

# **ENVS 3521**

# **Climate Politics & Policy**

**Environmental Studies Program**  
**University of Colorado-Boulder**

**Summer 2018**  
**Friday, July 13**



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## course logistics & updates

- National Parks Service webinar debrief
- Canvas update
- Twitter #2
- country fact sheet due Monday = submit through Canvas, share with voting bloc & bring a hard copy for me
- Twitter #3 due Monday

‘loss and damage’ definition: a mechanism to address loss and damage associated with impacts of climate change, in countries vulnerable to the adverse effects of climate change

these can be to account for economic losses, non-economic losses (NELs), extreme events, slow onset events (such as sea rise), comprehensive risk management needs; need for development of financial instruments, and costs associated with migration, displacement & human mobility



intricacies and complexities of climate negotiations include:

- (1) **scientific uncertainties** – over magnitude of future climate change and the range of potential consequences
- (2) **centrality/ubiquity of carbon**– embedded in human activities of transportation, land use, industry, and household energy use
- (3) **differences between contributors and those who bear the burden** – common but differentiated responsibilities (CDR)
- (4) **up-front costs** – time horizons combined with economic impacts of action
- (5) **institutional arrangements** – how to best configure organizations to optimally deal with mitigation and adaptation challenges

Okereke (2009)

# The Intergovernmental Panel on Climate Change (IPCC)

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**“policy relevant, not  
policy prescriptive”**

[see Hulme p. 96 for some discussion]

ipcc

INTERGOVERNMENTAL PANEL ON  
climate change





# Intergovernmental Panel on Climate Change (IPCC)

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## Working Group foci:

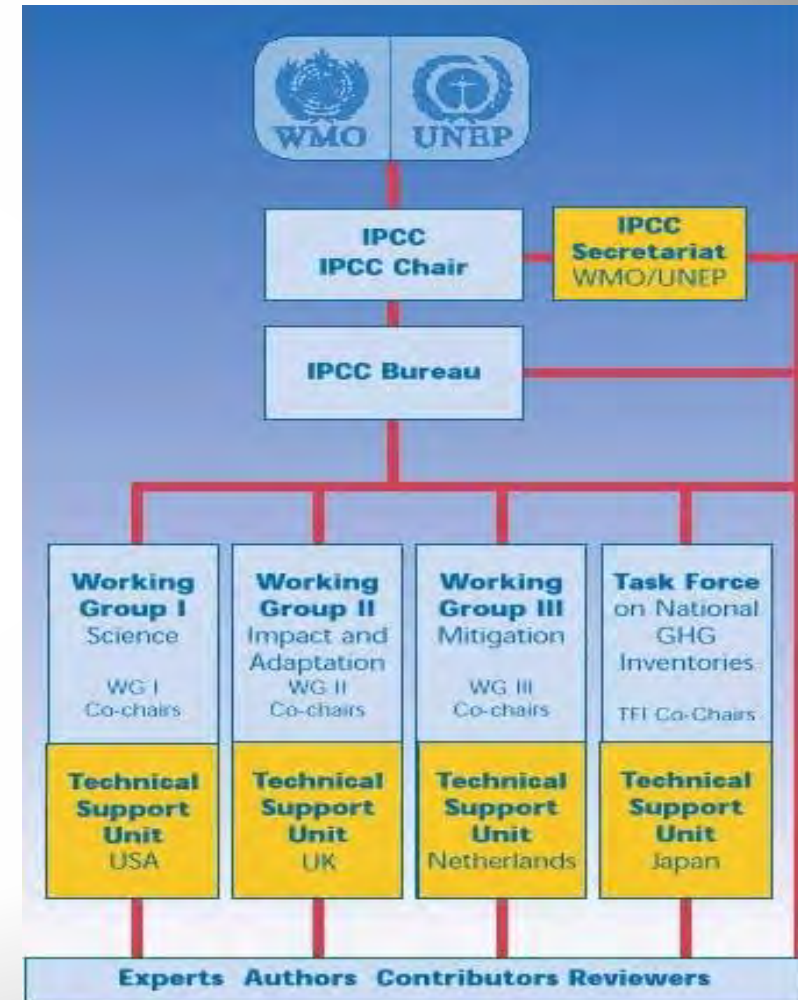
- Science
- Impacts: Adaptation & Mitigation
- Policy Responses: Economics & Social Dimensions

## Major Reports:

→ 1990, 1995, 2001, 2007, 2013

→ Summary for Policymakers (SPM);  
Technical Summary (TS)

