

# Market Based Mechanism for Climate Change Mitigation in Indonesia

Indonesia JCM Secretariat



Coordinating Ministry  
for Economic Affairs  
Republic of Indonesia

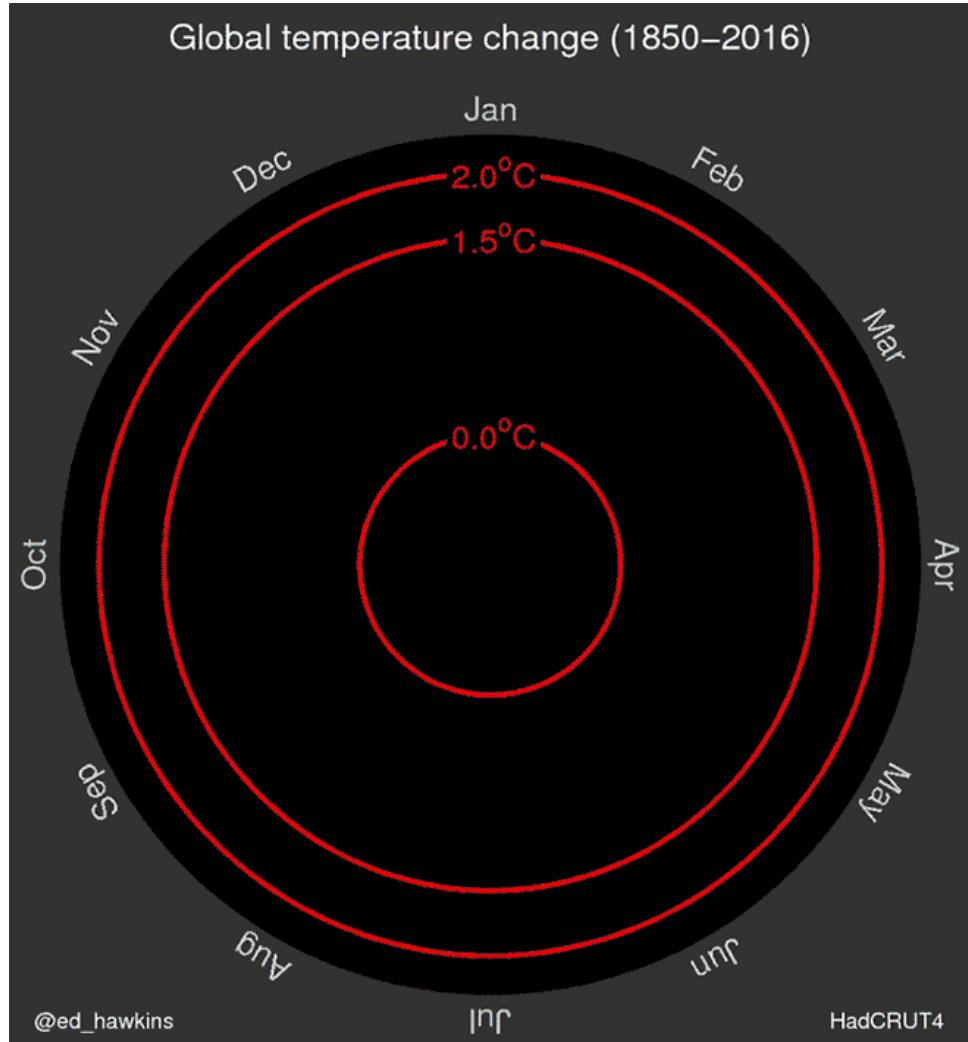


# Where Do Greenhouse Gases Come From?



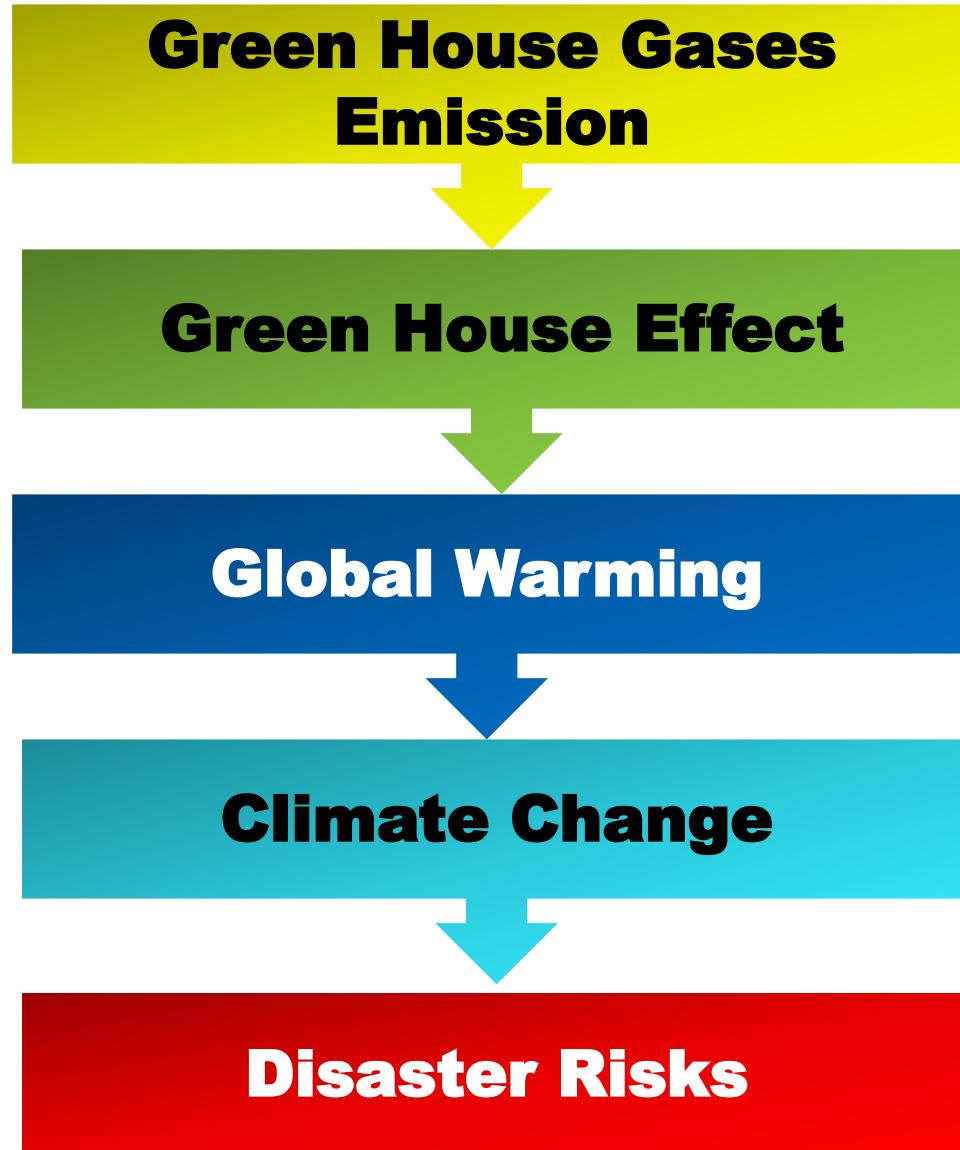
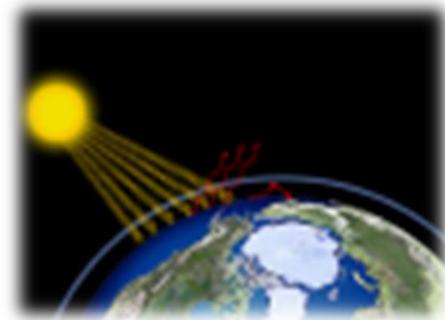


