Climate policies

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Climate Change Seminar
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<td>121044</td>
<td>Ms. Timila Bajracharya</td>
<td>Labelling program; energy star in USA</td>
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<td>2.</td>
<td>121312</td>
<td>Ms. Aminath Afau</td>
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<td>Mr. Ratu Apenisa Wilhelm Colati Cavuilati</td>
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<td>EU GHG regulation for the new cars/vans till 2030</td>
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<td>Ms. Praewpect Sombatpium</td>
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**In max 5 minute**

- Introduce the mechanism how it works
- What has it achieved
- Key challenges/issues
WHAT IS “ENVIRONMENTAL POLICY”

• A broad term, that could mean many things

• **Environmental policy** is any action deliberately taken (or not taken) to manage human activities with a view to prevent, reduce, or mitigate harmful effects on nature and natural resources, and ensuring that man-made changes to the environment do not have harmful effects on humans (McCormick, 2001).
Why do you need policies?
Why need public policy?

• **Market failures**: inability of market to efficiently allocate goods and services thus system collapses
  • **Asymmetric information**
    • Information distortion; one party has more information than other
  • **Market power of few** – uncompetitive market, cartel
  • **Public goods** – goods with no property right such as air (over exploitation)
Why need public policy?

• **Market failures...**
  - **Externalities**- the cost of air pollution by a dirty industry to society is not compensated by that industry (negative externality) – benefit is private but cost is social
  - **Collective action failure**- Common good but no collective action... benefit is ‘social’ BUT cost is ‘private’.. Therefore, no willingness to act
  - **Who to correct market failure?** Government, society?
Why need public policy?

• **Institutional failures** (non-market): government sector resulting into inefficient allocation of goods & services
  • Government interventions further disrupting/distorting market forces seriously- often results from
    • perverse incentives such as inappropriate pricing
    • bad management
    • corruption
    • Cozy relation of regulating agencies with regulated entities

• Others
Options for government

• Government Legislation and Regulation
• Direct State Provision of Goods and Services
• Fiscal Policy Intervention- taxes, subsidies, pricing
• Investment in R&D
• Intervention designed to close the information gap
Environmental policies and policy instruments

• Environmental concerns (Human health, natural resources and global sustainability)

• Environmental policies with clear policy objectives

• Options identification for policy implementation
  • Technical options
  • Behavioral change options
  • Involves costs and benefits, barriers, institutional arrangements

• Choosing of one or more specific options or ‘a package’ of options by policy makers

• Devising and implementing one or more policy instruments/measures and track/modify/evaluate them over time
  • Various types of policy instruments/measures
Policy Choices are shaped by complex negotiation between the policy implementer and the stakeholders

- Which options are good?
- Which policy instruments are the best for those options?

In real life, theoretical optimal choice may not be possible but the second or the third best

- Feasibility of implementation based on local reality (Cost, capacity etc.)
- Stakeholder dynamics (some gain some loose)

- Some problems could call for economy wide and holistic approach (such as carbon tax/price) affecting whole sector while others are tailored to specific issues/options
Policy compliance

Stringency of policy instruments

Ability to enforce

Acceptability to stakeholders

- Governance, political will
- Infrastructure to support enforcement
- Capacity (institutional, financial, technical)
Basic Criteria for choice of policy instruments

- Environmental effectiveness
- Economic efficiency
- Cost-effectiveness
- Distributional considerations
- Institutional feasibility

Modified from IPCC, 2007 WGIII Report
Basic Criteria for choice of policy instruments

• **Environmental effectiveness** – the extent to which a policy meets its intended environmental objective or realizes positive environmental outcomes

• Depends on its design, implementation, participation, stringency and compliance.

• For example, a policy that seeks to fully address the climate problem but ........
  • Deal with only some of the GHGs or some of the sectors
  • Deal with all gases and all sectors
    • The second is relatively more effective

Modified from IPCC, 2007 WGIII Report
Basic Criteria for choice of policy instruments

• **Economic efficiency**- social welfare to be maximized, e.g. the carbon tax should equal to the ‘social cost of sulfur ’ which is its ‘damage cost’

• **Cost-effectiveness** – the extent to which the policy can achieve its objectives at a minimum cost

• **Distributional considerations** – the distributional consequences of a policy, which includes dimensions such as fairness and equity and others
Types of policy instruments

Regulatory
Fiscal
Market based
Voluntary
Information
Research and Development

Students !! In max 5 minute

• Introduce the mechanism how it works
• What has it achieved? If any
• Key challenges/issues
Regulatory policy instruments

• **Regulations and Standards**: These specify the abatement technologies (technology standard) or minimum requirements for pollution output (performance standard) that are necessary for reducing emissions.

  • **GHG standards for vehicles**
    • EU: Requires the new cars registered in the EU not to emit more than an average of 95 g CO2/km by 2021. In 2019, EU decided to lower this by 37.5% for new car and new vans by 31% lower compared to 2021.

  • **GHG standards for power companies:**
    • US EPA Regulation of Greenhouse Gas Emissions from New Power Plants
    • New natural gas power plants can emit no more than 1,000 pounds of CO2/MWh of electricity produced, which is achievable with the latest combined cycle technology.
    • New coal power plants can emit no more than 1,400 lbs CO2/MWh, which requires the carbon capture and storage (CCS) technology.