‘Climate Science: A History’ film  
excerpt [www.climatesciencehistory.com](http://www.climatesciencehistory.com)



# Intergovernmental Panel on Climate Change (IPCC)

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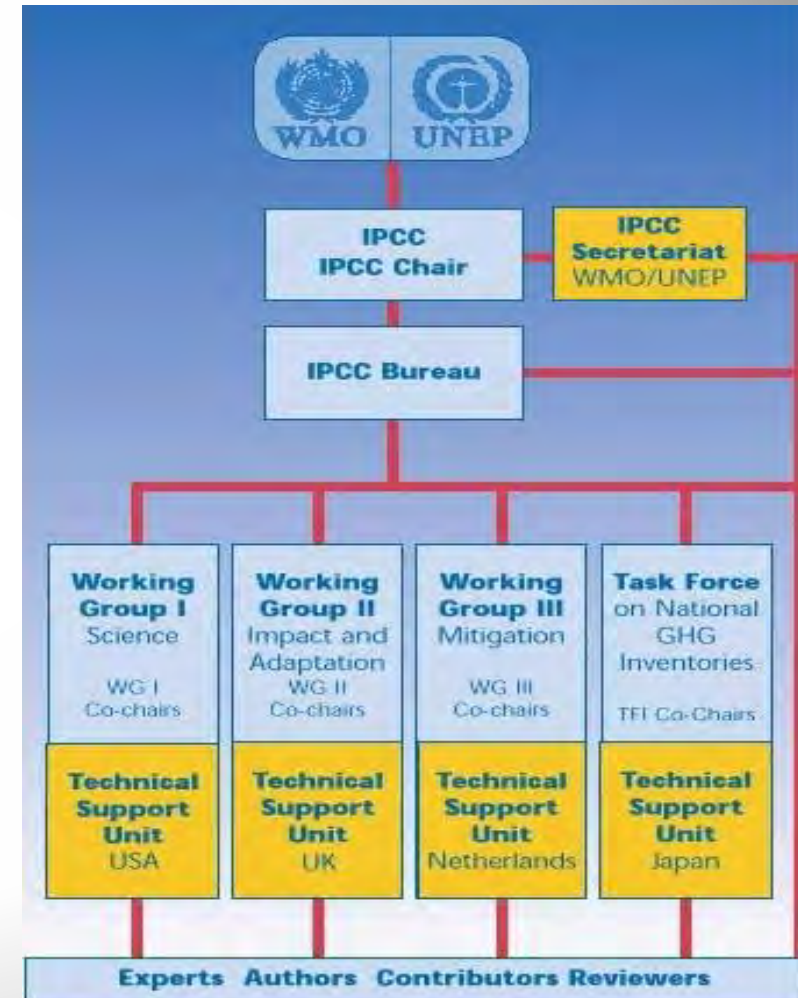
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## ‘Climate Science: A History’

film excerpt

[www.climatesciencehistory.com](http://www.climatesciencehistory.com)



## CARBON ECONOMIES

- carbon-based energy generation is central (e.g. coal, oil, natural gas)
- incentive schemes support carbon-based economies (e.g. subsidies, tax relief)
- associated effects of anthropogenic climate change, pollution, oil geopolitics

