employment in the Lao People's Democratic Republic (Lao PDR) and 37.1% in Cambodia, compared to barely 1% in Singapore (Figure 8). Overall, such contrasts highlight the varying job pressures across Asia and the Pacific as the region navigates the green transition, with some subregions more vulnerable than others due to their reliance on climate-vulnerable agriculture.

**Agriculture in the region is in flux with projections showing that 2.2% of jobs in the sector (or 13 million) may be lost by 2030.**<sup>44, 45</sup>

The transition to sustainable agriculture, while critical for achieving environmental goals, cannot fully absorb the existing workforce, particularly those in low-quality and insecure jobs. The current employment share in agriculture is higher in some countries such as Georgia, Lao PDR, Timor-Leste and Vanuatu, which will face higher job pressure with the transition. More developed and urbanised countries such as Malaysia and Singapore, where agriculture accounts for a smaller share of employment, face less acute pressures. However, these countries will also need to make strategic labour market investments to develop sustainable farming roles.

**Informality poses significant barriers to tackling these challenges, with countries such as Bangladesh reporting 96% of agricultural workers as informal.** Seasonal employment and irregular earnings make these vulnerabilities worse. This is especially true

**Figure 8: Agricultural employment share (%) by country and regional averages in Asia and the Pacific, most recent year available**



Source: Authors using various labour force surveys.

Note: Afghanistan (2021), Armenia (2021), Australia (2023), Bangladesh (2022), Bhutan (2023), Brunei Darussalam (2023), Cambodia (2021), Cook Islands (2023), Fiji (2016), Georgia (2020), India (2023), Indonesia (2023), Iran (2022), Japan (2022), Kiribati (2020), Kyrgyzstan (2022), Lao PDR (2022), Maldives (2019), Marshall Islands (2021), Mongolia (2023), Myanmar (2020), Nauru (2021), Nepal (2017), New Caledonia (2020), Niue (2022), Palau (2020), Papua New Guinea (2022), Philippines (2022), Russian Federation (2023), Samoa (2022), Singapore (2023), Sri Lanka (2022), Thailand (2023), Timor-Leste (2022), Tonga (2021), Tuvalu (2022), Türkiye (2023), Uzbekistan (2020), and Vanuatu (2020).

for women, who make up more than one-half the agricultural workforce but face persistent barriers to land ownership, skills training, and access to finance. Climate risks further compound these challenges, with events such as submergence and unpredictable weather patterns threatening livelihoods. Studies on submergence-tolerant rice adoption underscore the importance of social networks in building resilience. However, these efforts largely focus on climate adaptation and fall short of addressing the broader transition to sustainable agriculture.<sup>46</sup>

## 1.2 Workforce preparedness for the green and blue transition

**The shift to green and blue economies in Asia and the Pacific calls for a workforce equipped to adapt to significant changes in labour markets across most economic sectors.** The transitions necessitate both up-to-date technical expertise and broader skill improvements. Global estimates suggest that skills development will be essential at all levels, with the highest job growth projected in mid-skilled occupations. The job categories anticipated to experience the highest demand include workers in building and related trades, labourers in manufacturing, construction, and transport, as well as skilled agricultural workers.<sup>47</sup> However, the workforce readiness across the region is uneven, with gaps in STEM education, youth engagement, and skills often poorly aligned with sectoral needs. Reducing these disparities will be critical to create a workforce capable of driving the green and blue transition.

### 1.2.1. Skills gaps for the green and blue transition

#### *The need for specialist skills*

**In key transition sectors, there is an urgent need to develop additional skills in line with sector needs.** While government-led training programmes play an important role, sometimes they fall short due to a lack of collaboration with industry. This situation

highlights the importance of private sector-led training institutions, which are often better than the public sector at tailoring programmes to evolving demands.<sup>48</sup> The transition-relevant skills needs vary by sector. Some key requirements are:

- **Renewable energy:** Specialized skills are required across the value chain, including operations, manufacturing, and project management. Key roles include photovoltaic installers, wind turbine technicians, and plant managers.<sup>49</sup> The sector's key medium-skilled roles focus on energy systems and diagnostics, while high-skilled roles include engineers and system designers.<sup>50, 51</sup> Manufacturing in the region, with China leading global production of solar panels, wind turbines, and batteries, also requires skills in precision engineering, materials science, and quality assurance to support sector growth in other countries.
- **Sustainable agriculture:** This sector requires the strengthening of new skills, particularly in organic farming, crop diversification, and water resource management. While the ongoing shift opens up opportunities for high-skilled jobs in sustainable practices, there is also a continued need for low-skilled workers to support basic tasks in farming and related activities.
- **Waste management:** Moving toward a circular economy requires diverse skill sets, including in environmental engineering, recycling technology, and resource recovery. High-skill roles necessary for advanced recycling and efficient waste treatment include environmental scientists, industrial ecologists, and recycling technology specialists.<sup>52, 53</sup>
- **Green transportation:** Strategic upskilling is needed to support sustainable mobility. This includes enhanced skills for vehicle maintenance, EV infrastructure setup, and battery diagnostics at the medium-skill level, while advanced R&D and systems design skills are key for innovation in sustainable transport.<sup>54</sup>

- **Sustainable fisheries and aquaculture:** The region’s fisheries and aquaculture sectors need diverse skills to balance economic development and environmental sustainability. Essential occupations include aquaculture technicians, marine biologists, and fisheries managers, with key skill areas spanning sustainable feed management, disease prevention, and environmental impact assessments.
- **Coastal tourism:** This sector needs specialised skills to support a sustainable transition. Key roles include eco-tourism managers, marine conservation specialists, and sustainability officers focused on environmental protection and resource management. Medium-skilled jobs, such as hospitality managers and tour operators, require competence in eco-friendly practices such as waste reduction and enhancing energy efficiency. Marketing professionals with expertise in sustainable tourism promotion will also be key for driving environmentally responsible travel.

**Transition readiness of the green skills base**

**Workforce disparities will shape the pace and inclusivity of the green and blue transition**

**across Asia and the Pacific.** Developed countries such as Australia, Singapore, and the Republic of Korea exhibit a higher readiness, with 64%, 49%, and 41% of their workforce, respectively, engaged in high-skilled roles such as managers, professionals, and technicians (Figure 9). This puts them in a good position to meet emerging skills demands in renewable energy, waste management, and green transportation. Similarly, Fiji, Malaysia, and Sri Lanka have a substantial share of high-skilled workers, underscoring their potential for adapting to growth in green and blue sectors. The region’s less developed countries, by contrast, find it more difficult to align workforce skills with the transitions, highlighting the need for targeted interventions in education and training.

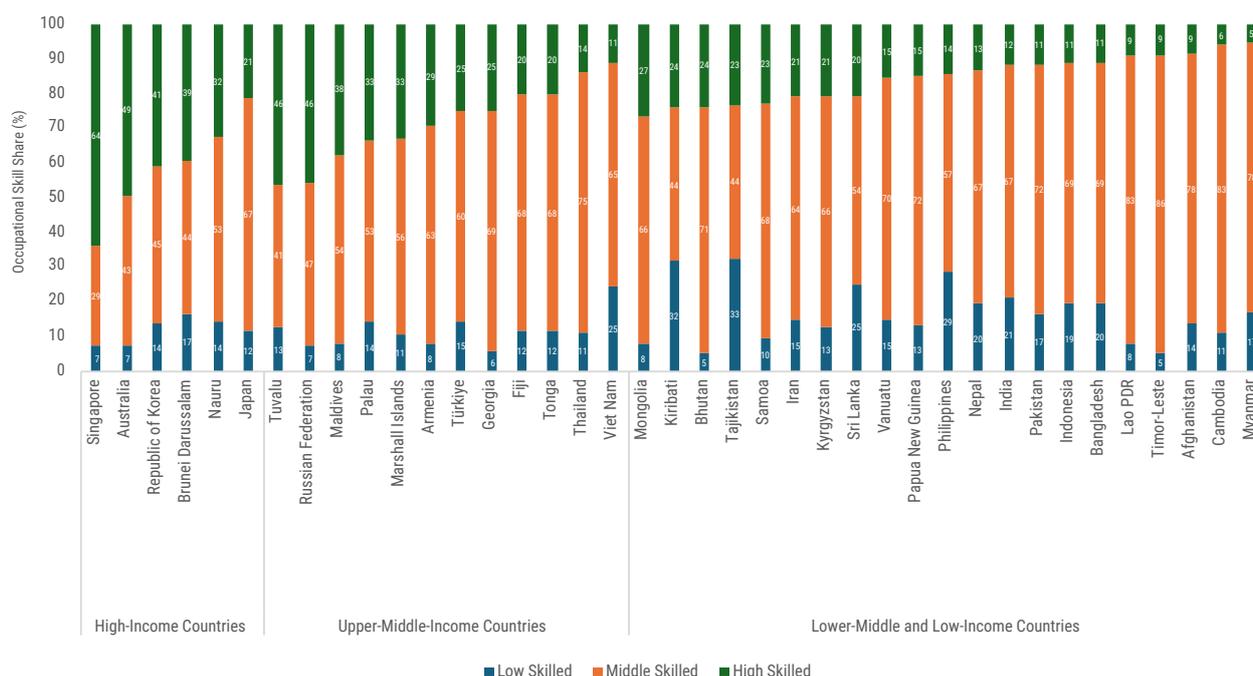
**STEM qualifications are key for workforce readiness in green and blue sectors.** STEM education equips workers with technical and analytical skills that are crucial for innovation and the adoption of advanced technologies in renewable energy, sustainable agriculture, and marine conservation. However, marked differences in the quantity and quality of STEM education across countries point to the region’s uneven readiness for these emerging demands. To illustrate, in 2023,

**Table 1: Expected skills demands and occupational profiles in key green and blue sectors**

| Sector                                | Skill level    | Skills demanded  | Occupations   |
|---------------------------------------|----------------|--|---|
| Renewable energy                      | Medium to high | Installation, maintenance, engineering, project management                     | Solar PV installers, wind turbine technicians, energy system engineers                      |
| Sustainable agriculture               | Low to high    | Organic farming, soil health management, water resource management             | Soil and water conservationists, agricultural meteorologists                                |
| Waste management                      | Medium to high | Environmental engineering, recycling technology, resource recovery             | Recycling facility managers, environmental engineers  |
| Green transportation                  | Medium to high | Vehicle maintenance, EV infrastructure, systems design                         | EV technicians, transportation engineers  |
| Sustainable fisheries and aquaculture | Medium to high | Aquaculture operations, marine biology, resource management                    | Aquaculture technicians, fisheries managers   |
| Coastal tourism                       | Medium to high | Eco-tourism management, marine conservation, sustainable hospitality practices | Eco-tourism managers, marine conservation specialists, sustainable hospitality coordinators |

Source: Authors based on IRENA (2024). Renewable Energy and Jobs: Annual Review 2024; ILO (2019). Skills for a Greener Future: A Global Review.

**Figure 9: Workforce skill composition by country in Asia and the Pacific: Percentage distribution by occupational category, circa 2023**



Source: Authors using various labour force surveys (Circa 2023).

Note: The figure depicts the labour force distribution by skill level across selected Asia and the Pacific countries, categorised into high-skilled (managers, professionals, and technicians), middle-skilled (clerical, service, and sales workers; skilled agricultural, craft, and trade workers; plant and machine operators), and low-skilled (elementary occupations) roles. Data are derived from national labour force surveys conducted in the following years: Australia (2023), Bangladesh (2022), Cambodia (2017), Fiji (2016), India (2023), Indonesia (2023), Japan (2023), Lao PDR (2022), Malaysia (2022), Myanmar (2019), Nepal (2017), Pakistan (2019), Philippines (2022), Republic of Korea (2023), Sri Lanka (2022), Thailand (2023) and Viet Nam (2023).

STEM graduates accounted for 41.1% of all graduates in Malaysia, compared to 31.7% in Thailand, 27.1% in India, and 17.8% in Mongolia. Furthermore, women remain underrepresented in STEM fields due to a combination of biases and structural barriers. This underrepresentation reduces the diversity and talent available for driving innovation in green and blue sectors.<sup>55</sup>

### Developing countries face critical challenges in upgrading their workforce for greener roles.

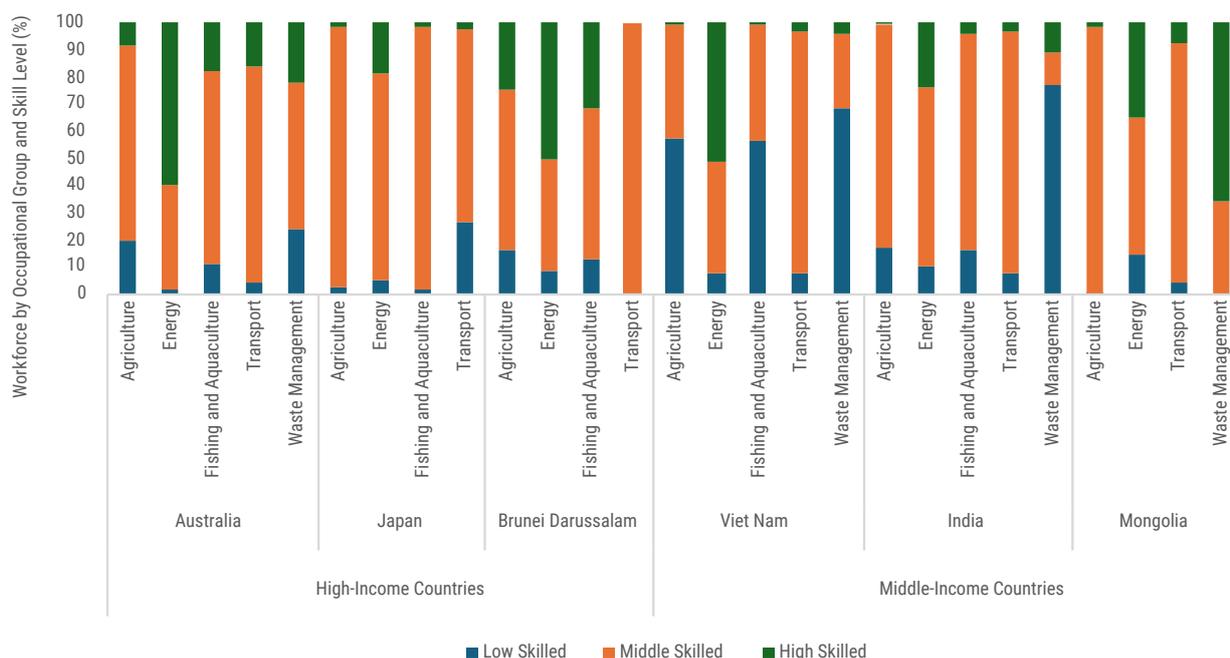
The workforces of countries such as Cambodia, India and Viet Nam are mostly engaged in low- and middle-skilled roles, particularly in agriculture and elementary occupations. In Cambodia only 6% of the workforce are high skilled. Even in upper-middle-income countries like Viet Nam, one in four people in the workforce are low skilled and only 11% of jobs are high skilled (see Figure 9). The observed patterns are a function of a country's stage of economic development

and point to the continued importance of low-productivity sectors. They also underscore the urgency of targeted upskilling and reskilling initiatives that promote workforce mobility and increase readiness to seize green economic opportunities.

### Within key transitional sectors, workforce readiness for the green and blue economy varies across countries, revealing disparities in preparedness.

High-income countries demonstrate strong readiness, with significant shares of high- and middle-skilled workers. For instance, in Australia 59.4% and 17.6% of workers in the energy sector and aquaculture, respectively, are high-skilled and the country has sizable shares of middle-skilled workers across sectors. Similarly, Brunei Darussalam reports that around half of its workers in the energy sector are high-skilled and nearly one third in aquaculture. By contrast, in Japan almost the entire workforce in agriculture and aquaculture consists of middle-skilled workers. (Figure 10).

**Figure 10: Workforce skill composition by key sector in selected countries of Asia and the Pacific: Percentage distribution by occupational skill level, circa 2023<sup>72</sup>**



Source: Authors using various labour force surveys (Circa 2023).

Notes: The sectors in the legend correspond to categories from the International Standard Industrial Classification (ISIC) Revision 4. "Energy" corresponds to ISIC Division 35, which includes electricity, gas, steam, and air conditioning supply activities. "Fishing and Aquaculture" aligns with ISIC Division 03, covering fishing and aquaculture activities. "Transport" corresponds to ISIC Division 49, including land transport and transport via pipelines. "Waste Management" is represented by ISIC Division 38, encompassing waste collection, treatment, disposal activities, and materials recovery. Data are derived from national labour force surveys conducted in the following years: Australia (2023), Brunei Darussalam (2023), India (2023), Japan (2019), Mongolia (2023), and Viet Nam (2023).

**Developing countries face significant skills gaps across a range of sectors.** India and Viet Nam rely almost exclusively on low- and middle-skilled workers with just 0.2% of agricultural workers categorized as high-skilled in both countries. However, Mongolia stands out with two thirds of workers in waste management high-skilled and 35.1% in energy, demonstrating some readiness in specific sectors (Figure 10). The challenges around skills readiness are also relevant for people who are yet to enter the job market, such as youth (see Box 2).

These disparities highlight the urgent need for workforce development and targeted upskilling in low- and middle-income countries to close the skills gap and enable the transition to sustainable practices.

**Related skills gaps in digitalization**

**Digitalization is reshaping the world of work and plays a critical role in the region's**

**transition to green and blue economies.** Digital technologies drive innovation, improve efficiency, and enable sustainable practices in sectors such as renewable energy, sustainable agriculture, and marine conservation. However, digitalization also presents challenges, including job losses through automation and a growing digital divide that risks excluding vulnerable workers. These gaps threaten progress towards SDG 8 (Decent Work and Economic Growth), SDG 9 (Industry, Innovation, and Infrastructure), and SDG 10 (Reduced Inequalities).<sup>56</sup>

**Basic digital literacy is now essential for workforce participation, while advanced digital skills are increasingly critical for roles in sustainable sectors.** A recent survey of employers reveals that 70% of respondents consider digital literacy essential, with coding and programming among the top emerging skills.<sup>57</sup> Despite progress in digital access, gaps persist. Only 54% of women in the region use the

## Box 2: Youth inclusion in the transition to green and blue economies: Addressing NEET challenges

**The transition to green and blue economies in Asia and the Pacific is hindered by high rates of youth not in employment, education, or training (NEET).** In 2024, the NEET rate for the region stood at 20.4%, affecting 137.8 million young people (aged 15-24). These concerning statistics reveal a massive underutilisation of labour and illustrate the difficulties in making the workforce transition ready.

**The NEET crisis is particularly acute among young women.** Women make up more than 71.0% of NEET youth in the region—equivalent to 98.0 million women. The remaining NEETs, some 39.9 million, are men. In South Asia, the chasm is even greater, with 76.2 million women falling into the NEET category, compared with 22.1 million men.<sup>73</sup> This disparity is compounded by social and cultural norms, as young men dominate NEET unemployment, while young women are more likely to be NEET inactive, often due to caregiving and homemaking responsibilities.<sup>74</sup>

**These figures underscore the urgent need for governments to put in place targeted interventions to break down barriers to employment and education for young women, ensuring they are integrated into the green and blue economies.** Empowering all youth—regardless of gender—to participate meaningfully in the transition is critical to achieving sustainable and inclusive economic growth and ensuring that no one is left behind.

internet compared to 59% of men, and women in low- and middle-income countries are 20% less likely to own a smartphone or access the internet.<sup>58</sup> Gender stereotypes and social norms further restrict women's participation in the digital economy, limiting their ability to contribute to and benefit from green and blue economic transitions.

