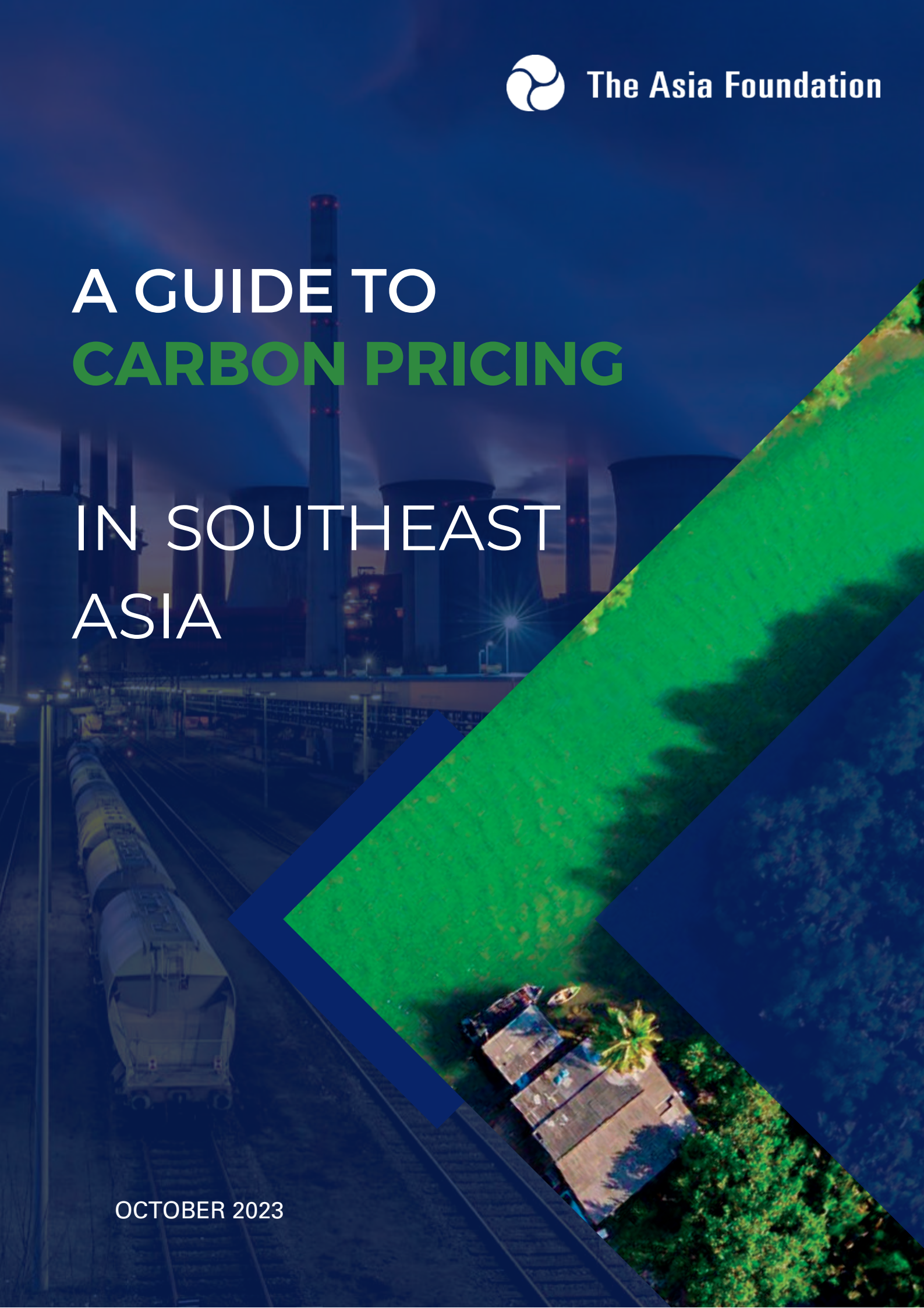
The Asia Foundation

A GUIDE TO CARBON PRICING IN SOUTHEAST ASIA



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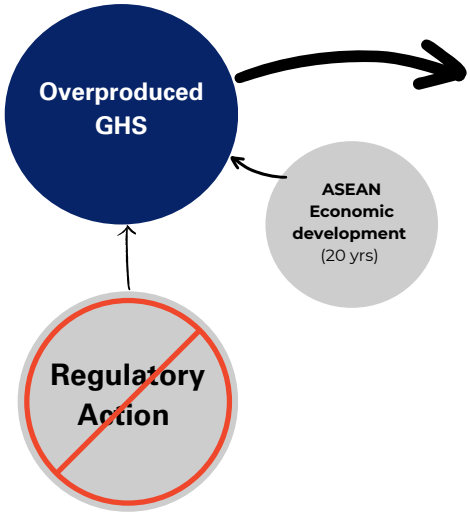
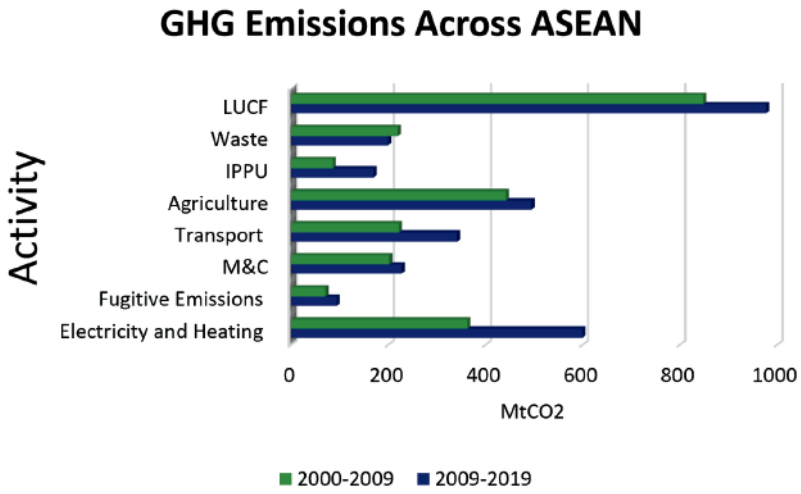
The Problem

Viewed from an economic lens, climate change is the result of several key market failures. The most prominent of these are greenhouse emissions, which are negative externalities arising from otherwise productive economic activities, such as the combustion of fossil fuels for energy. These emissions contribute to the rising atmospheric concentration of greenhouse gases (GHG), and in doing so drive the surface-level temperature increases which are the chief cause of sea-level rise, extreme weather, and a host of other climate-related consequences. GHGs are very much central to the issue of climate change as we understand it today. ASEAN's emissions continue to rise alongside economic development, making regulatory control measures evermore important.





Emissions recorded from 2000-2019. Abbreviations: Land Use Change and Forestry (LUCF), Industrial processes and product use (IPPU), Manufacturing and Construction (M&C)

The Solution

Carbon Pricing Instruments (CPIs)

- Carbon Tax
- Emissions Trading Systems
- Carbon Credits
- Border Carbon Adjustments

