
The Economic Value of Carbon

**Is there a tradeoff between
economic growth and clean
environment?**

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INTRODUCTION

DISCLAIMER!!

Hutan Perempuan



Source: BBC

Budaya Tonotwiyat
Kampung Enggros

HISTORY

Natural Resource

Concerned with rates of exhaustible resource depletion and the determination of optimal harvest rates for renewable resources

Environmental

Environmental damage is a market failure

Ecological

Ecological limits
Sustainability
Earth as a 'spaceship'
(Boulding, 1966)

Source: Pearce, 2002

Economics Theory of Pollution Control

What makes a market economy work?

Clearly defined **ownership right** and **self-interest behavior** ensure that resources are used where they are most valued.

From the perspective of resource allocation, the ownership of a resource is said to be clearly defined if it satisfies four conditions.

1. **Complete property rights:** well-defined, transferable and secure sets of property rights. All benefits or costs must accrue to the agent holding the property right.
2. **Atomistic participants:** Producers and consumers are small relative to the market and cannot influence prices.
3. **Complete information:** Producers and consumers have full and identical knowledge of market fundamentals.
4. **No transaction costs:** costless to trade.

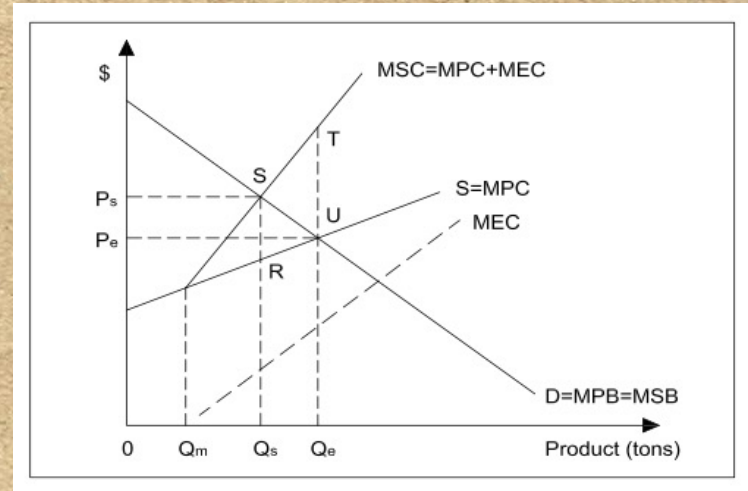
Environmental Externalities

Conditions arising when the actions of some individuals have direct (negative or positive) effects on the welfare or utility of other individuals, none of whom have direct control over that activity

Lack of excludability (non exclusiveness) is the root cause of externality.

1. **Non-rival in consumption**, that is, once it is produced, the consumption of this commodity would not reduce its utility for the producer.
Example: A garden.
2. **Common property**, i.e. no one can be excluded from using it. Example: A lake, a river and the (cleaned) air.

Source: Taschini, 2020



What can be done to correct the misallocation of resources caused by environmental externalities?

INSTRUMENT

Direct (Command and Control)

Liability Laws

Emission Standards

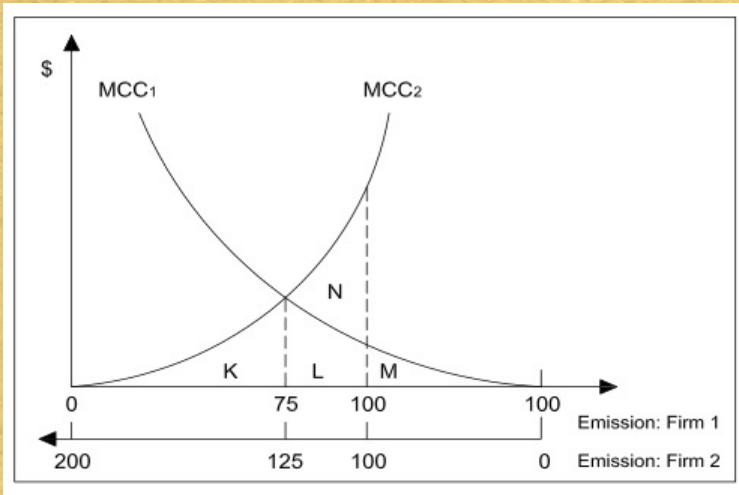
Indirect (MBIs)