**The region has made big strides in improving digital connectivity and e-governance, with countries such as Australia, the Republic of Korea, and Singapore leading in developing ICT infrastructure and government e-services.**<sup>59</sup> However, less developed countries such as Pakistan and Timor-Leste have low levels of connectivity and e-services, highlighting the need for targeted investments in technology and digital skills training.

**To fully realise the potential of green and blue economies, governments must prioritise digital education, gender-sensitive training, and equitable access to technology.** These

efforts are key to bridging digital skills gaps, preparing the workforce for sustainable transitions, and ensuring no one is left behind in achieving the SDGs.

### 1.2.2. Barriers to a gender equal green and blue transition

#### *Women's access to labour markets*

**Women face significant barriers to accessing the labour market in Asia and the Pacific, limiting their ability to shift into green sectors.**

Disparities in labour force participation illustrate the persistent structural inequalities women face. The disparities tend to be a function of a country's level of economic development. In high-income countries, the average gap in labour force participation rates between men and women is 13.4 percentage points (Figure 11). This gap stands at 19.6 percentage points in upper-middle-income countries and 25.7 percentage points in lower-income countries. For example, in Bangladesh and India, where 43.4% and 35.1% of women, respectively, are in

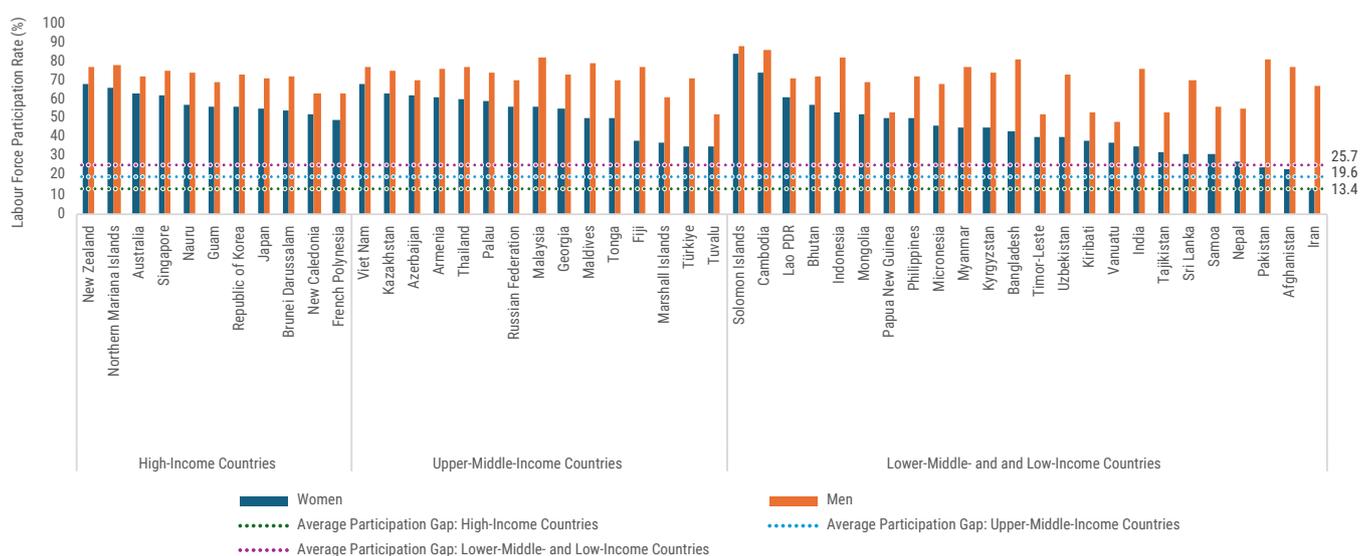
the labour force, pervasive informality, limited supportive services, and strong family care expectations constrain women’s participation. As seen in Figure 11, gender inequalities persist even in more inclusive labour markets.

**These barriers are rooted in structural, economic, and socio-cultural factors which create conditions in which women’s contributions to society and work are undervalued, and women’s choices are constrained.** While these barriers differ by country, they consistently lead to unequal labour market access for women. In addition to obstacles to accessing the labour market, when women enter the labour force, they are often faced with lower pay and discrimination in hiring and career advancement, which is compounded by a disproportionate burden of unpaid care. In Asia and the Pacific, women spend up to 11 hours a day on paid and unpaid care work—over four times more than men.<sup>60</sup> These disadvantages are often made worse by other forms of discrimination that women may face based on social, economic, and

demographic characteristics such as age, ethnicity and disability.<sup>61</sup>

**Gender-biased social norms are one of the root causes of gender inequality and restrict women’s economic empowerment.** Evidence shows that income gaps between women and men are more strongly linked to such biases than to educational disparities.<sup>62</sup> Examples of such limiting beliefs are the idea that a girl’s place is in the safety of her home rather than in the workplace, or that women are more caring and thus better placed to take on caring responsibilities within the family. Such beliefs constrain and restrict women’s full and equal participation in the workforce, impeding their ability to play a part in the transition to green and blue economies. The 2023 Gender Social Norms Index, which covers 80 economies comprising 85% of the world’s population, found that nine out of ten surveyed men and women hold fundamental biases against women, with biases prevalent in all countries. Between 2010-2014 and 2017-2022, the share of people exhibiting no gender biases

**Figure 11: Labour force participation rates by gender across countries in Asia and the Pacific, circa 2023**



Source: Authors using various labour force surveys.

Note: Data are derived from national labour force surveys conducted in the following years: Afghanistan (2021), Armenia (2021), Australia (2023), Azerbaijan (2022), Bangladesh (2022), Brunei Darussalam (2023), Bhutan (2023), Cambodia (2021), Fiji (2016), Georgia (2020), India (2023), Indonesia (2023), Iran (2022), Japan (2023), Kazakhstan (2022), Kiribati (2020), Kyrgyzstan (2022), Lao PDR (2022), Malaysia (2022), Maldives (2019), Marshall Islands (2021), Myanmar (2020), Mongolia (2023), Nepal (2017), Nauru (2021), Pakistan (2021), Palau (2020), Papua New Guinea (2022), Philippines (2022), Republic of Korea (2023), Russian Federation (2023), Samoa (2022), Singapore (2023), Sri Lanka (2022), Thailand (2023), Timor-Leste (2022), Tonga (2021), Türkiye (2023), Tuvalu (2022) and Viet Nam (2023).

increased in 27 economies, including nine from Asia and the Pacific. On the other hand, there was a backlash in 11 countries including in six countries from Asia and the Pacific where the share of people with biases increased.<sup>63</sup>

**Uneven footing: women’s participation in transitional sectors**

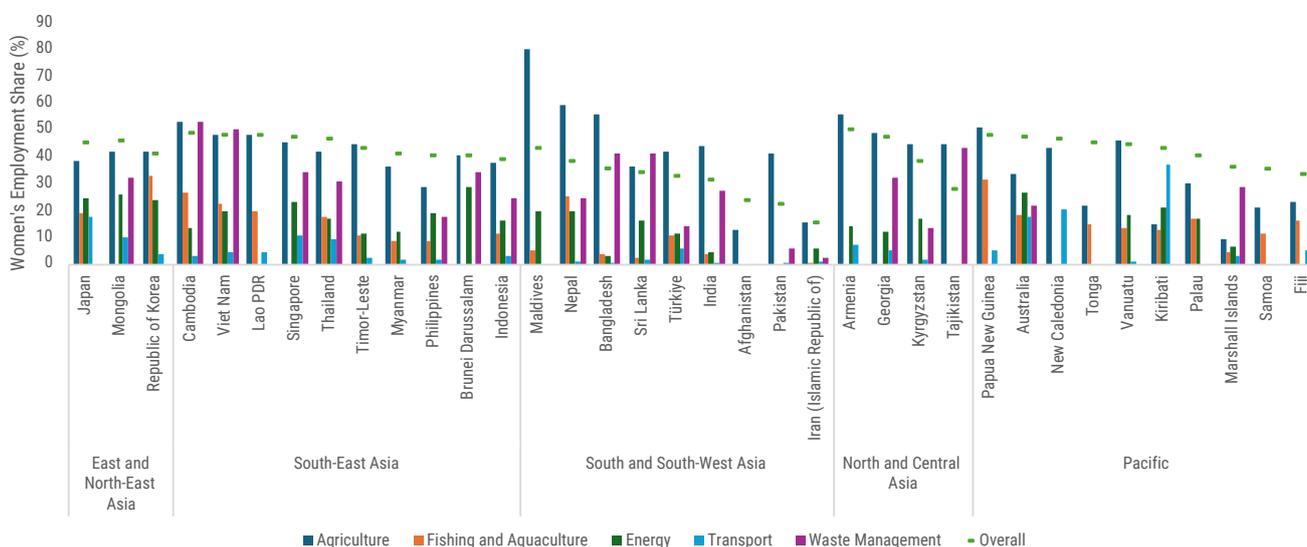
**Women remain underrepresented in the job market across countries in Asia and the Pacific.** The dots in Figure 12, representing women’s share of total employment, highlights persistent gender gaps, with most countries reporting women’s participation well below 50%. This underrepresentation underscores entrenched structural, socio-cultural, and economic barriers that limit women’s access to and retention in the workforce.

**Women’s participation in key transitional sectors is lower than in the economy as a whole.** Across the region, female labour force representation in sectors such as energy and

transport is lower than national averages, reflecting entry barriers in industries pivotal to the green and blue transition. In Japan, women comprise 45% of the total workforce, but their share in the energy and transport sectors is only 25.0% and 17.6%, respectively. Similarly, in Bangladesh, where women account for more than half of the national workforce, their participation rate in the energy sector is just 3.5%, and in transport it is less than 1%. Viet Nam displays a similar structure, with women making up nearly half of the total workforce but only 19.9% and 4.3% engaged in the energy and transport sectors, respectively. These disparities highlight the challenges women face in entering and advancing within sectors that are critical to the transition.

**Some countries in the region are positive outliers when it comes to women’s representation in key transition sectors.** For instance, Kiribati and Papua New Guinea have shown progress in fishing and aquaculture,

**Figure 12: Women’s employment share in key transitional sectors by selected country and income level in Asia and the Pacific (most recent data available)**



Source: Authors using various labour force surveys (Circa 2023).

Notes: The sectors in the legend correspond to categories from the International Standard Industrial Classification (ISIC) Revision 4. “Energy” corresponds to ISIC Division 35, which includes electricity, gas, steam, and air conditioning supply activities. “Fishing and Aquaculture” aligns with ISIC Division 03, covering fishing and aquaculture activities. “Transport” corresponds to ISIC Division 49, including land transport and transport via pipelines. “Waste Management” is represented by ISIC Division 38, encompassing waste collection, treatment, disposal activities, and materials recovery. Data are derived from national labour force surveys conducted in the following years: Armenia (2021), Australia (2023), Bangladesh (2022), Bhutan (2023), Brunei Darussalam (2023), Cambodia (2021), Fiji (2016), Georgia (2020), India (2023), Indonesia (2023), Japan (2022), Kiribati (2020), Kyrgyzstan (2022), Lao PDR (2022), Maldives (2019), Marshall Islands (2021), Mongolia (2023), Myanmar (2020), Nauru (2021), Nepal (2017), New Caledonia (2020), Niue (2022), Pakistan (2021), Palau (2020), Papua New Guinea (2022), Philippines (2022), Republic of Korea (2019), Samoa (2022), Singapore (2023), Sri Lanka (2022), Tajikistan (2016), Thailand (2023), Timor-Leste (2022), Tonga (2021), Tuvalu (2022), Türkiye (2023), Vanuatu (2020), and Viet Nam (2023).

with women's participation rates at 37.6% and 32.0%, respectively. Waste management appears to be a fairly inclusive industry in Mongolia and Georgia, with women's representation at 32.1% and 32.3%, surpassing women's share in national employment. Similarly, Brunei Darussalam and Australia have relatively high female participation rates in the energy sector, at 28.7% and 26.6%, respectively. Kiribati stands out in the case of transport, with 37.6% of jobs in the sector held by women—exceeding their national employment share and pointing to progress in breaking down sector-specific barriers. Despite these exceptions, most transitional sectors remain inaccessible for women and targeted interventions will be needed to change this. While some progress has been made, it is not enough to narrow or remove disparities in women's participation in the region.

***Women in employment: a skills advantage amid persistent inequalities***

**The Women's Skill Composition Ratio is an instructive tool to examine gender disparities in employment.** The ratio, which measures the proportion of women relative to men in middle- and high-skilled roles is derived by dividing the aggregate percentages of women in middle- and high-skilled occupations in a country by the corresponding figures for men. A ratio greater than 1.0 means that women in employment are more likely to occupy skilled roles than men. Across Asia and the Pacific, this analysis reveals that women are often more skilled than their male counterparts. In 25 out of 39 countries, as shown in Figure 13, the ratio exceeds parity, highlighting the untapped potential of women's economic contributions.

**Bangladesh, Kyrgyzstan, Mongolia, and Tajikistan – all of which have a skill composition ratio above 1.5—are examples of countries with relative strength in women's skilled employment.** The case of Bangladesh, which has a ratio of 1.81, is particularly striking. Despite having one of the lowest female participation rates in the region, employed women in Bangladesh hold a relative advantage in skilled roles, reflecting the resilience and capabilities of women in labour markets with systemic challenges. These examples

underscore the importance of inclusive labour markets that make full use of women's skills and potential. This is especially true for green and blue economy sectors, which require advanced capabilities.

**However, higher skill ratios do not always translate into equal representation.** Although women may hold a relative advantage in skilled roles in some cases, their low overall labour force participation means that men continue to dominate higher-skilled occupations in absolute numbers. In Indonesia, for example, while women represent a higher share of workers in high-skilled occupations (14% versus 10% for men), this equates to only 7.4 million women compared to 8.1 million men in these roles. Such disparities illustrate the effect of women's underrepresentation in the workforce, which limits their overall economic contribution even when they outperform men in skilled employment. This suggests that only women with higher skills can overcome significant barriers to entering the labour market.

**While the Women's Skill Composition Ratio provides important insights as an aggregate measure** it does not provide any details on specific activities or job functions. For instance, women and men classified as high-skilled may still face vastly different work conditions, opportunities for advancement, and remuneration. Furthermore, variations across countries with similar ratios, as well as differences by sex within the same country, underline broader patterns of occupational segregation and unequal access to high-quality jobs.

**Overall, the skills ratio analysis highlights the promise and challenges of women's skilled employment in Asia and the Pacific.** Women's relative strength in skilled roles points to their potential to drive innovation and economic progress. However, systemic barriers limiting women's participation remain, and targeted interventions are required to dismantle them. In this regard, policies that promote equitable education and training, help dismantle socio-cultural barriers and provide pathways for women to skilled employment are critical. By ensuring that women have fair access to opportunities in green and blue economy

**Figure 13: Women's skill composition ratio across countries in Asia and the Pacific: Proportion relative to men**



Source: Authors using various labour force surveys (Circa 2023).

Note: The chart shows the Women's Skill Composition Ratio, comparing women's representation in middle- and high-skilled employment to men's. A ratio of 1.0 (red dashed line) indicates equal representation, while values above or below highlight relative over- or underrepresentation of women in skilled roles. Data are derived from national labour force surveys conducted in the following years: Afghanistan (2021), Armenia (2017), Australia (2023), Bangladesh (2022), Brunei Darussalam (2023), Bhutan (2023), Cambodia (2021), Fiji (2016), Georgia (2020), India (2023), Indonesia (2023), Iran (2022), Japan (2022), Kyrgyzstan (2022), Kiribati (2020), Lao PDR (2022), Maldives (2019), Marshall Islands (2021), Mongolia (2023), Myanmar (2020), Nauru (2021), Nepal (2017), Pakistan (2021), Palau (2020), Papua New Guinea (2022), Philippines (2022), Republic of Korea (2023), Russian Federation (2023), Samoa (2022), Singapore (2023), Sri Lanka (2022), Tajikistan (2016), Thailand (2023), Timor-Leste (2022), Tonga (2021), Türkiye (2023), Tuvalu (2022), Vanuatu (2020) and Viet Nam (2023).

sectors, countries can unlock the full potential of their workforce as well as advance gender equality and sustainable development.

### 1.2.3. High levels of informal employment in the region

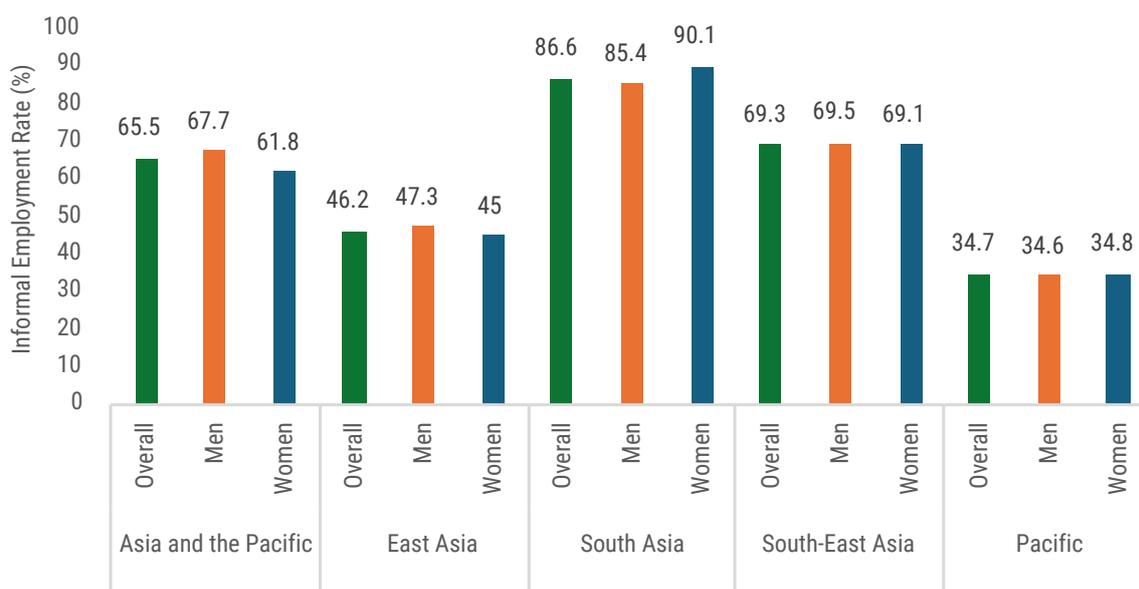
**One of the most pressing challenges for achieving a just transition in Asia and the Pacific is a high degree of informality, which leaves most workers exposed to social and economic risks.** In 2023, an estimated two thirds of the region's workforce was in informal employment, typically lacking access to social insurance, active labour market policies, and other critical safety nets essential for supporting displaced workers during the green and blue transition. The extent of informality varies across subregions, with South Asia reporting a rate of 86.6%, followed by South-East Asia at 69.3%. By contrast, stronger protective frameworks result in lower informality rates in East Asia (46.2%) and the Pacific (34.7%) (Figure 14).