In practice, CPIs are rapidly emerging as a popular policy tool to support low-carbon economic transitions and reduce GHG emissions globally. Since 2012, the number of carbon tax or emissions trading systems (ETS) in place has risen from under 12 to over 70, complemented by rapid growth in carbon crediting activities encompassing both voluntary and regulatory markets. With climate action quickly becoming a key policy priority across ASEAN member states (AMS), and growing recognition of regional vulnerabilities in the face of climate change, ASEAN governments are showing an appetite for enhancing climate targets and introducing strong policy instruments to aid these efforts. This includes a nascent focus on the implementation of CPIs, which are now implemented in two AMS and are under consideration by five others. Evidence suggests that carbon pricing is likely to be a centerpiece of economic and climate policy in Southeast Asia over the coming decades.

What are carbon pricing instruments?

Carbon pricing instruments can take many forms. The two most commonly used, direct CPIs are carbon taxes and emissions trading systems (ETS). Carbon crediting systems can exist in conjunction with carbon taxes and ETS or independently, while over recent years, some attention has turned towards border carbon adjustments (BCAs). Beyond these direct instruments lay other mechanisms that indirectly target GHG emissions, instead levied on a particular source of GHGs. This includes 'polluter-pays' taxes, such as fuel or congestion charges, or even the removal of existing fossil fuel subsidies.