## ‘NEW’ CARBON ECONOMIES

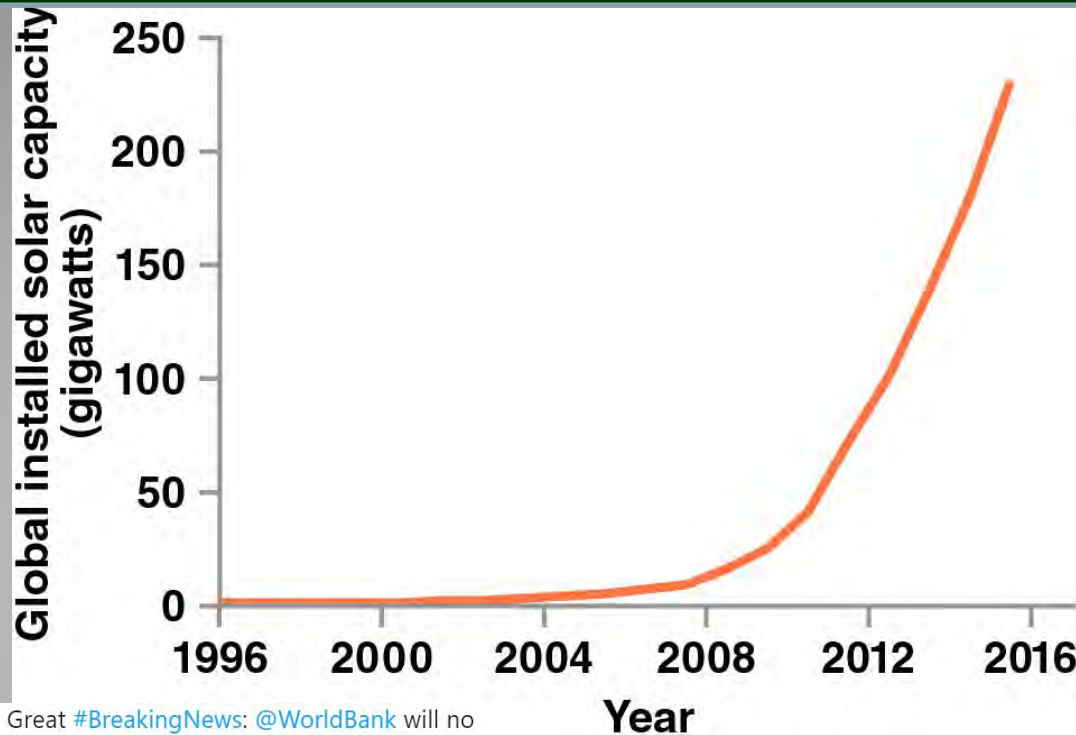
- decarbonization of industry and society (e.g. greater efficiencies; mode-switching to renewable energy generation)
- incentive schemes (e.g. taxation, net metering, feed-in tariffs, cap-and-trade)
- diminished contributions to anthropogenic climate change, air pollution etc.
- introduction of multi-scale agreements to promote policy cooperation

## decarbonization

- to decrease the carbon-content of energy generating fuels
- levers: efficiency gains, mode-switching
- achieved through **political economic measures** (incentivized through technological innovations, regulatory schemes), **cultural/societal demands**
- associated with diminishing the environmental impact of energy generation
- many barriers (**cultural** e.g. vested interests, **political economic** e.g. infrastructural limitations)



# decarbonization trends: market & regulatory signals



Great #BreakingNews: @WorldBank will no longer finance upstream #oil and #gas after 2019 → [wrlb.bg/rpne30haHL0](http://wrlb.bg/rpne30haHL0) #OnePlanet 🌍  
 . Great leadership by @JimYongKim.

#Invest4Climate #Solutions4Climate  
 #Innovate4Climate #Leaders4Climate  
 #Cities4Climate

## BREAKING NEWS

The World Bank Group will no longer finance upstream oil and gas after 2019

#ONEPLANET

6:14 AM - 12 Dec 2017

1 Retweet 2 Likes

COUNTRY	CHANGE IN CO <sub>2</sub> (2000–2014)	CHANGE IN GDP (2000–2014)
Austria	-3%	21%
Belgium	-12%	21%
Bulgaria	-5%	62%
Czech Republic	-14%	40%
Denmark	-30%	8%
Finland	-18%	18%
France	-19%	16%
Germany	-12%	16%
Hungary	-24%	29%
Ireland	-16%	47%
Netherlands	-8%	15%
Portugal	-23%	1%
Romania	-22%	65%
Slovakia	-22%	75%
Spain	-14%	20%
Sweden	-8%	31%
Switzerland	-10%	28%
Ukraine	-29%	49%
United Kingdom	-20%	27%
United States	-6%	28%
Uzbekistan	-2%	28%

Sources: BP Statistical Review of World Energy 2015; World Bank World Development Indicators





Revkin (1992)

The Anthropocene Era  
~ Crutzen & Stoermer

The 'Hydrocarbon Man'  
~ Apenzeller

The 'Greenhouse Century'  
~ Schneider



Revkin (1992)



## Leggett – Chapters 1, 2 & 3

### Mitigation

- (1) human intervention to reduce the sources of GHGs
- (2) can take shape through efficiency improvements or mode switching to renewable energy sources

### Adaptation

- (1) the alteration of an organism or the capacity to make changes to suit conditions different than those normally encountered
- (2) the 'adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects'
- (3) changes that societies make to respond to the negative impacts of unavoidable climate change



Maslin (2002)



## preface

FOUR contemporary & contrasting ways of narrating the significance of climate change:

1. as a battleground between different ways of knowing
2. as a justification for commodification
3. as an inspiration for new social movements
4. as a threat to ethnic, national and global security