### Informal employment in the region also reveals large gender disparities across subregions.

In South Asia, the disparity is pronounced, with 90.1% of employed women in informal work compared to 85.4% of men, highlighting women's vulnerability in one of the region's most informal labour markets. Conversely, in the Pacific, the degree of informality is roughly equal for women and men, at 34.8% and 34.6%, respectively. Overall, some 67.7% of employed men in Asia and the Pacific work informally, compared to 61.8% for women (Figure 14). These disparities underscore the systemic barriers faced by women, including overrepresentation in low-paid, insecure jobs in agricultural and non-agricultural sectors. Addressing these challenges is critical for achieving gender equality and fostering a just transition to green and blue economies.

**While formalizing employment is key for safeguarding workers and strengthening fiscal revenues, it is equally important to prioritize support for informal workers, who provide livelihoods for a large part of**

**Figure 14: Informal employment rate in Asia and the Pacific and by subregion, overall and by sex, 2023**



Source: ILO modelled estimates, retrieved from ILOSTAT.

Note: The regional breakdown follows the ILO's Asia-Pacific classification based on ILO modelled estimates, which may differ from ESCAP's regional definitions and classifications. Differences in methodologies and data sources account for these variations.

**the population.** Informal workers contribute substantially to economic activities across key sectors such as agriculture, construction, and small-scale services. However, they often face systemic barriers, including limited access to social protection, affordable financing, and skills training. This leaves them vulnerable to economic shocks and structural changes.

**Breaking down these barriers is essential for a just transition.** Providing affordable finance can help informal businesses grow, while tailored skills development programmes can prepare workers for work in green and blue economies. Social protection systems that cover informal workers can reduce their vulnerability and foster labour market mobility. By implementing targeted interventions to empower informal workers, governments can ensure that this critical workforce is not left behind in the transition to sustainable economies.

**Strengthening pathways to formal employment while addressing the needs of informal**

**workers is essential for fostering inclusivity, gender equality, and economic resilience.** By investing in social protection, skills development, and targeted support for informal workers—particularly women—the region can unlock their potential as drivers of economic prosperity, ensuring that the transition to green and blue economies benefits all.

#### 1.2.4. Social protection gaps and disparities

**Access to social protection is critical for people to adapt during the transition to green and blue economies.** While the regional average of 55% of the population covered by at least one social protection benefit is close to the global average of 52%, significant variation exists (Figure 15). For instance, in the Cook Islands, New Zealand, and Singapore, 100% of the population is covered by at least one social protection benefit, with robust systems that include unemployment benefits and retraining programmes.<sup>64</sup> Thailand's coverage stands at 70.1%, while gaps in Indonesia (54.3%) and Viet Nam (38.3%) are still moderate. In stark

contrast, Cambodia (20.8%) and Lao PDR (15.5%) exhibit extremely limited coverage, leaving workers particularly vulnerable to economic and environmental changes. Overall, these disparities underscore the uneven readiness of social protection systems in the region to support a just transition.

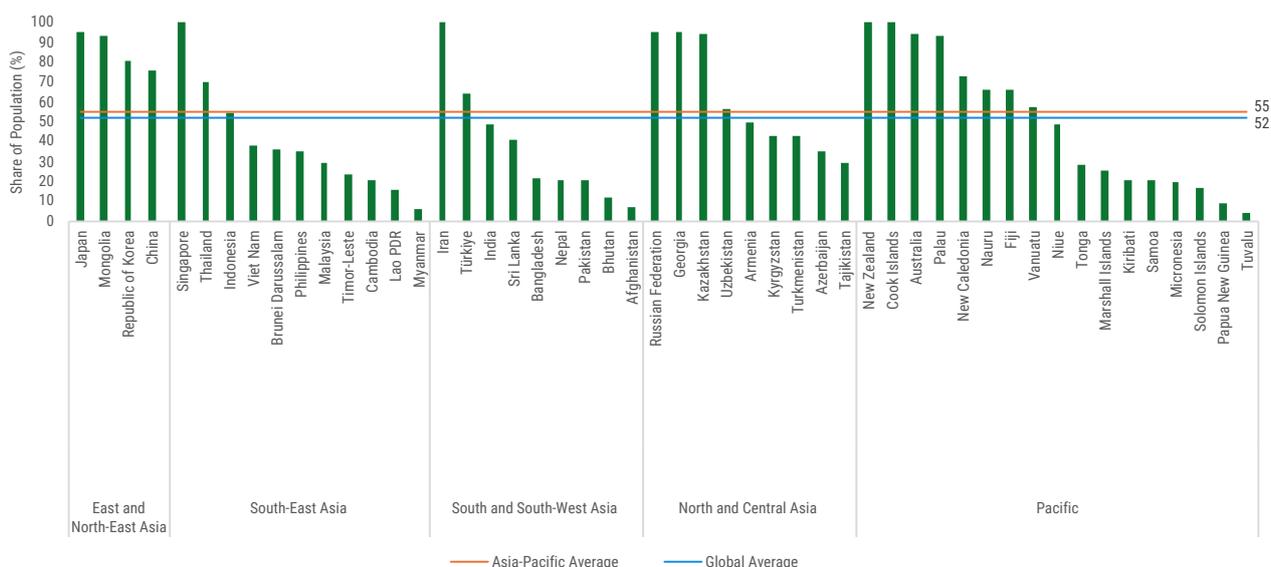
**Low levels of social protection in the Asia-Pacific region are a result of under investment and high informality - even where protection exists, it often fails to provide adequate security.**<sup>65</sup> According to ESCAP, overall social protection coverage increased from 46% to 55% between 2020 and 2024. However, as noted in the discussion on informal employment, work-related benefits such as unemployment insurance and workplace injury coverage remain critically low, with average regional coverage at just 13.5% and 30.5%, respectively.<sup>66</sup> These gaps in coverage highlight the pressing need to step up support for workers during employment transitions.

**Health outcomes linked to decent work and social protection coverage**

**Informal work and a lack of social protection often overlap with poor health outcomes.** In low- and lower-middle income countries of the region, the average life expectancy is ten years lower than in high-income countries.<sup>67</sup> This has negative short- and long-term implications for the workforce. Poor childhood health adversely impacts children’s education, skill levels and their prospects for decent work in adult life.

**Workers in renewable energy, waste management and fisheries are especially vulnerable to occupational hazards.** The dangers include electrical hazards from new technologies, exposure to hazardous chemicals in solar panel and battery manufacturing, and biological hazards in aquaculture. In this context, in addition to enhanced safety and health measures in workplaces, it is increasingly vital for governments to ensure equitable access to affordable and adequate

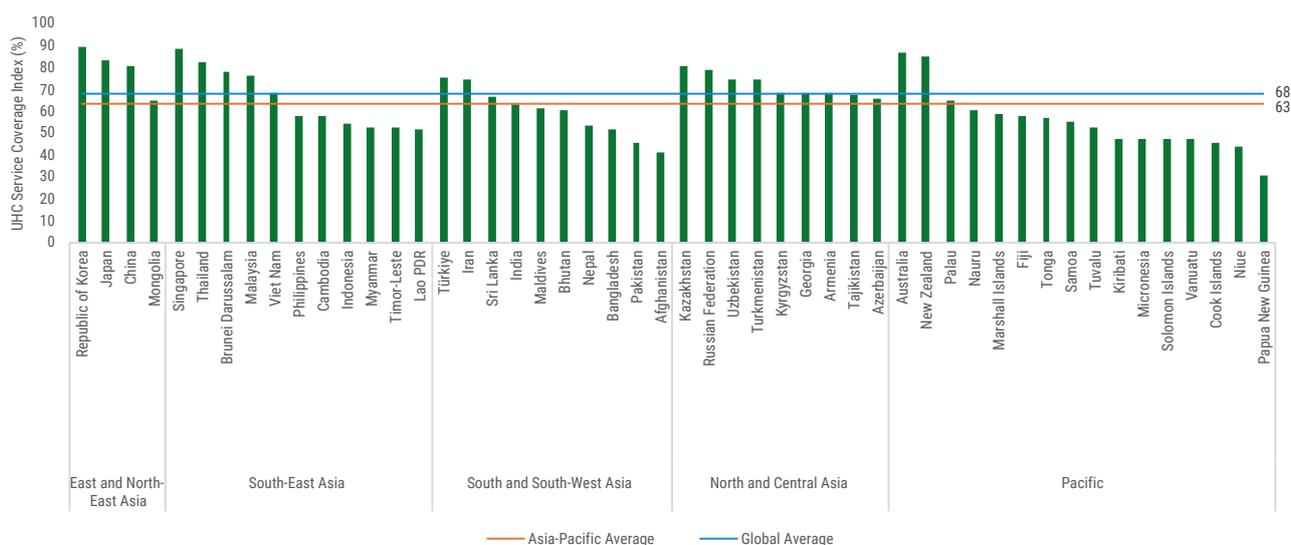
**Figure 15: Proportion of the population covered by at least one social protection benefit (excluding healthcare), latest available year**



Source: ILO (2024). World Social Protection Database.

Note: Each economy’s estimate reflects the most recent available data for that economy, while the world averages are ILO modelled estimates for 2023, as reported in the ILO World Social Protection Report 2024–26.

**Figure 16: UHC Service Coverage Index by country in Asia and the Pacific, 2021**



Source: WHO (2024). UHC Service Coverage Index.<sup>75</sup>

Notes: The UHC Service Coverage Index measures the extent to which essential health services are covered within a country, ranging from 0 (no coverage) to 100 (full coverage). This index serves as a key indicator of a country's ability to provide its population with access to comprehensive health services, crucial for achieving Sustainable Development Goal 3 (Good Health and Well-being). The index encompasses a broad range of services including reproductive, maternal, newborn and child health, infectious diseases, noncommunicable diseases, and service capacity and access. The Asia and the Pacific average is shown alongside the global average to highlight regional differences and guide targeted health policy interventions.

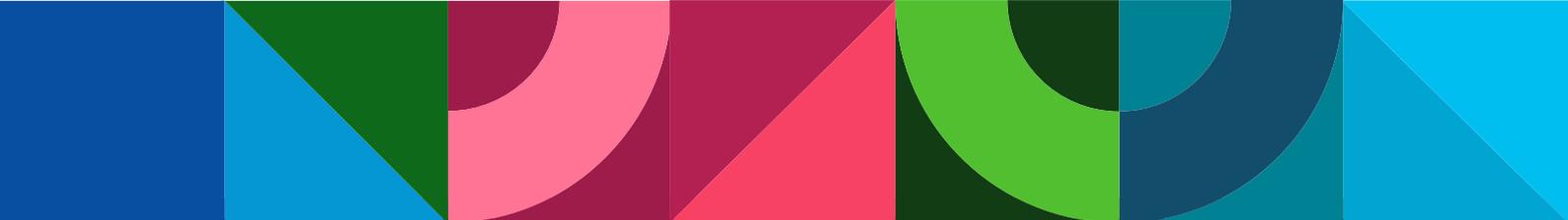
health services through comprehensive social health protection schemes that include workplace sickness benefits and entitlements.

**Nearly two thirds of people in the Asia-Pacific region are covered by some form of social health scheme.** However, the region lags considerably in achieving universal health coverage. The World Health Organization's UHC Service Coverage Index measures access and utilization of a set of essential health services (using a unitless scale of 0 to 100).<sup>68</sup> In 2021, the regional average for Asia and the Pacific stood at 69, with country values ranging from 30 for Papua New Guinea to 89 for the Republic of Korea. At the subregional level, South and South-West Asia have the lowest index values. More than half of the countries with a value below 60 are in the Pacific (Figure 16). Overall progress on health service coverage in the region has been slow, with the regional index value up 5 points since 2015 and largely unchanged since 2021.<sup>69</sup>

**Vulnerable groups and people living in rural areas struggle to access affordable health services.** Survey data from countries in Asia and the Pacific show that between 9% and 67% of women face access barriers related to the

physical distance of health facilities from their home. The lack of access to health services is particularly evident in rural areas of the region.<sup>70</sup>

**This chapter has examined the challenges and opportunities in the region's changing labour markets and the prospects for a just transition towards green and blue economies.** The chapter has explored workforce readiness, informality and gender disparities in the region, and their implications for navigating a just transition. The analysis reveals that the transition will require substantial upskilling and reskilling of the workforce across energy, agriculture, waste management, transportation, fisheries, and coastal tourism sectors. Significant gaps in workforce capabilities, particularly in the region's lower income countries, urgently call for targeted training with a focus on women. Public policies are a key means of facilitating the transition to green and blue economies, but to date the region lacks a broad and concerted policy effort in this regard. Current policies are piecemeal and often lack comprehensive workforce integration, leaving informal workers, women, and rural populations underrepresented. Chapter 2 focuses on practical solutions and policies aimed at overcoming these obstacles.



# 2.

**Solutions and responses  
for a just transition to  
green and blue economies**



## Key messages

- **Workforce and skills development planning is critical for anticipating and addressing workforce needs associated with the green and blue transition. Workforce planning is being integrated into climate policies in key sectors, including energy, agriculture, forestry and fisheries, but this will need to be scaled up and integrated into climate action strategies.**
- **Transition-ready social protection for workforce health and wellbeing is being implemented across the region, which is crucial for workers dealing with transition impacts, especially those in informal employment. Active labour market programmes are also critical for green skills development, economic empowerment and health and wellbeing.**
- **Gender equality is a prerequisite for a just transition to green and blue economies. This requires challenging biased social norms as well as developing specific interventions and strategies to advance gender equality in workforce development, education and social protection and care support.**

**This chapter focuses on solutions and responses promoting decent work, gender equality, and health and social protection for a just transition in Asia and the Pacific.**

Transforming the workforce is an important way of shaping green and blue economies. Ensuring that workers have the right skills and competencies is an essential part of supporting the changes that occur in industries, businesses, services, processes and products during the transition.

**Preparing the workforce for the transition requires upgrading the skills and knowledge of much of the labour force.**

This endeavor centres on new and evolving technical knowledge in jobs ranging from energy, waste management, and transport to resource and biodiversity conservation. It also entails developing so-called green “soft” skills. These skills include developing a mindset geared towards sustainability as well as collaboration and negotiation skills that allow people to adapt in the transition to sustainable economies. These green skills must be developed alongside other skill needs such as digital skills.

Establishing better conditions for a transition-ready workforce is essential. It is a dynamic process, however, and the provision of social protection—including for unemployment, retraining, and health and caring responsibilities—is key to ensuring that the workforce can adapt over time. Improved social protection allows workers and communities facing negative transition impacts to adapt and make better choices amid labour market uncertainty.

Gender equality is essential for developing an inclusive workforce. Many women are excluded from the economic realm because of biased social and cultural norms. Women are also disproportionately affected by the impacts of climate change. The use of gender-responsive and inclusive approaches in just transition processes can ensure that women can equally participate in and benefit from the transition. Achieving gender equality requires interventions in the areas of workforce development, training and capacity development, and social protection.

This chapter highlights three inter-related focus areas to advance a just transition to green and blue economies in the Asia-Pacific region:

- anticipating and implementing workforce development
- transition-ready social protection for workforce health and wellbeing
- gender transformative change in blue and green economies.

## 2.1 Workforce development for the transition

**Ensuring workers have the necessary skills is critical for navigating the transition to green and blue economies.** Skills shortages are bound to prolong the transition and make it more costly. The transition will proceed at a slow pace unless skills and infrastructure gaps are closed.<sup>76</sup> To illustrate, India's pledge to reach net zero by 2070 involves a significant push for the use of electric vehicles (EVs). The plans call for a rollout of extensive charging infrastructure (400,000 charging points by 2026). However, a lack of skilled workers to install and maintain the new infrastructure is currently slowing the uptake.

**Governments can help determine the speed and nature of the transition, but it is also shaped by the private sector.** While transition plans may differ by country, the need for skilled workers is universal. Responses and solutions for workforce development need to anticipate and plan for workforce needs. This involves close collaboration with the private sector so that the right skills become available and training and skills development systems can be scaled up to meet emerging labour market needs.

### 2.1.1 Anticipating workforce and skills development for the transition to green and blue economies

**Anticipating workforce and skills gaps is critical but many countries in the region lack the necessary information and evaluations.** In some countries, evaluations exist but they are limited and focus on an economic sector or sub-sector.<sup>77</sup> A UNESCO survey shows that

one in six countries in Asia and the Pacific lacks systems for tracking future skills needs. All of them are among the poorest economies of the region.<sup>78</sup> A 2021 OECD study focusing on South-East Asian countries identified similar challenges. Resource constraints and poor coordination were the main reasons why countries, especially low- and middle-income countries of the region, struggled to conduct skills assessments and design policies to meet these labour market needs.<sup>79</sup>

**Countries across the region are using national climate plans, known as Nationally Determined Contributions (NDCs), to highlight workforce and skills development needs.** Linking workforce development with the climate transition plans outlined in NDCs is a first key step in anticipating needs. In many countries, workforce development begins in key sectors identified in their NDCs, including energy, agriculture, and natural resource management. Box 3 presents examples of countries in the region that refer to skills and workforce development needs in their NDCs. These inclusions in national climate plans are good practice. Going forward, they can be improved upon by including gender aspects in workforce development and identifying how needs can be addressed through policy interventions.

**Anchoring workforce development in NDCs and national policies is an effective way of preparing concrete actions on gender equality.** This is relevant with regard to workforce development for green and blue economies, especially in sectors where women play critical roles in greening sectors (such as agriculture, livestock management, energy, forestry, and water management). Cambodia's NDC, for instance, includes gender as a criterion for prioritizing climate actions.<sup>80</sup> Vanuatu's NDC emphasizes women as change agents in climate-relevant sectors; the NDC of the Federated States of Micronesia highlights a gender-responsive approach to sectoral development in agriculture and energy. Nepal's NDC recognizes gender as a cross-cutting theme for mitigation and adaptation activities. These inclusions in NDCs can be made more explicit by developing gender-specific outcomes, such as sectoral performance

**Box 3: Anticipating skills gaps and needs in NDCs and NAPs**

NDCs are key national policy instruments aimed at driving the transition and operationalizing the SDGs. According to UNESCO, all countries that have ratified the Paris Agreement refer to skills gaps in their NDCs, but progress on integrating skills development into NDCs and National Adaptation Plans (NAPs) remains limited. Only a few countries detail the specific technical and vocational skills development required for addressing climate change and the protection of natural resources.. Some of them have made early progress:

**Cambodia:** Cambodia's NDC notes that it is vital to develop training and awareness materials that consider gender-based needs and priorities to ensure that women and girls benefit equally from climate actions. Training of trainers and "women champions" initiatives are being rolled out and scaled up where possible. Most NDC priority actions set targets for women's participation that range from 15 to 70%. The NDC includes gender-responsive approaches that facilitate women's participation in specific climate measures, and provides indicators to measure the change.

**Viet Nam:** The country's *National Action Plan to Respond to Climate Change* focuses on increasing awareness and climate change adaptation actions, measures to reduce greenhouse gas emissions, and research and planning programmes that help create a low carbon economy. Viet Nam's Technical and Vocational Education and Training (TVET) system is an important pillar for developing a competent workforce. It aims to develop training competencies in resource and energy efficiency as well as cleaner production processes and technologies. The country's national climate action plan highlights the need to strengthen cooperation on transboundary water issues in the Greater Mekong subregion.

