

# Raising the level of ambition on carbon pricing in Asia and Pacific

Climate change is a fundamental threat to development; significant reductions in greenhouse gas emissions are needed to avert a climate crisis. While no single instrument will achieve this goal, there is broad agreement that carbon pricing is an integral part of climate action. This policy brief shows that carbon tax and emissions trading system are gaining momentum across the world, including in Asia and the Pacific, but current rates are too low to shift behaviour, capital and technology towards low-carbon development. While recognizing the need to raise ambition, governments are naturally concerned about the potential impacts of carbon pricing on industries, jobs and low-income households. This policy brief discusses ways to alleviate the concerns, including through effective use of carbon pricing revenues and regional cooperation.

## Clear rationale, growing momentum

To limit global warming to 1.5 degrees Celsius above pre-industrial levels, GHG emissions must decline by 45 percent by 2030 compared to 2010 levels, and reach net-zero by 2050.<sup>1</sup> However, baseline projections presented in the Economic and Social Survey 2020 suggests that GHG emissions in Asia-Pacific region will continue to increase through 2050, albeit at a slower pace than in recent decades. This would have disastrous consequences, including extreme weather events, pollution and biodiversity loss and their associated social and economic costs, with the poor and vulnerable sections of society being the most heavily affected.<sup>2</sup>

An alternative scenario in which emissions are reduced, and in an efficient manner, is clearly more desirable. This is where carbon pricing can help. Carbon prices are intended to incentivize the changes needed in investment, production and consumption patterns, and to induce the kind of technological progress that can bring down future abatement costs.<sup>3</sup> Compared to “command-and-control” regulations, market-based instruments such as carbon pricing leave consumers and businesses with the flexibility to determine the least-cost way to reduce environmental damage, and provide strong incentives to innovate. It also addresses the rebound effect; for instance, fuel economy standards may inadvertently result in more driving as the cost of driving per mile declines, but less so with carbon pricing in place.

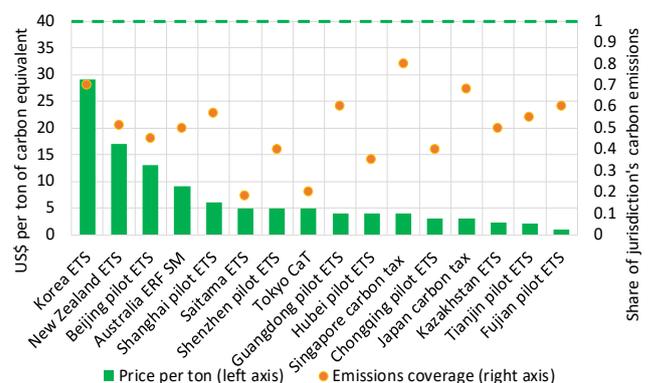
Given these positive traits, a growing number of national and subnational governments are implementing or planning to implement a carbon tax or an emission trading system – a total of 57 initiatives in 2019, compared to 51 in 2018.<sup>4</sup> In Asia and Pacific, this includes initiatives in Australia, China, Japan, Kazakhstan, New Zealand, Republic of Korea and Singapore (figure 1). This number is expected to grow in the coming years as some 100 parties to the Paris Agreement have expressed interest to engage in the use of market-based approaches in their nationally determined contributions, including 26 countries in Asia and Pacific.<sup>5</sup>

For instance, China is transitioning to a national emission trading system (ETS) from the eight pilot subnational systems. Although the national system to be rolled out in 2020 will only start with the electric power sector, it is expected that other key sectors considered in earlier proposals will eventually be covered in the coming years. Most recently, Singapore introduced a carbon tax, but based on a “fixed-priced, credit-based” approach which offers flexibility to align it with an ETS of other jurisdictions at a later stage. Among countries currently at pilot or preparation stage, Thailand has developed a framework for monitoring, reporting and verification (MRV) and is piloting a voluntary ETS with companies from sectors ranging from petrochemicals and cement to food and feed. In Indonesia, a 2017 government decree mandates the establishment of an ETS before 2025.<sup>6</sup>

## Raising the level of ambition

While these developments are encouraging, faster and more ambitious implementation of carbon pricing is needed to achieve the goals of the Paris Agreement. Globally, average rates remain at only \$2 per ton of carbon, and existing schemes only cover 20 percent of total emissions. In Asia and Pacific, prices range from about \$1 per ton in some of the pilot subnational ETS in China to \$29 per ton in the Korea ETS (figure 1). These are substantially lower than the required price range estimated in most studies, such as the \$40 to \$80 range estimated in the Stiglitz-Stern Commission report. There is also considerable variation in the sectoral coverage, with industry and power sectors the most widely covered and to a lesser extent transport and buildings.

