

# Climate policies

Shobhakar Dhakal

16 Feb 2018

Climate Change Seminar

No.	Student ID	Student Name	Field of Study	
1.	118975	Mr. Kondamuri V. V. Satyanarayana Swamy	Energy	India
2.	119454	Mr. Subesh Dhakal	CCSD	Nepal
3.	119525	Ms. Ayushmita Pokhrel	CCSD	Nepal
4.	119303	Mr. Abbireddy Siva Rama Chandra Reddy	Energy	India
5.	119210	Mr. Vankayala Venkata Sandeep	Energy	India
6.	119301	Mr. Kolluru Venkata Surya Vinay Krishna	Energy	India
7.	119750	Ms. Vuong Thi Tram	Energy	Vietnam
8.	119225	Mr. Shafiqh Mohd	Energy	India
9.	119780	Ms. Chattarida Sukhmon	CCSD	Thailand
10.	119563	Mr. Pham Van Tho	Energy	Vietnam
11.	119447	Mr. Kenneth Daniel Hingpit Quesada	Energy	Philippines
12.	119972	Ms. Ambili Gopalan Kamalamma	WEM	India
13.	119758	Mr. Franz Andre Brandenberger	CCSD	Switzerland
14.	119396	Mr. Hassan Fazliani	Energy	Iran
15.	120035	Mr. Marcelo Miguel Quicho	CCSD	Philippines

**Please prepare yourself to introduce following topic during class on Feb 16**

Perform Achieve Trade, India  
 Obama's CO2 regulation on new coal plants  
 Carbon tax in sweden  
 Carbon tax in Japan  
 EU-ETS  
 European Automobile Agreement  
 Appliance Labelling  
 Co2 emission standard for cars in EU  
 Feed-in-tariff  
 South Korea ETS  
 Keidaren Voluntary Action Plan  
 Water saving regulation in some cities or countries  
 Carbon tax in Switzerland  
 Incentives for low carbon vehicles  
 R&D investment for climate technology

## **Group presentation topics**

*Date to present: To be decided*

### **Uncertainties in climate science: How have we dealt with this and what it means to the decision makers?**

Ms. Ambili Gopalan Kamalamma

Mr. Marcelo Miguel Quicho

Mr. Kondamuri V. V. Satyanarayana Swamy

### **Climate Change and ambitious mitigation: What are our potentials and options for the transformative change?**

Mr. Subesh Dhakal

Mr. Abbireddy Siva Rama Chandra Reddy

Ms. Vuong Thi Tram

### **The impacts of climate change on coastal cities: Key issue and potential response options**

Ms. Chattarida Sukhmon

Mr. Shafiqh Mohd

Mr. Vankayala Venkata Sandeep

### **Governance and institutional challenges (and opportunities) for city governments towards ambitious action on climate change?**

Mr. Franz Andre Brandenberger

Ms. Ayushmita Pokhrel

Mr. Kolluru Venkata Surya Vinay Krishna

### **Climate finance funds: barrier for accessing/developing bankable climate change project and potential solutions**

Mr. Kenneth Daniel Hingpit Quesada

Mr. Pham Van Tho

Mr. Hassan Fazliani

# 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 and clear policy objectives



- Options identification
  - Technical options
  - Behavioral change options
  - Involved costs and benefits, barriers, institutional arrangements