**Sri Lanka:** The Climate Change Secretariat, the Agriculture Faculties of Universities and the Ministry of Education are conducting training programmes for public servants, civil society organizations and private sector employees on climate change adaptation. The initiative focuses on strengthening knowledge on climate change through formal education and in the media. Separately, the country's TVET system provides climate-relevant training in health, agriculture, infrastructure and industry.

**The Philippines:** The Philippines coordinates informal and policy development for green skills through the "Green Jobs Act of 2016", a major piece of legislation designed to create and sustain jobs in the green economy. The Philippines' *National Green Jobs Human Resource Development Plan* has developed a roadmap for skills, decent work, and the just transition. The Technical Education and Skills Development Authority devises and implements regulations for skills training, and registers programmes and qualification assessments and certifications. Moreover, the Philippines' NDC Gender Action Plan highlights the importance of gender responsive NDC policies and measures for Filipino women, men, and LGBT+ people.

**Fiji:** The country's *National Climate Change Policy* (NCCP) aims to increase awareness and understanding of climate change-related issues in Fiji and integrates climate

change into schools' curricula, tertiary courses, and non-formal education and training programmes. Under the NCCP, Fiji plans to review and update vocational education courses to ensure the inclusion of local, accurate and current climate change information. It also encourages student research on climate change under the guidance of the Curriculum Development Unit.

Sources: ESCAP (2024). Social Protection and Climate Change in Asia and the Pacific.

UNDP (2023). What Does Gender Equality Have to Do with Climate Change? Blog Post, 28 February 2023. Available at: <https://climatepromise.undp.org/news-and-stories/what-does-gender-equality-have-do-climate-change>

UNESCO and UNEVOC (2021). Skills Development and Climate Change Action Plans Enhancing TVET's Contribution, UNESCO: Bonn, Germany.

UNCC (n.d.). NCD Registry. Available at: <https://unfccc.int/NDCREG>

indicators.<sup>81</sup> Most NDC priority actions include targets for women's participation.<sup>82</sup> However, while at least 37 of the 49 countries in the region consider gender aspects in their NDCs, countries often lack action plans.<sup>83</sup>

**Countries in the region are carrying out workforce and skills assessments for the green and blue transition.** These assessments highlight the workforce and skills requirements to meet net zero and sustainability targets. Identifying these gaps is a first step in developing appropriate responses. Box 4 outlines the results of workforce assessments in Australia and Indonesia. The Australian assessment highlights sectoral and provincial skills gaps and outlines strategies and actions for tackling these issues. For instance, it proposes getting under-represented groups, including women and First Nations people, into the clean energy workforce. In Indonesia, the Government plans a just energy transition that considers steps to mitigate the impact of job losses. Its green jobs and just transition policy readiness assessment of the energy sector looks at policies as well as workforce projections. Similar workforce and skills assessments will be needed to guide workforce planning in countries across the region.<sup>84</sup>

**Anticipating workforce changes and skills development needs is critical for a just transition.** Mapping skill sets that remain relevant beyond the shift from brown to green jobs helps to prepare impacted workers in carbon-intensive sectors. Managing the transition can include helping workers to find new jobs in emerging industries,

supporting investments in gender-responsive skills in sectors with high growth potential, as well as supporting general skills uplift amid the megatrends of sustainability and digitalization.<sup>85</sup> Box 5 highlights the multi-level policy frameworks and support that are required for a just transition. ADB has established a Just Transition Support Platform and developed approaches helping workers adapt as part of its Energy Transition Mechanism (ETM). The ETM buys out and plans for the closure of coal power plants ahead of their expected lifetime. The timing of the process is key because it allows for retraining and alternative livelihoods to be developed for workers and local communities.

**There are important gender dimensions to workforce changes in carbon- and natural resource-intensive jobs.** The shift from carbon-intensive to greener sectors impacts men and women differently. Men hold most formal jobs in carbon- and material-intensive sectors, while women are overrepresented in formal and informal service sector jobs. An assessment in Türkiye found widespread employment gains in the transition to a green economy but showed that these gains are not gender balanced. More specifically, the assessment found that in the transition, more jobs are created for men who are in formal employment and medium-skilled, notably in manufacturing, due to the structure of the labour market.<sup>86</sup>

**The support available to workers for accessing skills and green jobs varies considerably.** In many countries of the region, formal employment, which is dominated by men,

## **Box 4: National workforce assessments for workforce and skills needs for a net-zero economy**

### **Australia's clean energy study**

The Australian clean energy study examines the transformation of the workforce needed to achieve net zero. It provides an Australian-first model of the clean energy workforce, and an analysis of the current workforce and growth required to meet net zero objectives. Overall, the study found:

- A shortfall of Vocational Education and Training (VET) qualified workers, especially among electricians and other trades.
- Emerging skills gaps as well as opportunities for growth in regions where new clean energy industries will emerge.
- Opportunities for reform of the tertiary skills, training and qualifications system to ensure training can keep pace with rapidly changing technologies and emerging occupations, implementing innovative solutions to on-the-job skilling and other types of industry-led training.
- Solutions to reduce barriers and challenges that women, indigenous people and migrants face in participating in the energy sector and related skills development.



### **Green jobs and just transition policy readiness assessment in the energy sector in Indonesia**

The assessment focuses on the likely job and skills changes resulting from the energy transition and examines the readiness of Indonesia's policies at the local and national level to respond to the expected changes. It underscores that while Indonesia has robust strategies for reducing emissions that are integrated into national development policy, sectoral policies, including labour market policies, need to be better developed and aligned with national targets. Regarding skills development for the transition, the assessment found that emerging and partial initiatives have been implemented, especially in TVET, but comprehensive planning and policies for skills development to support green jobs and energy transition are lacking. The assessment provides recommendations such as support for enterprises, social protection and active labour market policies (ALMPs), and green skills development. Indonesia has legislated mechanisms for social dialogue for solving social problems, but they only cover issues directly related to employment and not broader issues that affect the world of work, such as negotiating a just transition. Social dialogue partners will require support to ensure that these processes also cover the energy transition.

Sources: Australian Government and Jobs and Skills Australia (2023). The Clean Energy Generation. ILO (2023). Green Jobs and Just Transition Policy Readiness Assessment in the Energy Sector in Indonesia.

## Box 5: Multi-level policy support for a just transition

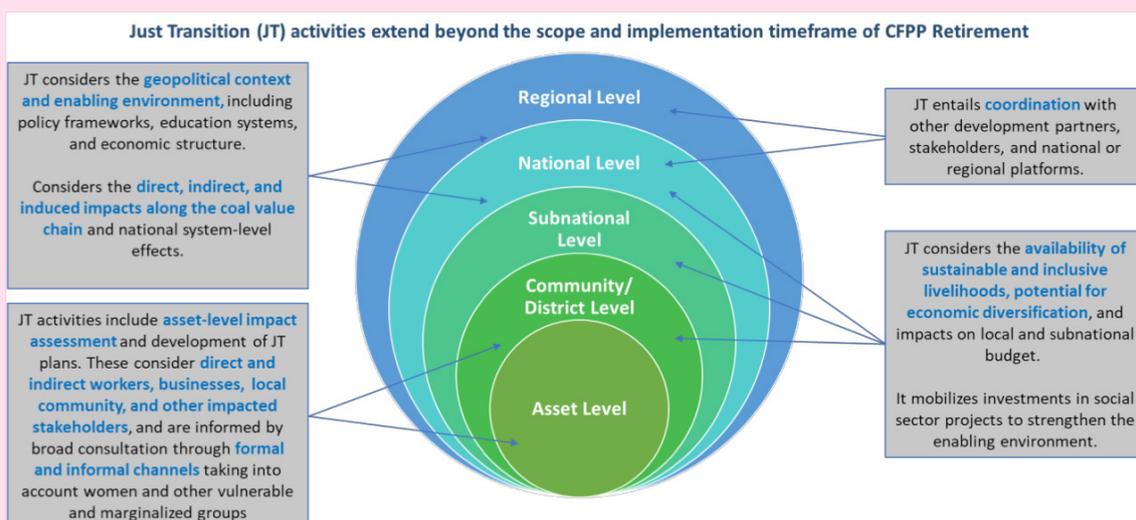
### ADB's Just Transition Support Platform

The Just Transition Support Platform was launched in 2022 to provide a source of technical assistance to build and share knowledge among countries; strategically plan, implement, and finance a just transition; manage negative impacts; and unlock benefits from the transition to net zero. The platform follows the just transition principles which outline how global multilateral development banks intend to support the transition. The principles include:

- Ensuring delivery of climate and socio-economic development through the Paris Agreement and the SDGs.
- Ensuring investment moves away from carbon-intensive activities with sufficient investment to enable a transition to green economic activities.
- Making investments that mitigate negative socio-economic impacts and increase opportunities associated with the transition to a net zero economy.
- Including all relevant stakeholders and impacted groups in transition processes and making responses inclusive.

### The Energy Transition Mechanism (ETM)

The ETM, a financing mechanism launched in 2021, uses concessional and commercial capital to accelerate the retirement or repurposing of fossil fuel power plants with the aim of replacing them with clean energy alternatives. The ETM is currently being piloted in Indonesia, Kazakhstan, Pakistan, the Philippines and Viet Nam. Indonesia is the most advanced pilot country with a Memorandum of Understanding (MoU) signed in 2022 for the first coal-fired power plant, Cirebon 1 in Java, to be closed nine years earlier than originally scheduled.



This diagram represents ADB's overall approach to just transition for ETM. The implementation of this approach tailored to the specific circumstances of the transaction including which just transition elements are applicable  
Source: Asian Development Bank.

As part of the work for the Cirebon transition, a preliminary Just Transition Assessment was published in February 2024. The high-level assessment identifies prospective job losses but also details expected training and entrepreneurship opportunities and benefits from economic diversification at the community level. Projected gender impacts include job losses as well as increased opportunities for women competing for available jobs, access to new jobs and training opportunities for women, and increased risks of domestic violence and gender-based violence. The assessment identifies direct and potential impacts. The diagram shows how transition impacts need to be considered and responded to within the ETM.

Sources: ADB (2024). Preliminary Just Transition Assessment – Indonesia: Cirebon Energy Transition Mechanism Pilot Project.  
ADB (2022). ADB Launches Just Transition Support Platform. Available at: <https://www.adb.org/news/adb-launches-just-transition-support-platform>

entitles workers to redundancy packages and income and training support. For informal workers, including many women working in carbon-intensive service sector jobs, such support is lacking, even though they are especially vulnerable to the impacts of the transition. World Bank research shows that women respond differently to men to job loss and redeployment. They tend to be more comfortable with a wider range of job options, respond to a wider range of active labour market programmes and are a lower credit risk than men when starting their own small businesses.<sup>87</sup> These findings highlight the importance of breaking down gender barriers to participation in training, gender-responsive active labour market programmes, and inclusive finance as part of just transition processes.

**Calls are growing for just transition processes to be integrated into food systems, which are at the nexus of poverty, climate and food security.** As employment is expected to shift out of agriculture across the region, and against the background of the challenge of shifting to more sustainable forms of agriculture, farmers are in urgent need of additional training and support to be able to implement new practices. Combining this assistance with other activities and financial support that helps farmers diversify their operations and products, gives them the confidence and resources to invest their time, effort and money into new practices.<sup>88</sup> Across the region, programmes focused on moving agriculture towards agroecology are increasing in popularity, including in Cambodia

and India. They are successful because they focus on the wide participation of men and women farmers and farm workers, access to finance, and the provision of training and technology for building livelihood opportunities along the food processing value chain.

### **2.1.2 New stakeholder models for skills anticipation and implementation**

**Anticipating emerging skills and carrying out workforce planning requires collaboration between the public and the private sector.** To identify and address workforce and skills needs, it is essential to establish coordination mechanisms that bring together all relevant stakeholders. These typically include representatives from the private sector, education providers, workers' representatives and policymakers in the sectors of energy, environment, industry and education. In some countries, collaboration on skills and workforce anticipation is conducted through skills councils.<sup>89</sup> Another example is the Asia Pacific Youth Development Forum. The forum, held for the first time in 2024, brought together over 220 youth representatives from governments, civil society, the private sector, and other partners from 23 countries.<sup>90</sup> The discussions focused on how to create green jobs in food supply chains, sustainable investment, and innovation and entrepreneurship in agriculture.

Box 6 highlights skills councils in the region with a focus on the green and blue transition.

## Box 6: Tracking changing skills needs through skills councils

Skills councils can offer an efficient and affordable way of gathering labour market intelligence while engaging businesses, especially the informal sector, in TVET policies and programmes. Some examples of such councils in the Asia-Pacific region are:

**India's Skill Council for Green Jobs (SCGJ)** was launched by the Ministry of New and Renewable Energy and Confederation of Indian Industry in 2015. As an autonomous, industry-led organization, SCGJ aims to identify and develop skills needed in India's green business sector, focusing on service users and providers. The council's mission is to develop nationwide skills training and entrepreneurship programmes that meet the country's growing needs in the green business sector. At present, gender-related issues are not well-integrated into the council's work, and their inclusion is an opportunity for future direction.

**Singapore's Green Skills Committee** was established by the Ministry of Trade and Industry. It brings together more than twenty representatives from government, industry, trade and employers' associations, unions, institutes of higher learning and professional bodies to guide strategies for green skills development in the Singaporean workforce. The committee is working to ensure that training keeps pace with the growing demand for green skills. Its activities include mapping skills needs and identifying pathways to meet skills development. The committee's energy sub-group focuses on skills development for solar, energy storage and smart grids and sustainability reporting, while the assurance sub-group attends to developing skills and training for climate and sustainability reporting to international standards.

**Indonesia's Maritime Sectoral Skills Committees**, implemented by the Ministry for Maritime Affairs and Investment with support from ILO, comprise three maritime sub-sector skills bodies in shipbuilding, international logistics and seafaring. The initiative is part of efforts to build productive and competitive human capital in Indonesia's ocean-based economy. The programme supported several institutions in developing Industry Advisory Boards to support curriculum development, industrial attachments for teachers and student internships. The institutions are Batam State Polytechnic (Polibatam) in Riau Islands, State Maritime Polytechnic Indonesia (Polimarin) in Central Java, Surabaya State Shipbuilding Polytechnic (PPNS) in East Java and Manado State Polytechnic (Polimano) in North Sulawesi.

Sources: ILO (2023). ILO Supports Industry-Led Skills Development for Indonesia's Maritime Economy through the Pilot Development of Sectoral Skills Committees. Available at: <https://www.ilo.org/resource/news/ilo-supports-industry-led-skills-development-indonesias-maritime-economy>

Ministry of Trade and Industry Singapore (2023). New Green Skills Committee to support Skills Development for Green Jobs, 15 November 2023. Available at: <https://www.mti.gov.sg/Newsroom/Press-Releases/2023/11/New-Green-Skills-Committee-to-support-Skills-Development-for-Green-Jobs>

SCGJ (2020). About SCGJ. Available at: <https://sscj.in/>

**The private sector plays a key role in anticipating and planning workforce demands.** Businesses are at the forefront of technological change and, as the largest employers, they are the first to face the impacts of changing skills requirements. They are, however, slow in anticipating skills needs.<sup>91</sup> Individual businesses may find it

hard to anticipate evolving labour and skills demands emerging from the transition to green and blue economies. There tends to be greater awareness at the sectoral level and in areas where there are clear technological and market imperatives for reskilling, such as in renewable energy deployment or the electrification of transport. Box 7 highlights

how green skills needs are being anticipated and addressed in Thailand. Skills development can go hand in hand with increasing industry commitments to environmental and labour standards through supply chain level due diligence activities. Training activities can support new practices that increase productivity and social and environmental standards throughout global supply chains, including smaller links in the supply chain such as lower tier suppliers and SMEs.

The private sector can also be a direct provider of skills development for workers in informal employment. To illustrate, Unilever, a consumer-goods conglomerate, in collaboration with UNDP India, has launched a circular economy for plastics programme. The initiative collects and recycles plastics. For this, it employs informal waste pickers, so-called *Safai Saathis* (“invisible environmentalists”). A pilot of the programme recovered and recycled more than 8,000 metric tonnes of plastic waste from landfills,

## **Box 7: Partnerships for green skills anticipation and development**

### **Green skills in the Thai automotive industry**

The Thai automotive industry is undergoing a major transformation. It is shifting from traditional manufacturing of fossil fuel vehicles to EV production with a focus on electronics, batteries, automation, and Artificial Intelligence (AI) technologies. This shift requires workers to develop new digital and technical skills.

The industry is using innovative training methods, such as augmented and virtual reality for on-the-job learning. Through the Automotive Human Resource Development Institute (AHRDI), a partnership between the Thai and Japanese auto industry has been established. In 2022-23, 1,300 workers were trained in software development and materials science, using a training of trainers model. The industry is also aiming to be more inclusive, particularly of its sizable migrant workforce, which makes up 10% of workers, with training programmes covering responsible business practices and skills development opportunities for all employees.

### **Skills development to support renewable energy infrastructure in India**

The Government of India has pledged to cut emissions to net zero by 2070. As part of climate transition plans, the state governments of Jharkhand and Odisha, the National Skills Council for Green Jobs and UNDP are developing nationally accredited solar certification training programmes, providing trainings for youth and vulnerable groups in solar certification programmes, and supporting decarbonization efforts of micro, small and medium-sized enterprises (MSMEs). A major thrust of these initiatives is to identify skills gaps in relation to the deployment, operation, and maintenance of renewable energy infrastructure and tackle emerging skills needs through the development of certified qualification training programmes in solar-powered cold storage and EV charging infrastructure. Separately, the same state governments are targeting unskilled coal workers and vulnerable groups living near abandoned mines for green skills development. Around 2,000 people, with a focus on poor and women-headed households and socially marginalized groups, will be trained or re-skilled. To scale up skills development programmes in the districts, the Government is seeking to partner with the private sector.

Sources: ILO (2024). Navigating Transformational Changes and Transitions: The Skills Development and Employment Landscape in Thailand's Automotive Sector, Bangkok, Thailand: ILO.

UNDP (2022). How Just Transition Can Help Deliver the Paris Agreement.

established three recycling facilities in Mumbai, and linked 3,300 Safai Saathis (75% of them women) and their families to welfare schemes.<sup>92</sup>

### 2.1.3 Integrated policy focus for evolving training curricula

**University, technical and vocational education play a key role in developing new skills for green and blue economies.** As Chapter 1 sets out, these new skills include technical and soft skills such as collaboration and negotiation as well as a general uplift in environmental and climate change-related knowledge and awareness. At COP29 in Baku, Azerbaijan, in 2024, UNESCO released two new global standards for greening schools and curricula, along with guidance on teacher training and community involvement with the Greening Education Partnership.<sup>93</sup> The standards provide guidance on how to update educational systems with green concepts. Other examples in the region of integrating environmental and climate learning outcomes into national education programmes include:

- The Kyrgyz Republic launched its National Climate Change Learning Strategy in 2021. The strategy includes trainings of civil servants on climate-related issues, the integration of climate change into all forms of education, and up-to-date publicly accessible information to foster public knowledge of climate issues.<sup>94</sup>
- In Indonesia, in 2019 the Ministry of Environment and Forestry, in collaboration with the Local Education Office, launched an initiative to enhance climate change-related knowledge of schoolteachers. The covered topics include the causes and impacts of climate change, mitigation and adaptation measures, as well as how to best teach these concepts in the classroom.<sup>95</sup>

Box 8 outlines how skills are being integrated into TVET to support greening hospitality and tourism sectors.