“How does the idea of climate change alter the way we arrive at and achieve our personal aspirations and our collective social goals?” p. xxviii





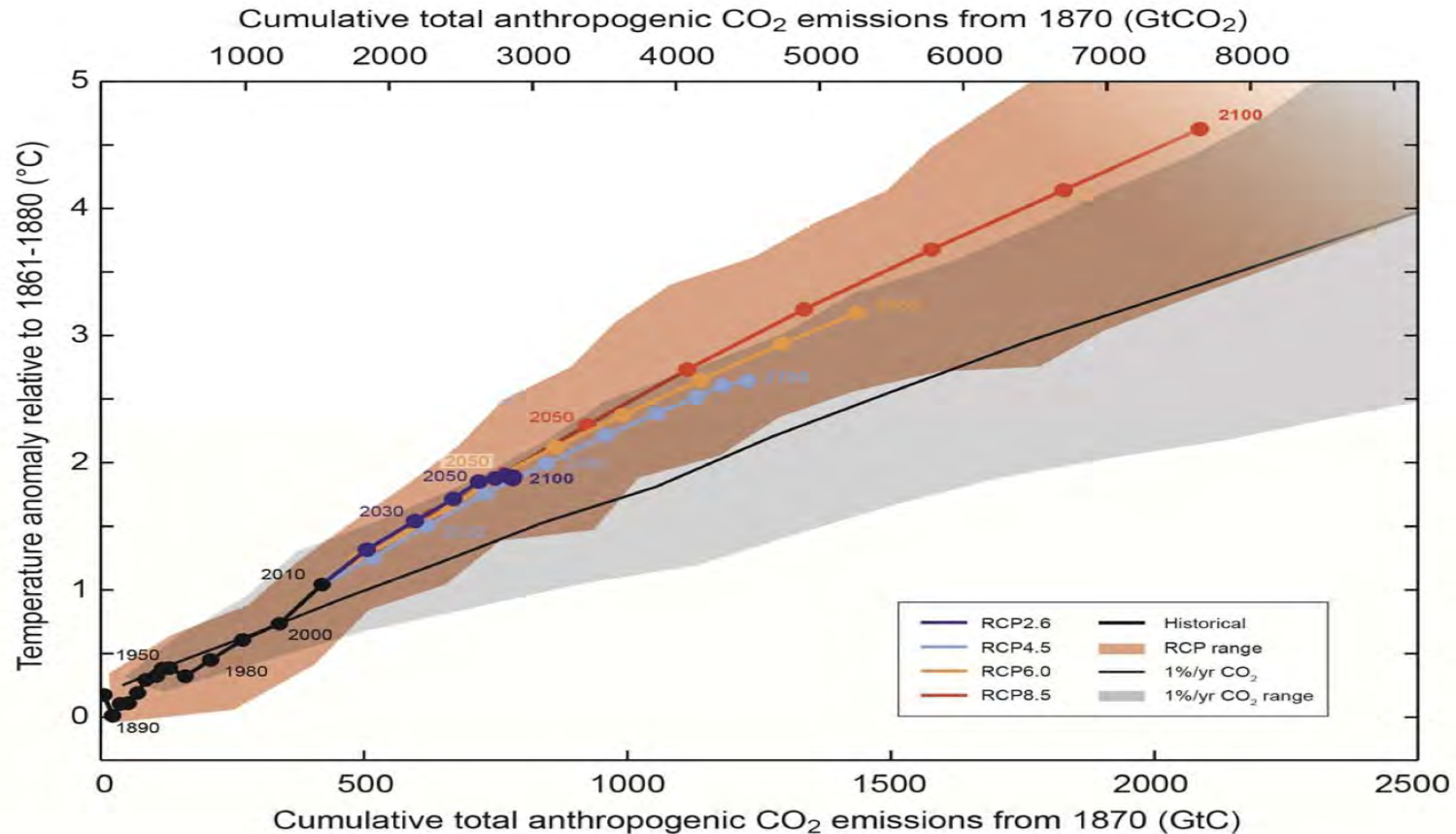
## chapter 1

### FOUR themes

1. climates have both physical and cultural meaning
2. climate change is used to carry/convey ideological assumptions and projections
3. climate changes & understanding changes
4. the ways climate stories are told has changed

“Disagreements about climate change are as likely to reveal conflicts within and between societies about the ideologies we carry and promote, as they are to be rooted in contrary readings of the scientific evidence that humans are implicated in physical climate change” (p. 33)

