



The Geopolitics of Clinate Action in the

10000

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- Drivers and barriers of action:
 - Science
 - Resource endowment
 - RES costs vs. fossil fuels
- The US, the EU and China
- Africa
- 2. Geopolitics of climate action in the COVID-19 era



Geopolitics

- Interaction & 'rivalries between states'
- 'The role of geographical settings in human affairs, in international politics in particular'
- 'Modes of knowledge and representation that shape related political discourse and policy formulation' Agnew (2003) in Dalby (2018: 2)

Past discussions:

• Climate had a bearing on societies qualities.

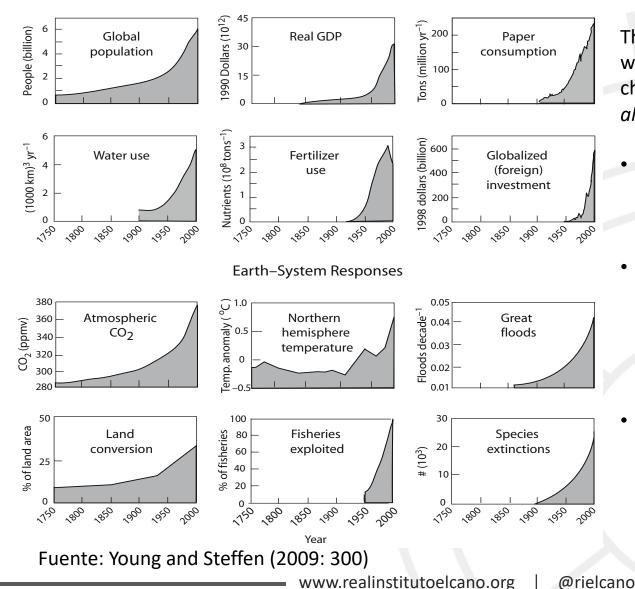
XXI century

 Humans influence climate: reversing the causal logic of human-nature relations



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Human Actions



The Anthropocene: geological era in which humans are the key driver of changes in the Earth (Rockström et al. 2009).

- Potential to destabilise critical biophysical systems that allow life on Earth as we know it.
- The industrial society generates • global impacts that can limit material gains. (Beck, 1992, 1999; Beck, Giddens y Lash, 1994; Jarvis, 2007).
- The current socioeconomic paradigm ignores the risk of global envinronmental disasters. (Stern, 2007).



Geopolitics and climate change

- Industrial powers and the global economy has been fuelled by fossil fuels leading to anthropogenic climate change.
- 'Geopolitics is now about the struggle to control this process (climate change), evade or accept responsibilities for the changes, and shape international institutions to deal with the consequences' (Dalby, 2018:3)



- Climate change:
 - The biggest market failure (Stern, 2009)
 - Goliath of externalities (Nordhaus, 2013),
 - Tragedy of the horizons (Mark Carney, 2014)
 - The single biggest threat to the global economy (Paulson, 2014)
 - Wicked problem (Jordan et al. 2010)
 - Stretches economics discipline beyond marginal changes and beyond short-term lifetime of markets.
- Cooperation is needed and difficult!
 - Law of the least ambitious programme...
- Stable climate: global public good. Non-rival/nonexcludable
 - Free-riders
 - Underprovision

Big scope for government intervention if we are to achieve efficiency... But...equity, political feasibility, political will and sufficiency?



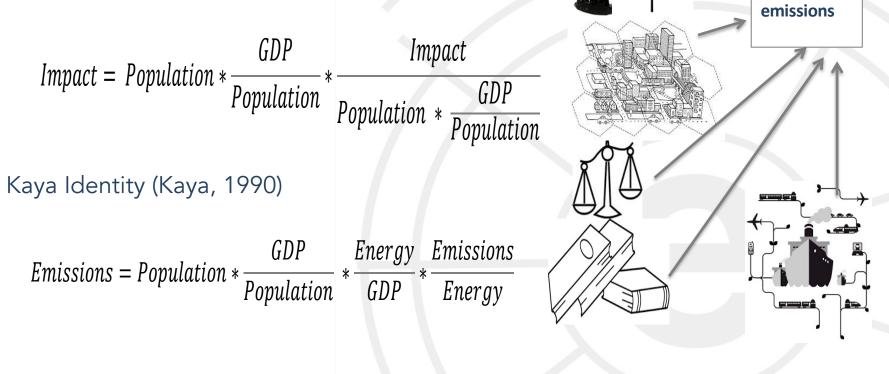
£\$€

GHG

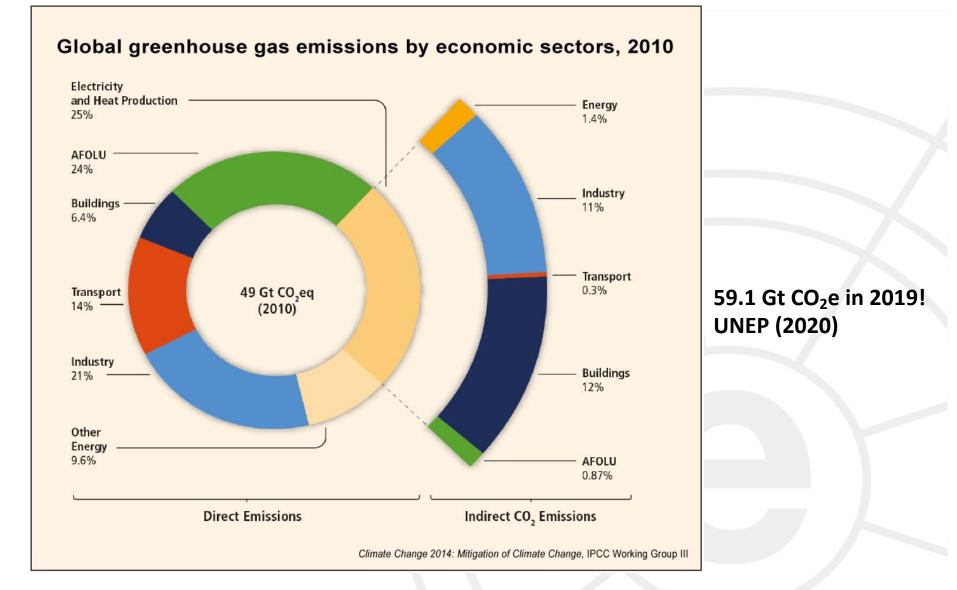
Rerum Cognoscere Causas

IPAT (Commoner, 1971); (Ehrlich y Holdren, 1971)