**The rising demand for green skills calls for new training infrastructure and more competent trainers.** For example, upskilling in green construction requires new knowledge on

sustainable materials and building practices, as well as energy equipment, modelling, and analysis. New teaching equipment and materials are needed together with updated training for teachers in these new materials and methods. Countries across the region are taking the opportunity to upgrade curricula, equipment and teachers. A recent project in Papua New Guinea, is aligning investments in greening in TVET, upgrading educational infrastructure and raising women's participation in training in green sectors.<sup>96</sup>

### 2.1.4 New technologies offer better ways of accessing and delivering training

**New technology and digitalization make it easier to deliver training to more people in new ways.** The surge in the use of digital technologies, especially after the COVID-19 pandemic, has opened up opportunities for delivering more learner-centred trainings by means of short-term courses, micro-credentials and other options for reskilling, upskilling and lifelong learning.<sup>97</sup> Massive Open Online Courses (MOOC) are available on various topics pertinent to the transition, including sustainable food systems,<sup>98</sup> nature-based solutions,<sup>99</sup> and coastal marine management. Such courses help improve access to digital skills for all, integrate gender equality objectives into skills development and apply a gender lens to training programmes.

**Green skills training along with digital inclusion strategies can bridge the digital and green skills divide.** The Alliance for Affordable Internet (A4AI), which aims to reduce the cost of broadband internet, seeks to make affordable digital infrastructure available to all. On the corporate side, Starlink, SpaceX's satellite internet service, is one key provider of increasingly affordable high-speed internet across the world. Digital access can be broadened further by providing better access to skilling and training programmes for girls and women, including disabled and illiterate women. An example of this approach is the Huawei Digital Training Bus, which was designed to benefit rural women and students in Bangladesh and Thailand, providing them with basic digital training and ICT skills.<sup>100</sup>

## **Box 8: Sustainability skills in TVET for the hospitality and tourism sectors**

Coastal tourism is an important part of the Asia-Pacific region's blue economy. The sector provides many job opportunities, particularly for young people with various levels of education and skills. However, the industry is changing rapidly. First, the industry is shifting toward greater environmental sustainability, including better energy use, waste management, and conservation practices. Second, digital technology is transforming how tourism operates, from online booking systems and chatbots to electronic gates at attractions and digital translation services for tour guides. As these changes continue, workers at all levels will need new skills to keep up with the transition.

The UNESCO-UNEVOC's Bridging Innovation and Learning in TVET project has been working with TVET institutions in the region to upgrade green skills in the tourism sector. Two examples are:

- **The Temasek Polytechnic in Singapore** has made the new course "Sustainability and Climate Action" mandatory for all graduate students. The course covers environmental issues, socially responsible practices, and climate change responses. Students learn through case studies and develop critical thinking skills about sustainability issues. The course's main goals are to create environmentally conscious global citizens and to equip students with practical green skills.
- **The École d'Hôtellerie et de Tourisme Paul Dubrule in Cambodia** launched its EcoCampus programme in 2021 to address growing sustainability needs in the country's hospitality and tourism sectors. The student-led initiative takes a comprehensive approach, focusing on topics such as biodiversity, global citizenship, resource management, and sustainable supply chains. Through a combination of theoretical learning and practical workplace experience, the EcoCampus programme creates an environment where students, staff, and businesses collaborate to develop and implement sustainable practices in the hospitality sector.

Sources: UNESCO (2023). UNESCO-UNEVOC's Bridging Innovation and Learning in TVET (BILT) project – project brief. Available at: [https://unevoc.unesco.org/pub/ecocampus\\_bilt\\_ilp.pdf](https://unevoc.unesco.org/pub/ecocampus_bilt_ilp.pdf)

### **2.1.5 Ensuring inclusive access to skills development**

**On the job training provides opportunities for skills upgrading and foundational skills development.** Good-quality apprenticeships, internships and volunteering initiatives are key to building foundational skills and facilitating entry into the labour market, especially for first-time jobseekers and young people leaving school or university.<sup>101</sup> Investing in these

training programmes, along with infrastructure investments for the green and blue economy, is critical for the transition to succeed. Renewable energy infrastructure investments are increasingly being matched with local training programmes. Two examples from the region are:

- The Funafuti Solar Farm in Tuvalu runs training programmes to equip local people with the skills needed to maintain and operate the solar systems.<sup>102</sup>

- The Renewable Energy Generation and Access Increase (REGAIN) project in the Marshall Islands expands solar PV and grid infrastructure on targeted islands. The project also has a gender-sensitive apprenticeship programme and provides retention policies.<sup>103</sup>

**Forward-looking policies that create an enabling environment for businesses to transition are key to driving the demand for new green skills.** Practically, this means raising environmental standards and improving regulations, support and subsidies for more sustainable products and services through increased sustainable public procurement, and financial incentives for new green and blue businesses. Encouraging the private sector to regularly identify the need for public support to upskill staff in new green skills is one of the most effective interventions the state can undertake to connect talent to jobs in green

and blue economies.<sup>104</sup> These interventions can also be aligned with other goals such as increasing the share of women-led businesses receiving public contracts.

**Micro, small and medium-sized enterprises (MSMEs) are critical to the transition and require targeted support.** Most businesses in the region are MSMEs, including those in the green and blue economy, and in most countries in the region they are also the biggest employer. According to the ILO, the informal economy comprises more than half of the global labour force and more than 90% of Micro and Small Enterprises (MSEs) worldwide.<sup>105</sup> Yet, typically these businesses have too few resources to anticipate and impart green skills to their staff and thus are unable to cope with the demands of the transition. Box 9 illustrates how on-the-job training can provide new skills and help SMEs capitalize on green business opportunities in agriculture.

### Box 9: Hands-on skills development for rural communities in Fiji

In the province of Tailevu, a training programme implemented by the Fijian Ministry of Agriculture, in collaboration with the UN-led Markets for Change (M4C) initiative, is providing training for market vendors. Participants learn how to develop new products from their existing agricultural produce or add value to it. They are also taught how to capture local and export market opportunities by helping them to create high-quality products that attract better prices and new customers.

Furthermore, in order to increase the value of their produce, participants learn about value chains and processing, packaging, and marketing. Participants gain hands-on experience in using techniques and technologies to improve their products' shelf life and appeal. Women market vendors share their learnings on the practical skills in processing breadfruit, plantain, and root crops into alternative wheat flour. They also learn about the importance of food product processing steps and compliance requirements and cooperative models for value-added processing.



Sources: UNDP (2024). Hands - On Skill Development for Rural Communities in Tailevu, Fiji, 5 December 2024. Available at: <https://www.undp.org/pacific/press-releases/hands-skill-development-rural-communities-tailevu-fiji>

## **2.2 Transition-ready social protection for workforce health and wellbeing**

Better work quality and social protection will enable faster and fairer transitions. Asia and the Pacific faces a critical social protection challenge. The region is home to 1.3 billion informal workers, which make up two-thirds of all workers.<sup>106</sup> They are concentrated in key transition sectors—agriculture, construction, and tourism—but lack basic protections.<sup>107</sup> As a result, workers are at a heightened risk of vulnerability. The main challenges they face include limited access to healthcare and training opportunities and occupational safety protections. Women and migrants, who often work in high-risk industries with minimal legal protections, are at increased risk. The transition to green and blue economies will add to occupational risks unless social protection systems are expanded.

Making the workforce transition-ready requires focus on creating formal and decent work and increasing social protection coverage for informal work. A comprehensive approach to social protection integrates universal basic protection with transition-specific support. This includes basic income guarantees, healthcare access, skills development, and occupational health and safety measures.

### **2.2.1 Focus on increasing the quality of green jobs supporting informal workers**

**Meaningful policy responses to major economic changes in Asia and the Pacific must focus attention on improving the quality of work for informal workers.** As chapter 1 highlights, the sectors that matter the most for the green and blue transition are marked by high levels of informality. Policies supporting the shift from informal to formal employment, alongside the green and blue transitions, would help reduce workers' vulnerabilities.

**A whole-of-government approach is needed to raise the quality of work in the region.** This means integrating labour, tax and social security policies, and making full use of tools that promote decent work.<sup>108</sup> Usually, these

areas of public policy are separate. With an integrated approach and agreed shared objectives, policies can be more effective in enabling decent work, expanding social protection and empowering informal workers' organizations.

**Governments can help build awareness and knowledge of workers' rights and workplace entitlements.** This can be achieved through media campaigns, among other measures. In Viet Nam, for instance, the Government has disseminated videos on the social security benefits that are available to informal workers. The videos target employers and highlight the benefits of social protection for businesses.<sup>109</sup> In Cambodia and Nepal, the national social security funds surveyed members about their knowledge of entitlements and enterprise obligations to inform media campaigns and outreach activities.<sup>110</sup>

**Public recognition and support for workers' organizations is key to ensure better quality work.** Cooperatives, associations and unions can help informal workers to negotiate collectively for better working conditions and benefits. Governments must recognize and collaborate with these organizations when developing green and blue transition policies. Increased involvement of social partners can help improve work quality in both formal and informal employment and establish what support is needed and what the government can provide. The case of the island of Samoa is a useful example. In Samoa, waste recycling is managed by two civil society organizations (CSOs): the Samoa Recycling and Waste Management Association (SRWMA) and the Samoa and Tokelau Association of Recyclers (S.T.A.R.). Their participation was instrumental in the creation in 2024 of the Women of Waste (WoW) taskforce, which gives a voice to women in the waste sector.<sup>111</sup>

### **2.2.2 Expanding transition-ready social protection**

**Social protection is critical for managing climate change impacts on workers.** In the context of the just transition, social protection can address the distributive impacts of climate mitigation and action.<sup>112</sup> It is a means to

### Box 10: Social protection for impacts of the green and blue transition

Several countries in the region provide social protection with the specific aim of cushioning the impacts of the green and blue transition. For example, China's logging bans and forestry conservation efforts, aimed at addressing climate and biodiversity impacts, have affected nearly one million workers. To lessen the impacts on the workforce, the government offered job training and placement services for the workers who lost their jobs in state-owned forest enterprises and provided rice subsidies and cash transfers for affected informal workers.

In the Philippines, the Government provided compensation to crew members of commercial fishing vessels who lost income during a fishing ban that sought to revive declining fish stocks. Under the Barangay (Village) Bay Environmental Cash-for-Work programme, eligible fishers received 75% of the regional minimum wage in exchange for performing work such as waste sorting, or cleaning up beaches, coastal areas, and canals.

In Indonesia, as part of public efforts to tackle deforestation, the Government provided cash transfers to poor households to reduce their need for forest harvesting. The cash transfers, delivered through the national anti-poverty programme, disincentivize the consumption of forest-sourced goods that speed up deforestation and encourage purchases of goods in the market.

Sources: ILO (2022). *Social Protection in Action: Building Social Protection Floors for All*.

Costella et al. (2024). *Social Protection and Jobs for Climate Change Challenges: Current Practice and Future Opportunities*, World Bank.

respond to shocks and climate extremes and mitigate the impacts of climate change on food production, migration and prosperity.<sup>113</sup> Some countries in the region, including China and the Philippines, have been recently moving towards adaptive and shock-responsive social protection (ASRSP) in order to build resilience to natural shocks.<sup>114, 115</sup> On the other hand, social protection can also play a critical role in addressing risks and impacts emerging from the green and blue transition. Currently, these facets of social protection are underdeveloped.<sup>116</sup> Box 10 highlights some examples of social protection programmes that have helped mitigate impacts of the green and blue transition on people and communities affected by these changes.

**Workers in informal jobs often lack social protection, creating a vicious cycle whereby a lack of protection and informal work reinforce each other.** While governments have tried

to solve this problem by offering voluntary membership for contributory social protection programmes to informal workers, these efforts have largely been unsuccessful, with very few informal workers joining.<sup>117</sup> Unpacking the direct, indirect and induced effects of labour market changes for local economies, and understanding their implications for social protection, presents a challenge. This is the case in several sectors relevant for the green and blue transition, in particular agriculture, fisheries, forestry, construction and transportation. A more comprehensive response is needed to improve protections by providing universal basic income support for all low-income workers regardless of their work status and expanding contribution-based programmes to informal workers who can afford to participate. However, this would require a tailored approach that considers the needs of informal workers and opportunities for workers to transition from the informal and

### **Box 11: Collective bargaining, social dialogue and legal recognition of informal workers**

**Cambodia:** The *Independent Democracy of Informal Economy Association* represents thousands of informal workers, including street vendors, taxi drivers and tuk-tuk drivers. The union advocates for workers' rights to social protection benefits and assists workers in accessing the National Social Security Fund's ID card for free health care.

**India:** The *Rajasthan Platform-Based Gig Workers (Registration and Welfare) Act, 2023* is a first-of-its kind social security law that targets fast-growing gig work in the Indian state of Rajasthan. The act calls for the establishment of a welfare board and a dedicated social security fund for platform-based gig workers. The actions under the act are financed by a levy of between one and two per cent on each platform-based transaction.

**Indonesia:** Live-in domestic workers in Indonesia are considered members of the household for which they work and are protected by law against physical, psychological, sexual and economic violence. Recent legislation expands the definition of domestic violence beyond traditionally understood family relationships to include domestic workers.

**Indonesia, Pakistan, Philippines and Viet Nam:** These countries have introduced social security laws to protect migrant domestic workers by extending social security coverage to them.

Sources: UNDP (2024). Regional Human Development Report for Asia and the Pacific: Making Our Future: New Directions for Human Development in Asia and the Pacific.

formal economy.<sup>118</sup> Box 11 provides examples of initiatives in the region that extend legal recognition and coverage to informal workers.

#### **2.2.3 Increasing basic social protection coverage to vulnerable migrant workers**

**Migrants are a sizable group of workers contributing to the green and blue transition, but they face difficulties in accessing social protection.** With an estimated 67 million international migrants, or nearly a quarter of the global tally, Asia and the Pacific is home to the world's second-largest migrant population. Most of them are concentrated in North and Central Asia (19.9 million) and South and South-West Asia (17 million).<sup>119</sup> Many migrants work in sectors of significant importance for green and blue economies (such as agriculture, fishing, construction and other service sectors).<sup>120</sup>

**Countries are increasingly considering labour migration as a means to address labour and skills gaps.** It is also a way in which governments can plug gaps in green labour and skills. Skilled migration, while currently limited in the region, holds the potential of providing stable incomes for migrants while also contributing to increased climate resilience of origin communities. Migration, when voluntary and supported by labour rights and protections, can be a climate adaptation response for migrant workers and their families facing climate-related displacement or transition-related job losses in their countries of origin. However, limited access to social protection and decent work opportunities, among other challenges, undermine this mechanism of adaptation. The barriers that prevent migrants from accessing social protection include national laws that exclude foreigners or temporary workers, legal

limits on making social security contributions, and onerous bureaucratic processes.

Many countries in Asia and the Pacific lack agreements for social protection rights for workers in destination countries. There are only a few bilateral social security agreements that provide social protection coverage for migrants. In South and South-West Asia, only 27 such agreements exist, with India accounting for 18 of them. Less than 1% of migrants in South, South-West, and Southeast Asia have social security protection through international agreements.<sup>121</sup> The current state of affairs not only leaves migrant workers vulnerable, it severely constrains the prospects of labour migration for alleviating skills and labour shortages in green and blue sectors.

In the ASEAN region an agreement is being implemented to allow the portability of social protection across the region.<sup>122</sup> This would allow migrant workers to take protections from their home countries with them when they cross borders for work. This portability is vital for migrant workers, both in the green and blue economy and other sectors that lack such social protections.

#### **2.2.4 Active labour market programmes to advance decent work and green skills development**

**Active labour market programmes (ALMPs) are a critical tool to promote decent work and skills development.** They cover a wide range of activities from skills training and public works programmes to wage subsidies and job assistance services. These programmes are closely linked with social protection systems. For example, unemployment benefits provide minimum income payments to unemployed workers, with ALMPs providing recipients with opportunities for new skills development and work experience. ALMPs can be designed to meet the specific needs of different population groups: programmes can be tailored for young workers,<sup>123</sup> or workers that are new to a sector or an occupation due to shifting out of carbon-intensive work, for example.<sup>124</sup> Two examples from the region highlight the skills development

benefits of these programmes. In Nepal, a vocational training programme boosted non-agricultural employment by 10%, with women seeing the greatest gains.<sup>125</sup> The programme combined accredited technical training with a six-month paid internship and job placement assistance.<sup>126</sup> Many women participants in the programme used their new skills to start their own businesses, helping them overcome traditional social barriers to employment.<sup>127</sup> Similarly, when Afghan refugees in Pakistan received vocational training, they were more likely to find jobs, earn higher wages, and launch their own businesses. In both cases, gaining new skills gave people more economic independence and better work opportunities.<sup>128</sup>

**Expanding access and availability of ALMPs requires additional investments in skills development and green jobs.** ALMPs have been used to provide income support and reskilling, but their use is not common in the context of the green and blue transition. Policies that expand access to quality ALMPs can speed up the transition by endowing workers with new green and digital skills. Linking workforce and skills anticipation activities and assessment tools can ensure ALMPs fit the needs of local communities. This can be achieved by assessing the demand for skills, profiling workers, and mapping workers' preferences.

**ALMPs can assist with skills development, job matching and help workers move into green jobs.** Skills training and alternative livelihood support have the potential to reduce pressure on natural resources, notably by providing alternative income streams for communities dependent on natural resources. The phase out of coal is one of many disruptions in the labour market. The agricultural, forestry and fishery sectors are also strongly affected by the transition and workers in these sectors will require support. Economic and livelihood diversification will become even more critical in this context. Aligning support and diversification calls for effective coordination between economic actors, and cross-fertilization of ideas and learning are key to advance this work.<sup>129</sup> Box 12 provides some examples from the region.

## Box 12: ALMPs providing transition support in specific sectors

There are a few examples from the region of ALMPs pertaining to the green and blue transition. In Fiji, the Jobs for Nature 2.0 programme supports environmental and ecological projects. Its focus is on wetlands protection (through activities such as mangrove and seagrass planting), riverbank rehabilitation, biodiversity improvement (such as forest restoration and coral reef protection), and waste and wastewater management. The programme, which is an example of a nature-based solution, targets underemployed persons, women, and youth, creating jobs for Fijians in rural areas while delivering environmental benefits to the island community.

The Cambodia Sustainable Landscape and Ecotourism Project aims to improve the management of protected areas while promoting jobs in ecotourism and improving the value chains of non-timber forest products in the Cardamom Mountains and Tonle Sap ecosystem. The programme, supported by the World Bank Multi-Donor Trust Fund, has created jobs and unlocked opportunities for higher incomes.

India's Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA), one of the country's long-standing social welfare measures guaranteeing the right to work, highlights how active labour market programmes can play an important role in supporting climate change adaptation and mitigation as well as core social protection objectives such as poverty reduction and job creation.

Sources: Costella et al. (2024). Social Protection and Jobs for Climate Change Challenges: Current Practice and Future Opportunities, World Bank.