# Earth's carbon budget



IPCC 5<sup>th</sup> assessment report, WG I (2013)

500 gigatons can be emitted (IPCC) before crossing 2°C  
(1 gigaton = 1 billion tons; global emissions approx. 10gt/yr)

# historical/traditional conditions of engagement

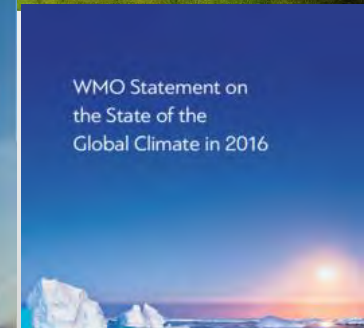
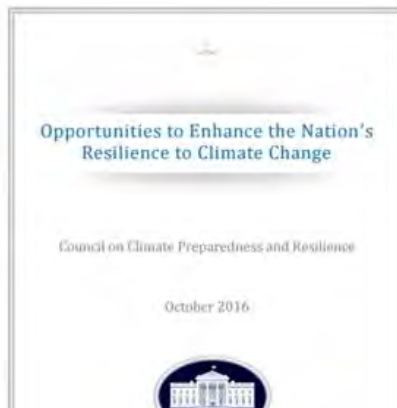
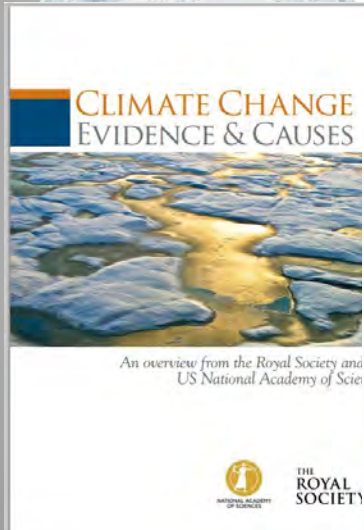
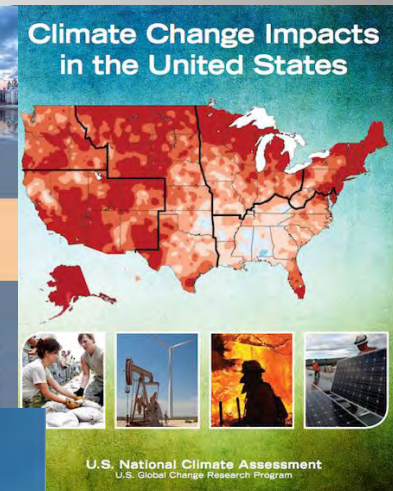
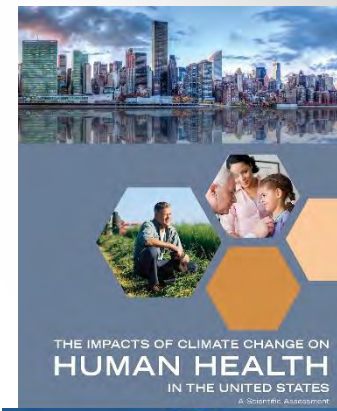
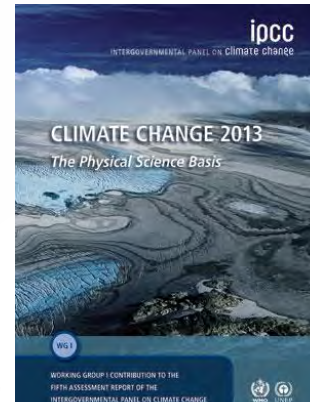
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“The deficit model is dead...long live the deficit model.” ~ Brian Wynne (2008)