Impact = *population* * *affluence* * *technology*

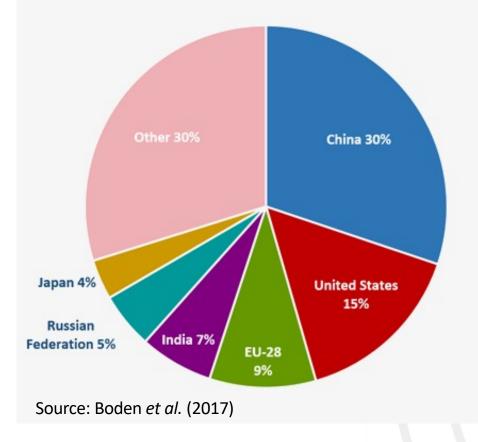








2014 Global CO₂ Emissions from Fossil Fuel Combustion and Some Industrial Processes

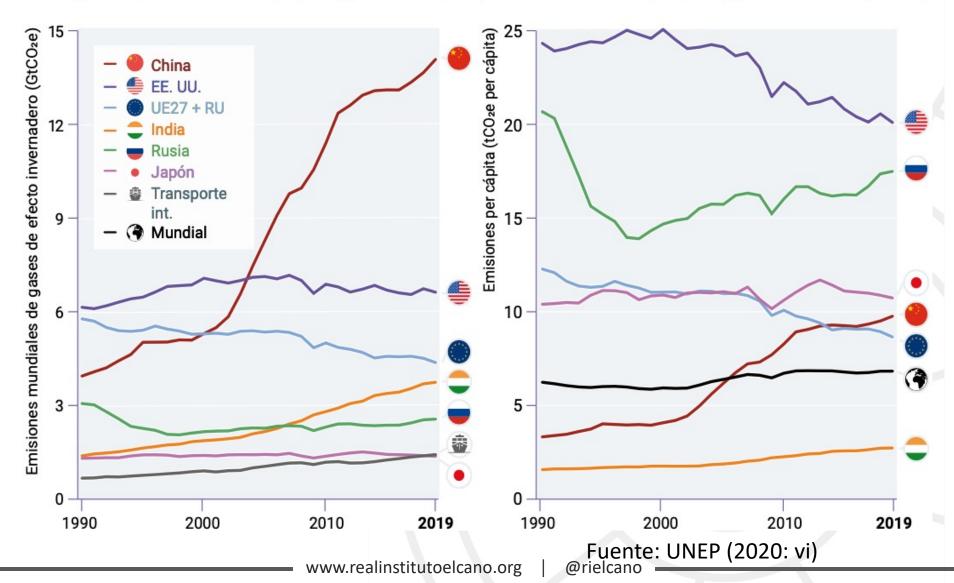


Beware...

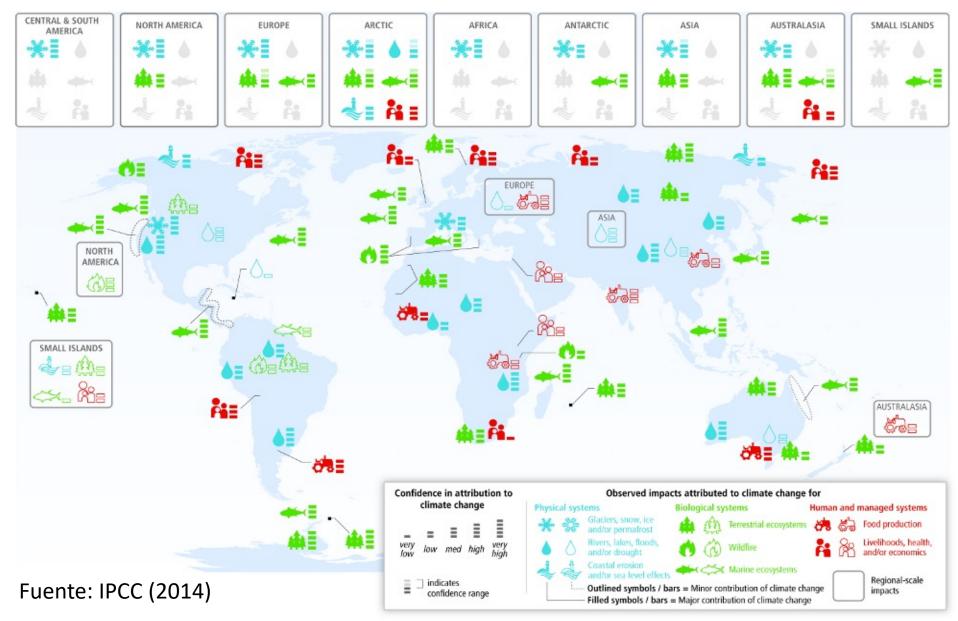
- Static versus dynamic (historical) analyses
- Cumulative vs. per capita emissions
- Equity considerations
- Negotiating positions in the international climate arena!