Effluent Charges

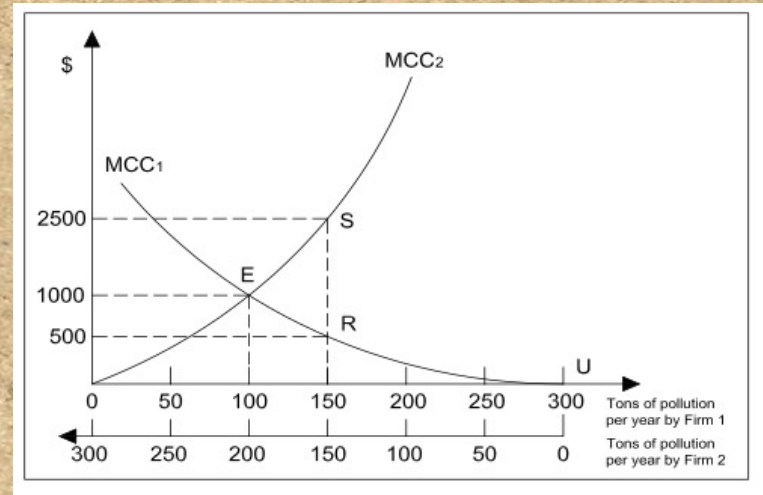
Transferable Emission

Source: Taschini, 2020

Equimarginal

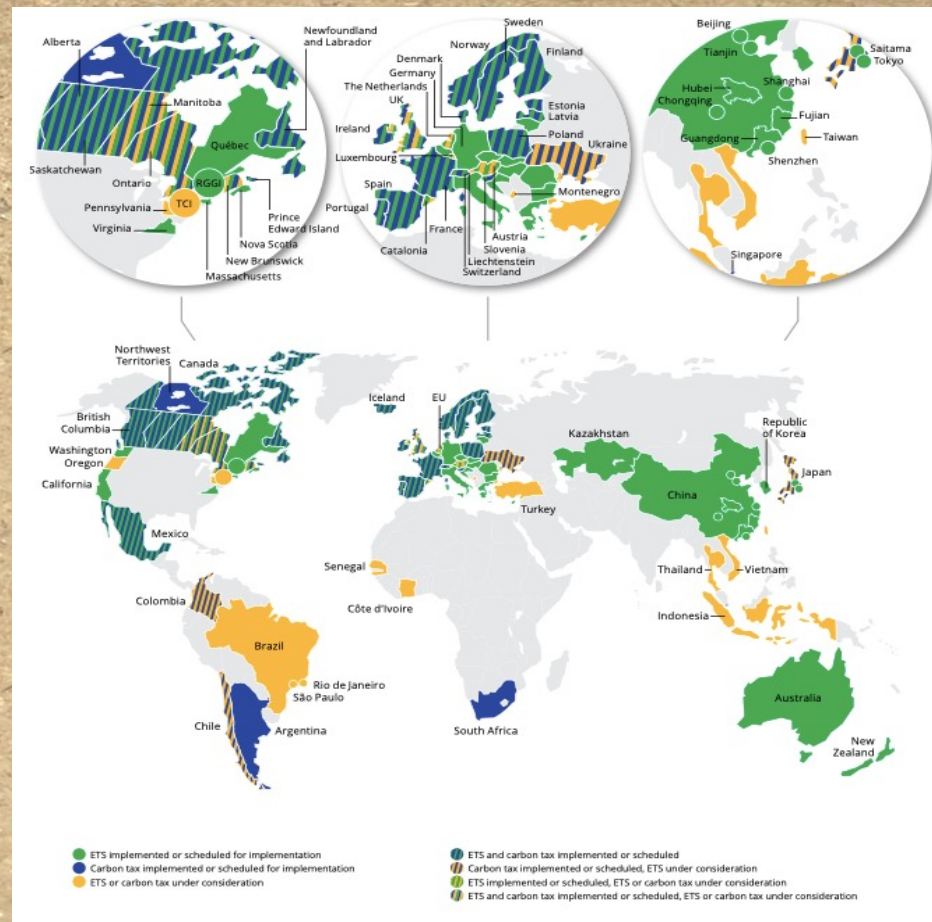
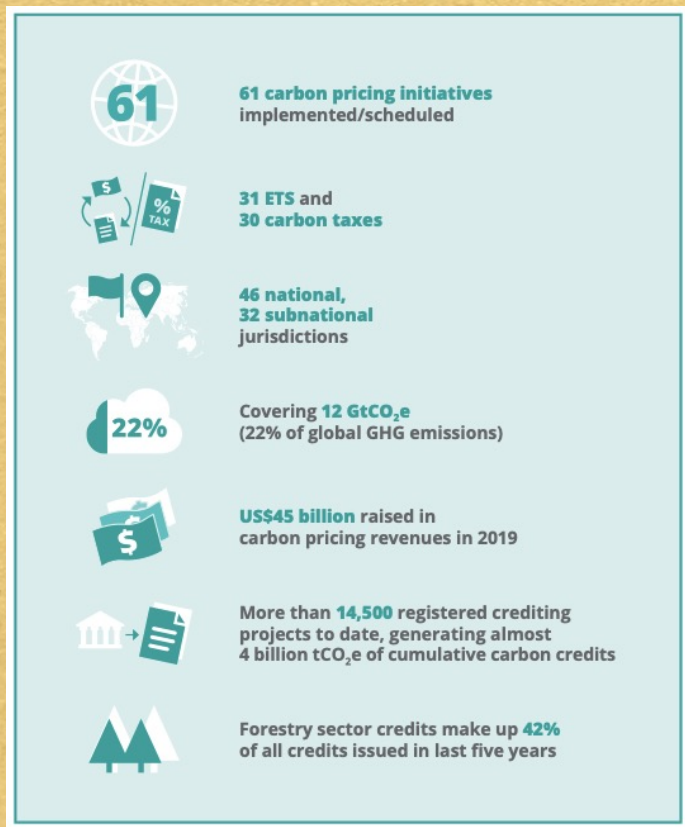


