Fostering Innovation in Global Climate Governance in a Context of International Transformation:

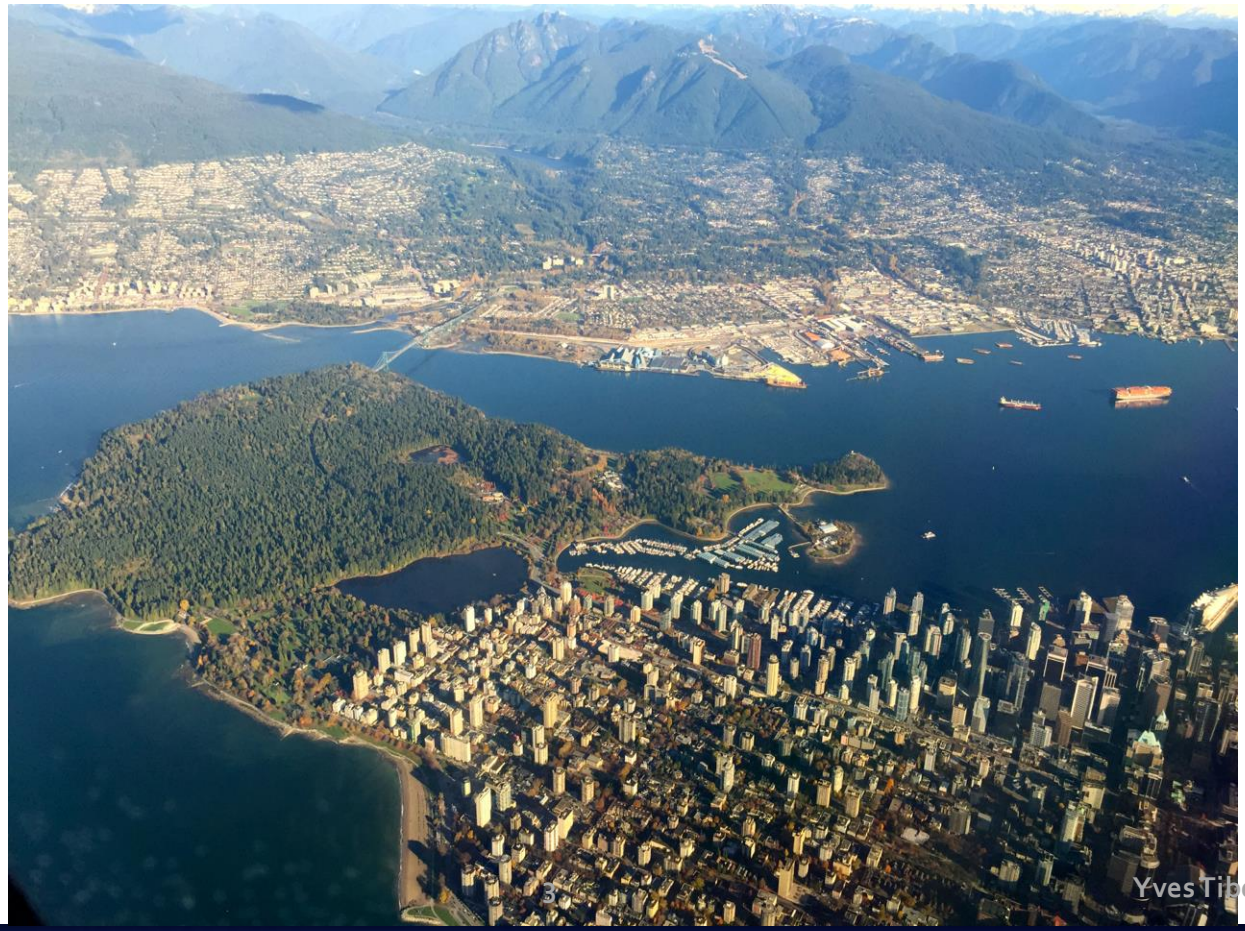
Early Clues from the COP 21 Success

YVES TIBERGHIEN - Berlin, FUB, April 12, 2016

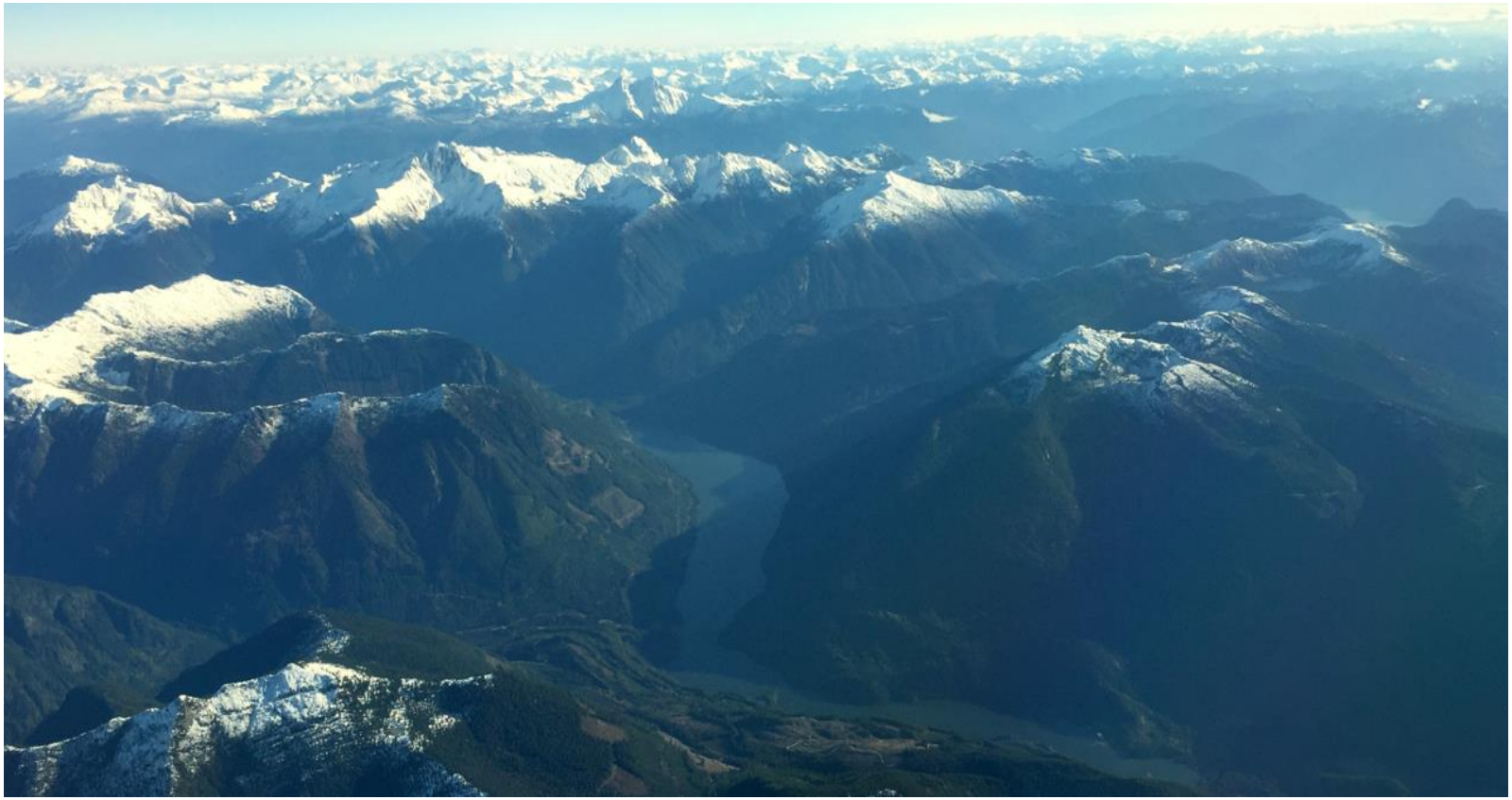
Alamy

The View from UBC

Vancouver (YT photo, Nov9, 2015)



Our Neighborhood (YT-11/9/2015)