Gráfico ES.2: Emisiones de GEI en términos absolutos de los seis emisores principales (sin contar las procedentes del cambio de uso de la tierra) y el transporte internacional (izquierda), y emisiones per cápita de los seis emisores principales y promedio mundial (derecha)









Arctic

Temperature rise much larger than global average Decrease in Arctic sea ice coverage Decrease in Greenland ice sheet Decrease in permafrost areas Increasing risk of biodiversity loss Intensified shipping and exploitation of oil and gas resources

Coastal zones and regional seas

Sea-level rise Increase in sea surface temperatures Increase in ocean acidity Northward expansion of fish and plankton species Changes in phytoplankton communities Increasing risk for fish stocks

North-western Europe

Increase in winter precipitation Increase in river flow Northward movement of species Decrease in energy demand for heating Increasing risk of river and coastal flooding

Mediterranean region

Temperature rise larger than European average Decrease in annual precipitation Decrease in annual river flow Increasing risk of biodiversity loss Increasing risk of desertification Increasing water demand for agriculture Decrease in crop yields Increasing risk of forest fire Increase in mortality from heat waves Expansion of habitats for southern disease vectors Decrease in hydropower potential Decrease in summer tourism and potential increase in other seasons

Source: EEA (2015)

Northern Europe

Temperature rise much larger than global average Decrease in snow, lake and river ice cover Increase in river flows Northward movement of species Increase in crop yields Decrease in energy demand for heating Increase in hydropower potential Increasing damage risk from winter storms Increase in summer tourism

Mountain areas

Temperature rise larger than European average Decrease in glacier extent and volume Decrease in mountain permafrost areas Upward shift of plant and animal species High risk of species extinction in Alpine regions Increasing risk of soil erosion Decrease in ski tourism

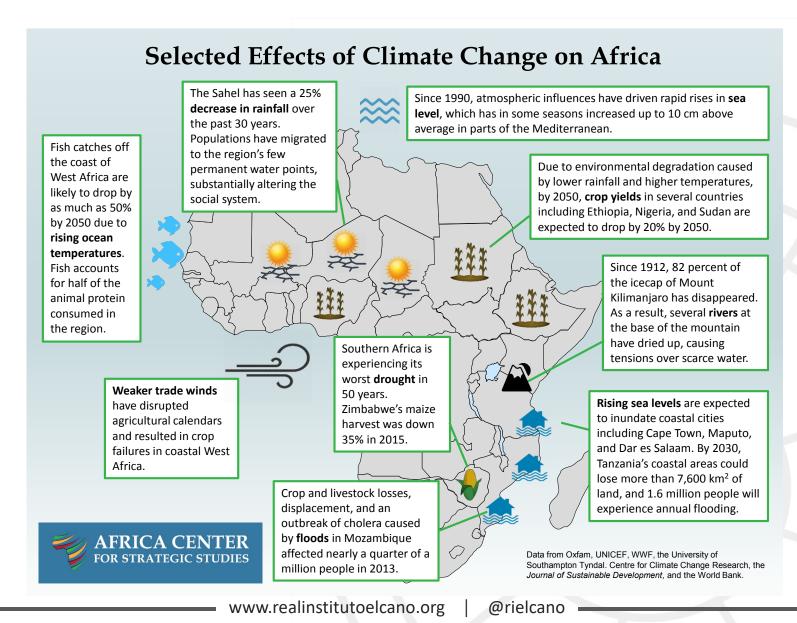
Central and eastern Europe

Increase in warm temperature extremes Decrease in summer precipitation Increase in water temperature Increasing risk of forest fire Decrease in economic value of forests

European Environment Agency









AFRICA CENTER CLIMATE

CLIMATE CHANGE AMPLIFIES INSTABILITY IN AFRICA



Sahel-Sudanian Bioclimatic Zone: Herder-Farmer Conflict.

Pastoralist systems—which provide livelihoods for 20 million people in the Sahel—are becoming more precarious as the amount of grazing land shrinks. Such land pressures are leading to an increase in clashes between farmers and herders.



Sudan: Displacement. Climate-induced disasters force mass displacement into often unstable areas, disrupting traditional social structures, dispute resolution mechanisms, and food production. Sudan saw its worst flooding in 60 years in 2020. Over 100 people were killed and 500,000 were displaced. Nearly 5.5 million acres of farmland—an area the size of Djibouti—were submerged.



Gulf of Guinea: Illegal Fishing. Ocean warming and acidification have decimated fish stocks, increasingly forcing boats illegally into foreign waters. In 2017, 97 Nigerian fishers were killed by Cameroonian forces in long-running dispute over access to water around Bakassi. In another confrontation, a Senegalese fisher was killed when his trawler clashed with the Mauritanian Coast Guard. Fish stocks are expected to drop by roughly 26 percent across West Africa by 2050 and up to 60 percent in some places along the equator—further increasing competition.



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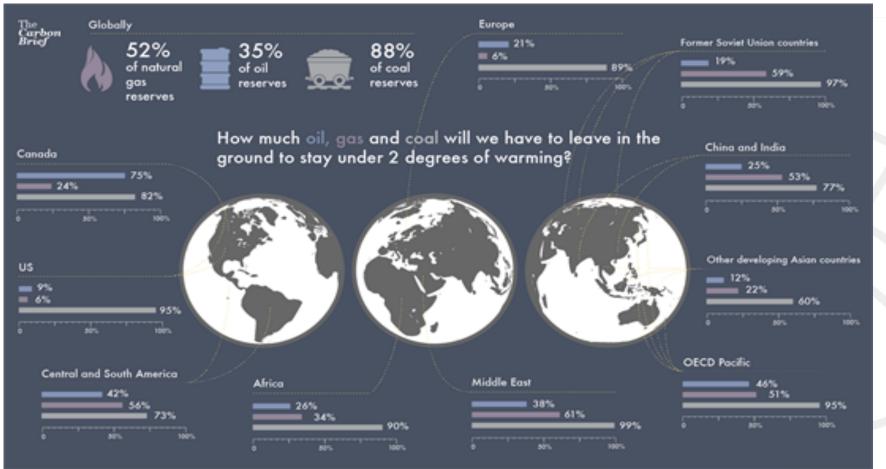
Congo Basin: Carbon Emissions. Increasing heat and drought are hobbling tree growth in the Congo Basin, which reduces their capacity to absorb greenhouse gases. The Basin, the second largest rainforest in the world and the main source of rainfall for the Sahel and beyond, is projected to go from being a global carbon sink to a source of carbon emissions by 2050.