# Monthly global temperature data





# No question why we need to reduce the emission



50°C

















# What happened in COP 21 Paris?

- Parties of the UNFCCC pledged to curb its carbon emission, strengthen resilience and joined to take common climate action.
- Paris Deal includes a temperature limit of **“well below 2 C” and says there should be “efforts” to limit it to 1.5 C**. To do so requires **32 GtCO<sub>2</sub>e emission to be cut in 2050**, and around **US\$ 40 trillion additional investment** to transition to a global low-carbon economy.
- To achieve long-term temperature goal or in another word reaching **net zero-emission after 2050**.
- Legal obligation on developed countries to continue to provide climate finance to developing countries.
- On mitigation, binds parties to prepare and regularly update climate commitments and developing countries are encouraged to move towards stricter goals.



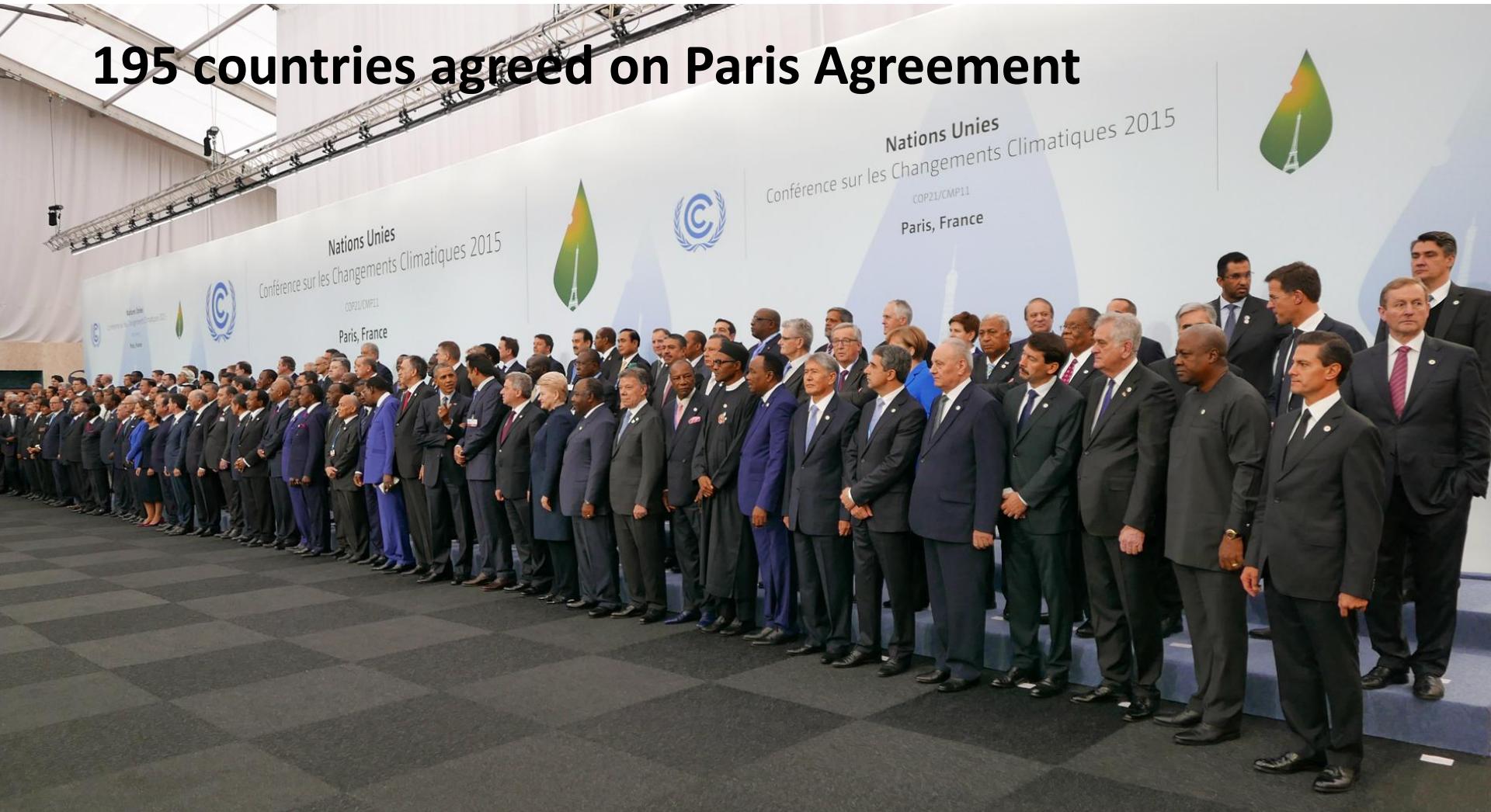


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# Global problem need global commitment