Menggunakan Uniform
Standard



Menggunakan Tradable Permits

Carbon (?) Pricing



Source: WorldBank, 2020

Carbon Pricing

Carbon Tax

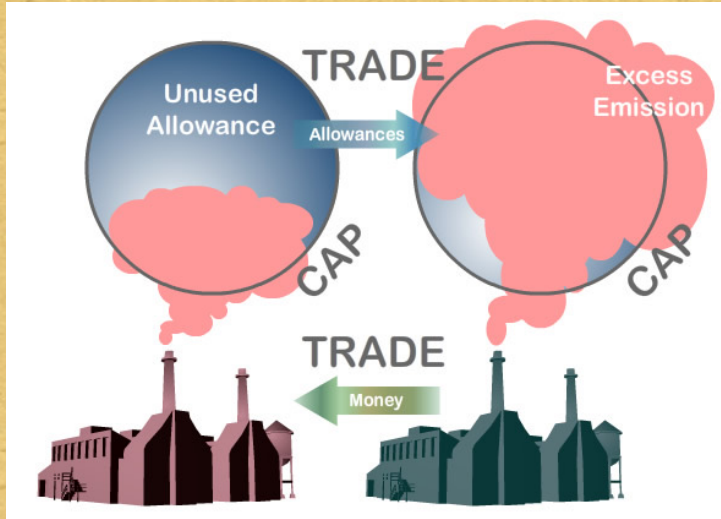
- The price is set
- Simplicity

Cap and Trade

- The quantity is set
- Flexibility

Source: Taschini, 2020

Cap and Trade



Others:

- **Carbon crediting mechanisms** are initiatives that issue tradable emission units to actors that voluntarily implement emission reduction activities that are additional to business-as-usual operations
- **RBCF** is a form of climate finance where funds are disbursed by the provider of climate finance to the recipient upon achievement of a pre-agreed set of climate results.
- **Internal carbon pricing**, which refers to the practice within organizations of assigning a monetary value to GHG emissions in their policy analyses and decision making

Source: WorldBank, 2020

Best Practice USA (SO₂)

1990 Clean Air Act Amendments

Title IV of this act was responsible for initiating a nationwide use of market-based approaches primarily designed to reduce sulfur dioxide (SO₂) emissions from power plants by half the amount of the 1980 levels.