Mozambique: Infrastructure. Three of the five most severe cyclones to hit Mozambique have occurred in the last two years. In 2019, the back-to-back Cyclones Idai and Kenneth destroyed a quarter million homes and killed hundreds of people. In January 2021, Cyclone Eloise struck the same location, followed by weeks of torrential downpour. Flooding damaged 30,000 more houses, schools, and clinics, as well as thousands of shelters that had been set up for those who lost their homes in Idai.

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Sources: The Carbon Brief (2015) absed on McGlade y Ekins (2015)

Transition will be gradual:

Winners: RES, EE, Clean tech.

Losers: high cost oil companies & oil exporting countries (BlackRock, 2015)

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Producers	Mt	% of world total
United States	742	16.7
Russian Federation	560	12.6
Saudi Arabia	546	12.3
Canada	265	6.0
Iraq	234	5.3
People's Rep. of China	192	4.3
United Arab Emirates	189	4.3
Islamic Rep. of Iran	146	3.3
Brazil	145	3.3
Kuwait	144	3.2
Rest of the world	1 276	28.7
World	4 439	100.0

2019 provisional data

Net exporters	Mt
Saudi Arabia	368
Russian Federation	260
Iraq	190
Canada	148
United Arab Emirates	125
Islamic Rep. of Iran	106
Kuwait	105
Nigeria	93
Kazakhstan	70
Angola	67
Others	550
Total	2 082
2018 data	

Oil

Net importers	Mt
People's Rep. of China	459
United States	292
India	226
Korea	151
Japan	151
Germany	85
Spain	67
Italy	63
Netherlands	61
Singapore	55
Others	525
Total	2 135

2018 data



Producers	bcm	% of world total
United States	955	23.4
Russian Federation	750	18.3
Islamic Rep. of Iran	232	5.7
People's Rep. of China	178	4.4
Canada	177	4.3
Qatar	168	4.1
Australia	142	3.5
Norway	119	2.9
Saudi Arabia	98	2.4
Algeria	91	2.2
Rest of the world	1 179	28.8
World	4 089	100.0

2019 provisional data

Gas

Net exporters	bcm			
Russian Federation	265			
Qatar	124			
Norway	113			
Australia	95			
United States	54			
Turkmenistan	52			
Canada	51			
Algeria	43			
Nigeria	29			
Malaysia	24			
Others	203			
Total	1 053			
2019 provisional data				

Net importers	bcm
People's Rep. of China	122
Japan	105
Germany	103
Italy	71
Mexico	57
Korea	54
Turkey	44
France	44
United Kingdom	39
Spain	36
Others	324
Total	999

2019 provisional data



Producers	Mt	% of world total
People's Rep. of China	3 693	46.6
India	769	9.7
United States	640	8.1
Indonesia	616	7.8
Australia	503	6.4
Russian Federation	418	5.3
South Africa	254	3.2
Germany	131	1.7
Poland	112	1.4
Kazakhstan	105	1.3
Rest of the world	680	8.5
World	7 921	100.0

2019 provisional data

Net exporters	Mt		
Indonesia	448		
Australia	393		
Russian Federation	189		
South Africa	78		
United States	78		
Colombia	71		
Mongolia	28		
Canada	28		
Kazakhstan	25		
Mozambique	10		
Others	4		
Total	1 352		
2019 provisional data			

Coal

Net importers	Mt
People's Rep. of China	296
India	246
Japan	185
Korea	130
Chinese Taipei	67
Viet Nam	43
Germany	41
Turkey	38
Malaysia	35
Thailand	23
Others	235
Total	1 339