Figure 1 Carbon pricing initiatives in Asia and Pacific

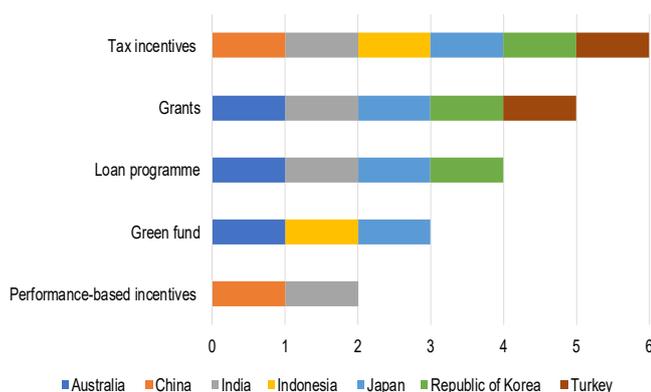


Source: Based on data from World Bank, ICAP, IETA and national sources. Note: ETS = emission trading system; CaT = cap-and-trade; ERF SM = Emissions Reduction Fund Safeguard Mechanism.

The need to raise the level of ambition may be clear enough, but a concern is that carbon pricing would disadvantage domestic industries especially if unilaterally implemented. However, a wide range of empirical studies, both ex ante and ex post, find that environmental taxes and carbon pricing do not have significant adverse effects on economic competitiveness.<sup>7</sup> This could be because the positive effects of carbon pricing on industries that manufacture sustainably and offer green technologies and services offset the negative effects on the competitiveness of polluting industries. Over time, positive net impact could increase as strong and consistent price signal creates certainty for producers and investors that it pays to switch to cleaner industrial processes and invest in carbon-neutral technologies. Moreover, such green innovation tends to find broader applications than traditional innovation in fossil fuel sectors, potentially generating stronger productivity gains for several sectors.

Such positive outcomes, however, are not automatically guaranteed. Governments need to plan ahead and provide the right incentives for companies to power through the transition. For instance, several countries have introduced fiscal incentives to reduce costs and increase the uptake of clean-energy, electric vehicles and energy efficiency (figure 2). In addition, governments have significant influence over broader sectors of the economy through state-owned enterprises (SOEs), export credits and public investment funds. In many countries in the region, SOEs occupy a central role in the electricity generation sector and as a result can be more exposed to climate change and transition risks.

Figure 2 Green fiscal incentives in selected countries



Source: Based on IHS Markit, G20 price signals insufficient to reach Paris Agreement goals, 2018.

While some type of compensation or transition measure may be needed for severely affected industries, such as energy intensive industries (e.g. iron and steel but also transport), it is important to deploy targeted measures rather than full exemptions. For instance, governments could consider approaches such as output-based rebates and combine them with negotiated performance agreements, such as the introduction of an energy management system, so that all industries are incentivized and prepared to shift towards low-carbon trajectories. While companies tend to lobby for generous exemptions on carbon tax and the free allocation of allowances in ETS, such measures could compromise the integrity of scheme.

At the same time, within specific industries, governments could consider more effective design of carbon pricing. For instance, in the construction sector, which is the world's largest consumer of raw materials and a significant carbon emitter, existing carbon pricing tends to focus on the bidding stage. However, many actors at the early stages of the project (lenders, developers, and designers) retain significant power and influence over a project's

full life cycle carbon emissions in the design phase, choice and sourcing of building materials, operational procedures, and associated technologies including for heating and cooling.<sup>8</sup> A holistic approach is needed to define the construction value chain, and more resource efficient operational technologies and procedures, so all relevant stakeholders can jointly develop a strategy for integrated carbon pricing.

## A just transition

Even though the greening of economies is estimated to generate substantial net job gains at the global level, estimated at some 14 million jobs in Asia and Pacific, the impact will vary across sectors and countries.<sup>9</sup> Countries acknowledge that the green sector is an important source of potential job creation. For instance, Thailand's Master Plan on Climate Change 2015-2050 mentions net job creation as a result of investments in low-carbon emission and efficient production processes as well as renewable energy sources. The ASEAN Declaration on Promoting Green Jobs, adopted in 2018, outlines nine actions related to skills development, occupational safety and health, enterprise development and other areas. New Zealand has established a Just Transition Unit within the Ministry of Business, Innovation and Employment.