In the United States, emissions of SO₂ from power plants were the chief precursor of acid rain.

1. The goal of the program has been to cut the annual SO₂ emissions from power plants by 10 million tons from 1980 levels by the year 2000.
2. The cost estimates for a “command-and-control” program, for Phase I alone were running as high as \$10 billion a year, which is equivalent to \$1,000 per ton of SO₂ controlled - Kerr and Newell [2003].
3. Given this analysis, considerable attention was given to searching for cost-effective ways of operationalizing the acid rain control programs. One outcome of this was the adoption of a flexible system of emissions trading.

Under this program, EPA limits individual power plants by issuing a fixed number of tradeable permits (allowances) on the basis of historical emissions. The number of allowances declines yearly.

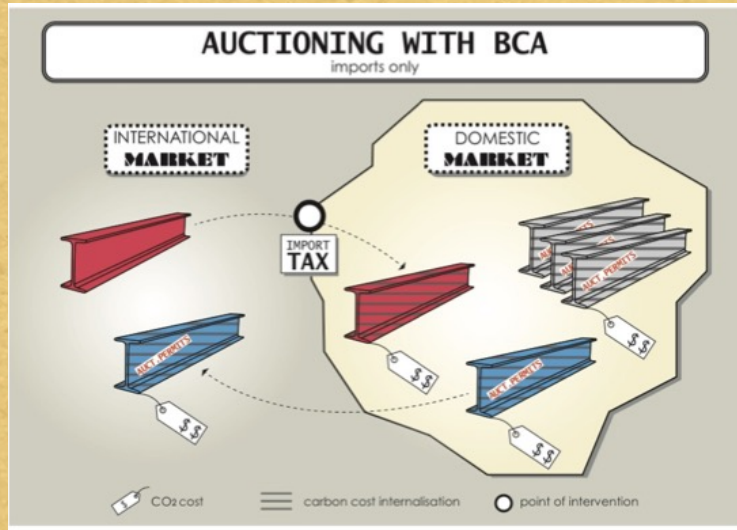
Early indications are that the use of tradeable allowances permitted a remarkably reduction (34%) and this was done at a cost of less than \$1 billion per year - Kerr and Newell [2003].

EU ETS (Emission Trade System)

- The EU ETS is a regional initiative established to help the EU meet its climate change commitments under the Kyoto Protocol.
- Expected to reduce total emissions by
 - 21% in 2020 compared to 2005 levels;
 - 40% in 2030 (revised aim 50-55%) from 1990
- Covers 11,500 installations in 31+ European countries.

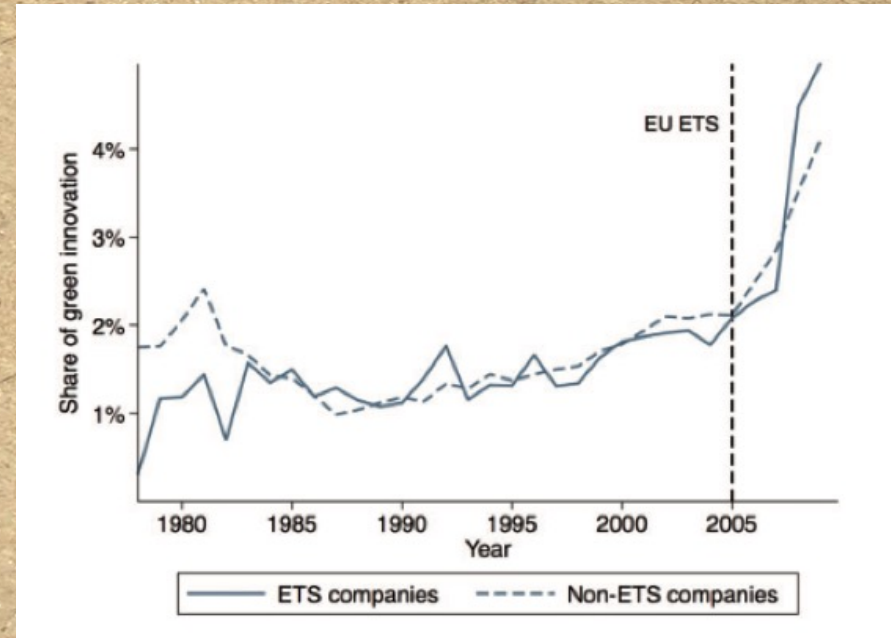
EU ETS (Emission Trade System)