CARBON TAXES

Carbon taxes can be levied on GHG emissions directly (such as at the source of emissions), or upon the carbon content of fossil fuels or other products, depending on the nature and structure of particular industries or sectors subject to regulation. The price of carbon also plays a role in determining the extent to which carbon intensive activities are still economically feasible: a high carbon price incentivizes a larger variety of low-carbon activities and technologies than a lower carbon price, depending on marginal abatement costs. The scope of a carbon tax is another important design element.

CT= $ per ton of CO_2-equivalent emitted

There are concerns that the additional costs from carbon taxation may be passed through by producers to consumers. Safeguards can be put in place to limit such cost pass-through, or 'make up' for rising consumer costs by using carbon revenues to fund enhanced social protection transfers or other tax reductions, for example. And while carbon taxes do not explicitly guarantee emissions reductions of a particular magnitude, these can be abetted through 'target-based' approaches to the selection of a carbon price, which is set by the government. For instance, studies could identify the minimum required carbon price to stimulate market shifts that support the meeting of specific emissions reductions targets, e.g., to peak emissions (as has been set in Singapore) or reach net-zero (a common target across AMS).

EMISSIONS TRADING SYSTEMS (ETS)

ETS set an explicit quota or 'cap' on the maximum-allowed quantity of emissions in a jurisdiction in any given year. The quota itself determines the extent of emissions reductions reached, and can be set on an economy-wide basis, by sector, or simply across all firms subject to regulation. As with carbon taxes, the scope of an ETS is an important policy design decision.

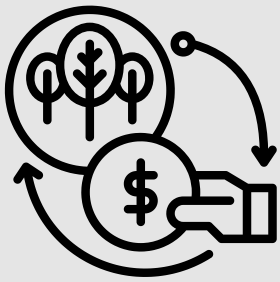
ETS, unlike carbon taxes, thus do not set a fixed price on carbon. This is instead determined by the supply of and demand for emissions 'allowances', which are traceable permits to emit units of GHGs. A growing number of ETS around the world now feature price controls, by imposing floor and ceiling prices for carbon. These can ensure that broader macroeconomic conditions, or other exogenous factors, are less likely to hinder the effectiveness of ETS (by limiting overall carbon price volatility). A stable and predictable carbon price would better facilitate an orderly low-carbon transition.

BORDER CARBON ADJUSTMENTS (BCAs)

BCAs are carbon taxes that are levied upon imports into a jurisdiction, typically in conjunction with a domestic carbon tax or ETS. Their main objectives include mitigating the impacts of carbon pricing on the relative competitiveness of firms located within their jurisdiction, and in doing so minimize incentives for 'carbon leakage'. Such leakage occurs when countries shift production from jurisdictions with strict carbon regulations to those which lack them. BCAs can therefore be a way for nations to enforce the ambition of their climate regulations upon trading partners by incentivizing carbon price equalization across countries.

As carbon pricing imposes a progressive burden on firms, based on emissions levels, it is emissions-intensive, trade-exposed (EITE) firms who are likely to face the largest challenges to competitiveness. BCAs in theory equalize the stringency of environmental regulations applying to EITE firms and foreign-based competitors, and are levied on the basis of the carbon price-differential between the two jurisdictions. If there is no differential, there is no adjustment to be made. In this way, exporting nations have an incentive to equalize the stringency of their domestic regulations with that of the relevant trading partner. While only gaining mainstream traction in recent years, BCAs have a long academic history and have been discussed extensively in the context of global carbon pricing and climate change over the past two decades, as described in greater detail in our report.

CARBON CREDITS



Carbon credits are tradeable financial instruments or assets representing a single ton of avoided, reduced, or removed GHGs, usually measured in terms of CO_2. Through voluntary market processes, credits are most commonly purchased by corporations to 'offset' firm-level emissions. Once used to offset emissions from specific activities, they are 'retired'. Credits can be used in a similar fashion to 'offset' liabilities within a carbon tax or ETS framework as well.