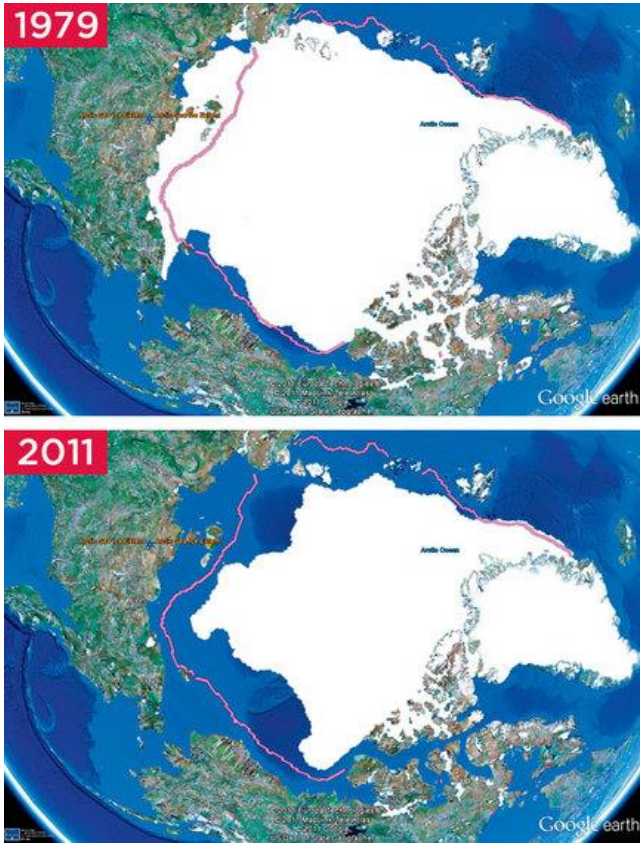


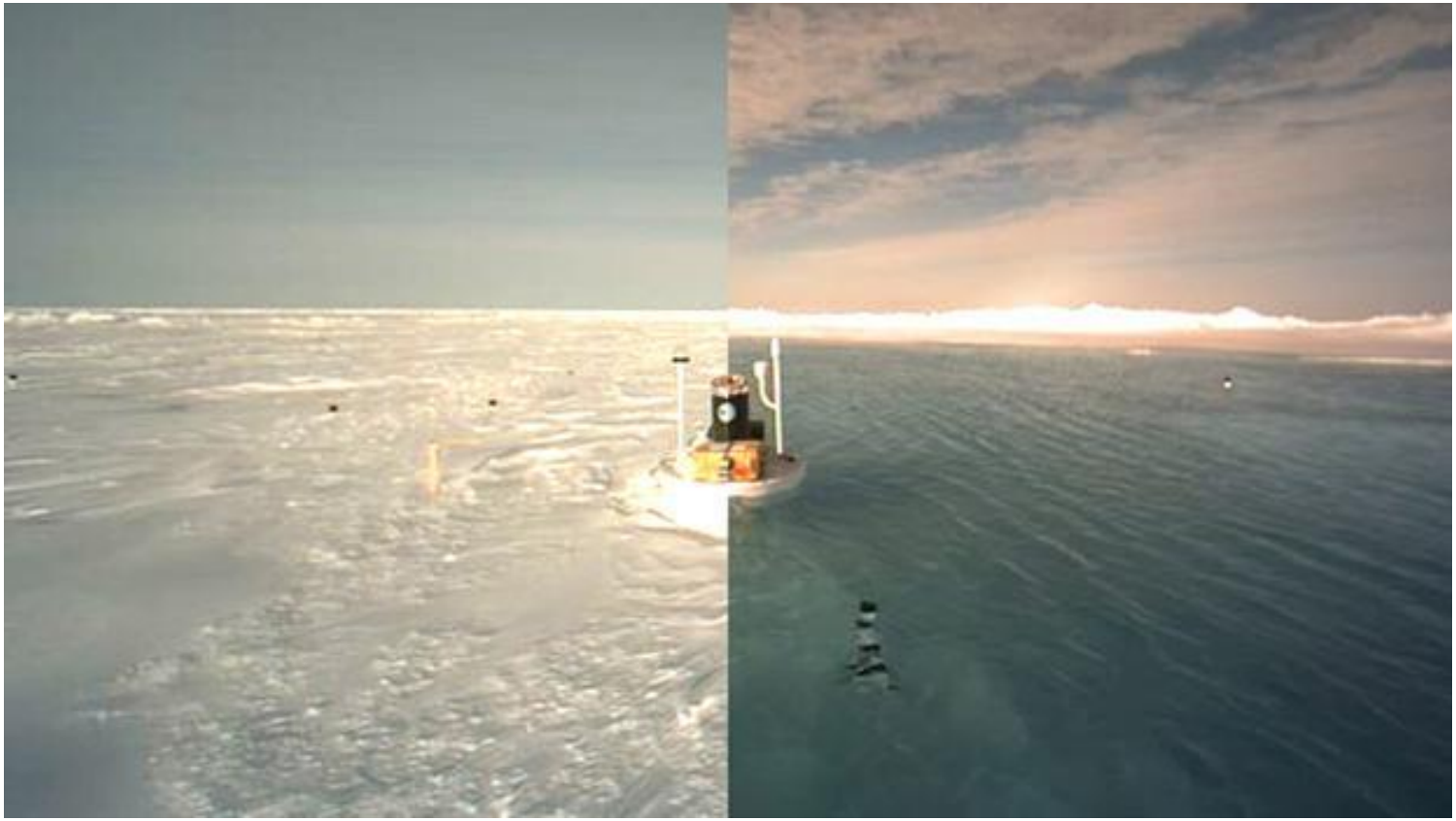
Straight of Georgia, BC (YT photo)

The World 25Km South of UBC

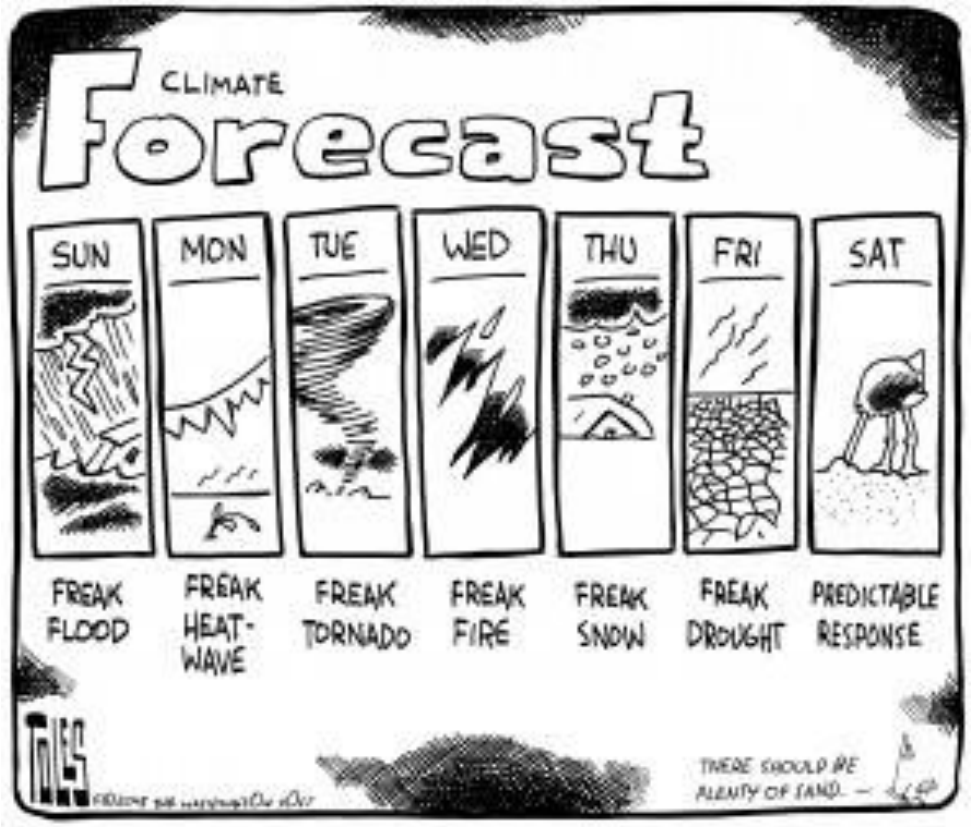
Sunrise in BC

Our Campus


1979
Arctic Ocean
Google earth
2011
Arctic Ocean
Google earth



Our Future Weather Forecast



Did Paris Save the Planet?

Research Questions

- What is the place of climate change in the ongoing transformation and long-term sustainability of our liberal order?
- What happened at the COP 21? And what are some early lessons from an improved UNFCC process?

Key Points- Context

- Climate Change is the most complex human problem we face with many incentives for inaction. The planet is currently on course toward a very bad post-2050 world. There is urgent need for energy innovation.
- The formal Kyoto Protocol under UN umbrella (1997) has mostly failed, as most large countries remain out and flexibility was not sufficient.
- There is new momentum in 2015, mainly after the November 2014 China-US agreement. The current process is taking a more flexible, decentralized form with difficult enforcement.

Arguments

- 1. Climate is one component of the ongoing global governance paradox- and must be seen in connection to other pieces
- 2. Merging of agendas: global economic governance, climate, and democratic governance
- 3. in 2015, this allowed for US-China leadership at the COP 21, as part of a larger cross-issue bargain
- 4. the COP 21 represents an institutional milestone with several key innovations and (fragile) breakthroughs

Outline

- 1. The Big Picture: Age of Paradox
- 2. The Need for Institutional Innovation
- 3. A Moment of Convergence in 2016 – Global Economic and Global Environmental Governance
- 4.Climate Dilemmas
- 5. COP 21: finally a success (maybe)
- 6. China and Climate change
- Conclusion

Our future…

1. Global Context: Economic Uncertainties and Climate Interact

An Age of Paradox

- Human Governance Paradox: why is humanity making such advances in science and technology and is still so poor at managing the resources of the planet and cooperating over public goods?
- Globalization/Global Governance Paradox: the more we globalize, the more we need global rules and institutions to accompany markets; yet, the more the induced tensions and changes from globalization push us to circle the wagons around national democracy and sovereignty

Globalization vs Fragmentation

A Period of Transition, Change, Volatility

- Integration vs Entropy: is the system resilient?
- Historic power transition: can institutions adapt? Key players currently unsure about the strategic moves from the other side – lots of sensitivities and misperceptions
- Volatile domestic politics in key countries: players are not sure about their counterparts.
- Fragmentation and securitization of trading regime (TPP)
- Aggregate uncertainty: systemic risks, some weaknesses in global governance, complexity, decreasing growth…

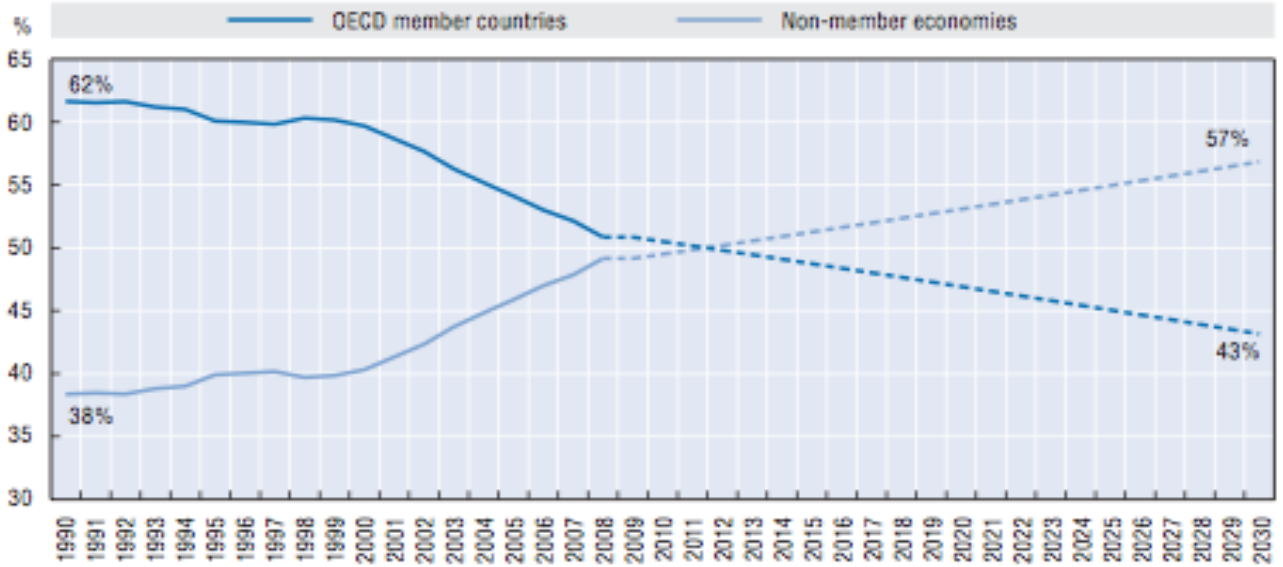
Zoom: Integration vs Entropy

Integration	Entropy/Fragmentation
Trade / GDP	Opinion Surveys (eg Pew), including on globalization
FDI flows	Surveys on views of US and China (citizens are puzzled)
Regional integration of trade and FDI patterns	Weak support for G20 or global governance
Capital flows	Rising Inequality
Tourism	Rise of extreme parties and nationalism (eg Japan)

Great Power Transition

Figure 0.6. **Share of the global economy in purchasing power parity terms, 1990-2030**

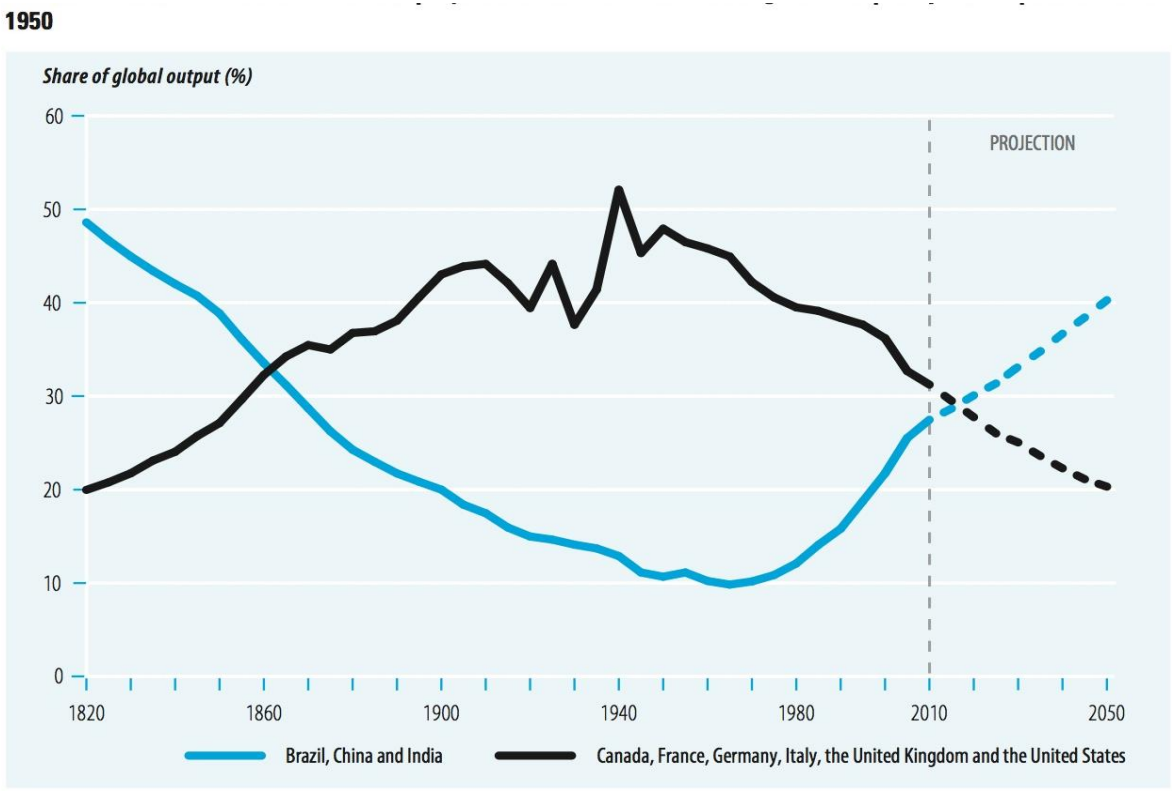
% of global GDP, PPP basis



Note: These data apply Maddison's long-term growth projections to his historical PPP-based estimates for 29 OECD member countries and 129 non-member economies. Dotted lines indicate projections.