195 countries agreed on Paris Agreement





# Indonesia and every country must contribute the emission reduction

## Intended Nationally Determined Contribution (INDC)



### UNCONDITIONALITIES

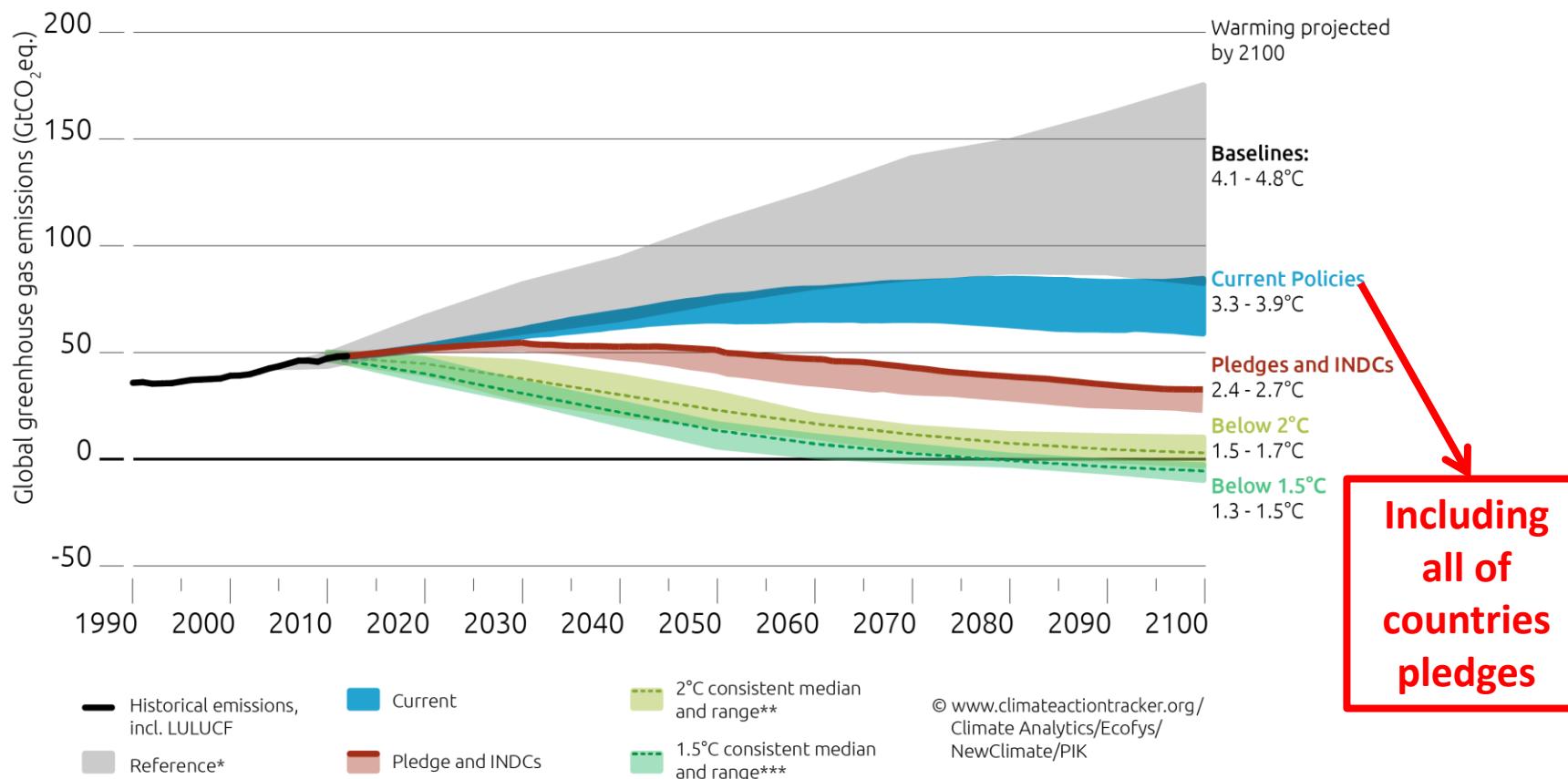
As stated earlier, Indonesia is committed to reducing emissions by 29% compared to the business as usual (BAU) scenario by 2030, as a fair reduction target scenario based on the country's most recent assessment of the 2010's National Action Plan on GHG Reduction. The BAU scenario is projected approximately 2,881 GtCO<sub>2</sub>e in 2030.

### CONDITIONALITIES:

As articulated in the aforementioned Unconditional Reduction Indonesia's target should encourage support from international cooperation, which is expected to help Indonesia to increase its contribution up to 41% reduction in emissions by 2030.



# Global INDC aggregate



\* 5%-95% percentile of AR5 WGIII scenarios in concentration category 7, containing 64% of the baseline scenarios assessed by the IPCC

\*\* Greater than 66% chance of staying within 2°C in 2100. Median and 10th to 90th percentile range. Pathway range excludes delayed action scenarios and any that deviate more than 5% from historic emissions in 2010.

\*\*\* Greater than or equal to 50% chance of staying below 1.5°C in 2100. Median and 10th to 90th percentile range. Pathway range excludes delayed action scenarios and any that deviate more than 5% from historic emissions in 2010.