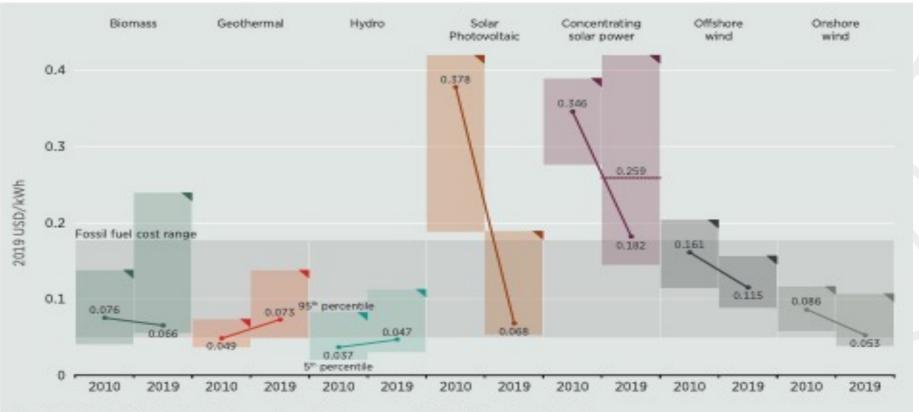
2019 provisional data

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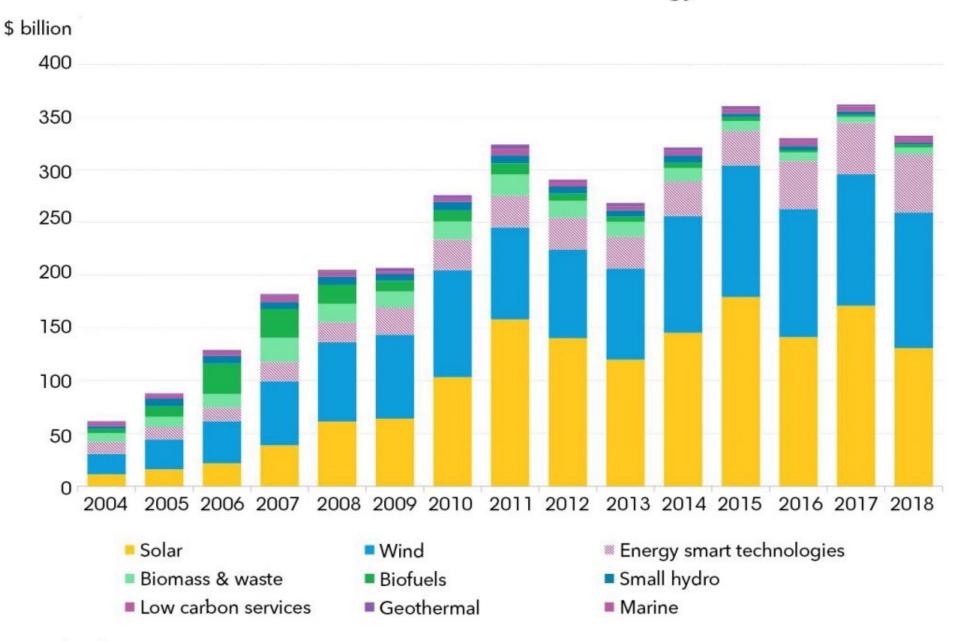
Figure ES.1 Global weighted average levelised cost of electricity from utility-scale renewable power generation technologies, 2010 and 2019



Note: For CSP, the dashed bar in 2019 shows the weighted average value including projects in Israel.

Source: IRENA (2020: 13)

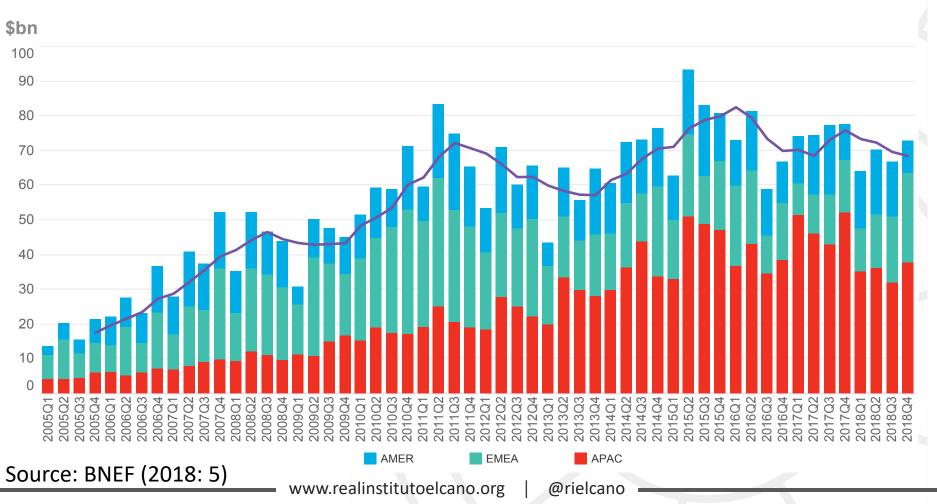
Global new investment in clean energy



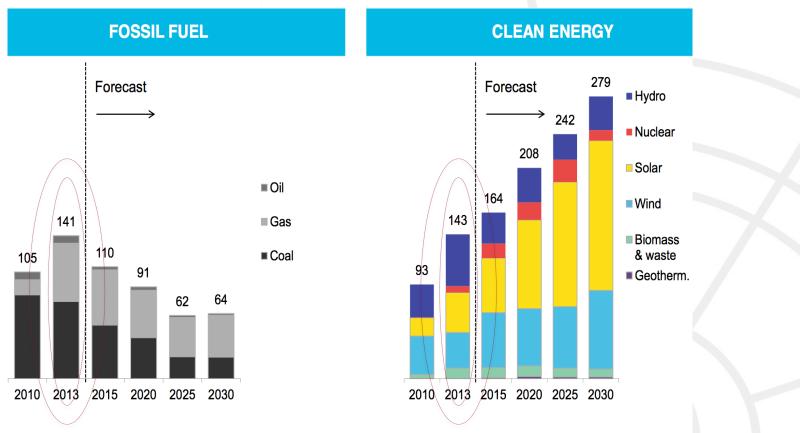


Global New Investment in Clean Energy, by Region

1Q 2005 - 4Q 2018







Power generation capacity additions (GW) Bloomberg New Energy Finance

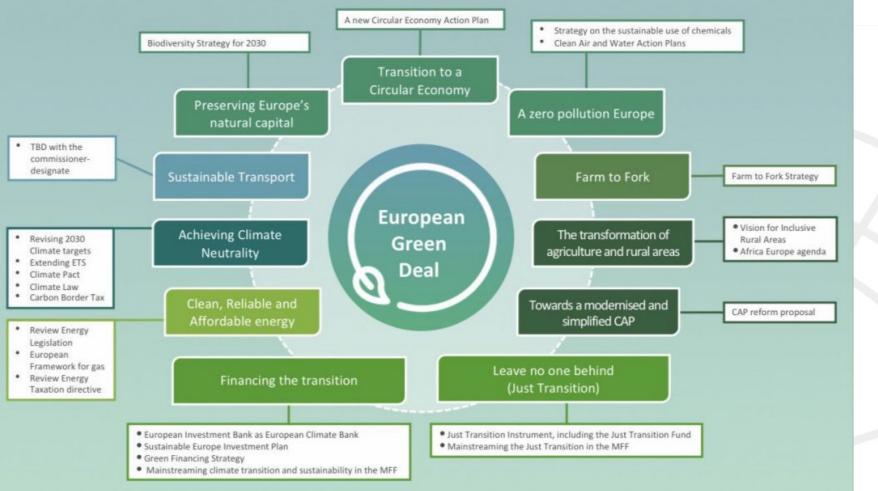
'The question is no longer if the world will transition to cleaner energy, but how long it will take'. Randall (2015)