Source: Author's calculations based on Maddison (2007) and Maddison (2010).

UNDP 2013 HDR – G6 vs E3



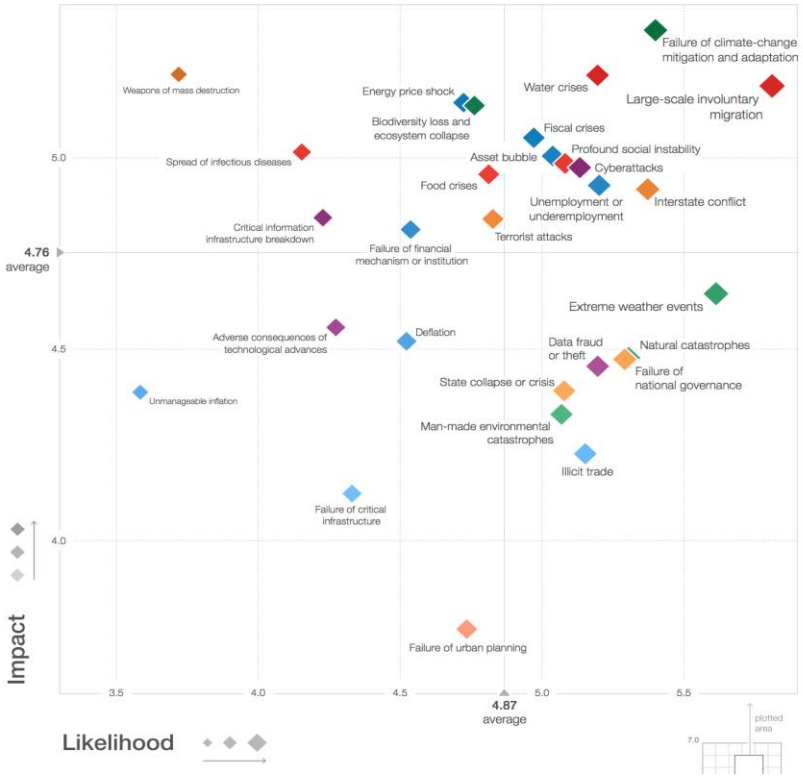
Note: Output is measured in 1990 purchasing power parity dollars.

Context: Managing the Global System in an Age of Complexity

- A big decentralized game without a pilot in the plane
- **Problem 1:** generating rules of the game (traffic signals), sharing of information, credible commitments
- **Problem 2:** the system is prone to crisis, instability, volatility, and overshooting. Who is in charge, then?
- **Problem 3**: managing the vast changes that the global economy generates – including inequality and changes in the balance of power. This erodes the very foundation of the global economy. The rules need adjustments.

Managing Public Bads and Systemic Risks (WEF 2016):

Figure 1: The Global Risks Landscape 2016



The Dilemmas of Global Systemic Risks

- Jared Diamond- Collapse – capacity of societies to incorporate long-term signals and capacity of societies to be organized to react to risks and change. It turns out that it is difficult
- When things go wrong: countries will act rationally and defend their national interest (due to defect focusing on national interest):

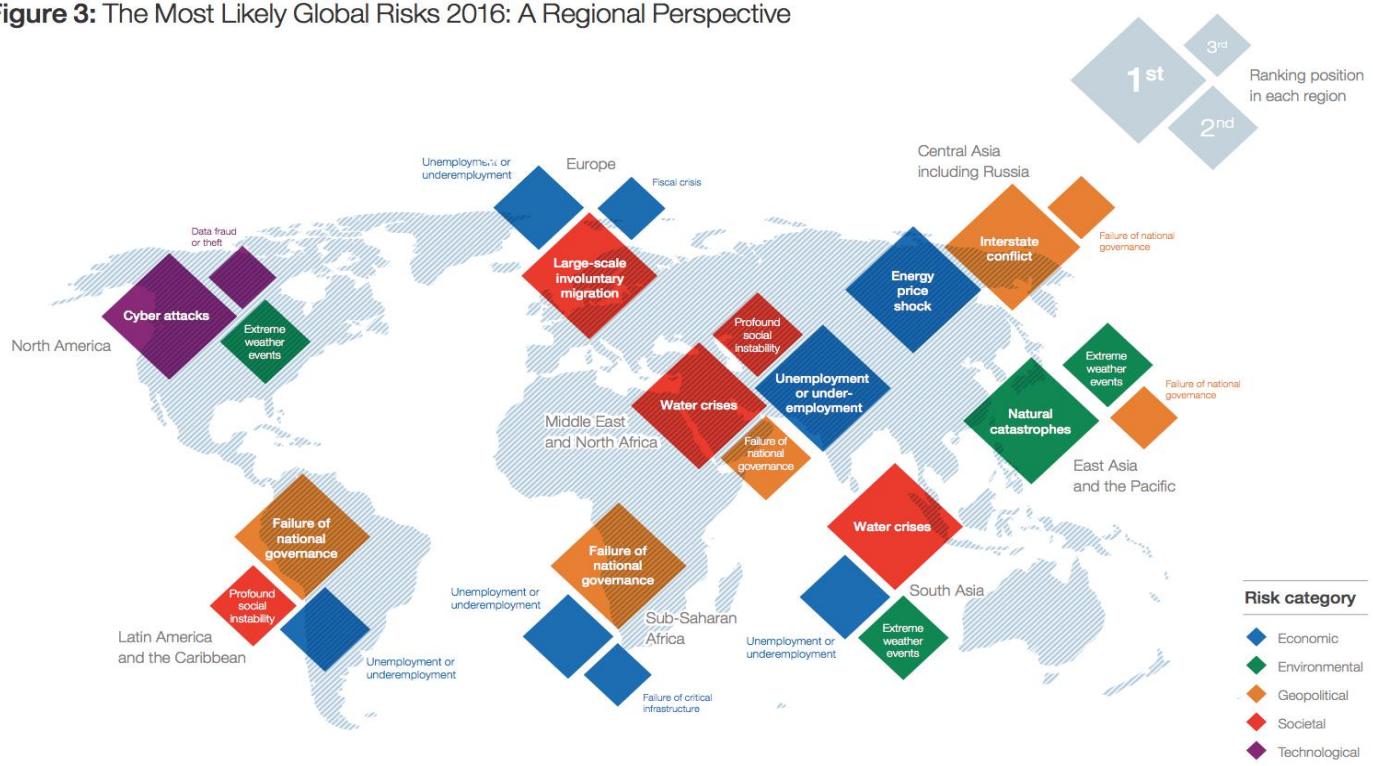
WEF Global Risks Report 2016

Figure 1.1.1: The Evolving Risks Landscape, 2007–2016

Top 5 Global Risks in Terms of Likelihood

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
1st	Breakdown of critical information infrastructure	Asset price collapse	Asset price collapse	Asset price collapse	Storms and cyclones	Severe income disparity	Severe income disparity	Income disparity	Interstate conflict with regional consequences	Large-scale involuntary migration
2nd	Chronic disease in developed countries	Middle East instability	Slowing Chinese economy (<6%)	Slowing Chinese economy (<6%)	Flooding	Chronic fiscal imbalances	Chronic fiscal imbalances	Extreme weather events	Extreme weather events	Extreme weather events
3rd	Oil price shock	Failed and failing states	Chronic disease	Chronic disease	Corruption	Rising greenhouse gas emissions	Rising greenhouse gas emissions	Unemployment and underemployment	Failure of national governance	Failure of climate-change mitigation and adaptation
4th	China economic hard landing	Oil and gas price spike	Global governance gaps	Fiscal crises	Biodiversity loss	Cyber attacks	Water supply crises	Climate change	State collapse or crisis	Interstate conflict with regional consequences
5th	Asset price collapse	Chronic disease, developed world	Retrenchment from globalization (emerging)	Global governance gaps	Climate change	Water supply crises	Mismanagement of population ageing	Cyber attacks	High structural unemployment or underemployment	Major natural catastrophes

Figure 3: The Most Likely Global Risks 2016: A Regional Perspective



Democracy vs Entropy: weak support for global governance

- Political incentives, leadership recruitment, and interest group representation favor inward focus over global governance
- Weak information capacity for average citizens despite internet (echo chamber and lateral information channels, erosion of established channels)
- Additional paradox of "phishing for phools:" we profess to be economic rational animals and build our systems around that assumption. Yet, we make our evaluations of other countries (our partners) on the basis of psychological, emotional, and poorly-informed reactions.

2. The Alternative: Innovation and Entrepreneurialism

- Observation: there are more arbitrage gaps than we realize – amazing opportunities for entrepreneurs and visionaries, as long as they bring ideas and thick networks together.
- Positive examples of institutional innovations: Jean Monnet and creation of EC process; G20 in 2009; US-China progress in climate in 2014-2015
- Climate: need to generate new frames, new coalitions, new mobilization mechanisms to create mutually supporting framework that generate domestic support
- → urgent need for institutional innovation and global governance entrepreneurs

3. A Window of Opportunity in 2016

- Momentum: SDG, COP21, US-China truce in Sept 2015, IMF reform ratification
- Dangers: Ian Bremmer warning, Syria and Middle East, Saudi Arabia vs Iran, Brexit, decelerating economic growth
- Opportunity: Chinese Presidency of the G20
- A moment of intersection between UN (source of legitimacy), Bretton Woods institutions (effective machinery), and G20 (source of possible leadership and tradeoffs among major powers)?