# Combatting climate change = money!

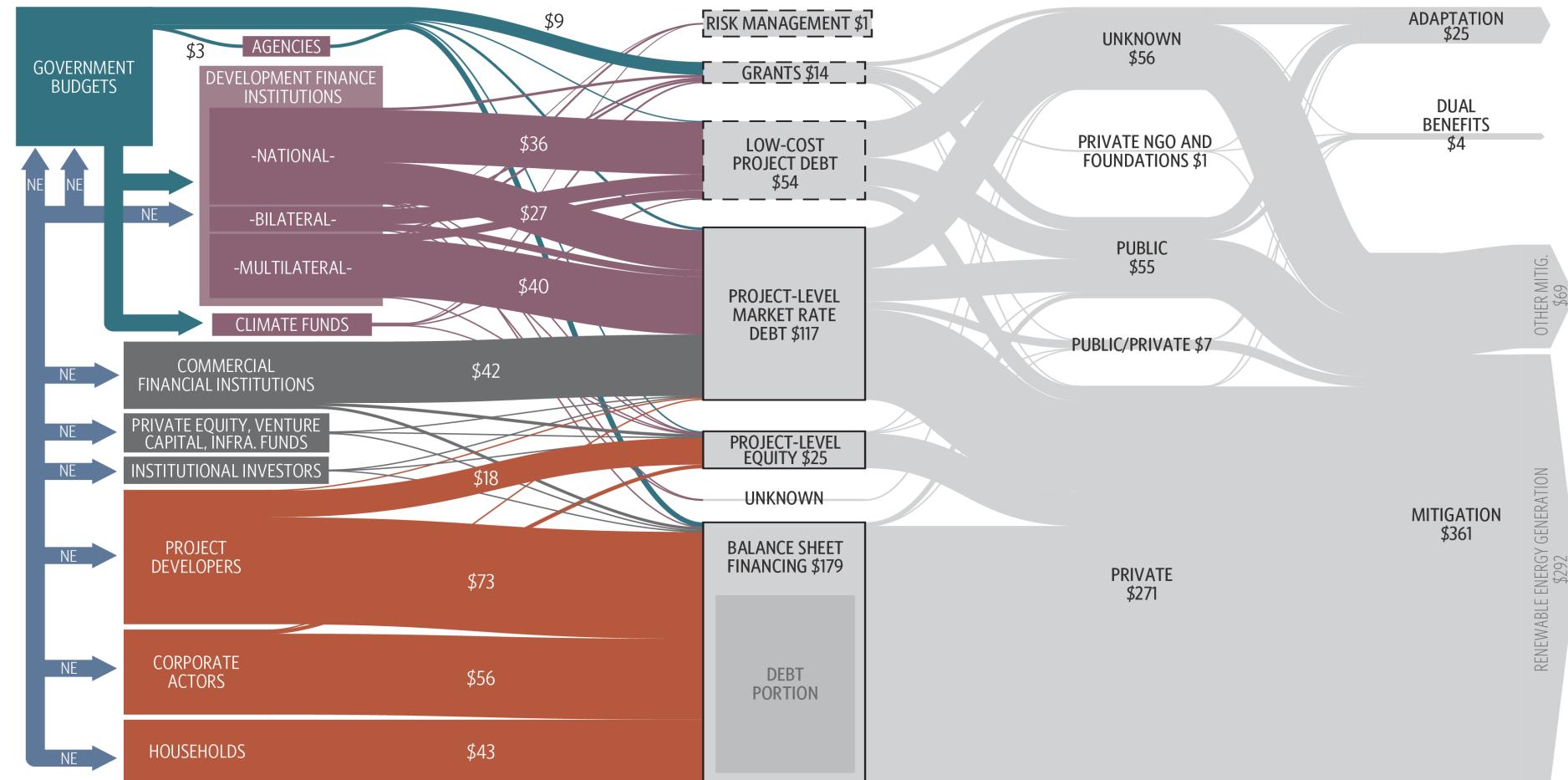
## GLOBAL LANDSCAPE OF CLIMATE FINANCE 2015

Landscape of Climate Finance 2015 illustrates climate finance flows along their life cycle for the latest year available, mostly 2014, in USD billion

**USD 391 BN** TOTAL



### SOURCES AND INTERMEDIARIES



KEY

PUBLIC  
MONEY

PRIVATE  
MONEY

PUBLIC FINANCIAL  
INTERMEDIARIES

PRIVATE FINANCIAL  
INTERMEDIARIES

CAPITAL INVESTMENT

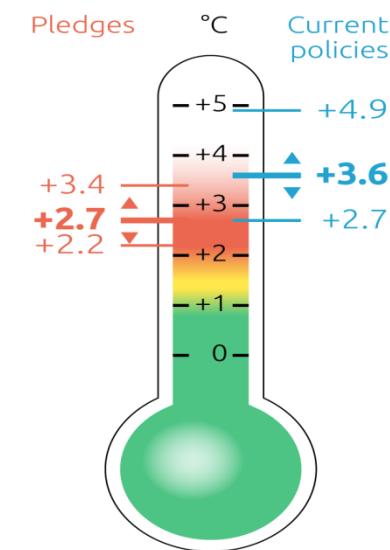
CAPITAL INVESTMENT  
AND INCREMENTAL COSTS

FINANCE FOR INVESTORS & LENDERS  
NE: NOT ESTIMATED



# We need market based mechanism for climate change financing mitigation

- **Government budget will not enough to combat the climate change!**
- **Market-based mechanism (MBM) is policy mechanisms that use market, price, and other economic variables to provide incentives for polluters to reduce or eliminate negative environmental externalities.**
- Market based mechanisms, if designed well, are widely seen as an effective tool for reducing greenhouse gases (GHGs) and fostering energy efficiency and renewable energy as well as developing sustainable forestry.
- Some of the well known MBM types are emission trading scheme (ETS), carbon taxes, crediting mechanism, and certificates of renewable and energy efficiencies.
- The measures itself is a **MRV (measurement, reporting, and verification)** system that developed based on transparency and accountability principles.
- Through MBM, the government can enhance the involvement of private sectors in climate change mitigation actions.



Source: climate action tracker





# So, we put a price on a carbon

## National Target

- Putting a price on a carbon will make the calculation and planning easier.
- Every country must reduce the emission based on their own target.

## Source of Revenue

- Putting the price on a carbon will generate revenue and business opportunity that can be used to implement low carbon technologies.

## Product and Process Efficiency

- As the emission will become cost, companies will be triggered to be more efficient in the production process

## Scaling Up Private Sector Fund

- The private sector will be interested to invest in the low-carbon development as there is incentive for reducing emission

## Trigger Behavior Change

- By putting price on a carbon it is likely the price of energy will get higher, thus changing behavior of the people to be more efficient (demand side management)

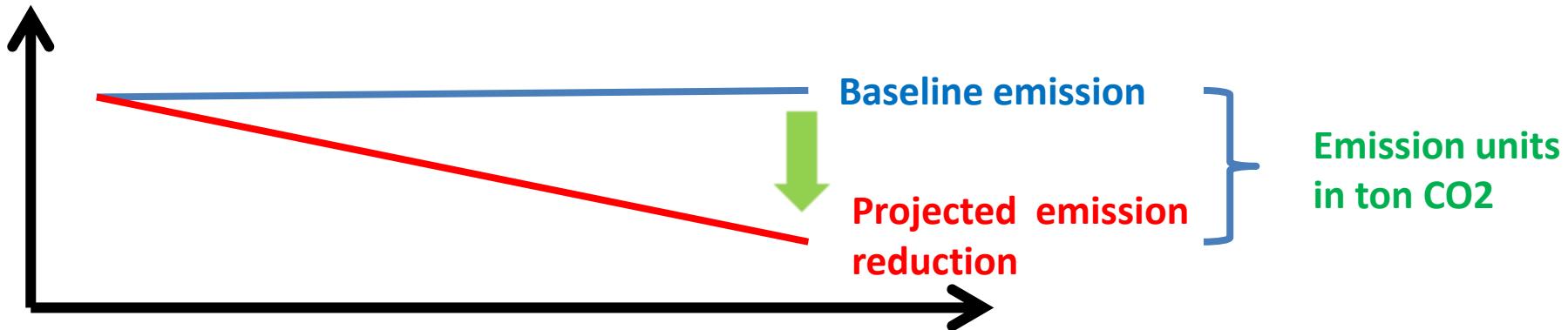


# A ton is a ton!

Basic principles of market based mechanism is:

**a ton is a ton!**

It means that any emission reduction activities in any part of the world gave the same effect to atmosphere if we do it in the same amount!