• **Renewable energy portfolio standards for power companies**

  [https://www.epa.gov/cleanpowerplan/regulatory-actions#regulations](https://www.epa.gov/cleanpowerplan/regulatory-actions#regulations)
Fiscal policy instruments

• **Taxes and charges**: A levy imposed on each unit GHG emissions at source
  - **Carbon tax** levied on carbon content of fuel
  - Taxes and charges for other things that affect GHG

• **Subsidies and Incentives**: Direct payments, tax reductions, price based policies
  - **Feed-in tariff for solar - Thailand**
  - **Accelerated depreciation**
  - **Incentives for Hybrid Cars and fuel-efficient cars**
  - **Subsidies for fuel switching in household and commercial sector boilers etc.**
Carbon tax

• Advantages
  • Applicable to few key sources unlike thousand of facilities in cap-and-trade - simple and quick to apply

• Disadvantages
  • Focus on carbon price but not on mitigation: Need to guess emission reduction - may not be sufficient
  • No too much ground-experience on its effectiveness

• Carbon tax in Singapore and France
  France: Pierre Fabre
  Singapore: Aminath Afau
Market-based policy instruments

• **Emission Trading**:  
  • These are also known as marketable permits or **cap-and-trade systems**.  
  • Establishes a limit on aggregate emissions by specified sources, requires each emitting source to hold permits equal to its actual emissions and allows permits to be traded among sources.
The basic mechanics of carbon trading scheme

- Government sets national cap
- Government issues permits
  - Free Allocation
  - Buy at auction
- International Offsets
  - Buy/invest
- Firm
  - Trade to Other Firms
- Firm emits X tonnes CO2e
- Firm surrenders X permits to government

http://www.hacaustralia.com/carbonsignal/?p=221
Pro-cons of cap-and-trade

• Advantages
  • Certainty about quantity; cap reduced over given time; clear goal for mitigation
  • Budget neutrality and minimal fiscal risk
  • Creates source of revenue if permits are auctioned
  • On-ground experiences available

• Disadvantages
  • Carbon price uncertainty- price can vary but safeguard mechanisms can be put in place- yet, can be easily manipulated to allow additional emissions
  • Implementation times are longer (such as for auctioning)

Cap-and-Trade in EU
Voluntary Policy Instruments

• **Voluntary Agreements**: An agreement between a government authority and one or more private parties with the aim of achieving environmental objectives or improving environmental performance beyond compliance to regulated obligations.
  
  • Not all VAs are truly voluntary; some include rewards and/or penalties associated with participating in the agreement or achieving the commitments.
Examples of national voluntary agreements

• **European Automobile Agreement:** An agreement between the European Commission and European, Korean and Japanese car manufacturing associations to reduce average emissions from new cars to 140 gCO2/km by 2008–2009.

• **Canadian Automobile Agreement:** An agreement between the Canadian government and domestic automobile industry to reduce emissions from cars and light-duty trucks by 5.3 MtCO2-eq by 2010.

• **Keidaren Voluntary Action Plan:** An agreement between the Japanese government and 34 industrial and energy converting sectors to reduce GHG emissions. A third party evaluation committee reviews the results annually and makes recommendations for adjustments

IPCC, 2007 WGIII Report
Policy instruments

• **Information Instruments**: Required public disclosure of GHG emissions related information, generally by industry to consumers.
  
  • *Labelling programmes* - *Energy Star in US*
  
  • *Rating and certification systems*
Policy instruments

• **Research and Development (R&D) investment or technology deployment:**
  • Activities that involve direct government funding and investment aimed at generating innovative approaches and technologies to mitigation and/or the physical and social infrastructure to reduce emissions.

• Innovation/R&D climate policies

IPCC, 2007 WGIII Report
## Policy options in key areas

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<th>Policy objectives</th>
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<th>Economic instruments</th>
<th>Regulatory instruments</th>
<th>Voluntary agreements</th>
<th>Policy processes</th>
<th>Technological RD&amp;D and deployment</th>
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<td>Energy efficiency</td>
<td>• Higher energy taxes &lt;br&gt;• Lower energy subsidies &lt;br&gt;• Power plant GHG taxes &lt;br&gt;• Fiscal incentives &lt;br&gt;• Tradable emissions permits</td>
<td>• Power plant minimum efficient standards  &lt;br&gt;• Best available technologies prescriptions</td>
<td>• Voluntary commitments to improve power plant efficiency</td>
<td>• Information and education campaigns.</td>
<td>• Cleaner power generation from fossil fuels</td>
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<tr>
<td>Energy source switching</td>
<td>• GHG taxes &lt;br&gt;• Tradable emissions permits &lt;br&gt;• Fiscal incentives</td>
<td>• Power plant fuel portfolio standards</td>
<td>• Voluntary commitments to fuel portfolio changes</td>
<td>• Information and education campaigns.</td>
<td>• Increased power generation from renewable, nuclear, and hydrogen as an energy carrier</td>
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<td>Renewable energy</td>
<td>• Capital grants &lt;br&gt;• Feed-in tariffs &lt;br&gt;• Quota obligation and permit trading &lt;br&gt;• GHG taxes &lt;br&gt;• Tradable emissions permits</td>
<td>• Targets &lt;br&gt;• Supportive transmission tariffs and transmission access</td>
<td>• Voluntary agreements to install renewable energy capacity</td>
<td>• Information and education campaigns &lt;br&gt;• Green electricity validation</td>
<td>• Increased power generation from renewable energy sources</td>
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<td>Carbon capture and storage</td>
<td>• GHG taxes &lt;br&gt;• Tradable emissions permits</td>
<td>• Emissions restrictions for major point source emitters</td>
<td>• Voluntary agreements to develop and deploy CCS</td>
<td>• Information campaigns</td>
<td>• Chemical and biological sequestration &lt;br&gt;• Sequestration in underground geological formations</td>
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Thank you