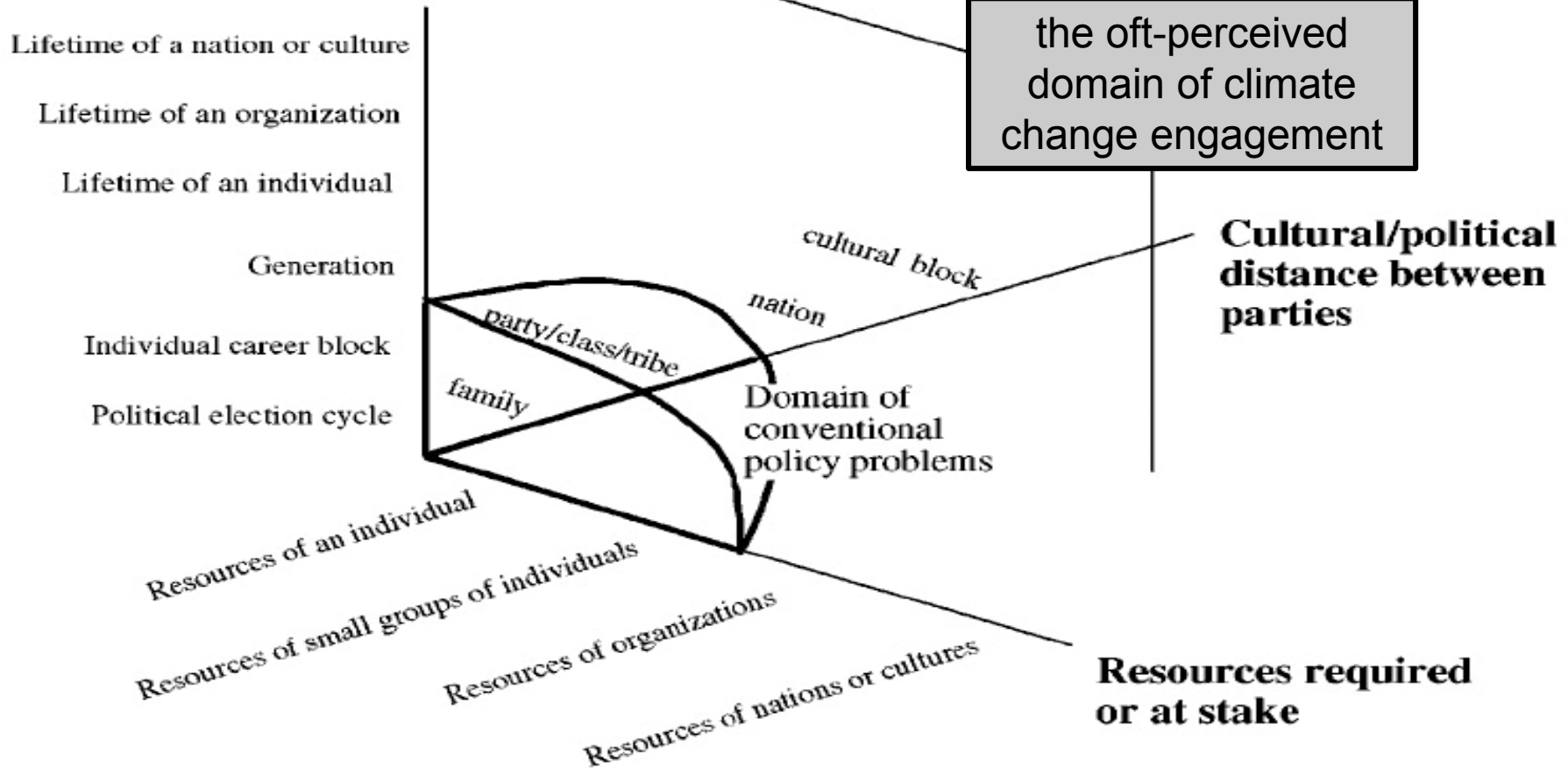
“providing information and filling knowledge gaps is at best necessary but rarely sufficient to create active behavioral engagement.” ~ Susanne C. Moser (2009)

CENTER & FOR  
SCIENCE & TECHNOLOGY  
POLICY RESEARCH





**Time required  
to implement or  
to reverse  
choice.**



Morgan et al (1999)

moments in time: April 22-29, 2017

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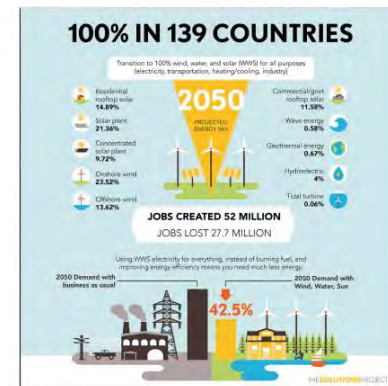


## Leggett – Chapters 4, 5 and 6

- The rise (and recalculation) of shale gas/shale oil and fracking → “a game changer” (pp. 34-35)
- the ‘coalition of the worried’ (p. 36)
- Standard Oil (1870), the Sherman Antitrust Act Supreme Court decision (1911) & the Rockefeller Foundation/Rockefeller Brothers Fund (1913)
- Jacobsen’s renewable resource roadmaps for electricity, heating and transportation demands, US state by state, 139 countries (p. 55)

### Article

100% Clean and Renewable Wind, Water, and Sunlight All-Sector Energy Roadmaps for 139 Countries of the World



Mark Z. Jacobson, Mark A. Delucchi, Zack A.F. Bauer, ..., Jingfan Wang, Eric Weinert, Alexander S. Yachnin

[jacobson@stanford.edu](mailto:jacobson@stanford.edu)

#### HIGHLIGHTS

Roadmaps for 139 countries to use 100% wind-water-solar in all energy sectors

Roadmaps avoid 1.5°C global warming and millions of annual air-pollution deaths.