G20 Priorities in 2016 (Chinese Presidency)- include SDGs and Climate

- A window for advances led by China and within US winset
- 1. Structural impediments to growth- uncertainties
- 2. SDGs: progress on monitoring, OECD and beyond
- 3. New development banks: common framework
- 4. Climate- COP 21 follow up, green financing
- 5. Energy governance- some progress
- 6. post-TPP trading system – avoiding fragmentation
- 7. Global financial safety net

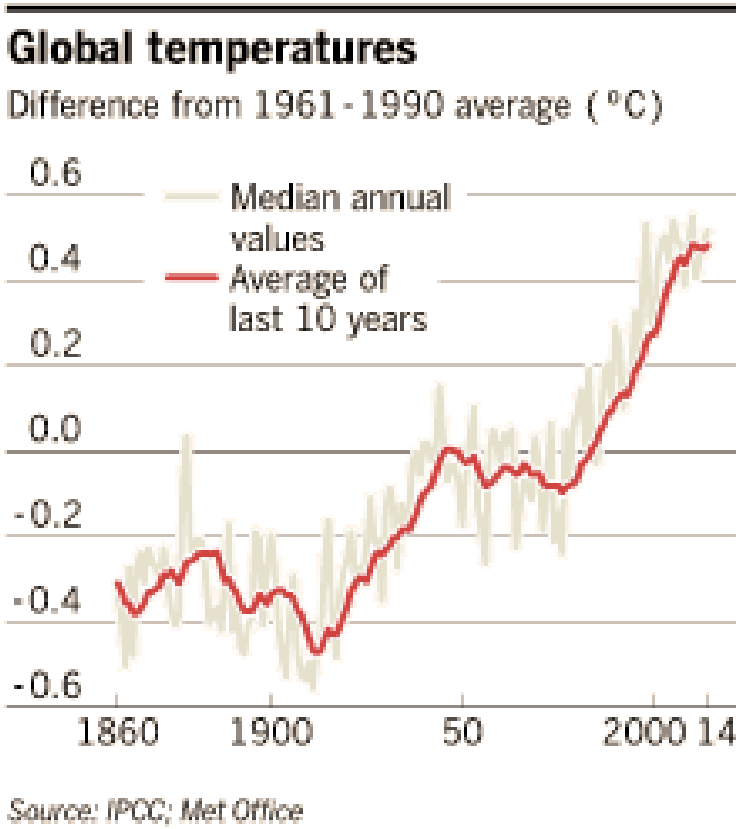
Vision 20 Network – Hangzhou March 2016

4. Climate: the Ultimate Systemic Risk

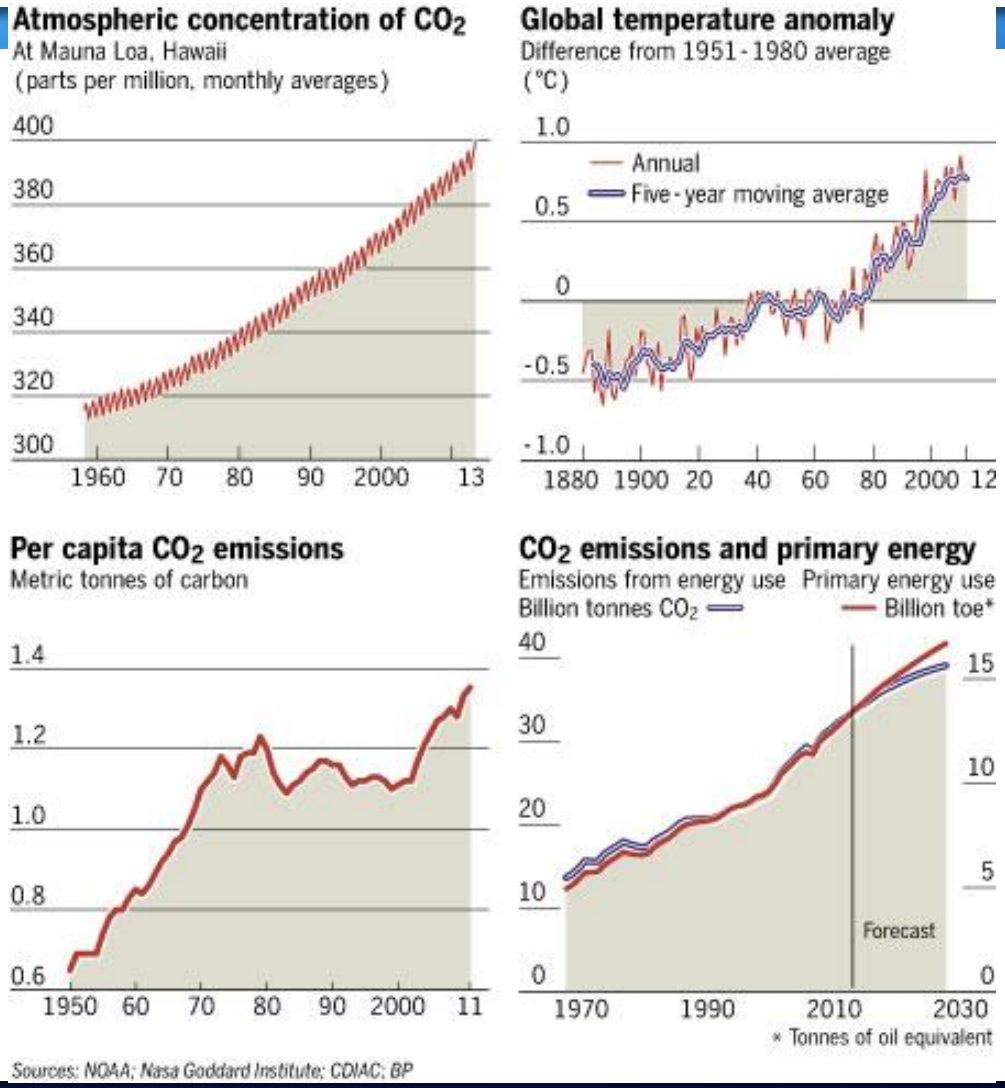
- "one of the most difficult challenges modern civilization has ever faced (…) it will require the most sustained, well-managed, globally cooperative effort the human species has ever mounted." (Wagner and Weitzman, 2015, *Climate Shock*)
- We face a x % probability of an catastrophic climate situation by 2100 – possibly as high as 10% - a world of major event hazards; crop failures; flooding of cities

Humanity Changing the Planet

Global Temperatures on the Rise (FT)



Reaching milestones – 400ppm of CO_2 (May 2013 announced)- FT



Climate Risks: Vulnerable Cities – ADB 2011, p95

Table 1 | **Asian cities feature prominently in the list of cities most exposed to half metre sea-level rises**

City	Exposed Population (2070) (000s)	City	Exposed assets (2070) ($bn, 2001)
Kolkata	14,014	Miami	3,513
Mumbai	11,418	Guangzhou	3,357
Dhaka	11,135	New York-Newark	2,147
Guangzhou	10,333	Kolkata	1,961
Ho Chi Minh City	9,216	Shanghai	1,771
Shanghai	5,451	Mumbai	1,698
Bangkok	5,138	Tianjin	1,231
Rangoon	4,965	Tokyo	1,207
Miami, USA	4,795	Hong Kong, China	1,163
Hai Phong	4,711	Bangkok	1,117
Alexandria, Egypt	4,375	Ningbo	1,073
Tianjin	3,790	New Orleans	1,013
Khulna	3,641	Osaka-Kobe	968
Ningbo	3,305	Amsterdam	843
Lagos, Nigeria	3,229	Rotterdam	825
Abidjan	3,110	Ho Chi Minh City	652
New York-Newark	2,931	Nagoya	623
Chittagong	2,866	Qingdao	602
Tokyo	2,521	Virginia Beach	582
Jakarta	2,248	Alexandria, Egypt	562

Source: Nicholls, R.J., Hanson, S., Herweijer, C., Patmore, N., Hallegatte, S., Jan Corfee-Morlot, Jean Chateau and Muir-Wood, R. 'Ranking of the World's Cities most Exposed to Coastal Flooding Now and in the Future, OECD Environment Working Paper No. 1, 2007.

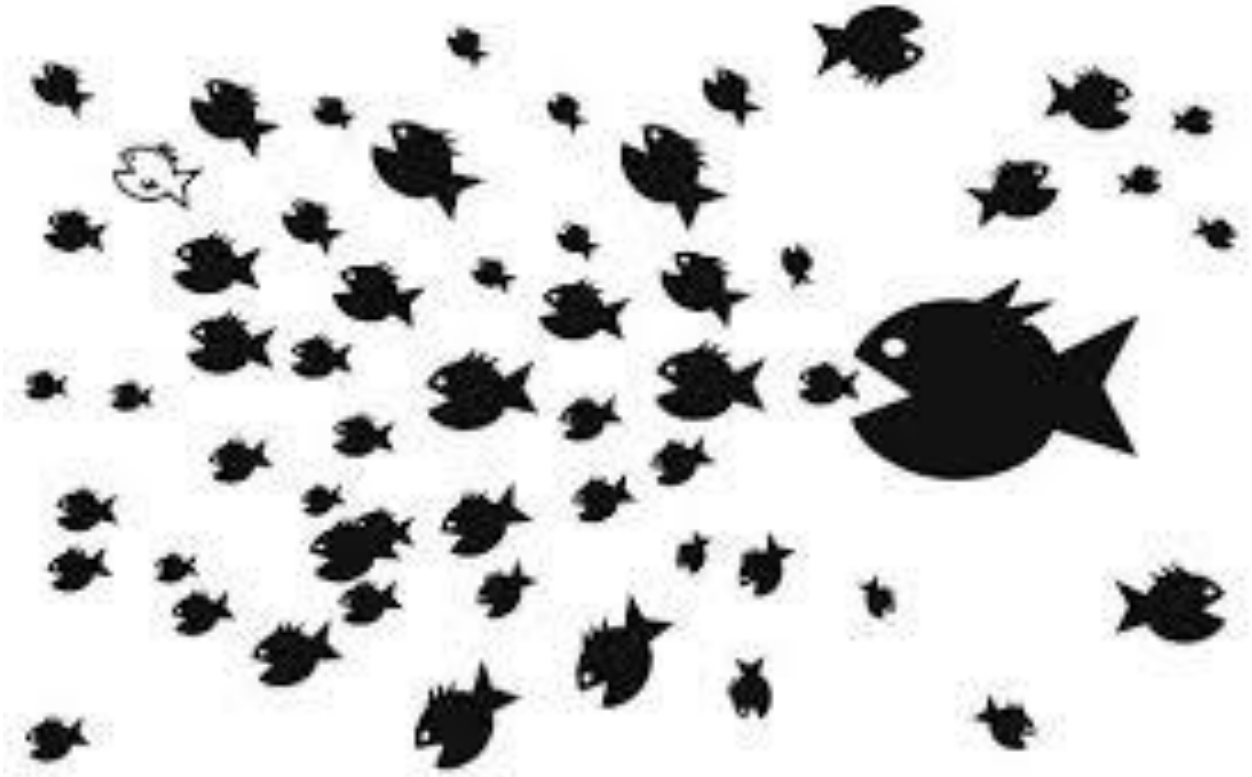
Climate: Externalities and Incentives

- Solving climate change requires putting "a true price on burning carbon that reflects its true cost to society."
- YT- without this, no incentives for energy innovation required to get us to a better world.

Wagner and Weitzman 2015: 24

See latest IMF reports on subsidies, real and hidden.

The World's Greatest Collective Action Dilemma



Why is Climate so hard to deal with? (Wagner and Weitzman, 2015)

- 1. A uniquely global problem
- 2. A long-term problem (cumulative, like water in a bath tub)
- 3. Uniquely irreversible (with accelerating mechanisms – melting of Antarctica or permafrost release of methane)
- 4. Uncertainty (how far will seas rise; will there be camels in Canada?)
- 5-YT addition : issue of global justice (past injustices)

The Bumpy Road of Climate Negotiations in Recent Years (photo Lima 2014)

Paradoxes of Copenhagen

- The great hopes and positive competitive dynamic of the Fall 2009 failed to lift Copenhagen.
- The EU has led global climate change negotiations and innovations since 1997. How could the EU find itself sidelined in Copenhagen and kept out of the room that crafted the final bargain (USA-BASIC axis)?

