Global Politics of Climate Change

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MIT Joint Program Climate Change Lecture Series

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Examine the way other nations approach climate change policy built on student’s own experience and work.

This includes:
- European policy on a organization level as well as member states own initiatives
- African nations developing their respective future energy systems

Pose the connection, or lack thereof, of public opinion on climate change to policy.

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CLIMATE CHANGE POLICY

1990: IPCC releases first report and call for global treaty on climate change (COP)
1992: UNFCCC is adopted at the Earth Summit in Rio
1997: COP (3): Kyoto Protocol is established
2000: National Climate Change Strategy released
2005: COP (11): Kyoto Protocol is implemented

2007: National Climate Change Strategy is updated
2008: 2020 Climate and Energy Package
2011: 2050 Energy Roadmap
2012: National Climate Change Adaptation Framework

2014: National Policy Position on Climate Action & Low-Carbon Development
2014: 2030 Climate & Energy Framework
2015: COP (21): Paris Agreement is adopted
2015: Climate Action and Low-Carbon Development Act
2017: National Mitigation and Adaptation Plan

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Tools of EU Policy
GHG emission trends, projections and targets in the EU

- Emissions Trading Scheme (EU ETS)
- Effort Sharing Decision (ESD)

Source: European Environment Agency: GHG Emissions 2017 Assessment

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EU ETS

- Cap is set on total GHG emissions and reduced over time
- Companies receive or buy emission allowances that they can trade with one another
- Companies fined if their emissions go over the allowance they hold
  - Extra allowances can be kept for the future or sold to other companies
- Currently in Phase 3 (2013-2020)
  - Single EU-wide cap
  - Auctioning allowances (rather than free allocation)
  - Allowances set aside to fund renewable energy and carbon capture technology

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Effort Sharing Decision (ESD) (Decision 406/2009)

- Set targets for GHG emissions from sectors that are not included in the EU ETS.
- Include agriculture, transport, built environment, waste and non-energy intensive industry.
- Responsibility of EU Member States to define/implement national policies and measures to limit emissions from the sectors covered by the ESD.
Progress of EU States towards their ESD Targets

Source: European Environment Agency: GHG Emissions 2017 Assessment

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Ireland’s ESD sector emissions

*assuming full implementation of existing adaptation and mitigation measures

**Data Source:** Ireland’s Environmental Protection Agency: 2017 GHG Emission Projections Summary Report
Trends/Results

Source: European Environment Agency: GHG Emissions 2017 Assessment

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European Union

National and Local Efforts

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National Strategies and Adaptation & Mitigation Plans

Ireland

- National Climate Change Strategy
  Passed: October 2000

- National Climate Change Strategy 2007-2012
  Passed: April 2007

- National Climate Change Adaptation Framework
  Passed: December 2012

- National Policy Position on Climate Action
  Passed: April 2014

- Sectoral Adaptation Plans
  Some Published

- Climate Action and Low Carbon Development Act 2015
  Passed: December 2015

- National Adaptation Plan
  Draft: December 2017

- National Mitigation Plan
  Published: July 2017

- Climate Change Advisory Council

- Sectoral Mitigation Plans
  Not yet Published

- Marine, Agriculture, and Forestry
- Biodiversity and Heritage
- Transport
- Energy and Communication
- Flood Defense
- Health
- Agriculture and Forest
- Electricity
- Transport
- Built Environment

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Local Adaptation in the EU: Covenant of Mayors for Climate and Energy

“Brings together thousands of local and regional authorities voluntarily committed to implementing EU climate and energy objectives on their territory. New signatories now pledge to reduce CO$_2$ emissions by at least 40% by 2030 and to adopt an integrated approach to tackling mitigation and adaptation to climate change.”