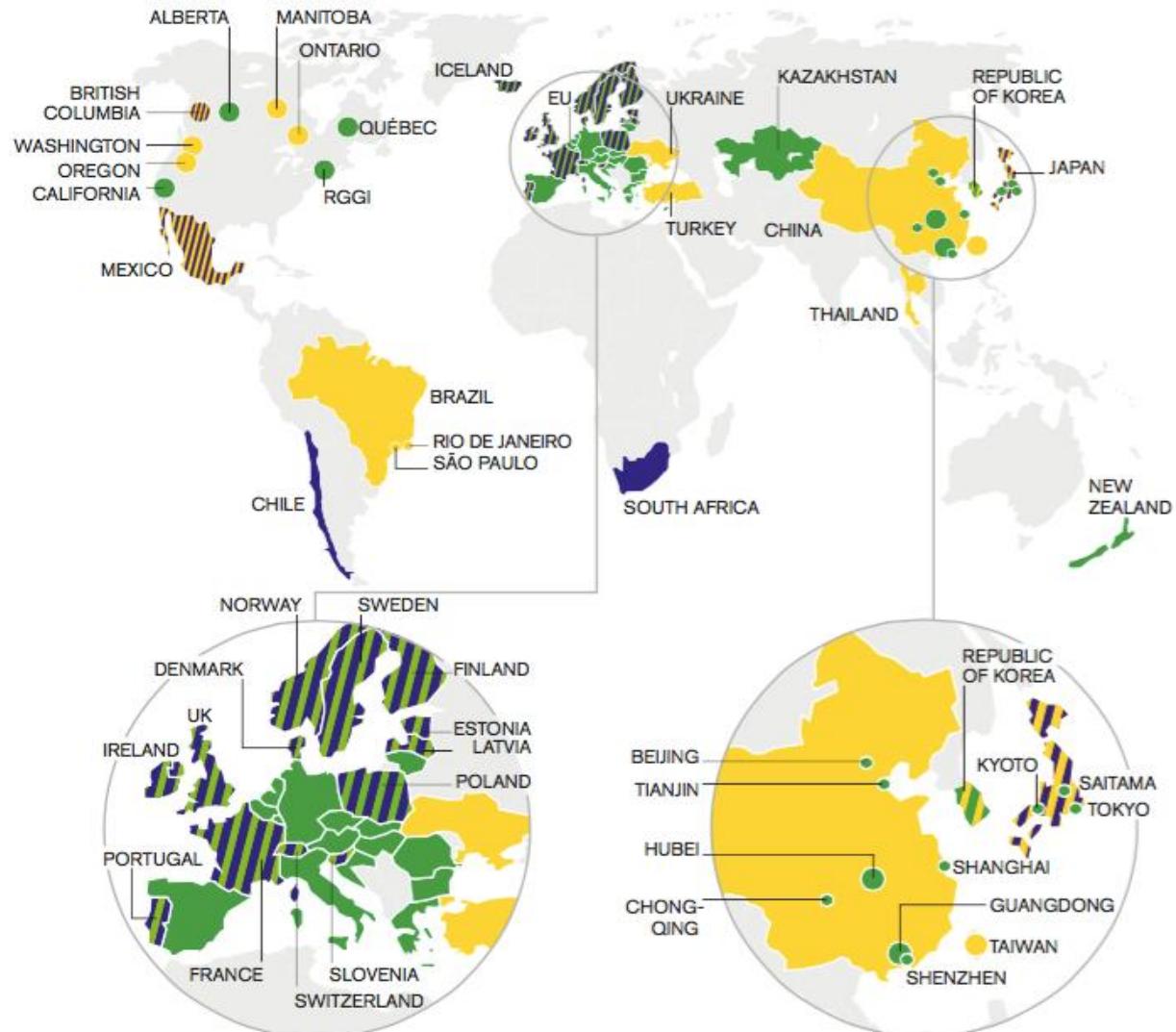
To change activity unit (kWh, kg, liter, etc) to ton CO2 we use emission factor

$$\text{Emission} = \text{activity unit} \times \text{emission factor}$$

Emission factor is average emission rate of a given GHG for a given source, relative to units of activity (UNFCCC)



# Market based mechanism instruments map



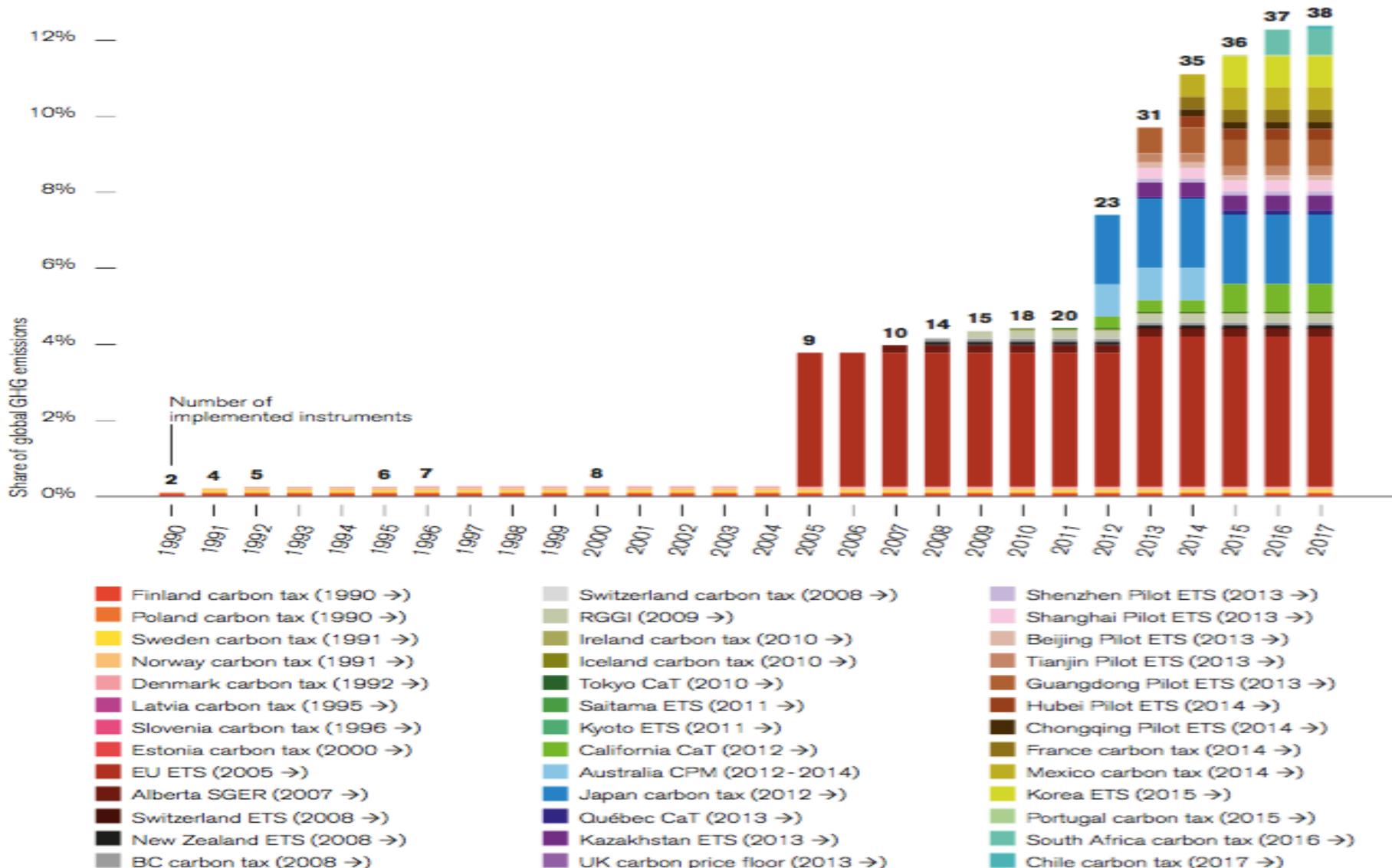
● ETS implemented or scheduled for implementation  
● Carbon tax implemented or scheduled for implementation