- Issue (Competitiveness and Carbon Leakage)
- Solution



Source: Sato (2020)

Impact of EU ETS on low-carbon innovation



Source: Caeli and Dechezleprtre (2016)

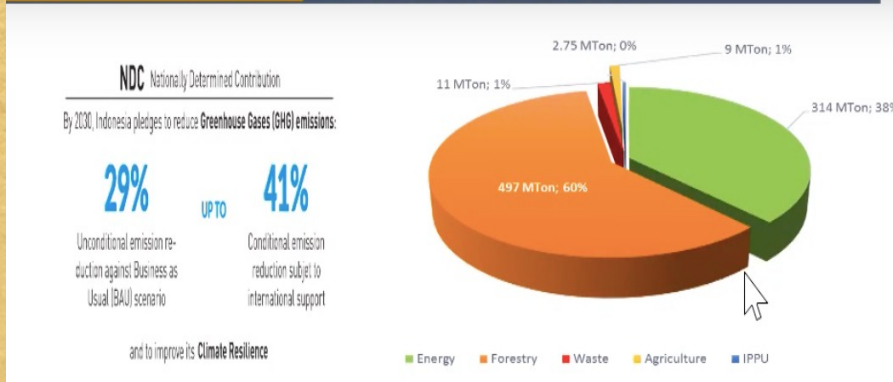
Planning for Pricing Carbon

- Key principles (FASTER) (OECD, 2015)
- Distributional Impacts
- Competitiveness
- Communication and Engagement

Source: CPLC (2020)