### **To harness the potential of social protection in the green and blue transition, it needs to be implemented strategically and adequately financed.**

This will require a significant shift in current thinking. Climate financing provides an opportunity to fund and implement climate change projects and expand them to social protection. However, the mechanisms to do so are underdeveloped.<sup>130</sup> While expanding climate finance to cover broader societal transitions is likely to be needed, it is challenging to substantiate its projected benefits. As such, currently, the cost-effectiveness of climate financing initiatives of this nature remains uncertain. In part, this is due to gaps in the monitoring and verification systems of current government climate finance programmes. Closing these gaps will be important to demonstrate the impact of such financing and help to unlock it.<sup>131</sup>

### **2.2.5 Ensuring access to adequate health and social services**

#### **Institutional mechanisms that ensure access to health services are a critical form of social protection that enable workers and households to adapt during transition.**

Healthy and secure people are better able to navigate changes and seize new opportunities. However, the region has made little progress in rolling out universal health coverage (UHC). Women, remote communities and low-income households in particular face barriers to accessing health services, including financial constraints and long distances between the home and health facilities. This situation must be changed to ensure that all persons, regardless of gender or socio-economic status, have access to affordable, high-quality healthcare. The importance of UHC was clearly

demonstrated during the COVID-19 pandemic: Countries with robust UHC systems were better at managing and overcoming the health and economic impacts of the crisis. Going forward, UHC is likely to become a key catalyst for enabling green and blue transitions.

**Increasing UHC requires better service delivery, funding and governance.** The integration of these areas requires effective coordination of public policies.<sup>132</sup> In terms of service delivery, it is necessary to balance the demands of curative and preventive health, and health services delivered in community health centres and hospitals. Locally delivered services are better at reaching vulnerable people, including informal workers. This requires a more people-focused health system (as opposed to a focus on diseases or institutions) that aims to ensure the highest possible level of health and well-being for all.<sup>133</sup>

**The path to a UHC system is complicated and differs depending on country context, and political, economic and institutional capabilities.** Governments need to strengthen national health systems so that they are better resourced, more efficient and able to respond to the needs of all population groups, especially the most disadvantaged.<sup>134</sup> This requires national planning and finance to reflect the general importance of health, while also making specific provisions that enable the transition and adaptation to climate change. Better access to health care in rural, remote and underserved areas, including urban slums, will be crucial.

**There are successful examples in the region of the transformative potential of inclusive health financing and its role in supporting the green and blue transition.** Sri Lanka's universal health system and Thailand's public healthcare schemes have reduced patients' out-of-pocket payments, enhanced labour productivity and broadened economic participation. Similarly, Indonesia's Jaminan Kesehatan Nasional (JKN), the country's national health insurance programme, and the Philippine Health Insurance Corporation (PhilHealth) have expanded social health insurance and fostered broader workforce inclusion.<sup>135</sup> By drawing on these examples, other countries can learn how to build robust health systems and shape a workforce that is able to support a sustainable economy.

**Strengthening health systems through mandatory, pooled insurance mechanisms can reduce social and economic inequalities.** Government policies that enable a shift from voluntary to mandatory insurance schemes ensure that groups at risk of exclusion, such as women, youth, and rural populations, have access to essential healthcare services.

**Health service delivery requires investments in the workforce, infrastructure, products, and information systems.** The World Health Organization identifies the quality and quantity of the health workforce as a key building block for universal health coverage. Across the region greater efforts are needed to train public health and healthcare professionals to build climate-resilient health systems. In addition, governments

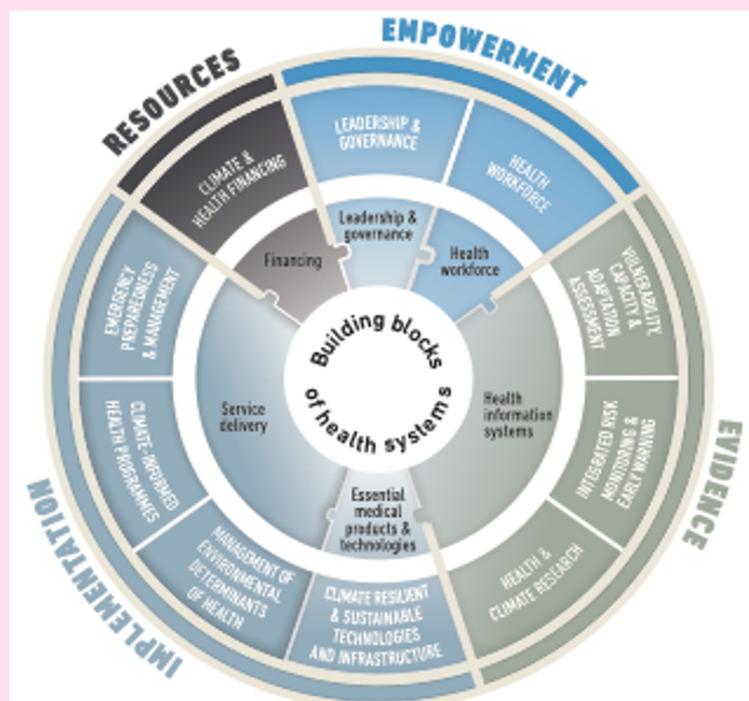
### Box 13: National Action Plans on climate change and health

**Pacific Island Countries** are vulnerable to distinct impacts from climate change and the transition to green and blue economies. Some of these impacts affect the resilience of health systems. The Pacific Island Action Plan on Climate Change and Health aims to:

- Better understand and address the effects of climate change on health, including indirect impacts, such as transition impacts that affect the underlying social determinants of health (such as poverty, unemployment and lack of social protection).

- Improve the climate resilience and environmental sustainability of health services
- Promote the implementation of climate change mitigation actions in the most polluting sectors (such as transport, energy, food and agriculture) that maximize health co-benefits in small island developing States (SIDS) and beyond.

The action plan highlights the integrated nature of impacts, as well as the transformative pay-offs of responses that address issues at the nexus of health and climate mitigation. It has four target areas: empowerment, evidence, implementation and resources (see figure below).



The plan identifies financing as an important pillar of health systems. In the Pacific, a lack of finance has stymied progress on expanding health workforce capacity and training. At COP29, the delegation under the Pacific One Health Program, a collaborative effort to improve the health of people, animals, and the environment in Pacific Island countries, pointed out that adequate and easily accessible finance is needed to make the necessary investments in health systems.

Viet Nam is also highly vulnerable to climate impacts and experiences significant health challenges because of climate-related disasters, including direct and indirect health impacts, ranging from increased susceptibility to infectious diseases to mental health and well-being challenges. Many primary health care facilities have been damaged in recent years due to storms, flooding, landslides and other climate-related disasters. Among the policies to respond to these challenges, the Vietnamese Ministry of Health is implementing a National Action Plan for the Health Sector Response to Climate Change (2019-2030, with a vision to 2050). The action plan focuses on building resilient health care facilities while enhancing epidemic prevention and control measures. It also includes steps to reduce greenhouse gas emissions (global experience shows that on average health sectors account for up to 5% of national GHGs).

Sources: WHO (2018). Action Plan on Climate Change and Health in the Pacific.  
 SPC (2024). COP29: The Pacific Call on the World to Unlock Funding for Health and Wellbeing of Pacific Communities. Available at: <https://www.spc.int/updates/blog/dynamic-story/2024/08/pacific-one-health#:~:text=%E2%80%9CThe%20One%20Health%20approach%20is,which%20is%20under%20Planetary%20Health>.  
 UNDP (2023). Viet Nam's Efforts in Building Climate-Resilient Healthcare, 5 December 2023. Available at: <https://www.undp.org/vietnam/news/vietnams-efforts-building-climate-resilient-healthcare>

must map the risks that climate change presents to people, communities and health facilities, including mental health impacts.<sup>136</sup> Training and awareness raising campaigns are needed for ministries of health and educational institutions at all levels, community groups and for the media. Box 13 highlights two examples of national efforts to strengthen the integration of health, climate policies and disaster risk reduction to better manage health system demands and increase resilience.

### 2.2.6 Integrating Occupational Safety and Health (OSH) for a just transition

**The nature of workplace risks and health will change along with the green and blue transition.** New occupations and tasks in green and blue economies carry new occupational risks. In a rapidly growing green economy, skills gaps could spell trouble, with inexperienced workers performing tasks they have not been trained for, putting their safety and health at heightened risk. Reducing these risks and making workers in green jobs safe requires the updating of OSH standards and regulations and training and skills support.<sup>137</sup>

**The green and blue transition can deliver health benefits through reduced exposure to pollutants and other health co-benefits for people and the planet.** The phase out of fossil fuels has the potential for significant health benefits, including for respiratory health. Greener buildings provide a healthier work environment with access to daylight and natural ventilation, which can improve workers' health and productivity. Other health benefits can be harnessed by prioritizing public transport systems and active transport solutions (walking and cycling contribute to commuters' health). Unlocking the benefits and changing people's behavior requires supportive public policies and infrastructure. For example, improving road safety and cycle infrastructure incentivizes more people to choose active transport options.

**Integrating Occupational Safety and Health into just transition policies is essential for sustainable development.** The transition towards green and blue economies not only

calls for better healthcare but also improved and targeted occupational safety measures. Incorporating OSH into climate change adaptation and new work processes is critical for protecting workers. In practice, this involves conducting specific risk assessments and developing adaptation strategies that address existing and emerging OSH risks.

## 2.3 Gender transformative change in the green and blue transition

**The transition to green and blue economies affects women and men differently because of underlying gender inequalities.** The transition is an opportunity to prioritize the erasure of gender inequalities in the world of work. Long-standing gender inequalities in the areas of recruitment, promotion, pay, access to education and skills development, and job segregation are well documented, alongside other forms of discrimination that impact working conditions and access to social protection. To ensure gender equality for a just transition, gender-transformative change is needed with regard to roles, relationships, and access to resources and assets.

### 2.3.1 Addressing structural barriers to women's participation in skills development and work

**Gender-sensitive constitutional guarantees can help break down barriers for women in work.** Nepal has taken significant steps to advance progress in gender equality in this area. The South Asian country's experience demonstrates the benefits of a whole-of-government approach to gender equality. The country's 2015 constitution guarantees non-discrimination of people based on origin, religion, race, caste, tribe, sex, economic condition, language, region, or ideology. Since its implementation, the Government of Nepal, in partnership with international development organizations, has implemented several policies and programmes in line with these constitutional provisions and the country's national and international commitments. A recent review of these reforms shows progress on gender equality measures and on major parameters for reducing inequalities.<sup>138</sup>

**Addressing gender barriers related to unequal access to resources, including access to and ownership of land, is critical to ensuring women's full and equal participation in green and blue economies.** A lack of access to resources continues to be a major constraint on women farmers and their ability to adapt and invest in climate-smart agriculture as part of the green and blue transition.<sup>139</sup> FAO is supporting communities in Asia and the Pacific by providing guidance to agricultural and fishing communities on how to protect and uphold rights. To this effect, it has published guidelines for responsible practices for the use and control of land, fisheries, and forests.<sup>140</sup> The guidelines emphasize the importance of access for all people, and underscore women and girls' equal rights to land tenure. In the region, the guidelines have been used by the Indonesian Traditional Fisherfolk Union, People Centered Conservation Mongolia, Food-first Information and Action Network (FIAN) Nepal, and the Asian NGO Coalition for Agrarian Reform and Rural Development based in the Philippines.

**Recognition and support for care work is an important building block of a gender equal green economy.** Care work, fundamental to community wellbeing, can be considered green employment.<sup>141</sup> The ILO uses the 5R framework for Decent Care Work (recognize, redistribute, reduce, reward and represent) to highlight the need to address unjust and unequal distribution of care work and improve the quality and condition of care workers.<sup>142</sup> The impacts of climate change on care work are well known, with climate impacts intensifying the demand for care, which mostly falls on women. However, this burden on women is rarely reflected in policy and programme responses. Addressing the unequal distribution of care work is one of the core requirements of a just transition.

**Recognizing and rewarding care work means prioritizing investment in social and physical climate-resilient infrastructure and tackling the unjust care burden on women.** To illustrate, investments in water supply and sanitation improve safe access to drinking water and thus reduce the time women and girls spend collecting it. Safe water supplies also improve family health and reduce the time women need to care for sick family members.<sup>143</sup>

The expansion of renewable energy supply and clean cooking can have similar health-promoting and time-saving effects that reduce the burden on women.

**Valuing care work can also benefit sustainable practices at the household level.** Undervaluing care work in households is related to a failure to recognise the link between many household practices and behaviours and sustainability. Sustainable consumption practices, such as greater resource efficiency and the use of sustainable products and services, often take place when carrying out care work. Better recognition of the value of care work promotes the adoption of these practices. This can make unpaid care work an enabler of the green and blue transition. Box 14 outlines sustainable household practices in Tajikistan.

### **2.3.2 Access to education and training for green skills development**

**Women are underrepresented in Science, Technology, Engineering, and Mathematics (STEM) and this limits their access to skilled jobs in the green economy.** STEM skills are critical to the green and blue transition, especially in the category of decent, high skilled jobs. To address this disparity, focused investment in education and training programmes is needed, particularly in STEM subjects and renewable energy sectors.

There are promising examples in the region of increasing women's participation in STEM. Successful education policy interventions include the challenging of social and gender norms and biases, scholarships, gender-sensitive curriculum revisions and development initiatives, teacher trainings and expanding non-academic or vocational STEM education opportunities for women and girls. Some of these policies have been bearing fruit in the region. For example, almost half of engineering graduates are female in Bangladesh (46%) and Brunei Darussalam (48%).<sup>144</sup> Similar rates are observed for IT graduates in Thailand (48%), and the Philippines (48%).<sup>145</sup> While these country results are encouraging, the 2024 Global Education Monitoring Gender Report highlights that women make up just 35% of total STEM graduates and hold only a quarter

### Box 14: Training and interventions on ecological and time saving activities for women in Tajikistan

Little Earth, an environmental NGO, implements environmental projects in remote mountainous areas of Tajikistan, where people are facing an energy crisis. There is often no electricity or not enough firewood to cook and heat houses, so local communities have no other option but to destroy the vegetation around them.

Local women do the hard work of collecting firewood, taking care of children and herding cattle. They have no time for self-development and self-care for health and well-being. The project teaches rural women about natural resources and familiarises them with energy-efficient, simple technologies and materials that help make daily life of rural families easier. Under the project, women are trained and then receive energy-saving equipment, solar kitchens, energy-efficient stoves, solar lanterns and pressure cookers. As a result, they are able to free up time for self-development.

Decisions on the development of villages and districts are typically made by men. Since men are often not involved in household work, their idea of what development programmes should prioritize are different from those of women. The Little Earth project strengthens women's voices and empowers them in this sphere. In addition to waste-reduction, the project also highlights the importance of energy efficiency and provides practical tips on how to reduce the cost of electricity, water, and clean transportation.

Sources: UN Women (2021). In the words of Natalia Idrisova: "It is Necessary to Find Ecological Options in which Women Can Realize Themselves and Bring Benefit to their Communities". Available at: <https://eca.unwomen.org/en/news/stories/2021/04/in-the-words-of-natalia-idrisova>

of science, engineering and ICT jobs, and these figures have barely moved in the last decade.<sup>146</sup> Some practical examples of tertiary education initiatives that strengthen women's roles in STEM are:

- **Flexible degree structures:** At Viet Nam's Hanoi University of Civil Engineering female and male students can choose a four-year bachelor's degree in engineering and complete it in five years. Lac Hong University in Dong Nai Province, under a newly structured scholarship programme, provides a 30% tuition subsidy to female students studying technology and engineering. This has helped increase the enrolment of female students.<sup>147</sup>
- **Teacher training and curriculum development on STEM:** In Malaysia, the STEM Garden Initiative provides practical hands-on applications of STEM to livelihoods through planting gardens and developing entrepreneurship skills.<sup>148</sup>

**A supportive environment for skills development of women and girls is also needed.** This includes gender transformative action in TVET and STEM. Studies suggest that girls' exclusion from STEM begins much earlier than in secondary school. This means that to reach girls and women, interventions must be made across the education system, including formal, and informal learning settings. To address structural gender barriers to skills development, it is necessary to create education and training programmes targeting girls and women to master green skills. Gender-responsive curriculum and advocacy campaigns, combined with building gender equality perspectives among key actors and stakeholders, including teachers, can support an enabling environment for women and girls' skills development. Thailand's Fostering Teacher Competency Towards a New Way of Learning project provides training on the STEM-based curriculum for primary school teachers. The training prepares teachers

for new methods of instruction, whereby technology and innovation are integrated into the basic curriculum, allowing students to be at the centre of a practical learning experience that reflects their local context.<sup>149</sup>

### 2.3.3 Sector-specific skills development

**Education and training programmes that promote women's participation in green sectors demonstrate how prioritizing gender equality improves transition outcomes.** The EmPower

Programme, implemented by UN Women and the UN Environment Programme (UNEP), works with the financial sector in several countries in the Asia-Pacific region to enable access to finance for renewable energy systems for underserved communities and promote a just energy transition.<sup>150</sup> The programme combines technical and entrepreneurial skills development with access to finance and advocacy for gender-sensitive energy transition policies. This comprehensive approach ensures that skills development for green and blue economies

#### **Box 15: EmPower programme – Women accessing transition-related economic and entrepreneurial opportunities**

The EmPower: Women for Climate Resilient Societies programme, implemented by UN Women and UN Environment, focuses on strengthening gender equity and human rights in climate change action in the Asia-Pacific region. The programme amplifies women's voices and increases opportunities for sustainable livelihoods, clean energy access and economic and leadership opportunities in the green transition. It operates as a multifaceted support programme that seeks to address the barriers women face in developing climate resilience and accessing opportunities in the shift to green and blue economies. The areas of support include mentoring, access to credit, training, opportunities for leadership and input into decision making at various levels of governance.

Some of the EmPower's recent activities include the following initiatives:

In **Viet Nam**, an NGO, CHIASE, works with women-led tea cooperatives to access collateral-free, low interest loans for constructing a solar-powered building for drying tea leaves and other agricultural products. The investment in the drying facility has increased the quantity and quality of the produce, and the cooperative's sales have surged.

In **Cambodia**, the EmPower programme is supporting women farmers to purchase solar-powered pumps to water rice fields. Diesel-powered pumps not only create carbon emissions but are also heavy to move around and expensive to operate. The new solar pumps deliver water directly into the sprinkler systems around the farm, are easy to maneuver and save on fuel costs. The upfront costs of the pumps are a challenge for women farmers as they face difficulties in accessing loans due to lack of collateral, financial history, and literacy. The wider programme supported 473 women farmers to access equipment and loans in **Cambodia, Bangladesh and Viet Nam** during 2018-2022.