Roadmaps reduce social cost of energy and create 24.3 million net long-term jobs

Roadmaps reduce power disruption and increase worldwide access to energy





## MODES OF REGULATION

### Command and Control (CAC):

- power in government hands
- clarity of regulatory signals
- uniform standards

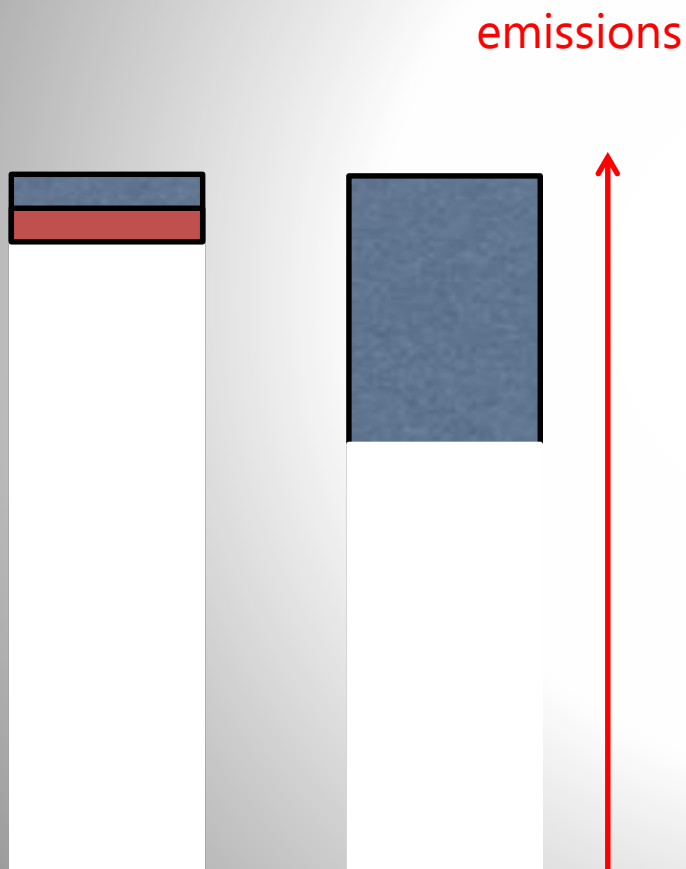
*elegance*

### Incentive-Based Regulation (IBR):

- cost effective, efficient
- incentivizes & promotes technological innovation
- reduces administrative burdens

*flexibility*

# IBR example: Cap and Trade



(1) Set a 'Cap' (limit) on regional emissions – e.g. reduce emissions by 50%

(2) Begin trading between those (e.g. power plants) contributing to emissions

(3) Evaluate success = e.g. plant A reduces 30%, plant B reduces 20%, B pays A to reduce 5% more rather than do it themselves – same goals/objectives achieved w flexibility



## Mayrhofer & Gupta (2016) The science and politics of co-benefits in climate policy

*“a ‘win-win’ strategy to address two or more goals with a single policy measure”*