● ETS or carbon tax under consideration  
● ETS and carbon tax implemented or scheduled

● ETS implemented or scheduled, tax under consideration  
● Carbon tax implemented or scheduled, ETS under consideration



# Coverage of the global GHG emission





# Market based mechanism types

- Clean development Mechanism (CDM)
- Joint Implementation
- Emission Trading Scheme (ETS)
- Crediting scheme (VCS, JCM, plan vivo, CCB)
- Carbon tax



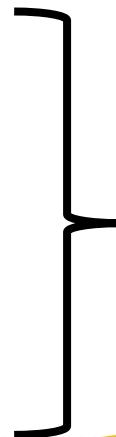


# To calculate the emission we use MRV

## M is measurement

## R is reporting

## V is verification



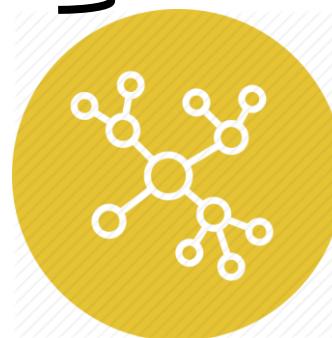
### Some basic elements of MRV

1. Scope of MRV (and governance)
2. Methodology and baseline
3. Measurement system (qualitative and quantitative)
4. Reporting
5. Verification (and third party entities)
6. Registry and issuance system.

Scale



National



Sub-national / Scheme



Project / Activity level

M

R

V

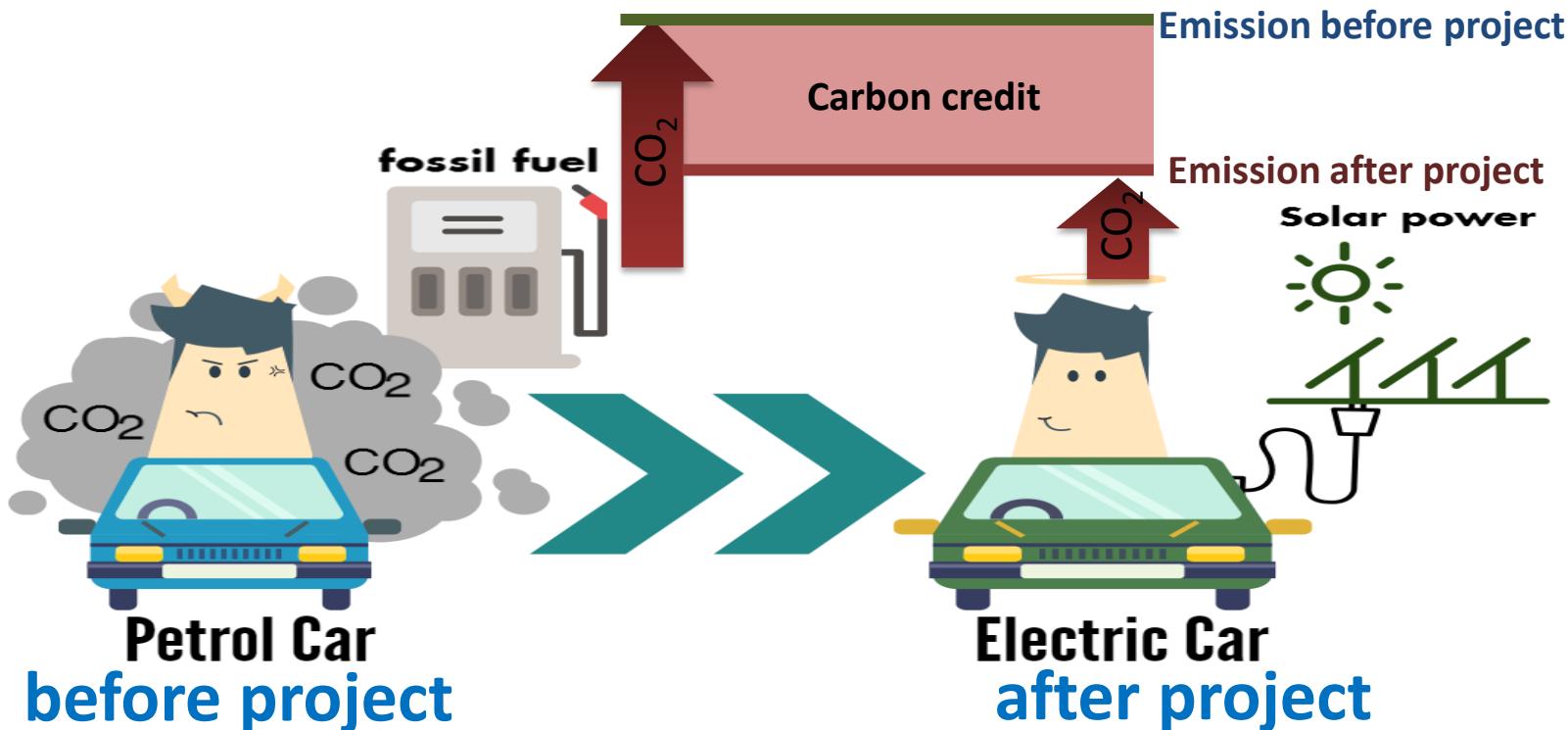


# How crediting work

- Emission reduction is the difference between emission scenario without project with the actual emission after the project is being implemented.