Sources: UNEP (2023). Renewable Energy: A Boon for Women Farmers in Cambodia, 19 July 2023. Available at: <https://www.unep.org/news-and-stories/story/renewable-energy-boon-women-farmers-cambodia>

UN Women (2024). In Viet Nam, Loans Help Bolster Gender Equality and Fight Climate Change, 2 December 2024. Available at: <https://asiapacific.unwomen.org/en/stories/feature-story/2024/12/in-viet-nam-loans-help-bolster-gender-equality-and-fight-climate-change>

actively promotes gender equality while building environmental awareness.<sup>151</sup> An ADB-funded project implemented in Bhutan, Nepal and Sri Lanka increased access among rural poor women to affordable and reliable clean and renewable energy sources and entrepreneurial and training opportunities.<sup>152</sup> Actions included community awareness sessions on safe and efficient use of electricity in remote villages; training for aspiring women entrepreneurs; and building awareness of community members on the benefits of women's equitable participation in decision making. As a result, the number of women-led energy-based enterprises, women's membership in electricity user cooperatives, and the number and frequency of women participating in cooperatives meetings increased significantly. Women also reported an increase in their income and improved access to finance.<sup>153</sup> Box 15 showcases a further example from the EmPower programme in the region with a focus on the renewable energy sector.

**The green and blue transition in agriculture and fisheries also requires skills development targeting women.** Chapter 1 highlights the significant role women play in these sectors, underscoring that specific support will be required for women to contribute to and benefit from the transition to green and blue economies. This includes training support in sustainable practices in agriculture and fishing sectors, training and access to new technologies, and financing that allows women to capitalize on new green opportunities in food production and processing. For example, the Quinluban Island Agutaya Fisherfolk Marketing Co-operative (QIAFMC) project, which was led by women, took a cluster approach to strengthening the condition of seaweed farmers by promoting the formation of marketing co-operatives. Co-operative business structures allow production and investment to take place at a larger scale than would be possible with just individual entrepreneurs. By enabling the small producers to join forces, the co-operative has strengthened the voices of women farmers, increased production and expanded to new retail markets, while reinforcing their bargaining power in securing new financing capital.<sup>154</sup> Additionally, networking and mentoring guidance, such as the creation of women farmers' associations and forums,

can help women to share market information and knowledge. Moreover, governments need to put in place policies that enable women's entrepreneurship while making it possible for women to balance entrepreneurial activities with other responsibilities.

### **2.3.4 Creating an enabling environment for women's skills development and leadership in the green and blue transition**

**Women need networks and mentors that support them to gain access to careers that track towards leadership positions.** Support is also critical for women at the start of their careers and throughout their work life.<sup>155</sup> In the region, the WePOWER network supports women in professional roles in the energy and power sector in South Asia (See Box 16).

**Women's leadership in the green and blue transition is key to achieving gender equality.** Increasing women's participation and leadership in the design, implementation, monitoring and evaluation of policies for green and blue economies is important to make the transition gender equal. Presently, women's leadership gaps exist in government and the public sector, and in the private sector and civil society. According to the 2023 Gender Gap Report, published by the World Economic Forum (WEF), women hold only 27% of managerial positions globally. Similarly, progress in closing the gender gap in the political sphere remains limited, with women holding 26% of parliamentary seats and 22% of ministerial positions globally.<sup>156</sup>

In government, business and other areas, action to remove barriers for women to enter leadership roles is needed. Research shows that having more women in public leadership roles leads to stepped up climate ambition and better resource governance.<sup>157</sup> A lack of women in public leadership can lead to gender blind policies in the areas of climate and ignore the impacts of the transition on women.<sup>158</sup> In the private sector, few women in leadership roles means that women are not being adequately considered in the development of new products and services. In civil society, an underrepresentation in visible roles means that

## Box 16: WePOWER: Supporting women in energy projects in Asia

WePOWER, founded in 2020, is a voluntary women's professional network in the energy and power sector in South Asia that supports women's participation in energy projects and institutions and promotes normative change regarding women in STEM education. Through its work, the network has reached over 136,600 women. It has more than 50 partners, with a dozen new organizations recently joining from India, Nepal, Pakistan and Sri Lanka. Members comprise a diverse mix of power utilities, government agencies, and academic institutions.

The network has established national chapters in Bhutan, India, Nepal, Pakistan and Sri Lanka. Four regional working groups address specific challenges: The Large Systems Training Programme, the Rural Grassroots Women in Energy Training Programme, the Human Resources Services Best Practices initiative, and the Returning Parents initiative. The network has launched a new online results-sharing system for improved data collection and reporting.

WePOWER's success has inspired the creation of similar networks in other regions. These include the Regional Network in Energy for Women in the Middle East and North Africa Region (RENEW MENA), WeSee in Europe and Central Asia, and WEN-Africa, which promotes women in the energy and power sector across African countries. As the WePOWER network evolves, its focus remains on sustainability and establishing a permanent secretariat. In 2024, the network developed a sustainability plan, the latest action in its commitment to improving gender equality in the energy sector.

Sources: WePOWER (2023). Progress Report. Available at: [https://collaboration.worldbank.org/content/usergenerated/asi/cloud/attachments/sites/collaboration-for-development/en/groups/the-wepowernetwork/documents/jcr:content/content/primary/blog/wepower\\_progressreport2023-BdfE/WePOWER%20Progress%20Report%202023%20Final.pdf](https://collaboration.worldbank.org/content/usergenerated/asi/cloud/attachments/sites/collaboration-for-development/en/groups/the-wepowernetwork/documents/jcr:content/content/primary/blog/wepower_progressreport2023-BdfE/WePOWER%20Progress%20Report%202023%20Final.pdf)

women, who can be the most affected groups, do not have as many direct inputs in developing interventions. This can lead to poor outcomes and make public institutions less accountable in ensuring that the transition benefits women and girls.<sup>159</sup> In all domains, few women in leadership also means fewer opportunities and women role models.

### **The private sector has an important role to play in enabling women's leadership.**

Companies can develop and implement strategies that improve their understanding of gender inequalities in their organizations and supply chains. These strategies include ensuring that women are targeted in recruiting, for example through quotas or engaging with women's organizations. Other means are to foster green work opportunities for women by providing upskilling and reskilling opportunities

for women workers and providing support to women at risk of losing their jobs because of a green but gender-blind transition.

### **Encouraging women's entrepreneurship through improved access to finance is another way to promote women's leadership in green and blue transitions.**

Female entrepreneurship is a source of inclusive economic, income and employment growth. Women face similar barriers to starting their own businesses as they do in the job markets of green and blue sectors. Typical barriers consist of restricted access to markets, finance, information, and relevant education and skills training, together with the impact of discriminatory laws and regulations, work environments that discriminate against women, and unpaid caring responsibilities.<sup>160</sup> Furthermore, women tend to lack the traditional forms of collateral—

### Box 17: Improving women's access to finance for the green and blue transition

In **Viet Nam**, the Government has introduced small-scale credit programmes specifically designed for women, facilitating their active participation in ocean-linked businesses.

In **Fiji**, UNDP's Investing in Coral Reefs and Blue Economy Project is creating investment-ready women-led projects that promote marine biodiversity conservation and accelerate reef-positive solutions to support sustainable livelihoods. The work is financed by the Global Fund for Coral Reefs and the Joint Sustainable Development Goal (SDG) Fund in collaboration with governments, local communities, and resource owners.

In **Bangladesh**, the Central Bank with support from the Alliance for Financial Inclusion, has collected and analyzed gender-disaggregated indicators to adjust its financing policies for SMEs and establish guidelines to ensure that banks and financial institutions adequately serve women entrepreneurs. The Central Bank now requires all financial institutions in the country to establish a female-led Women Entrepreneurs' Dedicated Desk to provide training in accessing financing for SMEs. It also requires all financial institutions lending to SMEs to allot 15% of their funds to women entrepreneurs.

The Government of **Bangladesh** is focusing on women entrepreneurs' inclusion in ecommerce strategies and provides technical, financial, and training assistance to women entrepreneurs. It is also working to do away with legal barriers that hinder the development of women-run e-commerce businesses.

**Sri Lanka's** Chamber of Marine Industries has implemented programmes specifically aimed at empowering women entrepreneurs in the marine sector. Through mentorship, financial support, and improved market access, these programmes are enabling women to establish and grow their businesses.

In **Tajikistan**, the Pilot Programme for Climate Resilience, funded by the multilateral Climate Investment Fund (CIF), is supporting women's access to finance and economic opportunities through gender responsive financial products, gender capacity building support for private sector partners, financial literacy and business management capacity-building support, and targeted outreach to women. The programme has supported some 345,000 women and achieved gender transformative results by contributing to a shift in gender norms and increasing the social status of women entrepreneurs. The programme engages women's groups, men, and local organizations, such as the National Association of Businesswomen to help increase women's uptake of climate resilient technologies such as decentralized renewable systems, including pico lights, solar home systems, and mini-grids.

Sources: UNDP (2024). Women's Vital Role toward achieving a Sustainable Ocean Future, Blog Post, 30 May 2024. Available at: <https://www.undp.org/pacific/blog/womens-vital-role-toward-achieving-sustainable-ocean-future>

Alliance for Financial Inclusion (2017). Bridging the Gender Gap: Promoting Women's Financial Inclusion; Tools & Guidance from the AFI Network. Kuala Lumpur. Available at <https://www.undp.org/pacific/blog/womens-vital-role-toward-achieving-sustainable-ocean-future>.

UNDP (2024). Anodomela for Womens Economic Empowerment: Assessing Needs and Priorities Women Entrepreneurs in E- Commerce.

land, houses, cash, and other assets—that financial institutions require to assess a client's creditworthiness. Several programmes in the region are addressing women's limited access to finance (see Box 17).

This chapter has highlighted promising solutions and responses from the region aimed at accelerating the green and blue transition and ensuring that it is just, with benefits and costs shared equitably. Three broad areas of solutions emerged:

- **Preparing the workforce for transition.** This includes understanding and anticipating skills and labour force needs, and identifying the changes and investments required for upgrading skills and knowledge.

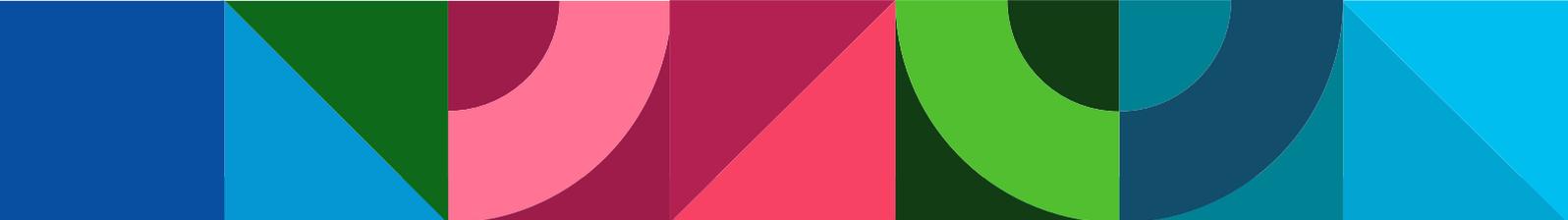
- **Ensuring the workforce can transition.**

This involves putting in place adequate and responsive social protection coverage that supports people throughout their lives and enables them to make the necessary changes to adapt to the green and blue transition.

- **Gender transformative change in transition.**

This means addressing biased social and cultural norms and developing gender-inclusive approaches to skills development, work and social protection.

Chapter 3 outlines the enablers that are needed to scale up and mainstream these responses to achieve a just transition to green and blue economies.



3.

**Key enablers for  
implementing a  
just transition**



## Key messages

- A successful just transition requires integrated policy development, coherence and coordination. This means aligning social protection, reskilling programmes, and economic diversification initiatives across all levels of government, and across sectors such as social, labour, education, energy, environment, planning, and industry. It also calls for integrating transition priorities into climate action plans and other strategic policy documents. Success will hinge on cross sectoral collaboration as well as on building new capabilities in public sector leadership, particularly in change management and stakeholder collaboration.
- Harnessing digitalization and technological innovation for greening strategies can create opportunities for more efficient and inclusive decision-making and implementation. Digital innovation and technologies can enable more complex and timely data collection and more effective service delivery. However, this requires quality data and analysis for effective, inclusive and gender-responsive policy and decision-making.
- A just transition requires new financing for workforce development, and for financing the decarbonization of hard-to-abate sectors. Resources will also be required for investment in infrastructure, industrial development, social protection and service provision. While government, multilateral development banks and international organizations play a key role for financing, new financing tools such as blended finance, sustainability bonds, carbon pricing, and private capital must also be activated to attract climate-related investments and support the transition.
- Governments and other stakeholders need to prioritize social dialogue and partnerships. The scale and complexity of workforce development for a just green and blue transition requires strong and inclusive dialogue among multiple stakeholders, including representatives from government, the private sector, non-government organizations, workers representatives from women, marginalized and vulnerable groups, international organizations and multilateral development banks. International cooperation and partnerships are also critical, not only because economies are interlinked but also because developing countries have a right to support for their transition.
- Transformative change in gender social norms requires institutional reform and shifts in social contexts to advance women's leadership and representation. Progress in addressing gender biases needs to be measured through specific targets and outcomes. Progress in this regard benefits not only gender equality but also the quality and speed of the transition: evidence shows that when women hold decision-making positions, gender-responsive policies increase and sustainable practices improve.

**This chapter focuses on the enablers for a just transition to green and blue economies.**

The form that the transition takes is likely to be decided in a few key economic sectors, notably energy, agriculture, fisheries, waste and transportation. These sectors are marked

by a high degree of informality and limited social protection. A just transition requires that all people can access decent jobs, social protection, training and skills development so they can be meaningfully engaged in a sustainable economy.

**Each country's transition will differ, just as their decarbonization pathways differ.**

However, there are key factors enabling the transition to green and blue economies that are relevant for all countries. These enablers are discussed below and include:

- Policy development, coherence and coordination
- Harnessing digitalization and technological innovation
- Financing
- Strengthening social dialogue and partnerships
- Overcoming biased social norms for gender equality

### 3.1 Policy development, coherence and coordination

**A just transition requires that governments in the region develop and integrate public policy across multiple domains and jurisdictions.**

At the national level, governments must establish clear mandates for workforce planning, including mechanisms to identify

skills gaps and resource development programmes. Climate action plans, NDCs, and sustainable development strategies need explicit and actionable workforce development components, including education and skills development measures, as well as on-the-job training through partnerships with the private sector, green public procurement and active labour market programmes. This requires readiness in various policy areas starting from establishing a green agenda to industrial and sectoral skills development policies, and labour protection policies. The Government of Indonesia, for instance, has designed such a strategy for a just transition for the workforce in the energy sector (see Box 18).

**A whole-of-government approach is needed to achieve a just transition through gender equality, decent work and the enhancement of social protection programmes.**

In practice, this means coordinating government activities in support of formal and decent work and providing workers with social protection. This protection includes unemployment and

#### Box 18: A strategy for achieving a just transition for the workforce in the energy sector in Indonesia

Indonesia has committed to reach net zero by 2060, or sooner with international assistance. A successful energy transition is key to achieving this goal. The country's energy transition policy is expected to result in job losses in the conventional energy sector and the creation of new jobs in the renewable energy sector. Given Indonesia's vast and varying geography, and the lengthy time horizon of the transition, the employment effects of the renewable energy transition are likely to differ by locality and over time.

Indonesia is committed to follow a just process that considers the interests of the Government, businesses, workers, and communities, and thus leaves no one behind. To reduce labour market disruptions during the transition towards a low carbon economy, the Government has signed the Just Transition Silesia Declaration, adopted at COP24, and developed a strategy for achieving a just transition for the workforce.

The transition strategy seeks to promote green jobs and ensure readiness in a number of policy domains: (i) national development policies and plans to establish the green agenda; (ii) industrial and sectoral policies for greening; (iii) enterprise policies and initiatives for greening; (iv) skills development for greening; (v) ALMPs for greening; (vi) occupational safety and health (OSH) matters related to climate change; (vii) social protection; and (viii) cross-cutting issues such as labour rights and standards and social dialogue processes in greening.

Sources: ILO (2023). Green Jobs and Just Transition Policy Readiness Assessment in the Energy Sector in Indonesia, ILO Policy Brief.

retraining benefits, health and social welfare services, and support for caring responsibilities. To enable this, social protection systems will have to become more responsive to green and blue transition risks and impacts, in particular to reduce risks for vulnerable and marginalized groups. This entails reducing transition-induced occupational health and safety risks (for example in the circular economy, recycling activities may expose workers to hazardous toxins) and adapting to climate change impacts (such as heat stress). Other potentially negative impacts to anticipate are job losses, less secure livelihoods and the loss of key economic drivers in local economies. Social protection programmes will need to allay these impacts through tailored support.

**In each of these areas of public policy, gender analysis needs to inform the design and delivery of employment and social protection policies and gender mainstreaming in relevant institutions.**

This requires greater awareness of gender impacts and policy implications, and decision-making informed by gender-disaggregated data and analysis. Generating and providing access to this knowledge requires partnerships with women's organizations and research institutions. Regional and local governments need resources to develop sub-national level transition strategies that reflect characteristics of each locale and their specific needs while aligning with national frameworks. Governments can initially focus policy development on a specific sector and build on this experience to broaden implementation over time.

**Building skills and knowledge for the transition requires policy development and coordination between government, the private sector, educational institutions, and civil society.**

Training institutions will need to evolve with the rapidly increasing demand for new skills. This means updating training curricula, increasing teaching capacity and investing in new equipment. Training systems will need to become more flexible, combining formal qualifications with shorter modular approaches that can be delivered on the job. Targeted strategies will also be required to ensure that

women and excluded groups can participate.

**As a key actor in enabling green and blue transition, the private sector will require broad and sector-specific support.**

Environmental regulation and standards and economic policies can provide incentives for businesses to be pro-active in the transition and assess transition-related skills requirements. Businesses themselves can lead by improving staff access to green skills training, including in developing transformational green skills. Other ways of leading the transition are investments in renewable energy and sustainable production processes. Entrepreneurial support and skills development can also be part of policies to support entrepreneurs seeking to commercialize innovations for the green-blue transition.

**Supporting communities affected by decarbonization requires effective coordination of government policies.**

In practice, this involves aligning social protection, reskilling programmes, and economic diversification initiatives across all relevant functions of government, including social, labour, education, energy, environment, planning, and industry domains. To be successful in this endeavor, the quality of public sector leadership, particularly in change management and stakeholder collaboration, must be improved. This may entail the creation and financing of new institutions to lead implementation and coordination of just transition policies. Models of new institutions that coordinate such inclusive processes are emerging across the world. Examples include Germany's Coal Commission, Canada's Just Transition Commission for Coal, South Africa's Climate Change Commission and Australia's Net Zero Authority. In some contexts, better policy coordination may require consolidating and clarifying roles and responsibilities within existing institutions. In Asia and the Pacific, policymakers will need to weigh up the best solutions for their just transition pathways. Sharing practices and results of this policymaking process will be beneficial for countries in the region.

**Policy development and coordination at sub-**

**national levels will be essential.** The local context strongly determines opportunities in the green and blue economies, for instance in coastal or rural areas. Sub-national governments play an important role in workforce development, especially in cities with sizable labour markets and sustainability plans. Cities and regions increasingly develop their own transition plans, which drive economic activity, job and skills needs. This means that policymakers at the local level will need to build skills and capacities for collaboration, as well as in assessing and anticipating transition risks and impacts.