Distributional impacts of carbon pricing are also important, particularly in an environment of wide income inequality and poverty. Recent studies suggest that in developed countries carbon pricing tends to be regressive but that the opposite is true in many developing countries. For instance, a recent comparative analysis finds that for countries with per capita incomes below \$15,000 per year (at PPP-adjusted 2011 dollars), carbon pricing has on average progressive distributional effects, primarily due to differences among income groups in consumption patterns of energy.<sup>10</sup> On the other hand, rich countries where the impact tends to be regressive have more financial resources and institutional capacities to deal with distributional issues.

Governments may choose to use carbon revenues to compensate the low-income households through direct transfers. Evidence suggests that only a small share of revenues is needed to do so.<sup>11</sup> Revenues can also be employed to assist workers in sectors or regions that are highly affected by a carbon price. For instance, in managing the impact of phasing out coal production, the German government implemented a variety of supportive policies, including early retirement support, retraining programs, and support for economic development in affected areas.

When carbon revenues go towards the general government budget, some studies have found that public acceptability is lower.<sup>12</sup> If instead they are earmarked for a specific purpose – notably as targeted green investments or transfers to particularly affected groups – citizens report greater acceptability of carbon pricing. Some studies also suggest a relabeling of carbon taxes as a 'fee' or 'climate contribution' increased public acceptability. In all cases, a good communication strategy is vital, as also exemplified in recent fuel subsidy reforms as well as introduction of carbon pricing.

## Regional cooperation

Regional cooperation is instrumental in coordinating more ambitious region-wide solutions to climate change, and in building capacities and sharing knowledge, including in the least developing countries. Globally, a uniform carbon tax or a carbon market covering all jurisdictions would be the most efficient way to mitigate emissions. For instance, it has been estimated that international linkage of carbon markets could reduce the cost of achieving the emissions reductions specified in the initial set of NDCs by 32 percent by 2030 and by 54 percent by 2050.<sup>13</sup>

Linking the national and subnational carbon markets in the region would widen the range of emissions reduction options, some of which will be cheaper than those which emitters can currently access, and help provide the scale and liquidity needed for more robust trading. Importantly, such links would also disincentivize carbon leakage to jurisdictions with less stringent climate policies.

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As per the Paris Agreement, governments are expected to submit an updated and more ambitious nationally determined contribution targets in 2020. Economic and Social Survey 2020 argues that a package of actions and the cooperation of all stakeholders, including governments, businesses and consumers, would be critical to achieve the climate change targets. This policy brief showed that carbon pricing is an efficient instrument for meeting those targets and if well-designed, could promote innovation and generate employment and gain wide public acceptance.

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### **Endnotes**

1. IPCC, Global Warming of 1.5C, 2018.
2. See for instance ESCAP, Asia-Pacific Disaster Report, 2019
3. World Bank, Report of the High-Level Commission on Carbon Prices, 2017.
4. World Bank, State and trends of carbon pricing, 2019.
5. ESCAP, Responding to the climate change challenge in Asia and the Pacific: Achieving the Nationally Determined Contributions, 2017; and World Bank, State and trends of carbon pricing, 2016.
6. For a discussion of on carbon pricing in South-East Asian countries, see for instance UNFCCC, Study on cooperative MRV as a foundation for potential regional carbon market within ASEAN: Synthesis Report, 2019.
7. For a literature review on economy-wide impacts of carbon pricing, see for instance, Miria A. Pigato, ed. Fiscal policies for development and climate action (World Bank, 2019).
8. IFC, Greening construction: The role of carbon pricing, 2019.
9. ILO, Greening with jobs – World Employment and Social Outlook, 2018.
10. Ira Irina Dorband and others, "Poverty and distributional effects of carbon pricing in low- and middle-income countries – A global comparative analysis," World Development 115(2019) 246-257.
11. World Bank, Using carbon revenues, 2019.
12. David Klenert and others, "Making carbon pricing work for citizens," Nature Climate Change, 8, 669-677 (2018).
13. World Bank, State and trends of carbon pricing, 2016.

The MPFD Policy Briefs aim at generating a forward-looking discussion among policymakers, researchers and other stakeholders to help forge political will and build a regional consensus on needed policy actions and pressing reforms. Policy Briefs are issued without formal editing. This issue was prepared by Daniel Jeong-Dae Lee (Macroeconomic Policy and Financing for Development Division). It benefited from comments and suggestions from Jyoti Bisbey and Sweta Saxena (Macroeconomic Policy and Financing for Development Division). For further information on this issue, please contact Hamza Ali Malik, Director, Macroeconomic Policy and Financing for Development Division, ESCAP ([escap-mpdd@un.org](mailto:escap-mpdd@un.org)).

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