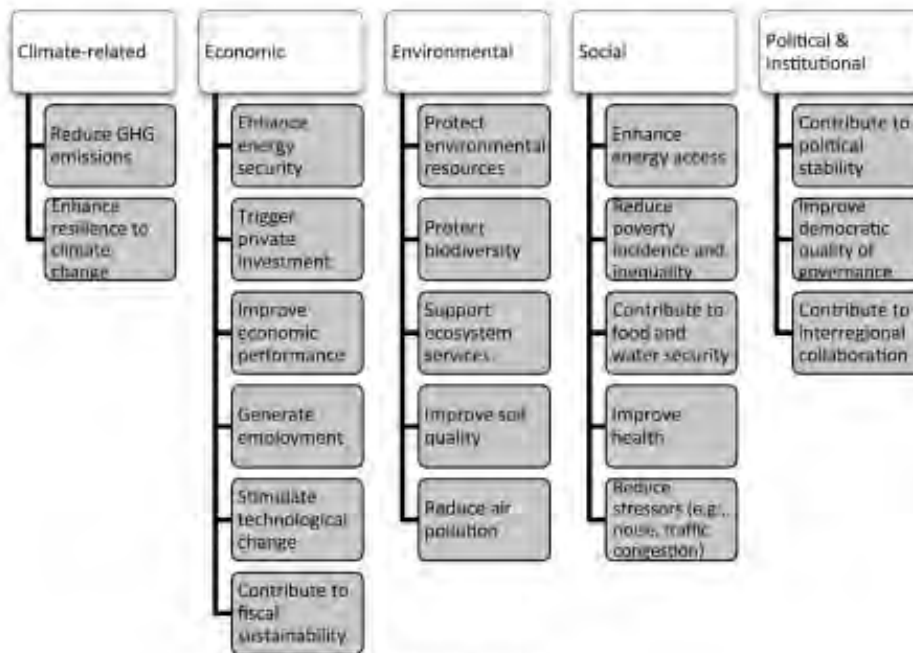


Fig. 1. Types of co-benefits.

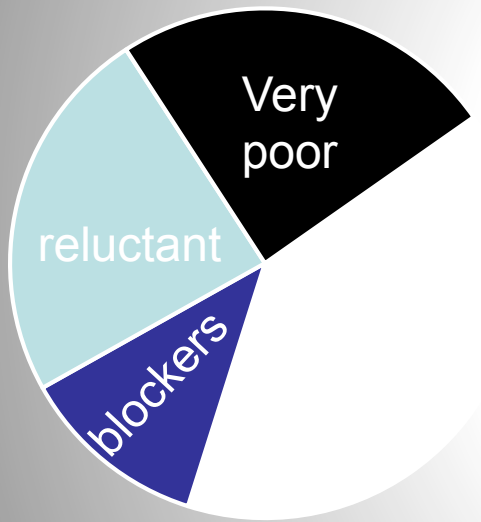
Needs multi-disciplinary treatment “if it is to rise above incrementalism and sterile policy recommendations”...needs to “evolve further from a sterile, managerial, technocratic instrument into a more dynamic and political instrument that can actually help to bring the much needed..reexamining and challenging of the value systems and norms underpinning co-benefits” (p. 28)

**critiques of current approaches:** CB analysis, apolitical, surface level, imperialist





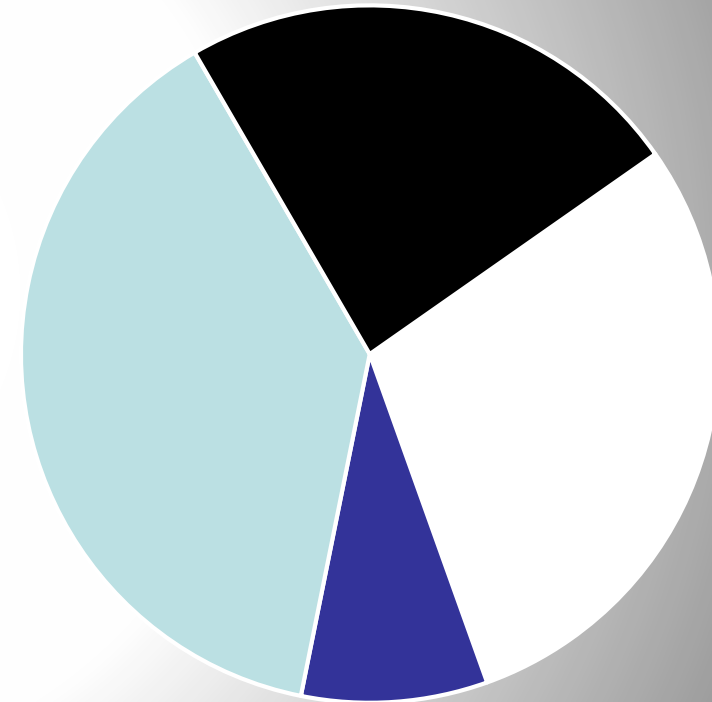
# Victor & Jones (2018) 'episodic multilateralism'



1990 (38 Gt)



2000 (41 Gt)



2014 (55 Gt)

# The United Nations (UN)



- created in 1945
- many subsidiary bodies:  
e.g. UN Environment  
Program (UNEP)



institutional arrangements:

- to facilitate more coherent global action
- to keep world peace
- to defend civil rights