Copenhagen- high hopes

Tough Realities

The Rise of the BASIC axis

The underlying G2 axis

And the KEY ROOM without Europe

Pro-Tuvalu Demonstrations did not help

Nor did the Maldivian Attempt

Some Hypotheses on Copenhagen overall

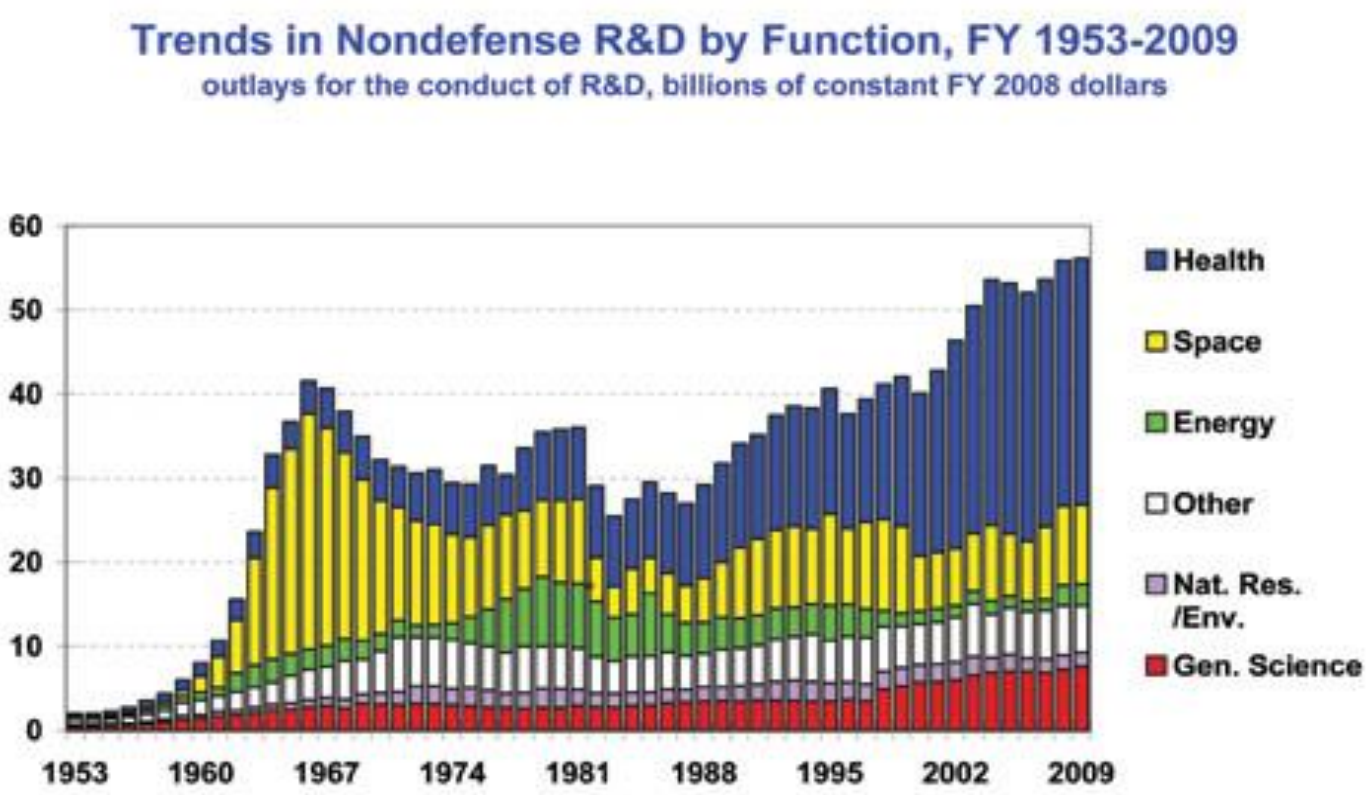
- **Basic Institutional Weakness**: The UN negotiating framework reached high point of multi-level, technical, and political complexity.
- **Primacy of domestic politics:** The two key actors in the entire system, namely the US and China, were too constrained by the dynamics of domestic politics to be able to engage in meaningful bargaining.
- **Hegemony and Hegemonic Transition:** The ongoing hegemonic transition (declining US, rising China) impedes progress, as the US and China increasingly engage in partial prisoner dilemma games.

- **Traditional Dilemma of Collective Action under Uncertainty**: uncertainty increased around Copenhagen, due to the erosion of the hitherto solid scientific consensus. Doubt increased and opened up more space for domestic interests opposed to agreement.
- **EU weakness:** the uncoordinated dynamic of multi-level reinforcement and multi-actor competition on climate change failed this time, as it is ill-suited for engaging in top-level multi-issue strategic interactions with powerful actors such as the US and China.

US as Critical Actor, yet not ready

Political Bottleneck in Senate

Long Way to Go for R&D



The EU's Approach

- Normative Leadership
- Institution-building (First Mover)
- Key driver: competitive multi-level reinforcement among the different EU political poles within a context of decentralized governance (Schreurs and Tiberghien)
- But growing internal tensions with the EU on five dimensions

5. Paris COP 21 in December 2015: a breakthrough and a few major innovations

1. The INDC Process Turns into a useful Bottom-up competitive process

- 187 INDCs
- China's INDC early (30 June 2015)
- 9 missing are under 0.01% of emissions
- 2018 : renew/recommit pledges + renewal every 5 years
- no backsliding written up in agreement
- we are on the road to 3.5C degree with those INDCs
- A chance for inclusive broad-range engagement at multiple levels

The Big 3 INDCs

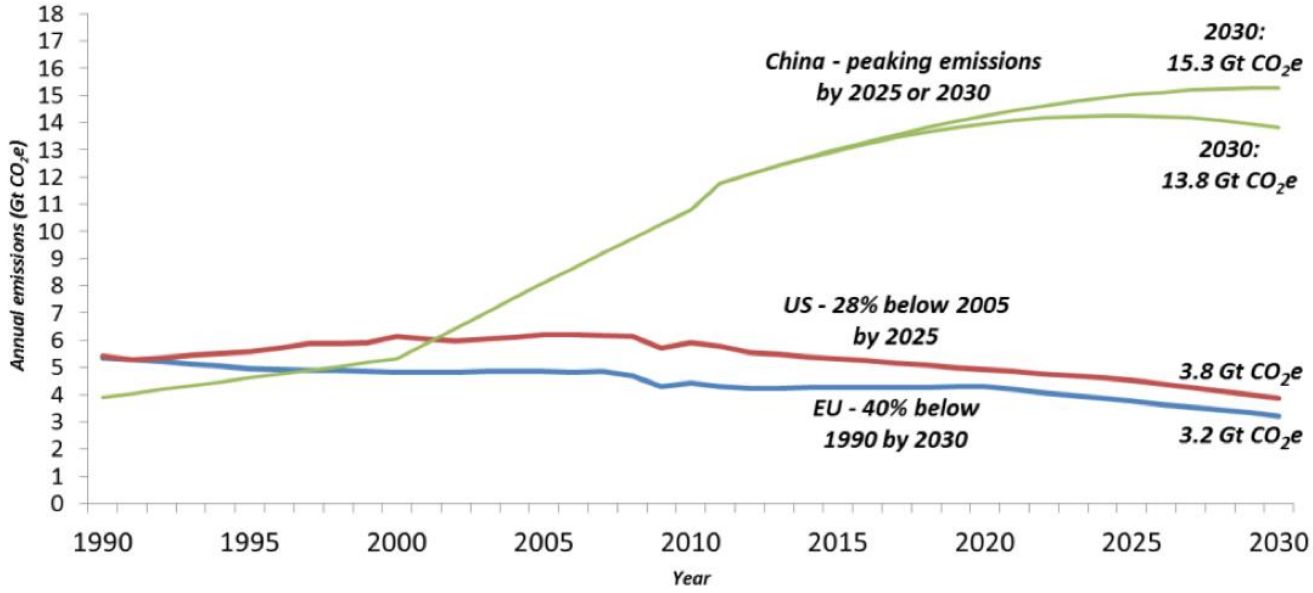
Table 1: Annual emissions to 2030 for the European Union, United States and China

Emitter (announced pledges)	**Annual emissions (Gt CO_2e)**			
	1990	**2005**	**2010**	**2030**
EU (40% below 1990 levels by 2030)	5.4	4.9	4.4	3.2
US (28% below 2005 levels by 2025)	5.4	6.2	5.9	3.8
China (peaking emissions by 2025)	-	-	10.8	13.8
China (peaking emissions by 2030)				15.3
Total (EU-US-China)*	**-**	**-**	***21.1***	***20.9–22.3***

*Note: columns and rows may not add up due to rounding.

Boyd et al, May 2015, LSE, con't

Figure 1: Annual emissions between 1990 and 2030 for the European Union, United States and China

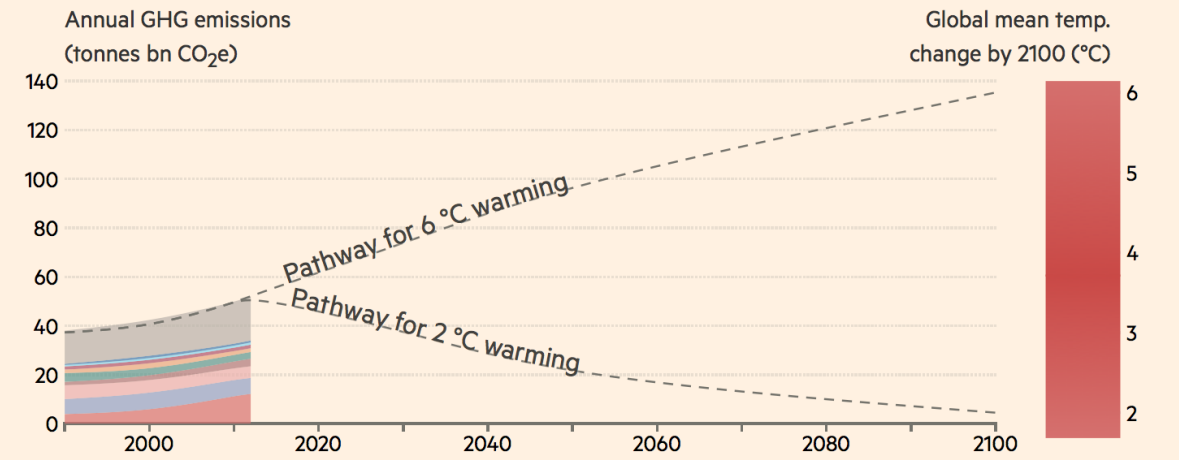


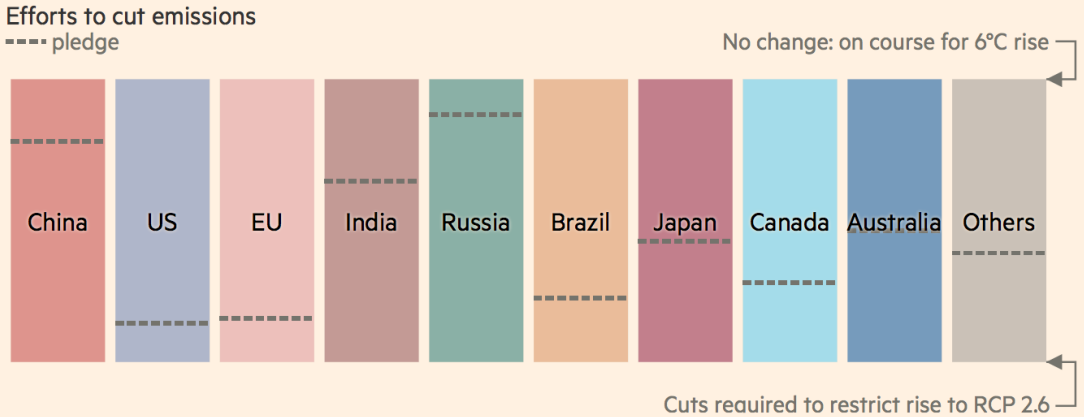
Climate Change Calculator

Since February, countries have been publishing their plans for cutting greenhouse gas (GHG) emissions, ahead of a December UN meeting in Paris that aims to deliver a new accord on climate change...