Credits can support a broad set of activities that contribute to the avoidance, reduction, or removal of emissions, and can be used to bridge gaps within the global climate change response and carbon pricing ecosystem. They achieve this by, for instance, supporting emissions reduction projects in difficult-to-abate sectors such as forestry, or in sectors not covered by compliance market CPIs.

As a result of the ongoing finalization of Article 6 of the Paris Agreement, the carbon credit ecosystem is undergoing an evolution and expansion, through the introduction of new types of credits: internationally-transferred mitigation outcomes (ITMOs), and Article 6.4 emissions reductions (A6.4ERs). Though it remains to be seen how these new Article 6 mechanisms will ultimately play out, it is clear that carbon credit activities are expected to have a significant role to play in the global climate change response, by enabling international cooperation towards the achievement of mitigation outcomes, as well as unlocking financing for low-carbon development across the developing world.

Carbon Pricing: Enablers and Constraints

Science and Economic Theory	Politics	Macroeconomics
• Science: climate change primarily driven by carbon-intensive anthropogenic activities causing increasing atmospheric concentration of GHGs • If climate damages are greater than zero, the cost of carbon must be greater than zero • Big question: what is the social cost of carbon? Do CPIs fully address this market failure? • Regardless, scientists, economists heavily in favor	• Can be a hindrance towards adoption of 'first-best' policies • Lack of acceptance of climate change (CC) as anthropogenically-caused, becoming a partisan issue – evidence from US, Australia, Canada, Germany; age also found to be a determining factor • The challenges of international coordination – climate justice: varying 'responsibility', capacity, especially across developed/developing world impacts coordination capabilities	• CPIs likely to have inflationary impacts in the short run, causing rise in cost of living, potential threats to short term economic growth • Yet, many less-developed countries will face largest impacts from CC, necessitating some action • Economic evidence indicates limited adverse impacts of CPIs on economic growth, inflation • Further controls on adverse impacts through careful instrument design (though potentially at the expense of 'first-best' design)

All AMS, except Cambodia and Myanmar, are either assessing, designing, implementing, or have implemented compliance market CPIs. The only implemented compliance market CPIs across AMS as of June 2023 are Indonesia's ETS, launched in February 2023 and which currently covers only emissions from coal-fired power plants; and Singapore's carbon tax, launched in 2019 and which covers emissions from its largest emitters.

The Status of Carbon Pricing in ASEAN

Countries	Carbon Pricing Instruments					
	Law or Act	Tax	ETS	Crediting	Indirect	FF Subsidies
Brunei	♦	♦	♦	♦	♦	♦
Cambodia	♦	♦	♦	♦	♦	♦
Indonesia	♦	♦	♦	♦	♦	♦
Laos	♦	♦	♦	♦	♦	♦
Malaysia	♦	♦	♦	♦	♦	♦
Myanmar	♦	♦	♦	♦	♦	♦
Philippines	♦	♦	♦	♦	♦	♦
Singapore	♦	♦	♦	♦	♦	♦
Thailand	♦	♦	♦	♦	♦	♦
Vietnam	♦	♦	♦	♦	♦	♦

Legend:
♦ Active
♦ In Development
♦ Under Consideration
♦ Inactive

Sources: AMRO (2022), Parry et al. (2021a), Parry et al. (2021b), So et al. (2023), World Bank (2023)

Thailand is planning to launch a carbon tax over the coming years, covering activities within the energy, transport, and industrial sectors, and is currently engaged in studies to assist in the development of this mechanism. Brunei, Malaysia, the Philippines, and Vietnam are all considering the implementation of carbon taxes or ETS, and are currently in various stages of assessing their feasibility and practicality for adoption. Carbon crediting programs or initiatives are ongoing across all AMS except Brunei.

Despite current efforts, work will need to continue so that AMS targets are met, most importantly by having a clear understanding of what is required in ongoing efforts to implement and administer CPIs, and how to design CPIs to ensure environmental objectives can be met without compromising on bread-and-butter economic needs.

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