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	China	EU	US
Key climate policies and legislation	 No dedicated climate change law (but in progress). Climate- relevant policies and measures: Air Pollution Prevention and Control Plan (2013) Several targets set in Five-Year-Plans (esp. 2011-15; 2016-20) Pilot carbon emissions trading schemes Moratorium on new coal mine and possibly coal-fired power station approvals (2016); plan to eliminate 500 million tonnes of coal capacity 	 2020 Climate and Energy Package (2009); 2030 framework for climate and energy policies (2014) EU Emissions Trading System (2005) 2030 targets >/=-55% GHG (1990) 32% RES 32.5% EE (BAU) 2050 climate neutrality EU CL European Green Deal MFF 2021-2027 + NGEU =€1.8 trillion Mainstreaming CC 'Fit for 55' 	 No dedicated climate change law. Relevant legislation: Clean Air Act (1963, interpreted in 2009 to apply to greenhouse gases) Climate Action Plan (2013) Clean Power Plan (proposed 2015, awaiting legal ruling) Biden-Harris -52% GHG emissions in 2030 vs 2005 levels 100% RES power 2035 CN 2050 Green recovery
	 Peak ahead of 2030 Reach CN before 2060 'Phase down' coal in the XV-FYP Green the Belt and Road 	Source: Adap	oted from Averchenkova et al. (2016)





- European Green Deal: from human security to ecological security under a strong sustainability paradigm?
- Green Deal Diplomacy: 'convince & offer support to those who promote sustainable development'
- Staunch support of multilateralism

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© Natural History Museum of Los Angeles County Foundation by Jim Angus 1997

Continent with smallest contribution to GHG 3.8% (Sy, 2016) - 7% (GRI, 2019;)

1.3 bn. 17% Pop

Vulnerability: Asymmetry

- High exposure
- Low adaptability
- Pre-existing socioeconomic conditions
- Impacts: +0.5°C in past 50-100 years
- Future:
 - +2ºC. RCP 4.5
 - 3ºC to 6ºC. RCP 8.5
 - Precipitation: greater uncertainty

- Changes in species ranges
- Less water availability
- Food security
 - Debate on socially contingent outcomes (migration and conflict)



Anticipated climate change-induced GDP losses by 2030 for temperature increases of between 1°C and 4°C

	GDP (% change/year) at temperature increases of between 1°C and 4°C			
African subregion	1°C	2°C	3°C	4°C
Northern (7 countries)	-0.76 ± 0.16	-1.63 ± 0.36	-2.72 ± 0.61	-4.11 ± 0.97
Western (15 countries)	-4.46 ± 0.63	-9.79 ± 1.35	-15.62 ± 2.08	-22.09 ± 2.78
Central (9 countries)	-1.17 ± 0.45	-2.82 ± 1.10	-5.53 ± 1.56	-9.13 ± 2.16
Eastern (14 countries)	-2.01 ± 0.20	-4.51 ± 0.34	-7.55 ± 0.63	-11.16 ± 0.85
Southern (10 countries)	-1.18 ±0.64	-2.68 ± 1.54	-4.40 ± 2.56	-6.49 ± 3.75
Africa as a whole (55 countries)	-2.25 ± 1.52	-5.01 ± 3.30	-8.28 ± 5.12	-12.12 ± 7.04

Source: ECA and African Climate Policy Centre (2014), Loss and Damage in Africa²⁷

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Top 10 GHG emitters in Africa (in MtCO2e) including all sectors and gases except f-gases

Rank	Year - 2016		Year - 202	18
1	DRC	685.22	DRC	681.67
2	South Africa	508.24	South Africa	520.50
3	Nigeria	330.64	Nigeria	357.52
4	Egypt	315.96	Egypt	329.40
5	Algeria	210.03	Algeria	219.11
6	Ethiopia	199.92	Ethiopia	204.67
7	Angola	138.85	Sudan	130.64
8	Sudan	130.01	Angola	124.59
9	Cameroon	122.84	Cameroon	123.33
10	Zimbabwe	116.52	Zimbabwe	118.77

Source: CAIT – Climate Watch (2021)



Global Historical Emissions

③ <u>↓</u> ²

< Share

Explore GHG emissions from multiple data source (CAIT, PIK, UNFCCC, GCP) and understand their differences in the FAQ





- African NDCs
 - Heterogenous: content, structure and format
 - Reflecting African heterogeneity
 - Lack of NDC guidelines, methodologies and templates
 - Negotiating strategy (first NDCs presented ahead of COP21)
 - Potential lack of coordination among countries
 - CAT analysis: Morocco (1.5°C compatible) & Ethiopia (2°C compatible) vs. SA (highly insufficient)
 - RES in NDCs (lower bound estimate)
 - Mitigation.- As expected
 - Adaptation (Nigeria, Tanzania, Mali, Uganda).- Preparedness for
 - Greater demand for electricity
 - Reductions in thermal efficiency, hydro.