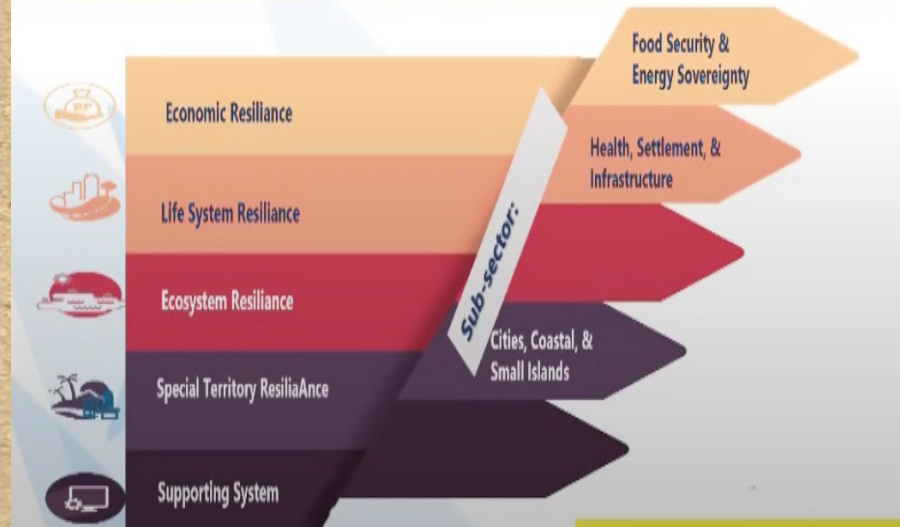
Indonesia's Commitment

COMMITMENT ON CLIMATE ACTIONS: MITIGATION

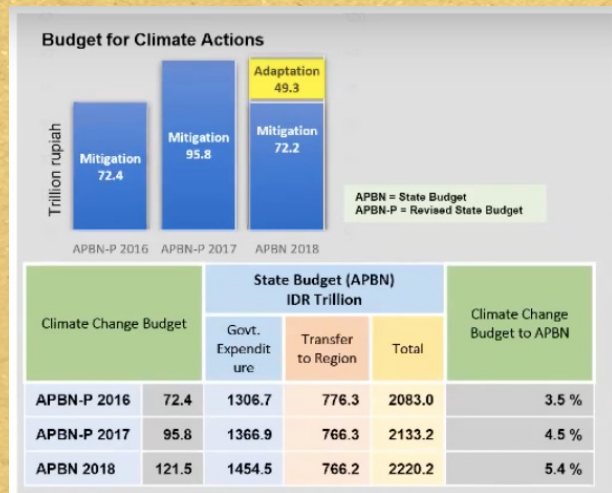


Source: Ministry of Finance (2019)

COMMITMENT ON CLIMATE ACTIONS: ADAPTATION



Indonesia



FINANCING & INVESTMENT CHALLENGES

Indonesia will need about USD 81 B to finance Mitigation & Adaptation Actions in 2015-2020 (TNC Report to UNFCCC, 2017).

The Climate Actions needs a strategic policy and financing collaboration among the stakeholders in the local and global level, such as government (central & sub-national), business entities (private, SOEs), MDBs, NGOs/CSOs, communities, and other related stakeholders.

Source: Ministry of Finance (2019)

The Government Budget alone will not be able to meet the financing needs for climate change actions

Strategies:

1. Innovative Financing Instrument
2. Fiscal Policies
3. Improving Access to Global Finance
4. Attracting Private Sector's Investment



Perpres tentang NEK/ INEK

Market Readiness

	Sectoral mitigation potential and costs	Sectoral emissions reduction target	MRV capacity	Stakeholder awareness	Coordinated market-related policy(ies)	Market design	Market infrastructure	Pilot market activities
Current condition:	GHGs Profiling study and Marginal Abatement Cost Curve (MACC) for several sectors is available.	No emissions reduction target for subsectors other than sectoral target stated in NDC.	MRV capacity for facilities and system administrator are exist under MoEF (Ministry of Environment and Forestry)	Awareness toward MBI as climate policy tool in significantly increased within government.	Government regulation on environmental economic instrument and establishment of Environmental Fund Agency (BPDH) acknowledges market-based instruments.	Cap-and-trade (ETS) and Carbon crediting mechanism are accepted by Govt as feasible options to developed.	No existing market infrastructure for ETS and Carbon credit.	Pilots of carbon crediting mechanism and voluntary pilot ETS is being prepared (in power and industry sectors).
Ideal readiness condition in 2020:	Sectors are able to update their respective MACC.	Sectors have regulation to control emissions level or establish cap.	MRV regulation is issued to make GHG reporting mandatory (draft regulation is available).	Awareness of MBI is spread among stakeholders, in particular private sector.	General framework for market-based instruments is established by government.	ETS design is developed and agreed among stakeholders. Carbon crediting mechanism is fully operational.	GHG registries at MoEF is improved with basic market-registry abilities.	Pilot toward mandatory ETS is started.
Gaps	Low	Medium	Low	High	High	High	High	High

Categories from OECD, 2010

Source: UNDP Indonesia (2020)

Market Readiness

Fill the gaps

- **Legal basis:** Who own the right over carbon? Who can trade the allowances?
- **Policy Linkage:** What can be traded while meeting NDC target?
- **Institutional Arrangement:** Which Ministry has authority for registry, system, MRV, issuing certificate?
- **Implementing Regulation:** What sectoral ministry's regulation required?
- **Engagement of Potential Market Player**

Source: UNDP Indonesia (2020)

Implementation Strategies

Political economy is a key

- Knowing who is the loser and the winner?
- Good public communication strategies (Sentuh Emosi, Aman dan proposionalkan anggaran edukasi public)
- Agenda setting bertahap dengan timeline terukur , kunci regulasi seperti UU misalnya
- Libatkan public untuk menumbukan sense of belongin sebesar-besarnya

Source: Yusuf, A (2020)

Sudah siapkah Indonesia membuka carbon market?

YUK DISKUSI!

THANKS

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