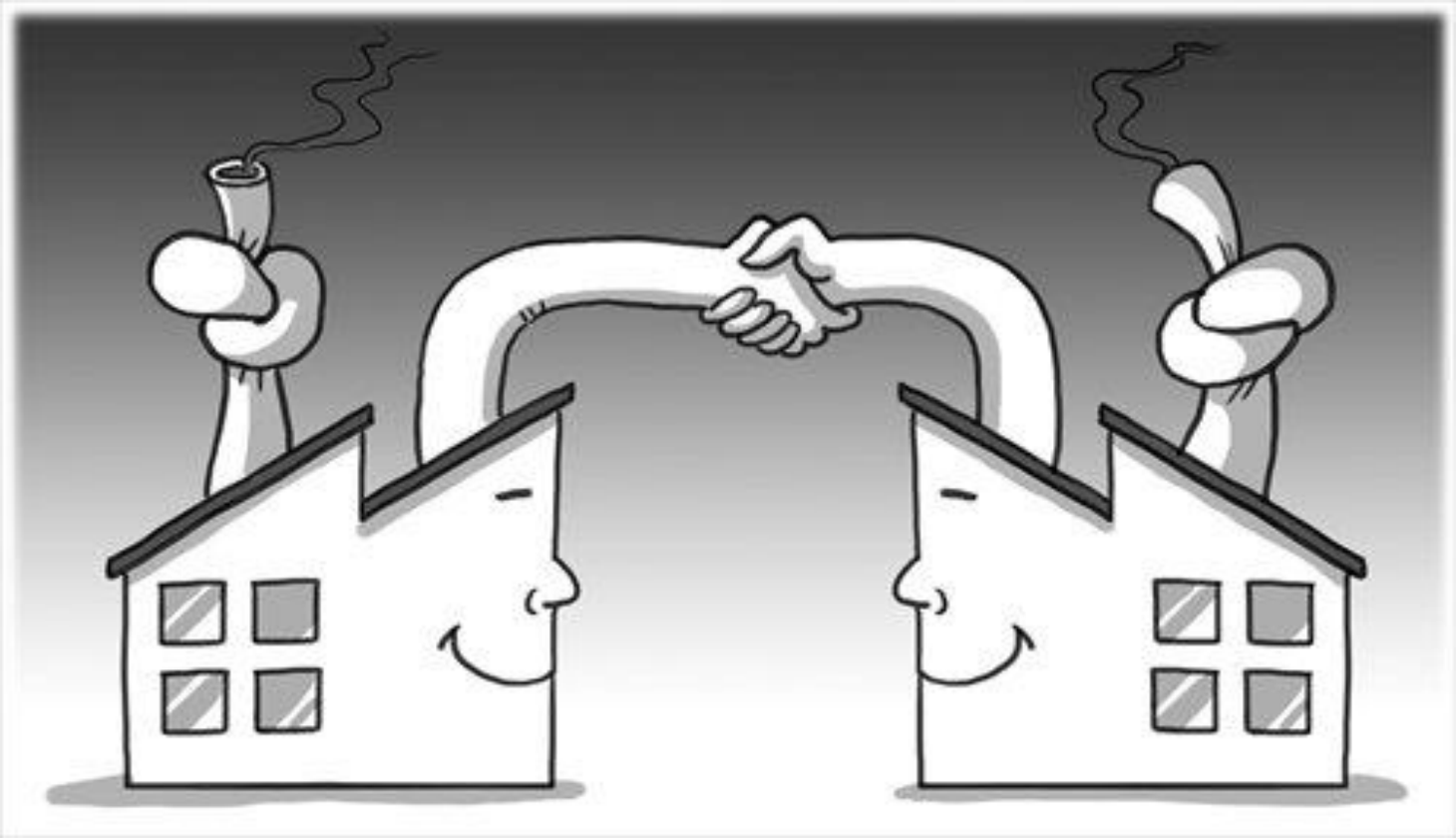
« Back 1/10 Next »

Create your own model





2. 2014- a breakthrough and new impetus with a US-China agreement (November)



November 12, 2014 in Beijing – a Breakthrough

- "Today, the Presidents of the United States and China announced their respective post-2020 actions on climate change, recognizing that these actions are part of the longer range effort to transition to low-carbon economies, mindful of the global temperature goal of 2°C.
- The United States intends to achieve an economy- wide target of reducing its emissions by 26%–28% below its 2005 level in 2025 and to make best efforts to reduce its emissions by 28%.
- China intends to achieve the peaking of CO_2 emissions around 2030 and to make best efforts to peak early and intends to increase the share of non-fossil fuels in primary energy consumption to around 20% by 2030. Both sides intend to continue to work to increase ambition over time."

G20 Brisbane Communique-2014

- 19. We support strong and effective action to address climate change. Consistent with the United Nations Framework Convention on Climate Change (UNFCCC) and its agreed outcomes, our actions will support sustainable development, economic growth, and certainty for business and investment. We will work together to adopt successfully a protocol, another legal instrument or an agreed outcome with legal force under the UNFCCC that is applicable to all parties at the 21st Conference of the Parties (COP21) in Paris in 2015. We encourage parties that are ready to communicate their intended nationally determined contributions well in advance of COP21 (by the first quarter of 2015 for those parties ready to do so). We reaffirm our support for mobilising finance for adaptation and mitigation, such as the Green Climate Fund.

September 25, 2015 Accord at White House

- "The United States supports China's presidency of the G-20 in 2016 and looks forward to working closely with China to promote strong, sustainable and balanced global growth. The two sides support the G-20's important role as the premier forum for strengthening international economic cooperation and coordination.

- (iii) **to implement the 2030 Agenda for Sustainable Development**, (iv) to enhance dialogue and cooperation on the policy framework for **infrastructure lending, including on environmental standards**, (v) **to phasing out inefficient fossil fuel subsidies by a date certain,**

3. China's Proactive Role at the COP 21 (Source: French Govt)

- Business opportunity: "today the only country that does not oppose climate and economic growth is China, because their levels of investment into clean tech are highest in the world"
- Interest in gaining leverage for domestic reforms (move away from coal and support for renewable and new batteries)
- Interest in having climate as a good story to defuse tensions with the West over other issues (S China Sea, political issues)
- Supports North in providing finance to the South through the creation of South-South Fund
- Good inter-agency coordination (compared to India): Xie Zhenghua wielding major political capital and link to Xi Jinping (despite NDRC still leading the negotiations)

4. A Breakthrough in N-S Relations in 2015 (SDGs and COP 21)

- SDGs / Agenda 2030 put North and South on the same page with joint responsibilities
- Compromised reached over common but differentiated responsibility (**CBDR**) through the Indian-sponsored term of "climate justice" (supported by France, acquiesced by US) and need for fairness → India, China can join more easily
- July 2015- Addis Abeba breakthrough: acceptance by the North for the need of "fresh" funding (not just redirecting ODA toward Green fund)
- Commitments to Green Fund by major countries, including US

5. Conceptual Breakthrough around "Risks" and "Costs"

- a/ Framing of climate as a **business risk** to be managed and hedged → good platform to mobilize banks and private businesses without a normative debate.
- b/ Acceptance of Stern Report: cost of inaction higher than cost of taking preventing measures. Quantification of health costs in China start putting a real cost on business as usual.
- c/ Opportunities for business in renewables and innovation – a big business (potential boost for R&D) → gaining private sector supporters. 600 of the top 2000 global MNCs made a pledge in Paris

IMF Report- May 2015- Energy Subsidies

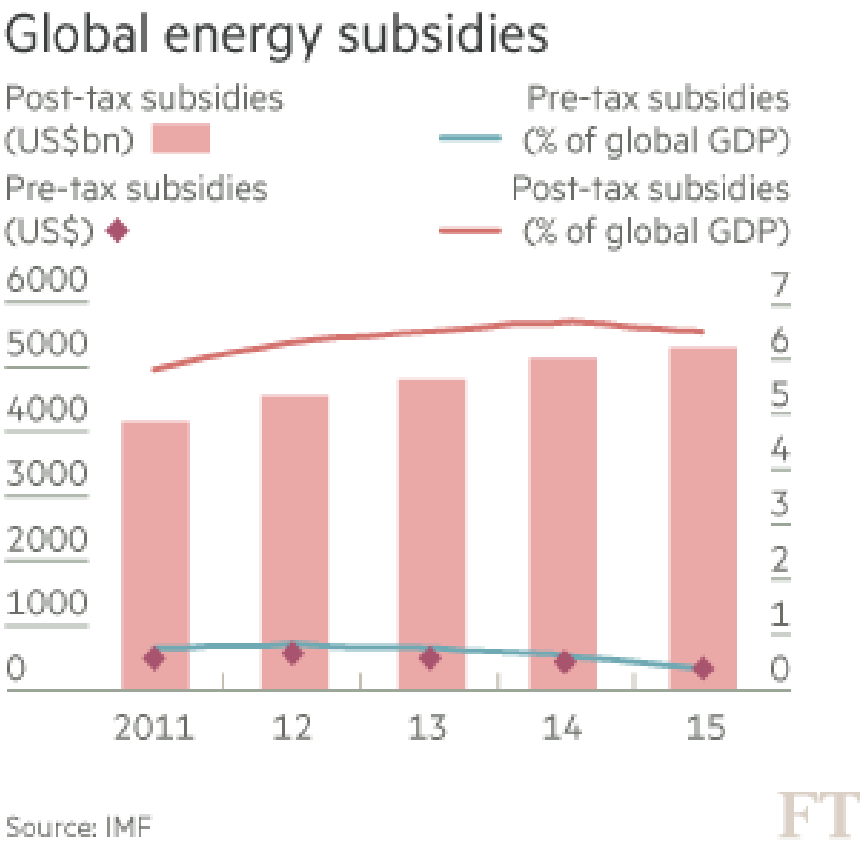
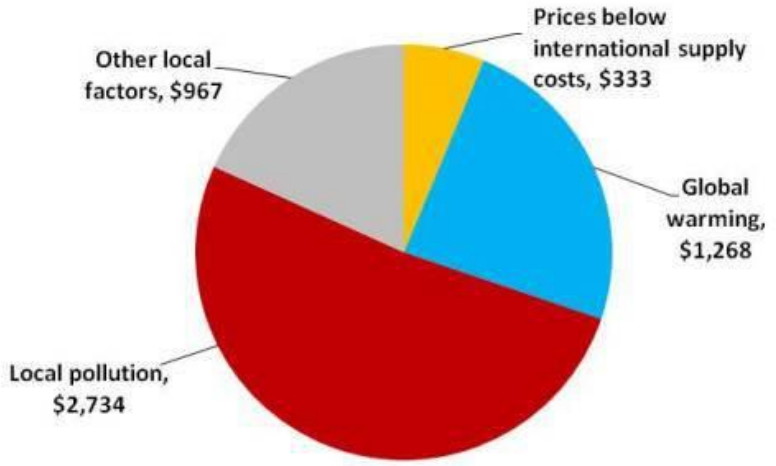
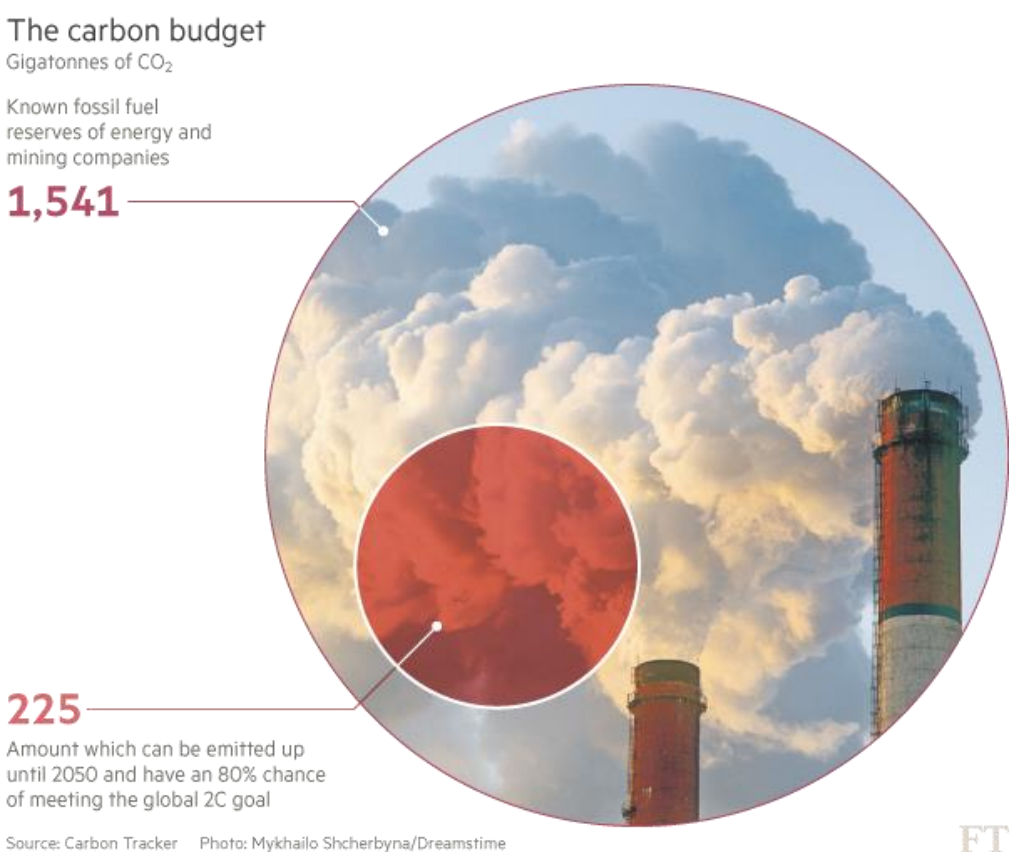