NDCs Non-comparable Adaptation key CBDR-RC Conditionality. Fin, tech

RES addition in 1st NDCs in Africa

Technology	MW			
Solar PV	34160	+102GW		
Hydro	26443	l=241bn		
Wind	25739	Feasible?		
Geothermal	7427			
CSP	3310			
Biomass	1123			

Source: Muñoz and Sokona (2016)



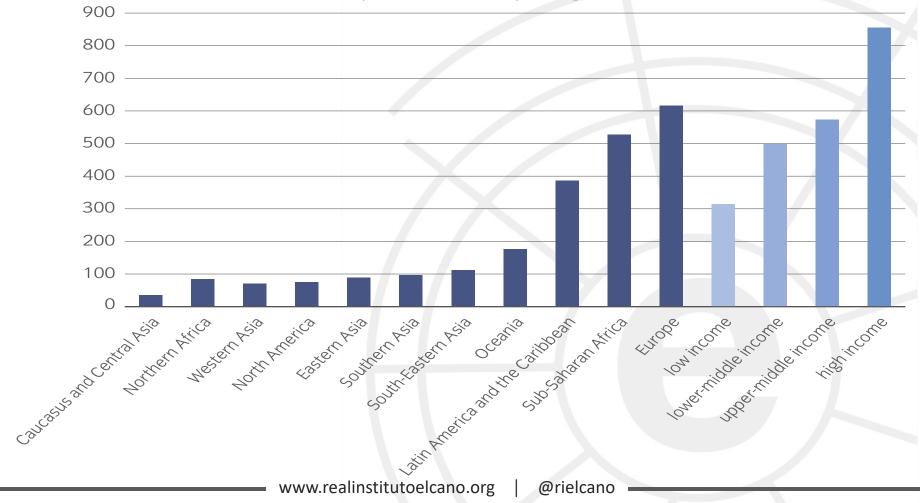
Party	Most Recent NDC Submission	Share of global GHG* (%)	Reference Point	Time Frame	GHG Target Type	Mitigation Target	Adaptation Target	Total Estimated Cost of Target Implementation (\$)	
DRC	First NDC 13/12/2017	1.39	2000 BAU scenario	2021-2030	Baseline scenario target	Emission reduction of 17% (~70 Mt CO2eq) by 2030	Plant 3 million hectares of forest/ sequester 3 million tonnes of CO2 by 2025	21.622 billion	
South Africa	First NDC 01/11/2016	1.06	2020 (year-end)	5-yr periods; peak (2025), plateau (10 yr.), decline after	Trajectory target	Emissions at 398 and 614 MtCO2eq by 2025/2030	Operationalize a National Adaptation Plan by 2020/2025; develop an early warning and monitoring system by 2030	1.688 trillion	
Nigeria	First NDC 16/05/2017	0.73	2010-2014 BAU scenario	2015-2030	Baseline scenario target	Emission reduction 20% (unconditional) to 45% (conditional) by 2030	Improve awareness, mobilize communities, build sectoral capacity	142 billion	
Egypt	First NDC 29/06/2017	0.67	N/A	2020-2030	N/A (actions only)	General emission reduction by 2030 (conditional)	Promote coastal, water resource, and agricultural resilience	73.04 billion	
Algeria	First NDC 20/10/2016	0.45	BAU scenario	2021-2030	Baseline scenario target	Emission reduction 7% (domestic) to 22% (conditional) and renewable energy at 27% of electricity by 2030	Develop a national plan of adaptation for ecosystem resilience, sectoral strategies, and national security	N/A	
Ethiopia	Updated First NDC 31/12/2020	0.42	2010 BAU scenario (412.1 MtCO2eq)	2030 target year with 2025 scenario	Baseline scenario target	Emission reduction of 220.59 MtCO2eq by 2030, a 12.4% (unconditional) and 41.1% (conditional) reduction	45 interventions with the consideration of 20% (unconditional) and 80% (conditional) contributions	294.7 billion	
Sudan	First NDC 02/08/2017	0.27	N/A	2030	N/A (actions only)	Renewable energy at 20%, forest coverage at 25%, and energy efficiency savings at 6500 GWh by 2030	Strengthen capacity in agriculture, water, coastal zone, and health sectors	12.88 billion	
Angola	First NDC 16/11/2020	0.25	2005 base year as BAU scenario	2021-2030	Baseline scenario target	Emission reduction up to 35% (unconditional); 50% (conditional) and increase carbon sequestration from forestry to 5 million tons of CO2e/yr. by 2030	Enhance technical capacity; Unconditional (\$500 million) and conditional (\$500 million) sectoral capacity building	15.7 billion	
Cameroon	First NDC 29/07/2016	0.25	2010 baseline scenario	2035	Baseline scenario target	Emission reduction of 32% for 2035	Improve public awareness and sectoral capacity by 2020	1.815 billion	
Zimbabwe	First NDC 07/08/2017	0.24	BAU scenario starting in 2000	2020-2030	Baseline scenario target	Reduction in energy emissions per capita of 33% by 2030	Strengthen agricultural and water resource capacity and resilience	90.796 billion	

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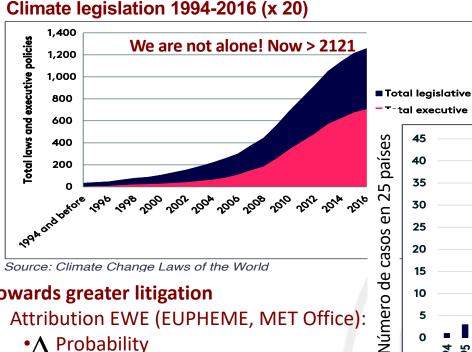
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Non-state Climate action implemented or planned by region





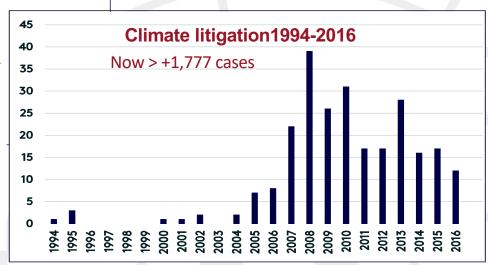


Source: Climate Change Laws of the World

Towards greater litigation

- Attribution EWE (EUPHEME, MET Office):
 - **A** Probability
 - • Δ Severity
 - Changes in science leading to changes in the duty to protect.