- Choosing of one or more specific options/package by policy makers



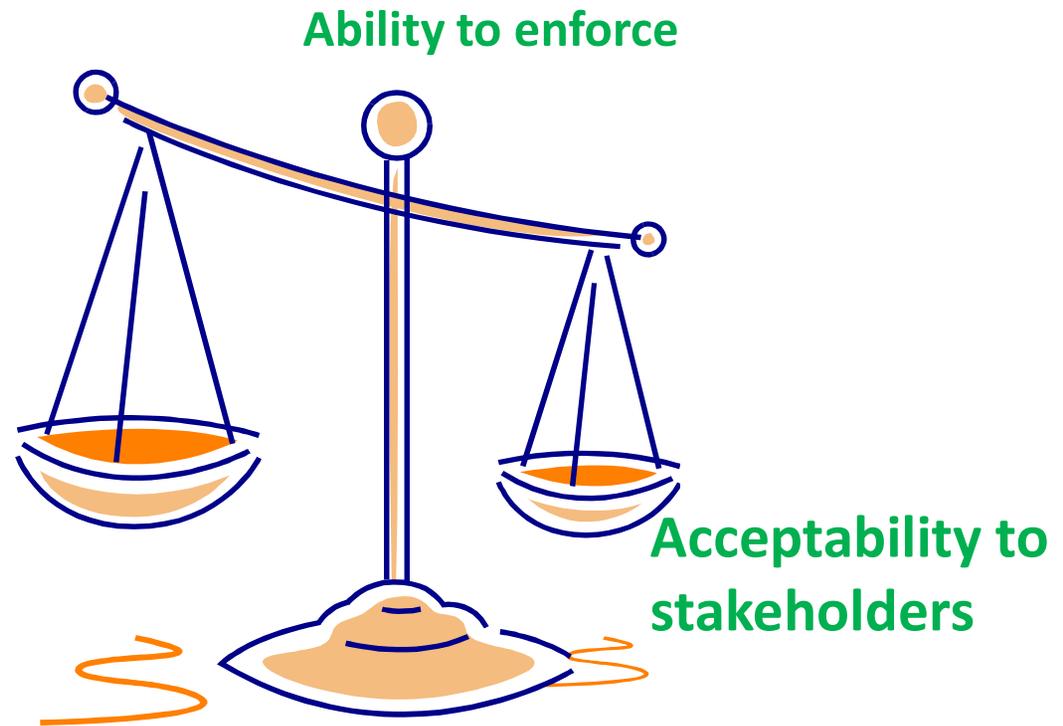
- Devise and implement one or more policy instruments and track/modify/evaluate over time
  - Various types of policy instruments

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

# Policy compliance

Stringency of  
policy  
instruments



- Policy design reflect local context adequately?
- 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

# 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

# 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

# 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 130 g CO<sub>2</sub>/km by 2015 (95 g CO<sub>2</sub>/km by 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 CO<sub>2</sub>/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 CO<sub>2</sub>/MWh, which requires the carbon capture and storage (CCS) technology.

[http://ec.europa.eu/clima/policies/transport/vehicles/cars/index\\_en.htm](http://ec.europa.eu/clima/policies/transport/vehicles/cars/index_en.htm)

<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 wind and solar*
  - *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