Chart 1
Local pollution a major component of energy subsidies
(Energy subsidies by component, 2015)



Sources: International Energy Agency; Organisation for Economic Co-operation and Development; and IMF staff estimates.
Note: "Other local factors" include the costs of foregone consumption tax revenue, congestion accidents, and road damage.

Related Issue – valuation of energy companies (cf Mark Carney, UK –oct2015)



6. Breakthrough in Social Engagement and Inclusion

- Decision of French presidency to open the negotiations to the full breath of civil society, including businesses, not just NGOs.
- Amb Chapuis: "it was the most formidable outreach ever done by the UN, personified by French Presidency"
- Encyclical by the Pope, *Laudate Si*, played very positive role: calling for ethical responsibility of humans to get to an agreement in Paris
- Broad engagement and partial cooperation of business

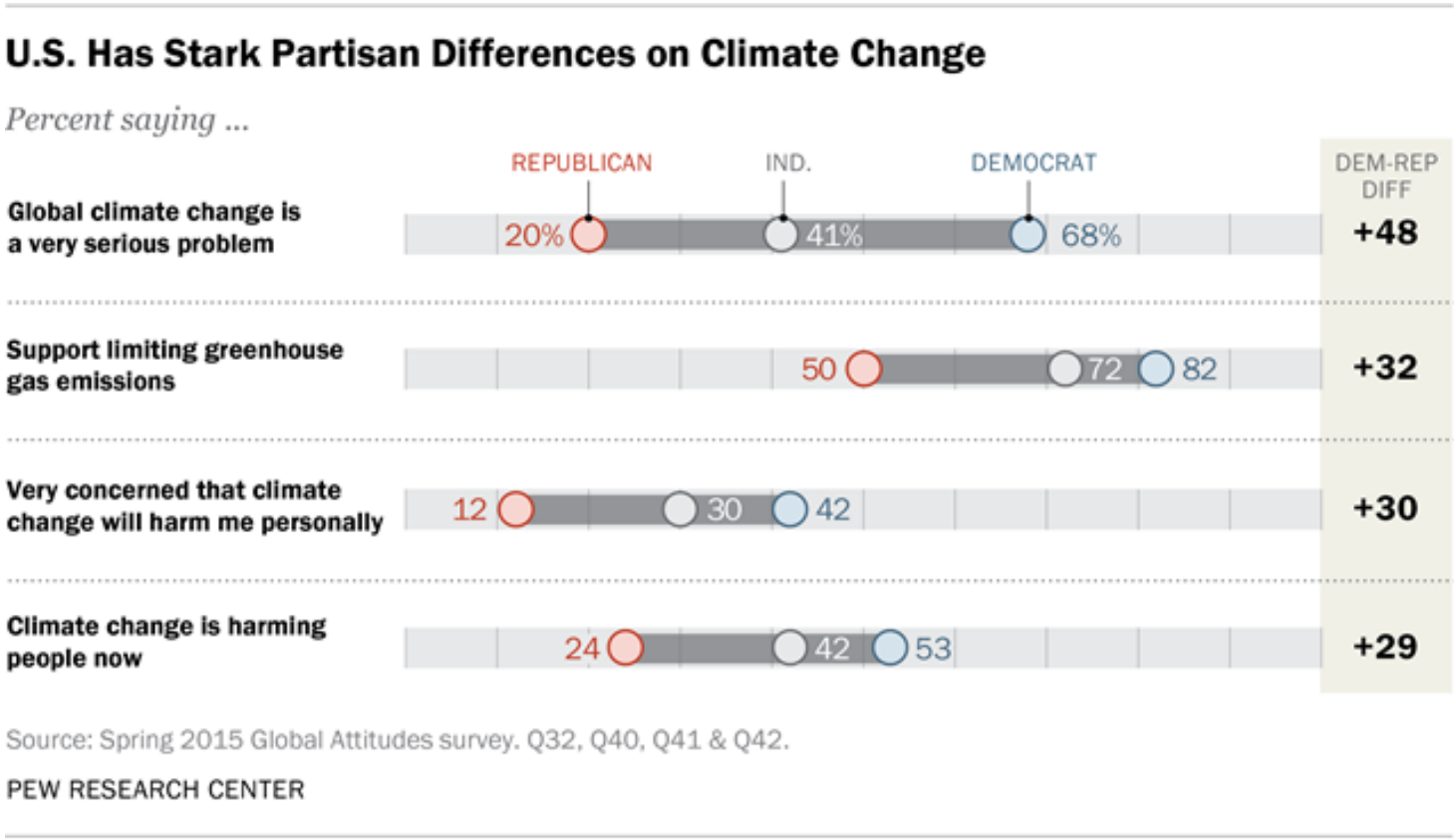
And of course- successful leadership and coordination

- French Presidency
- Positive coordination role between North and South
- Close work with China and US
- Close work with UN
- Skillful closure on the Saturday- with an all inclusive draft and gavel before Nicaragua could talk ("consensus through leadership")

What was missing in Paris

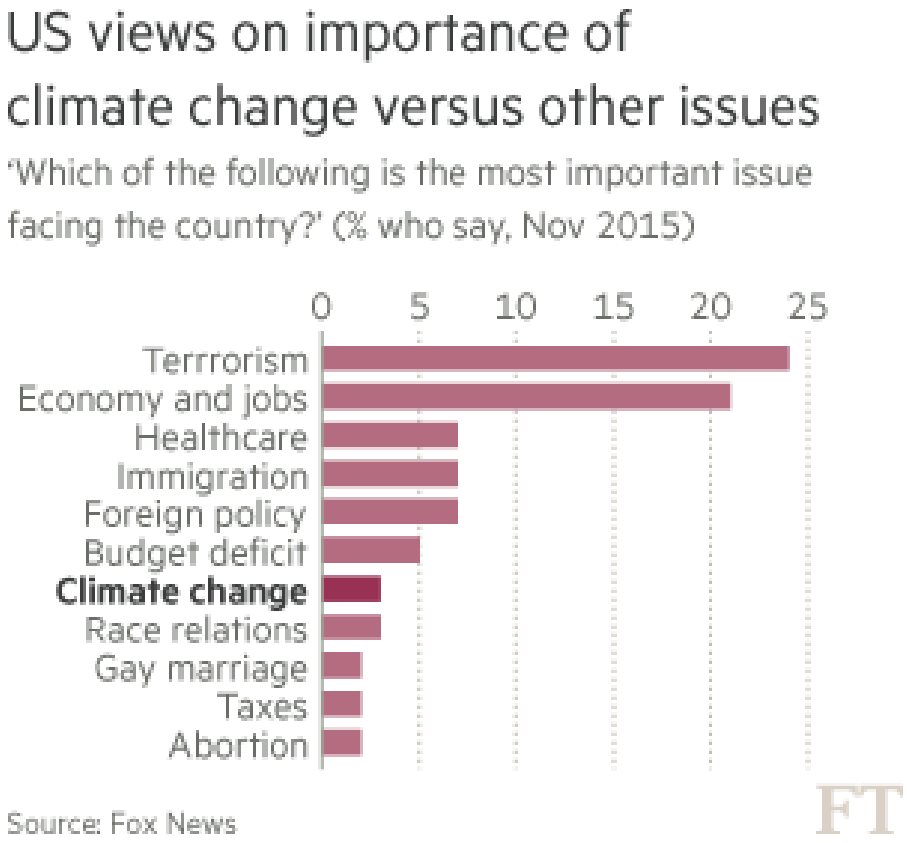
- carbon pricing, carbon trading → addiction; refusal to break addiction.?
- Legally-binded targets (US Congress)
- Green fund 100B a year from 2020 – commitments now at about 70% only – more money to find
- still only 3.5C if all INDCs are fulfilled
- vulnerability to domestic politics
- US not really on board ***