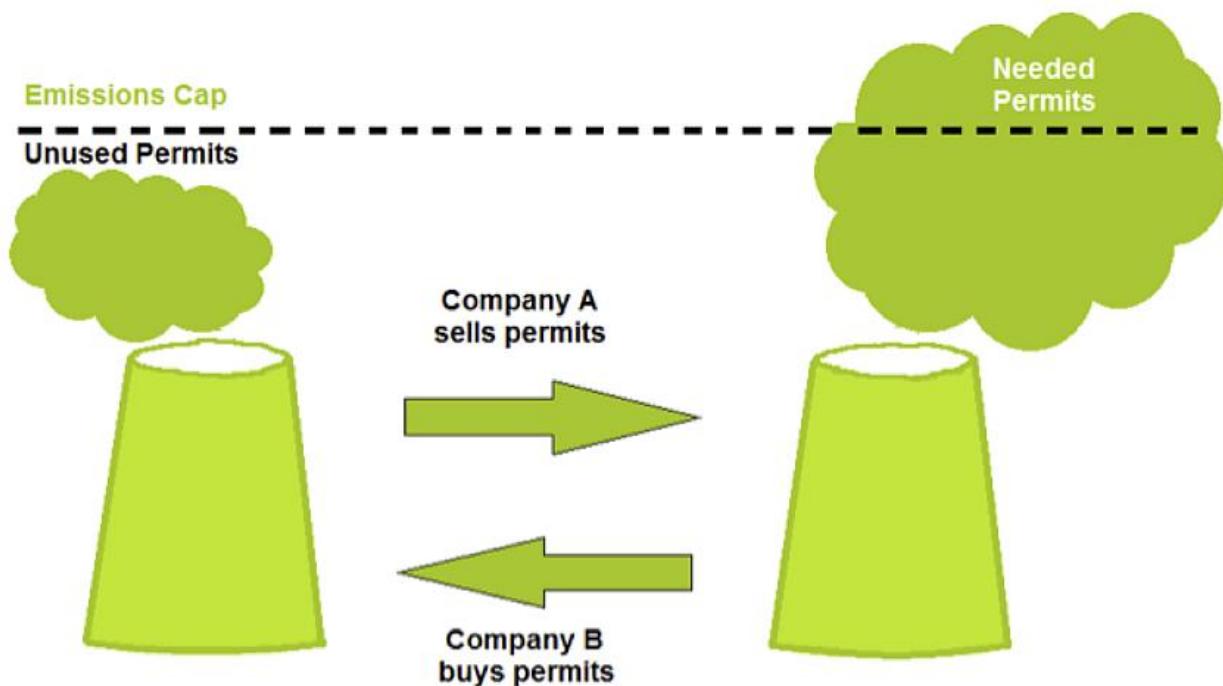


- In crediting, each 1 ton of CO<sub>2</sub> emission reduction is equivalent to 1 carbon credit
- To quantify emission reduction, methodology is needed.





# How cap and trade/ETS mechanism work



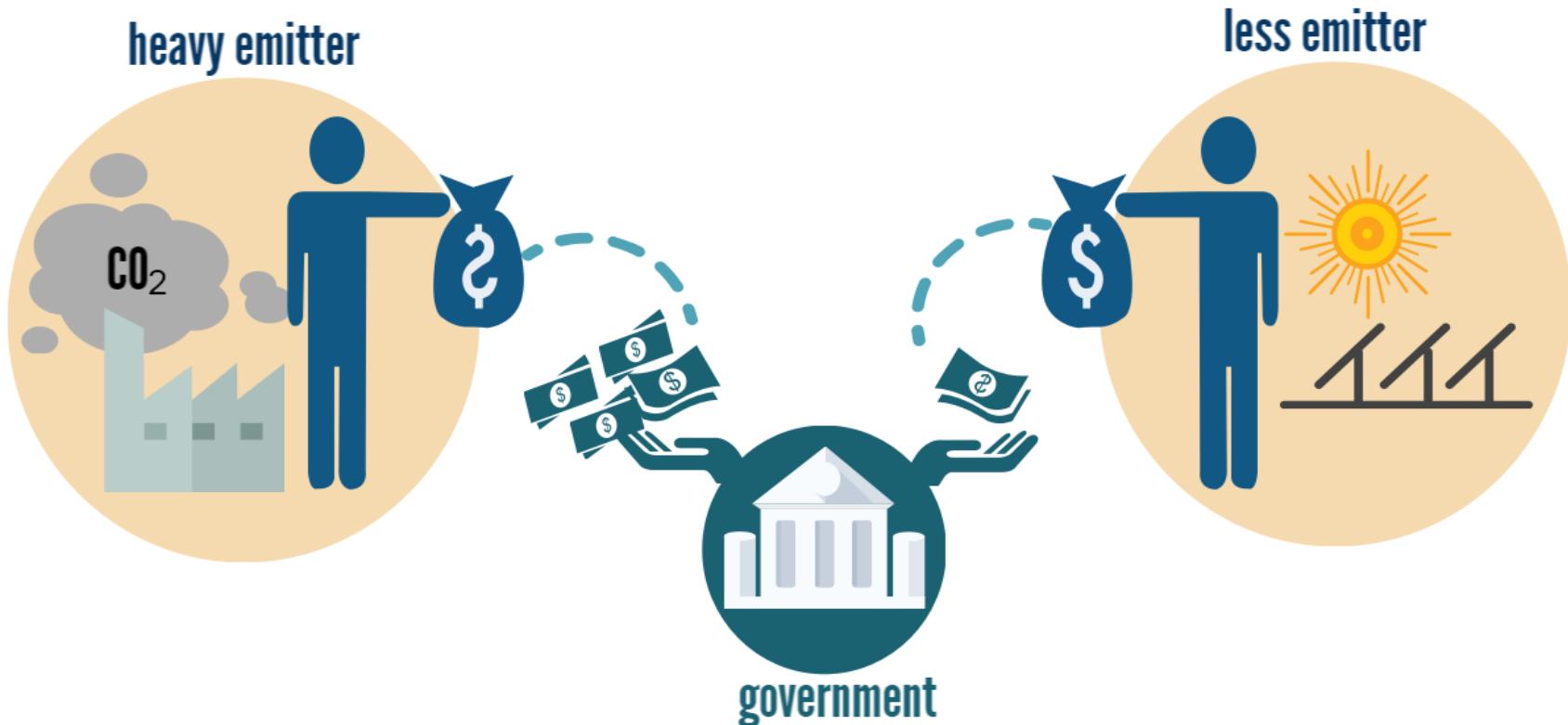
**By applying cap and trade policy, quantifiable emission reductions can be delivered by setting a cap.**