[Map showing signatories and action plans submitted]
Utilization of GHG Emission Standards

- The ISO
  - ISO 14064
    - Organizational quantification, monitoring, and reporting

- The WRI & WBCSD
  - Greenhouse Gas Protocol
    - Project quantification, monitoring, and reporting

+ Environmental Management (ISO 14001)
+ Energy Management (ISO 50001)

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African Nations

Politics, energy, development and climate change
Climate Change

- Changing weather patterns with increased floods and droughts in East Africa
- Impacts on water supply in the Volta and Niger rivers in West Africa, affecting food supply and exposing hydropower dependency
- Food shortages from droughts leading to famine which increased border migration and refugee crisis

Annual temperature change (in °C) compared to 1986 - 2005 average

Source: IPCC, 2014
Africa Rising

Largely consistent:

● Economic growth
● Population growth - set to double by 2050
● Increasing urbanization - 50% of Africans will live in cities by 2030
● Energy needs are steadily increasing - 75% growth between 2015 and 2035

620 million Africans lack electricity access
Electricity Access

- Urban areas - 94%
- Rural areas - 45%

Source: Afrobarometer, 2016
EMERGING SYSTEM
Transforming and Dynamic
Today we’re seeing the emergence of a more resilient and diverse system, with many modes, options and scalability.

HYDRO

SMART GRID
Smart homes with smart, energy-efficient appliances

ON-GRID

Fossil Fuels

SOLAR

WIND

OFF-GRID

MINI GRID
Super battery storage for backup supply

HYBRID GRID

SOLAR HOUSEHOLD SYSTEMS
The rise of the ‘prosumer’ consumers are now also producers who generate and store energy

Source: Africa Progress Panel, 2016
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Politics in power generation:
Hydropower politics in Africa

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Water Resources in Africa

- Seven major river basins including the Nile, Zambezi, Volta
- Water is key to continued growth of the power and agriculture industries
  - Irrigation
  - Hydro and thermal powered electricity generation
- Climate change forecast shows fluctuations and variability across power pools and river basins
Existing and planned hydropower projects in Southern and Eastern Africa

Source: Conway et. al, 2017
The Nile

- Serves 400 million people in 10 countries including Egypt, Sudan and Ethiopia
- Central to Egyptian economy
- Blue Nile, which serves 60 percent of Egypt’s water is in Ethiopia
- Ethiopia building the 6,000-MW Grand Ethiopian Renaissance Dam (GERD)
  - 75% of Ethiopians without electricity

How should Nile’s resources be distributed?

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Disputes over GERD dam in Ethiopia

1929/1959: Nile Water Agreements - Egypt and Sudan receive lion share of Nile and Egypt can veto water projects.

2013: Cooperative Framework Agreement - equitable utilization and protection of Nile resources

2015: Egypt, Ethiopia and Sudan sign preliminary agreement to peacefully develop and share Nile resources.
Politics in electricity regulation
Power generation and pricing in Ghana

Figures by Sika Gadzanku

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Organizational structure of Ghana’s electricity sector

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Summary

● Electricity access is key to economic growth in African countries
● Hydropower is cheap power but climate change impacts reveal vulnerability of resource
● Reduced rainfall and increasing temperature may reduce economic feasibility of large hydropower projects

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Policy considerations

- Adaptive energy policy - to serve short term energy needs for economic growth and long term energy planning which incorporates climate change impacts and taps into renewable energy capacity
- Adaptive, flexible and robust electricity infrastructure planning
- Prioritize independence of electricity regulation and tariff setting - to reduce political influence and signal desire of full cost recovery within the sector
- Capacity building - developing indigenous research, policy and infrastructure development capabilities
- Defining future partnerships for needed climate financing
Public Opinion’s Role in Shaping Countries Policy
Climate Change Views by Region

Source: Pew Research Center - Spring 2015 Global Attitudes Survey

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Percent saying global climate change is a very serious problem

Source: Pew Research Center - Spring 2015 Global Attitudes Survey

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Climate Change Views in Europe & the U.S.

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Source: Pew Research Center - Spring 2015 Global Attitudes Survey

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Climate Change Views in Major Economies

Source: Pew Research Center - Spring 2015 Global Attitudes Survey

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Climate Views in the U.S.

- Similar to Pew’s study, Yale’s Program on Climate Communication found in the U.S. that a majority of Americans believe:
  - That global warming is happening (69%)
  - Carbon emissions should be scaled back (74%)
  - Renewable Energy Source research should be funded (82%)
  - Climate change will NOT harm them personally (52%)
  - Do NOT discuss global warming occasionally (67%)  

- Question: Where’s the disconnect between public opinion, policy, and action?

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Thank You!

Questions?

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