Great partisanship in the US



Climate not top concern in US

Source: FT, December 30, 2015



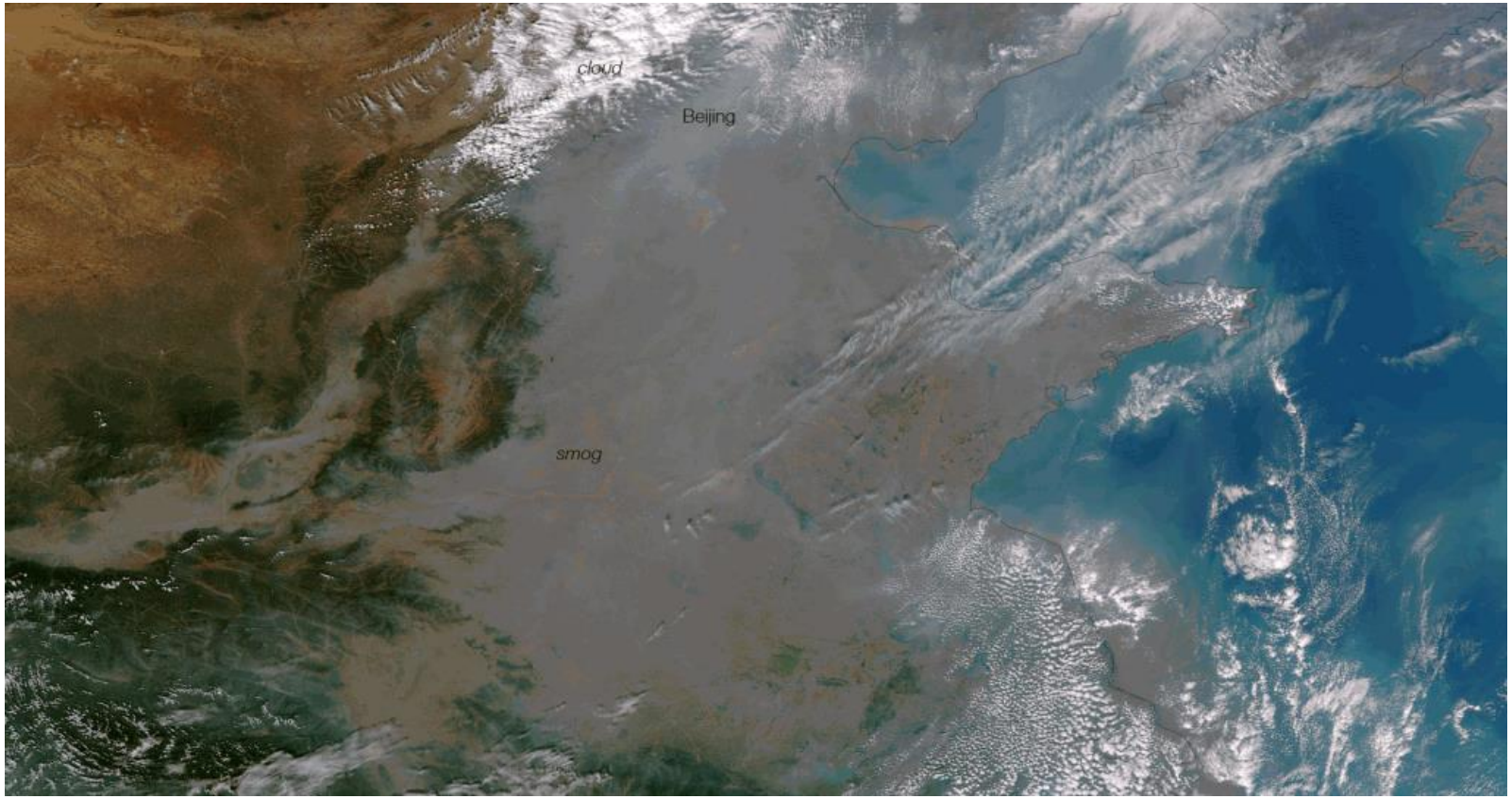
Low Willingness to Pay for C in the US

Source: FT, Dec 30, 2015

6. China's Position

- UNFCCC and Kyoto Protocol are the base for negotiation, no US-China deal. China values UN framework and G77 group as important, sees Kyoto as important
- Kyoto is long-living treaty
- Common but differentiated responsibilities key for China.
- All developed countries need deeper targets, about 40% below 1990 level by 2020
- Support for mitigation, adaptation technology and finance on the same footing as actions (to get money for G77 and Africa)
- But a new strategic game after the US-China November 2014 with possible stronger leadership role

China: Pioneer at the Ecological Frontier (space-22 Oct 2013)



One View of China

A Booming Country Addicted to Coal

Yet, there is another China (here, Jiangsu solar panels)

Full-scale solar exhibition in Beijing

Adjusting a wind turbine

China Taking Action -45% cut of CO_2 Intensity, but…

Chinese Paradox

- Still a developing country with $7000 per capita (vs 50,000 in US). Not responsible for bulk of historic emissions
- Yet, huge global weight – 29% of emissions in 2012, with a huge jump in the late 2000s. No solution without China.
- The paradox slows the response.

Trends and Policy Update in China

- CO_2 emissions in China only increased by 3% in 2012 (NEAA) after an average of 10% p.a in 2001-2011 [India:+7%, Japan: +6%].
- Hydropower +23% in 2012 (-1.5% CO_2 emissions); coal +2.5%
- Energy intensity per unit of GDP declined by 3.6% in 2012 (2x level of 2011);
- On target for 2015 target of cumulative decrease by 17% since 2010

Coal is the heart of the problem

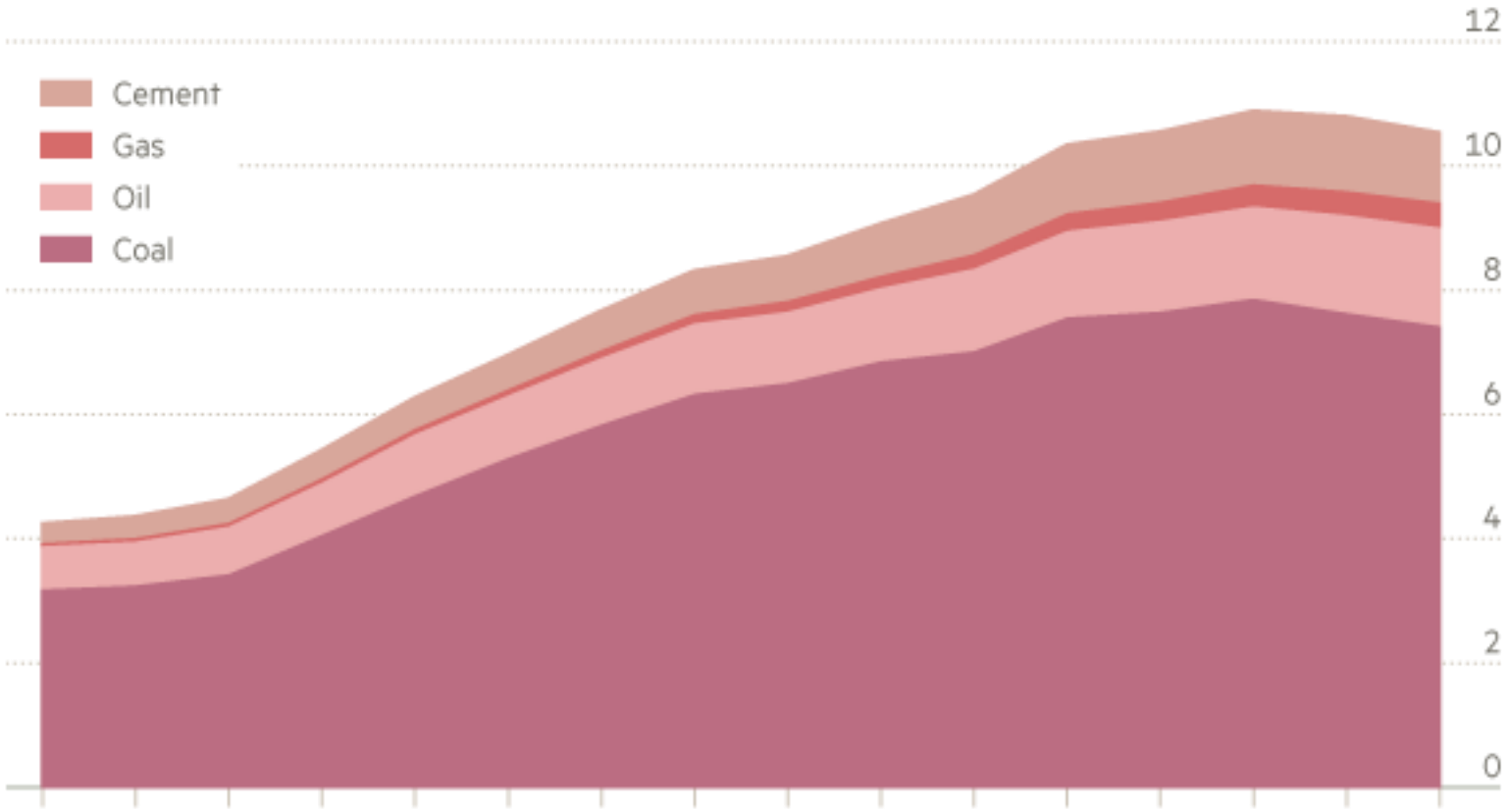
- 90% of China's electricity
- Annual growth in coal consumption by 10% in 2000s (but 2.5% in 2012 and decrease of 3% in 2014)
- Coal = 75% of CO2 emissions from fossil fuel consumptions
- Natural gas reach 10% of emissions in 2012 (annual increases of 20%)

The Third Plenum ("Ecological Civilization")

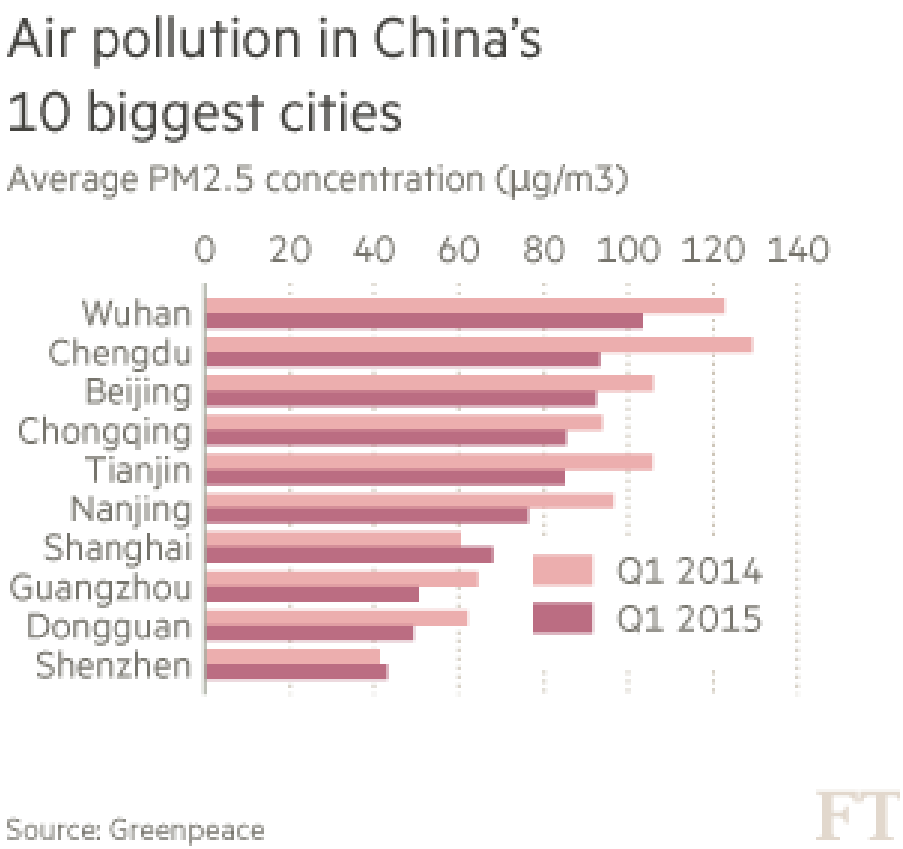
- 1. More Market: promised adjustments to energy prices
- 2. Pilot Carbon Trading System
- 3. Carbon tax seriously considered
- 4. Low carbon intensity SEZ?
- 5. Better compensation for victims of pollution
- 6. Beijing Reforms – alternate car days, Hebei coordination scheme,etc..

Real Progress in 2015 (luck or real?)

Source: FT, March 7, 2016



Pollution progress in 2015



Conclusion

- We often focus on progress in our political order, taming the government evils, and generating more prosperity
- But the ultimate frontier for human life and prosperity is our capacity to coordinate and cooperate – to manage the resources of Earth and handle crises. We do face massive potential risks.
- The Cop 21 in December 2015 is a key milestone
- Hope is coming from China and US, where significant policy change is occurring
- The G20 in 2016 may provide connectivity between global economic governance, climate, and SDGs