Emissions trading or cap and trade is a government-mandated, market-based approach to controlling emission by providing economic incentives for achieving reductions in the emissions of pollutants



# What is carbon tax?

- Carbon tax is a form of explicit carbon pricing; it refers to a tax directly linked to the level of CO<sub>2</sub> emissions, often expressed as a value per tCO<sub>2</sub> equivalent<sup>1</sup>
- With carbon tax, a ton of emitted GHG has a price according to the taxation policy. Thus, creating incentives for emitters to shift to less GHG intensive ways of production and resulting in reduced emission.



<sup>1</sup> based on "Climate carbon – Aligning prices and policies," OECS Environment Policy Paper, October 2013 n°01



# Carbon market

A carbon market is a market that is created from the trading of carbon emission allowances or credits to encourage or help countries and companies to limit their carbon dioxide (CO<sub>2</sub>) emissions.

## Carbon market elements:

- Policy
  - Setting environmental target goal
  - Selecting appropriate policy instruments
  - Sharing possible carbon revenues
  - Policies to encourage pilot
- Technical
  - Coverage
  - MRV system
  - Reference/baseline scenario
  - Registry and transaction log
- Institutional and legal
  - Issuance system
  - Institutional for the verificatory
  - Rules and regulation

## Why carbon market?

- Seller
  - Profit
  - Green incentives
  - Co benefit
- Buyer
  - Obligation to reduce emission
  - Cheaper and easier
  - Guaranteed quality
  - Voluntary



Cost Effective



# Carbon pricing instrument statistic

## Jurisdiction

- 39 National
- 23 Sub-national

## Instrument

- 38 carbon pricing instruments (already implemented or scheduled for implementation)
- 90% increased compare to 1<sup>st</sup> January 2012

## Coverage

- Around 12% of the global emission or 7 GtCO<sub>2</sub>e
- ETS consists of 8% & carbon tax consists of 4%

## Price

- Ranging from US\$ 1 – 130 /tCO<sub>2</sub>e



# List of countries implementing carbon pricing instruments

## ETS

National:

Liechtenstein, Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Germany, Greece, Hungary, Lithuania, Italy, Luxembourg, Malta, The Netherlands, Romania, Slovakia, Spain, Kazakhstan, Korea, *Taiwan*

Sub-national:

RGGI, Tokyo, Saitama, Kyoto, California, Quebec, Shenzhen, Guangdong, Shanghai, Beijing, Tianjin, Hubei, Chongqing

## Carbon Tax

National:

Japan, Mexico, Chile, South Africa, Costa Rica

Sub-National:

British Columbia, Alberta

## ETS and Carbon Tax

Iceland, Norway, Denmark, Estonia, Finland, France, Ireland, Latvia, Poland, Portugal, Slovenia, Sweden, United Kingdom

The classification is excluded other policy instruments such as: removal of fossil-fuel subsidies, infrastructure investment in transport and energy, renewable energy portfolio standard, and energy efficiency standard



# Current market based mechanisms in Indonesia

## CDM

- Overly high expectation
- Difficult and complex to be implemented
- Ceased due to the lack of demands
- Currently no CDM project developed
- Unbalance/unfair credits allocation as all the credits goes to the buyer

## VCS

- Smaller scale than CDM.
- Indonesia has the biggest REDD+ project and it is until now the only land based project of VCS in Indonesia.
- Several projects was conversion from CDM, due to the lack of CER demand.

## Other Voluntary Scheme

- Plan Vivo is one of the voluntary scheme that developed in Indonesia..
- The projects are relatively small and usually for social forest projects.
- Climate, Community and Biodiversity Standard (CCBS) and Gold Standard are also used to “wrapped” the carbon projects.

**Indonesia INDC**  
**Market and non market approaches**

## The JCM Scheme

- The Joint Crediting Mechanism currently is the most progressive market based mechanism and climate change mitigation activities in Indonesia and in the world.
- It is not only about the bilateral carbon trading, but rather how to develop and implement the green investment as well as low emission development and technology transfer between the 2 countries.
- Japan and Indonesia have their own national target on emission reduction and it can be done through JCM through sharing of the emission credit.
- Both countries are required to increase their economic development as well as develop more opportunities for their private sectors.

**JCM is the newest market based mechanism to be developed, but the fastest growing in the world**



# Visit our website at [jcm.ekon.go.id](http://jcm.ekon.go.id)

The screenshot displays the official website for the Joint Crediting Mechanism (JCM) in Indonesia. The top navigation bar includes links for "ABOUT JCM IN INDONESIA", "PROJECTS", "PARTICIPATE", "DOCUMENT", "NEWS & PUBLICATIONS", and "CONTACT US". A large banner at the top features a photograph of people working in a field and the text: "Call for Proposal Ministry of the Environment Japan (MOEJ) is calling for Large Scale Feasibility Study proposals for the Fiscal Year 2016". Below the banner are several sections: "Open Call for request JCM FS by MOEJ" (with a link to "Read More"), "Rules & Guidelines" (with a link to "Read More"), "Public Comment" (with a link to "Read More"), "Propose a Project" (with a link to "Read More"), "Latest News" (listing "Call for Proposal on Large Scale Feasibility Study by MOEJ in FY2016" and "Call for Proposal on Large Scale City to City JCM Feasibility Study in FY2016"), "Gallery" (showing a photo of a press conference), and "Partnership" (listing logos for the Coordinating Ministry for Economic Affairs, Ministry of Energy & Mineral Resources, Ministry of Environment and Forestry, Ministry of Industry Indonesia, Ministry of Finance Indonesia, and Ministry of Foreign Affairs Indonesia).



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# Thank you! Terima kasih!

Our website: <http://jcm.ekon.go.id>

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