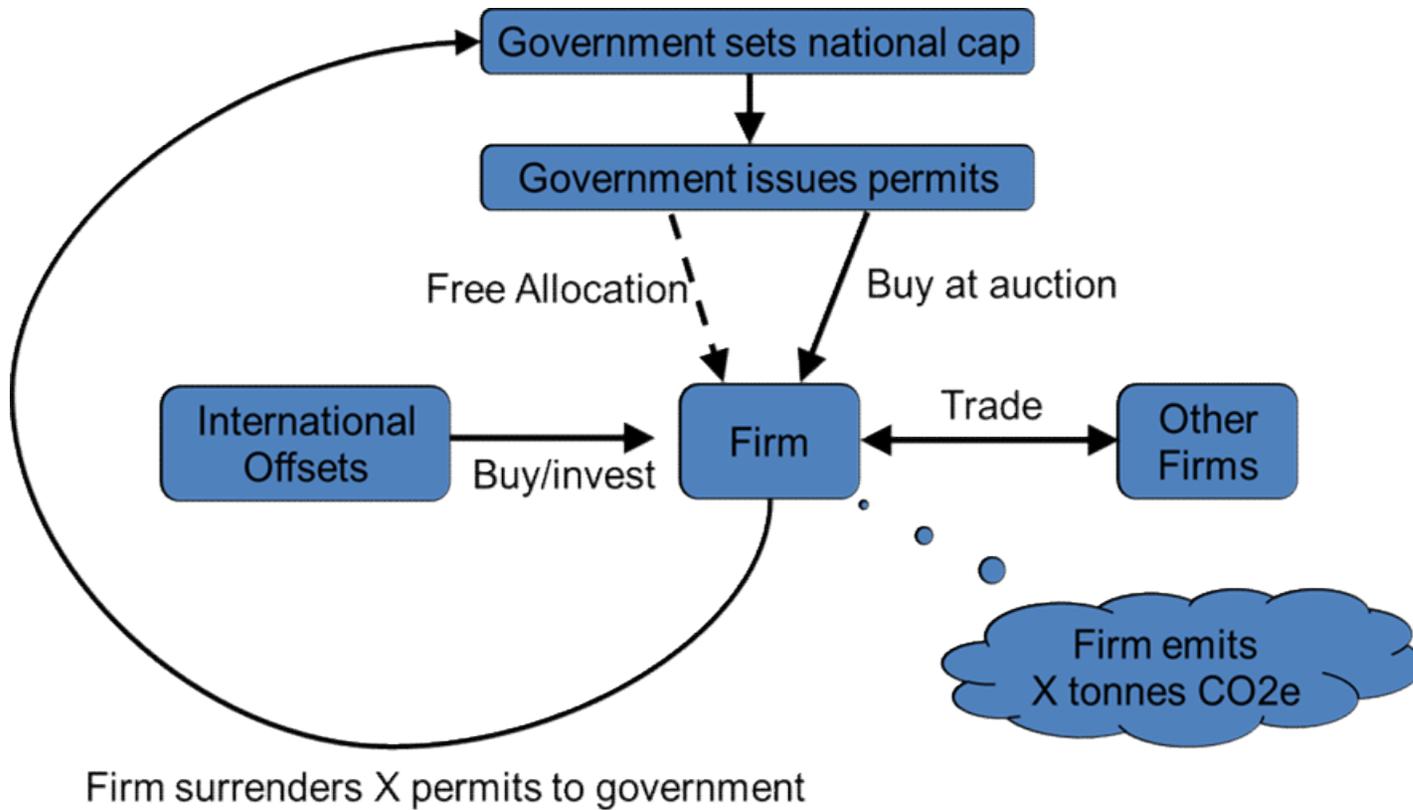
# Market-based policy instruments

- **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

<http://www.hacaustralia.com/carbon/signal/?p=221>  
6



# 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)

# 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 gCO<sub>2</sub>/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 MtCO<sub>2</sub>-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

# Policy instruments

- **Information Instruments:** Required public disclosure of GHG emissions related information, generally by industry to consumers.
  - *Labelling programmes-*
  - *Rating and certification systems*

# Policy instruments

- **Research and Development (R&D) investment or tech 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.

# Policy options in key areas

Policy objectives \ Policy options	Policy processes				
	Economic instruments	Regulatory instruments	Voluntary agreements	Dissemination of information and strategic planning	Technological RD&D and deployment
Energy efficiency	<ul style="list-style-type: none"> <li>• Higher energy taxes</li> <li>• Lower energy subsidies</li> <li>• Power plant GHG taxes</li> <li>• Fiscal incentives</li> <li>• Tradable emissions permits</li> </ul>	<ul style="list-style-type: none"> <li>• Power plant minimum efficient standards</li> <li>• Best available technologies prescriptions</li> </ul>	<ul style="list-style-type: none"> <li>• Voluntary commitments to improve power plant efficiency</li> </ul>	<ul style="list-style-type: none"> <li>• Information and education campaigns.</li> </ul>	<ul style="list-style-type: none"> <li>• Cleaner power generation from fossil fuels</li> </ul>
Energy source switching	<ul style="list-style-type: none"> <li>• GHG taxes</li> <li>• Tradable emissions permits</li> <li>• Fiscal incentives</li> </ul>	<ul style="list-style-type: none"> <li>• Power plant fuel portfolio standards</li> </ul>	<ul style="list-style-type: none"> <li>• Voluntary commitments to fuel portfolio changes</li> </ul>	<ul style="list-style-type: none"> <li>• Information and education campaigns.</li> </ul>	<ul style="list-style-type: none"> <li>• Increased power generation from renewable, nuclear, and hydrogen as an energy carrier</li> </ul>
Renewable energy	<ul style="list-style-type: none"> <li>• Capital grants</li> <li>• Feed-in tariffs</li> <li>• Quota obligation and permit trading</li> <li>• GHG taxes</li> <li>• Tradable emissions permits</li> </ul>	<ul style="list-style-type: none"> <li>• Targets</li> <li>• Supportive transmission tariffs and transmission access</li> </ul>	<ul style="list-style-type: none"> <li>• Voluntary agreements to install renewable energy capacity</li> </ul>	<ul style="list-style-type: none"> <li>• Information and education campaigns</li> <li>• Green electricity validation</li> </ul>	<ul style="list-style-type: none"> <li>• Increased power generation from renewable energy sources</li> </ul>
Carbon capture and storage	<ul style="list-style-type: none"> <li>• GHG taxes</li> <li>• Tradable emissions permits</li> </ul>	<ul style="list-style-type: none"> <li>• Emissions restrictions for major point source emitters</li> </ul>	<ul style="list-style-type: none"> <li>• Voluntary agreements to develop and deploy CCS</li> </ul>	<ul style="list-style-type: none"> <li>• Information campaigns</li> </ul>	<ul style="list-style-type: none"> <li>• Chemical and biological sequestration</li> <li>• Sequestration in underground geological formations</li> </ul>

Thank you