### 3.2 Harnessing digitalization and technological innovation

**Digitalization and related mega-trends can be an enabler of the green and blue transition, while also presenting challenges.** As discussed in Chapter 2, digitalization can drive increased energy demand and compound existing inequalities in accessing technology, information and critical services. Narrowing the digital divide requires investments in digital infrastructure to ensure low cost and wide connectivity. It also necessitates better digital skills development to ensure equal usage of and participation in the digital world. Many governments in the region do not have a good grasp of the nature and scope of the digital divide in their country. This makes it difficult to design meaningful interventions. National digitalization strategies that include data collection and analysis can help policymakers make sense of the digital transformation and design policies that help to narrow the digital divide.<sup>161</sup>

**Digital skills should be taught as a matter of course in educational institutions to equip people with the skills needed in green and blue economies.** Employers increasingly see digital skills as a mandatory job requirement. Consequently, they should be part of a foundational skill set, taught alongside green skills through all educational programmes. Incorporating digital competencies into school, vocational and tertiary education curricula will build these foundational skills among young people.

**Online short courses and other approaches to upgrade digital skills are needed for those already in the workforce.** Digital credentials are increasingly issued by platforms that use technology in education to fill gaps in learning offered by traditional academic institutions. Learner-centred educational development will ensure that training is developed for all relevant groups and all levels of learning. This skills development also needs to be supported by standards and frameworks that ensure learners are receiving the right skills and for employers to have confidence in these competencies.<sup>162</sup> This requires the development of reliable assessment processes to accredit skills and learning acquired through digital and other on-the-job activities.

**Additional skills support is needed for people to be able to access and benefit from digital technologies.** Designing programmes specifically for women, disadvantaged youth, indigenous communities, poor people, or people living in remote locations, will help make digitalization more equitable and inclusive. This must be applied to all forms of training, including class-based learning, online training formats and courses taught in local languages.<sup>163</sup>

**Specific strategies will be needed to build the digital capacity of small and micro businesses.** Educational policies need to target small businesses for upskilling and allocate funds for investments in digital services. Highly skilled professionals in digital sectors are often targeted for skilled migration to other sectors. Green and blue technology businesses also require highly skilled professionals. National digital strategies need to take this into consideration and make it possible for them to retain employees through green tech entrepreneurial support.

**Broader frameworks for social inclusion and gender equality will need to consider digital access.** Some countries have already taken steps towards making digital technologies more inclusive. They have developed laws on broadband internet access, established policies that help low-income families access broadband internet, and provided computer access at public libraries or in other public locations.<sup>164</sup>

**Digital solutions can be used to improve public service delivery.** Digitalization and new technologies can create new opportunities in the design and delivery of government services. For example, digital identification and registration processes speed up the delivery of social protection and reduce fraud and duplication.<sup>165</sup> Governments can make use of digital databases to identify and target at risk populations. The quality and comprehensiveness of data collection is key and gender-disaggregated data and analysis are important for ensuring gender equality.

**Digital cooperation can help bridge the digital divide across the region.** The Astana Ministerial Declaration on Digital Inclusion and Transformation in Asia and the Pacific provides a regional mechanism for addressing the digital divide. Moreover, ESCAP is implementing the Asia-Pacific Information Superhighway initiative as a region-wide intergovernmental cooperative platform. The objective of the platform is to accelerate digital transformation and bridge the digital gap through promoting digital connectivity, digital technologies and data use in the region.<sup>166</sup>

### 3.3 Financing

**A just transition hinges on new financing for green and blue transition goals.** Although the short-term costs will be recouped over time through greater sustainability and social development, the transition will be costly. Without financial support from high income countries, the necessary public investments may overstretch the public finances of many countries, which could widen the disparity between developing and industrialized countries.<sup>167</sup> New financing flows and methods are needed, as is a shift towards a people-centered mindset to financing climate action.<sup>168</sup>

**Governments play a key role in providing policy direction and creating an environment that is conducive to a successful just transition.** A vital contribution that governments can make is to provide policy certainty and a firm fiscal base for social investments. The former is particularly important for unlocking climate finance. Multilateral development banks

and international organizations can provide some of these climate-related transition and development financing flows. They can also ensure through their operations that workforce development and human capacity for the transition are prioritized and that countries receive the necessary technical assistance to plan and implement these efforts. Given the importance of workforce development and social protection for the just transition, transition finance that focuses on these activities can better integrate and leverage adjacent investments in climate-related and development activities.

**Climate-related and development efforts will increasingly need to involve sub-national governments, unions, industry associations and civil society groups, among others.** A better understanding of financing systems and requirements will be important for representatives of all these groups. Adaptable financing mechanisms that ensure adequate financing for priorities at the local or sub-national level are also needed.

**New financing tools are needed to attract more climate-related investments.** Governments can use existing financing tools to support the transition. These tools include blended finance, sustainability bonds, private capital, carbon pricing, and carbon taxation. Governments can contribute concessional financing and create an enabling policy environment for green bonds. Multilateral development banks, such as ADB, have provided concessional finance in the form of grants and limited guarantees, as well as technical assistance, capacity building and institutional support.<sup>169</sup>

**Carbon pricing has the potential to generate substantial public revenues which can be earmarked for transition support.** These revenues can be used for the progressive removal of fossil fuel subsidies, along with steps to increase the price of carbon-intensive goods through carbon taxes or trading systems. Social protection systems need to be in place to cushion any negative impacts of this on households and small businesses.<sup>170</sup> Over the longer term, the benefits of eliminating fossil fuel subsidies outweigh additional investments

in social protection thereby freeing up funds for social investment.<sup>171</sup> Low income countries will require additional climate finance to navigate the phase out of fossil fuels and develop transition-ready social protection systems.

**International climate finance could be used to better support workforce development.** At COP29, an agreement was reached to triple the goal for climate finance to developing countries to US\$300 billion annually by 2035. Despite the increase, the amount is widely regarded as too low to meet developing countries' financial needs for a just transition, which is estimated at US\$1.3 trillion.<sup>172</sup> The quality and accessibility of finance is also important for developing countries. Many low-income countries prefer grants to interest-bearing loans. However, most climate finance takes the form of loans, which carry the risk of increasing indebtedness and creating debt traps.<sup>173</sup> A balance needs to be found between promoting better access to finance for recipient countries and improving their capacity to implement, while also broadening impact assessment criteria so that climate finance can support the skills and inclusive transformations needed in countries across the region.

**Climate projects and programmes should include specific components and budget allocations for skills development and workforce transition.** While discussions on the necessary scale of climate finance are ongoing, it is key for climate-financed projects to integrate inclusive workforce development. Such projects can help to close current funding gaps for skills development in vulnerable countries and communities by mandating workforce and skills development as part of the project design. In practice, there is a need to formulate project targets for local employment and skills development, including for specific target groups such as women and other marginalized groups at risk of being left behind by the transition. Capacity development on project design and implementation for relevant ministries in developing countries, including for local and regional government officials, would help to improve access to climate finance and thus accelerate the transition.

**The private sector plays a vital role in financing workforce development through investments in training and broader skills development systems.** Industries benefiting from the green transition should be compelled to finance relevant skills development. Renewable energy is a good example, whereby the growth of the sector is creating the need for greater investments in skills development and expanding opportunities within the sector. SMEs warrant targeted support because in most countries they are the biggest employer but lack resources for training. Innovative financial products and services can help SMEs to invest in workforce development, particularly for green skills and technologies. This can include training subsidies or support for skills recognition and upskilling.

### 3.4 Strengthening social dialogue and partnerships

**The scale and complexity of workforce development for a just transition requires a strong social dialogue process.** A just transition hinges on detailed planning and sequencing of policies and investments that promote decent work and social protection. As the ILO points out in its Guidelines for a Just Transition, social dialogue is an integral part of the institutional framework for policymaking and implementation of the just transition.<sup>174</sup> This process requires involvement of all relevant stakeholders, including representatives of government, the private sector, workers, as well as multilateral development banks and international organizations. Success of the social dialogue depends largely on the quality of relationships, and on how well responsibility, accountability and resources are shared.

**Social dialogue is a means to produce better economic and social outcomes.** The process allows all partners, including governments, employers and employees to come together and decide on policies that affect them directly.<sup>175</sup> Social dialogue is also a key means to improve implementation of policies and laws.<sup>176</sup> Decisions arrived at through social dialogue prevent unilateral decisions and strengthen the voice of the disadvantaged

groups, which reduces social inequalities by increasing the representation of typically underrepresented groups. It also promotes mutual understanding and the exchange of views, which helps to build consensus and manage conflicts.

**For social dialogue to be effective, key participants need to have the necessary skills to facilitate this.** For trade unions and workers representatives this means building increased awareness on environmental issues and the green and blue transition. For the private sector, especially multi-national organizations and large companies, a key task is to build capacity and devise procedures for social dialogue.<sup>177</sup> Crucially, governments can show their commitment to a just transition by making social dialogue a standard practice in the policymaking cycle, from agenda setting to implementation and monitoring to reviewing.<sup>178</sup>

**International and regional partnerships play a crucial role in knowledge sharing and capacity building.** International organizations support national initiatives across the region and help establish cross-border frameworks for collaboration and knowledge sharing. These frameworks and networks are particularly valuable in sharing good practices and creating standardized approaches across borders.

### **3.5 Overcoming biased social norms for gender equality**

**Transforming social norms for gender equality is fundamental to delivering a just transition.** Ultimately, changing norms that advance some groups over others will enable a just transition that works for all. Without a sharp focus on changing these norms, blue and green economies are likely to replicate existing sectoral and occupational segregations, and wage and skills gaps.

**Challenging biased gender social norms requires action on multiple fronts, including targeting formal institutions and transforming social contexts.** Institutionalizing gender-responsive practices can drive change. This can be achieved through earmarking resources for gender equality and gender mainstreaming

policy reforms, such as gender-focused budgets, parental leave and other social protection support for caring responsibilities. These steps help to increase recognition of the unequal care load women shoulder and provide for more equal burden sharing.

**Education provides enormous social and economic benefits, and challenging norms that drive inequalities in education is key to enabling a just transition.** Chapter 2, and the enablers outlined in this chapter, highlight the importance of adopting a gender lens in understanding the opportunities and barriers experienced by women and girls in accessing education, as well as the investments needed to ensure gender transformative change in accessing education. The same gender lens is required for policy development in advancing a just transition to green and blue economies. Women's empowerment and leadership in key areas of green and blue economies should be mandated, with monitoring and evaluation to ensure progress.

**Legal recognition and representation in decision-making, as well as women's access to and control over assets, and access to finance are vital to ensure that the benefits of the transition are shared equitably.** Enhancing women's participation in politics, including in parliament, can help to address legal barriers that prevent women from equally participating in the labour market. When women hold more leadership roles in society, new gender-sensitive norms emerge that allow for gender-based discrimination and gender-based violence to be tackled more effectively, thereby increasing the prospects of achieving a just transition.

**Gender disaggregated data that measure and track biased gender social norms, and other tools, such as the gender inequality index and the gender social norms index, improve decision making.** Regular monitoring and tracking of the status of gender inequality can trigger a change in public policy and increase awareness among civil society actors. However, this requires effective advocacy to advance the findings and implications of these data and indices.

# Conclusion and recommendations

## **The Asia-Pacific region is at a critical juncture in its transition to green and blue economies.**

Such a transition is necessary to minimize the impacts of climate change on the environment, economy and society. However, the transition itself will prompt significant disruptions. Some changes will be positive, such as the creation of new jobs in green sectors. Others will trigger considerable costs, but the cost of inaction would be much higher. The burdens will fall disproportionately on poor and vulnerable people, who have contributed least to the climate crisis. As such, it is crucial that the transition is just, acknowledging these risks and minimising the social and economic fallouts. This requires inclusive workforce development and significant social transformations. The report highlights three interconnected priorities to achieve a just transition: developing workforce capabilities, ensuring transition-ready social protection, and achieving gender transformative change.

## **Workforce development is the basis of a successful transition.**

The region needs both technical skills for new green jobs and capabilities that enable change-making, such as environmental awareness, collaboration, and systems thinking. Current skills gaps are prevalent and risk impeding the transition. While some countries exhibit high workforce readiness, others struggle to upskill their workforce, especially in sectors such as renewable energy, sustainable agriculture, and waste management.

**The Asia-Pacific region's social protection systems are not yet comprehensive enough to fully protect informal workers.** A high degree of informality leaves large swathes of

the workforce vulnerable, and this situation could worsen as the economic transformation takes hold. For many countries in the region, transition-ready social protection is a new concept. It is important that governments embrace it, because of its potential to support climate action and sustainable development. To be effective, transition-ready social protection must include support for reskilling, health services, and care responsibilities. These critical social investments will require greater revenue mobilisation and social spending that is people-centred, alongside increased international support for developing countries.

## **Gender equality is both an enabler of workforce development and a pre-condition for a just transition.**

Unless tackled head on, there is a risk that current gender disparities in workforce participation, skills development, and leadership positions will be reproduced or widened in green and blue economies.

Based on these findings the report recommends the following actions:

### **Workforce and skills development:**

#### **Governments must develop just transition frameworks that integrate climate action, workforce development, social protection, and gender equality.**

Such frameworks can be anchored in existing action plans on climate change, NDCs, or other public policies. Governments must lead by establishing clear mandates for workforce planning with mechanisms to identify skills gaps and resource development programmes. This encompasses building capabilities for anticipating workforce development needs in the green and blue transition, including:

- Ensuring workforce development planning is part of national and sub-national transition and development plans (such as NDCs);
- Making workforce and skills development planning part of large public infrastructure investments such as investments associated with the energy transition;
- Conducting dialogues with employers, including from the private sector, for increased investment in reskilling and upskilling;
- Scaling up education and training systems that are inclusive and meet workforce development needs;
- Tackling gender barriers to participation in education and training, and labour market programmes;
- Strengthening active employment policies aimed at the most vulnerable groups and territories.

**Education systems must change dramatically to meet transition needs.** Necessary actions include updating curricula to incorporate technical and transformational skills, increasing teaching capacity, and investing in educational infrastructure. Digital technologies can foster a rapid scaling of educational tools, but must be implemented ensuring the participation of women, poor people, and remote communities lacking adequate connectivity. Governments and educational institutions must lead on curriculum development and accreditation processes. Businesses must take a more active role in workforce development, by directly investing in training and by making contributions to skills development systems. Governments should incentivise industries that are benefiting from the green and blue transition to contribute to financing skills development. Small and medium-sized enterprises, which are the main employers in the region yet often lack resources for training, require tailored support.

Specific actions include:

- Building green transformational skills (particularly skills that enable implementation). This involves:
  - ◇ Building these skills into school and TVET curricula;
  - ◇ Using transition actions and investments, such as in energy transition and green transportation policies, as lighthouse projects, where green skills are integrated into all organizational and workforce development policies and activities;
  - ◇ Aligning strategies and plans with other transformational skills development such as digital skills.
- Developing education system investment and workforce development plans. Plans for the green and blue transition and associated workforce assessments can be used to gauge the state of current and future educational systems, including data on the demand for teachers, programmes, equipment and investment.
- Developing strategies and targets for increasing participation in green skills development for specific groups and sectors, including:
  - ◇ Women and girls in STEM schools and tertiary education.
  - ◇ Women's participation in training and work in specific sectors such as agriculture, fisheries, waste management and coastal tourism.
- Implementing incentives and subsidies for skills development for entrepreneurs in green and blue sectors, including for retaining and attracting high-skilled digital talent.

**Transition-ready, fit-for-purpose social protection is critical for a just transition.** This can be achieved by expanding social

protection systems to support and accelerate the transition. Increased work quality and availability of social protection are key to enabling a fairer and faster green and blue transition. Governments will have to set ambitious goals for strengthening social protection systems, which need to offer protection for people at all stages of their lives. Coverage for working age populations also needs to be extended, including support for caring responsibilities, and ensuring equal access to health and public services, training and skills development. These measures typically require tax and other policy reforms to strengthen the resource base for social protection expenditures. In practice this may mean progressive taxation and phasing out fossil fuel subsidies.

**A just transition requires large and immediate social investments.** The following stakeholders have a role to play:

National governments:

- Consider ways of increasing the universality, adequacy and breadth of social protection systems required to support a just transition, including assessing, proposing and implementing options to mobilise the necessary financial resources for social protection coverage, workforce development and reskilling through contributions, tax revenues and climate finance.

National governments, the private sector and financial institutions:

- Leverage and align financial opportunities offered through contributory schemes to invest in the green and blue transition, including developing an enabling environment for private finance in green and

blue transition through sustainability bonds, implementation of sustainable financial taxonomies and co-investment with public finance to derisk green and blue investments.

International organizations and multilateral development banks:

- Support countries to access technical assistance for enhancing the capacity of governments to coordinate complex transitions. In addition, provide specific assistance in new areas of policy development such as for workforce development, skills systems, facilitating cross-border knowledge exchange and supporting pilot programmes. In the case of development banks this can extend to greater support for social protection investments and extended transition finance.
- Advocate for climate finance mechanisms to provide accessible and adequate funding and better integrate workforce development and social protection components.

**Gender transformative change:**

**A whole-of-government focus on gender equality is needed, including the systematic inclusion of gender equality issues into government strategies and plans.** In addition to action on workforce and skills development and social protection, this may involve:

- Explicit reference and follow up actions and resources for gender equality specified in Nationally Determined Contributions (NDCs) and National Adaptation Plans (NAPs);
- Gender-responsive budgeting and prioritization of public funding for gender equality objectives;
- Expanded gender-responsive climate finance by increasing the focus on gender-

responsive investments and ensuring women's and local community groups can shape and access financing;

- Ensure women's representation and inclusion in decision-making and social dialogue processes that inform just transition planning;
- Focus on data collection and use it to measure performance towards gender equality goals and objectives through tracking indices such as the Gender Social Norms Index and the Gender Inequality Index.

**Increased investment in the care economy is needed for a gender-responsive just transition.** This can be achieved by prioritising investments in quality care jobs, services and infrastructure to help ensure that women are not left behind and that their disproportionate share of unpaid care, domestic and communal work is recognised and valued as a fundamental service to society. The ILO's 5R Framework provides avenues for recognising and rewarding care work including:

- Developing methods and data to measure the effects of the transition on the care workload;
- Strengthening social protection for paid and unpaid caregivers and gender-sensitive design of contributory schemes, ensuring that caregivers are not penalised;
- Expanding the provision of green and low-emission infrastructure that plays a key role for care (such as water, sanitation, energy sources, transport and housing) to reduce time spent on domestic work and reduce the environmental risks (such as pollution) people face when carrying out these tasks;

- Developing policies that lead to the protection of labour rights, formalization, access to social security and the closing of gender gaps (including the pay gap) in care jobs;
- Increasing the participation of women, including those facing multiple forms of exclusion, and their organizations in planning for climate action projects, promoting the recognition and incorporation of issues related to care;
- Creating opportunities for dialogue and participation related to climate change and the SDGs to gather information on needs, opinions and proposals of women and their organizations at the local, regional and national level.

The transition to green and blue economies presents both significant opportunities and challenges for the Asia-Pacific region. Success will require careful attention to workforce development, social protection, and gender equality. By implementing the recommendations outlined in this report, stakeholders can help to ensure a just transition that delivers environmental sustainability while improving livelihoods and reducing inequalities.

The time for action is now. Accelerating a just transition to green and blue economies offers a unique opportunity to make progress on multiple development objectives, including the SDGs. Success in this endeavour will require sustained political will, adequate financing, and effective coordination among stakeholders. While challenging, the prohibitively high social, economic and environmental costs of inaction make it imperative to act on these recommendations and secure the region's sustainable development.

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## Introduction and Chapter 1

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