Climate Change in Europe

from Dr. Jeannie Whayne, Department of History, University of Arkansas

Since the early 1990s the EU has established itself as an international leader on climate change, especially with respect to the protection of the ozone layer, biotechnology, and biodiversity.

1. The world climate change Initiative which began in 1990
2. The Kyoto Proposal in 1997
3. The European Independent Initiative in 2007.

Considerable attention has been given the depletion of the ozone layer and measures enacted to address that by the EU and my EU member states. The most controversial and unusual ruling came out of the Netherlands – Holland – where the Dutch couirt ordered the state to reduce emissions by 25 percent within five years to protect its citizens from climate change. It was the wolrd's first climate liability suit and the court ruled that the state – the Netherlands – had the obligation to protect its citizens.

Why would the Dutch court be so forthright about climate change.

The sea level rise represented one of the most obvious manifestations of climate change and effected the Netherlands – an already waterlogged nation – more than any other nation in Europe.

Sea Level Rise:

- Sea level rise one of the most serious aspects of climate change with direct economic impact
    - Increases destructive power of storms and floods
    - Accelerates erosion
    - Threatens freshwater supplies on the coast
- But Impacts Vary along the European Coast depending upon:
    - Coastal Geomorphic type, climate, and ecology
    - Socio-economic and land use characteristics
    - Coastal management practices

The Netherlands:

- Have been dealing with floods since the Middle Ages but rising sea levels present a new challenge to the dikes-only approach
    - Three majors European rivers cross through the Netherlands
    - ½ of the Netherlands is flood prone; ¼ is below sea level
    - 60 percent of the country's GDP produced below sea level
    - 16 million people in a country roughly the size of Connecticut but with a per capital GDP similar to that of the U.S. (second only to the U.S. in agricultural exports)

- Rotterdam, Europe's busiest port and second biggest city, is 20 feet below sea level

Evolution of Water Management in the Netherlands:

- Dikes-only approach (levees-only approach along the Mississippi River is similar)
  - Since the middle ages (roughly 1100 years)
  - 1953 devastating North Sea flood resulted in 1,800 deaths
  - Policy dedicated to preventing floods (rather than devoting attention to emergency management afterwards)
  - Since 1953 (but especially in late 20th century) began to focus more on utilizing natural materials and mimicking natural systems
    - Natural materials like flexible cement to attach energy-absorbing stones, geotextiles that prevent internal erosion (a major cause of breaches) – and super-strong grass that dampens wave action
    - Hybrid dike now being built near Dordrect. "The idea is that incoming waves will lose power in a flooded willow forest before they reach the dike. The dike will be much softer and lower, because you get the waves out. You get nature in front."

Other Innovative Solutions:

- Smart dikes: sensor-embedded levees that relay real-time status reports via cell towers to decision-makers. Let's them know when the dike is in danger of failing early so they can do repairs
- Room for the River Projects – letting the water in, contriving to live with nature rather than fight it
  - Multi-functional – placing retail spaces and offices on top of new dikes, designing public squares and garages to double as catch basins for rain and floodwater, constructing floating houses and reservoirs that create recreational opportunities.

Spillways—Most Controversial:

- The government did not ask for volunteers though those displaced were compensated
- Would work with farmers, however. For example
  - Overdiepse Polder scheduled for flooding (a polder is a reclaimed marsh area)
  - Southeastern province of Brabart, not farm from Amsterdam
  - Farmers worked with government to create a solution Constructed eight mounds so that some farmers could remain and maintain their farms.
  - Politically trickier than building sea barriers or dikes (levees) or making boardwalks or redesigning waterfronts and neighborhoods to accommodate floods and storms. But, for the Netherlands, it was necessary.

Suggested Readings

Europe and Climate Change

- Article: "Consequences of climate change for European agriculture productivity, land use and policy" (2002) http://www.sciencedirect.com/science/article/pii/S1161030102000047
- Article: "Does Public Policy Support or Undermine Climate Change Adaptation? Exploring Policy Interplay across different scales of governance" (2008) http://www.sciencedirect.com/science/article/pii/S0959378007000611
- Article: "Europe Adapts to Climate Change: Comparing National Adaptation Strategies" (2010) http://www.sciencedirect.com/science/article/pii/S0959378010000269
- Report on "The Economics of Climate Change" (2006) http://www.lse.ac.uk/alumni/LSEConnect/LSEMagazine/pdf/winter2006/SternReport.pdf
- Article: "Ensembles: Climate Change and Its Impacts" (2009) http://www.citeulike.org/group/15400/article/14257308
- Article: "Economic Impacts of Climate Change in Europe" (2012) attached pdf
- Article on United Nations and Global Warming (2016) https://www.eea.europa.eu/themes/climate/policy-context
- Webpage on history of European response to global warming including the 1990 Intergovernmental Panel on Climate Change and policy in response to that since. http://climatepolicyinfohub.eu/european-climate-policy-history-and-state-play

European Union Climate Change Policy

- Article: "Stimulating the Use of Biofules in the European Union: Implications for climate change policy" (2005) http://www.sciencedirect.com/science/article/pii/S0301421505001655
- Google Book: *Climate Change Policy in the European Union* (2010) https://books.google.com/books?hl=en&lr=&id=yb5HMznbiWgC&oi=fnd&pg=PR7&dq=european+climate+change+policy&ots=RAnEKnaaaQ&sig=fPT3XdPyCEfynEffFbwEnDtdXSg#v=onepage&q=european%20climate%20change%20policy&f=false
- Webpage on the European Climate Change Program. (a little outdated as it discusses goals through 2012). https://ec.europa.eu/clima/policies/eccp_en
- Article: "EU Leadership in International Climate Policy: Achievements and Challenges" (2008)
- Article: "EU Climate policy up to 2020: An Economic Impact Assessment" (2009) http://www.sciencedirect.com/science/article/pii/S0140988309001650
- Webpage with overview of EU's goals for addressing climate issues by 2020. https://ec.europa.eu/clima/citizens/eu_en

- Article: “Climate Change Policy in the European Union” (2016) http://climatescience.oxfordre.com/view/10.1093/acrefore/9780190228620.001.0001/acrefore-9780190228620-e-47
- Web article on “Europe climate change goals need profound lifestyle changes” (2016) https://www.theguardian.com/environment/2016/feb/15/europe-climate-change-goals-need-profound-lifestyle-changes-european-commission
- Webpage on the European Union’s 2030 Climate and Energy Framework. https://ec.europa.eu/clima/policies/strategies/2030_en AND https://ec.europa.eu/clima/citizens/eu_en

National Geographic

- Dutch on rising sea levels (?)
    - http://ngm.nationalgeographic.com/2015/02/climate-change-economics/parker-text
    - http://www.nationalgeographic.com/magazine/2013/09/rising-seas-coastal-impact-climate-change/
    - Cheryl Katz, “To Control Floods: The Dutch Turn to Nature for Inspiration,” February 21, 2013, Yale Environment 360.
    - Michael Kimmelman, “Going with the Flow,” Feb. 13, 2013, *New York Times*

International Response to U.S. Climate Policy (Paris Agreement)

- https://www.theatlantic.com/news/archive/2017/06/the-global-reaction-to-trumps-climate-change-decision/528777/
- Kanopy video (free through UA library) entitled “Climate Refugees: The Global Human Impact of Climate Change” http://uark.kanopystreaming.com/video/climate-refugees