In 2018...106 new legislations since the Paris Agreement, 28 refer to the Paris Agreement Africa: 409 laws & policies; 27% of current CC legislation



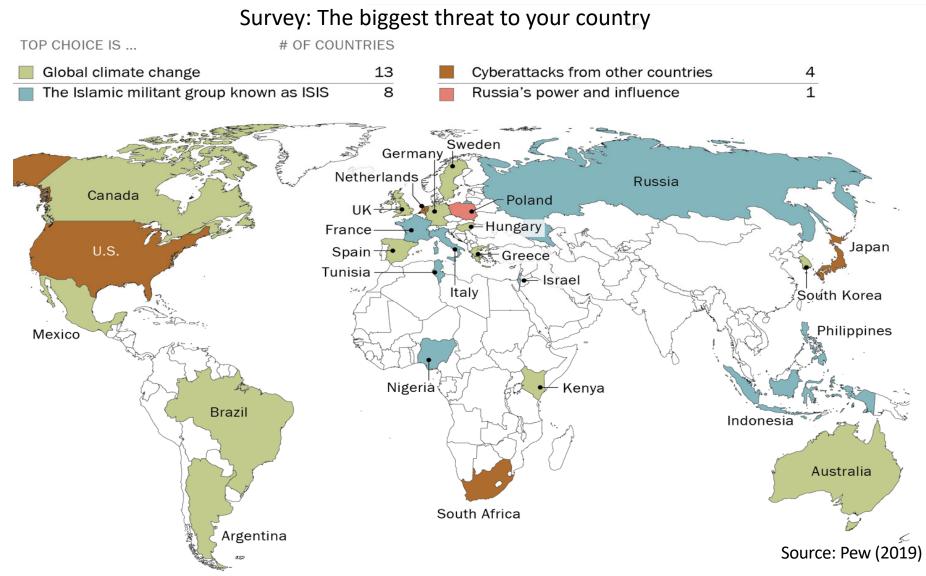
Source: Climate Change Litigation of the World source: Nachmany et al. (2017)

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tal executive

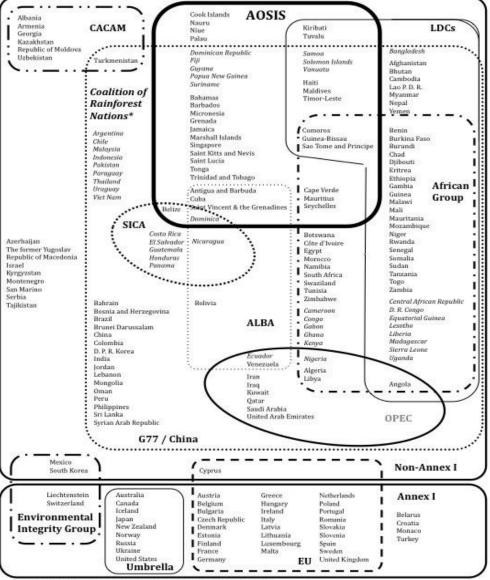
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Note: U.S. power and influence question not asked in the U.S., and Russia's power and influence question not asked in Russia. Source: Spring 2018 Global Attitudes Survey. Q22a-h.





- Engaged in different negotiating blocks since the 90's: G77/China, BASIC, AGN
- Within G77 Follower
- Limited impact in earlier stages
 - Lack of interest
 - Lack of personnel
 - Lack of trained negotiators
 - COP 12 in Kenya 2006, turning point
 - Increase in number of submissions
 - Fast-start finance and long term finance COP 15
 - Second KP commitment period.

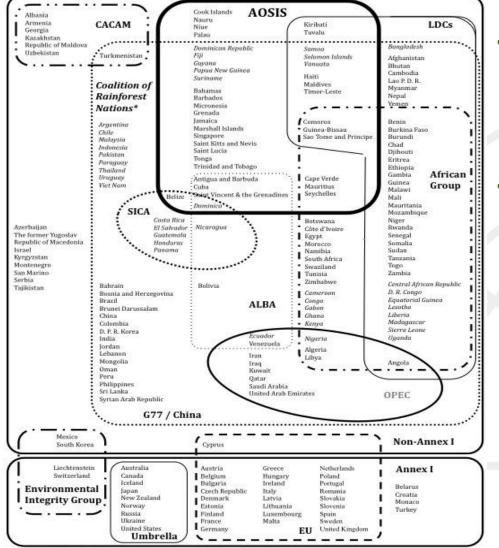
Source: Roger and Belliethathan (2014)

* countries in italics form part of the Coalition of Rainforest Nations.

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Proposal/idea: From the Iberoamerican network of climate change offices (*RIOCC*) to a Network of African and European Climate Change Offices (NAECCO)?

Rationale/advantages of such a network:

- Foster dialogue
- Share experiences
- Help build trust
- Address joint challenges: adaptation, loss and damage (L&D), socially contingent outcomes such as migrations and conflict that can be indirectly exacerbated or ignited by climate change.

* countries in italics form part of the Coalition of Rainforest Nations.





- GHG emissions down 4% to 7% in 2020...for the wrong reasons! Pandemic & econ downturn and NOT due to structural change in our development model.
- Last chance to turn the tide?
 - Unprecedented stimulus packages
 - Low interest rates
 - Increasing preferences for sustainable investments (BlackRock, 2021)

Stimulus packages

Up to Feb 2021(G20 Economies + Spain, Philippines and Singapore...) (Vivid economics, 2021)

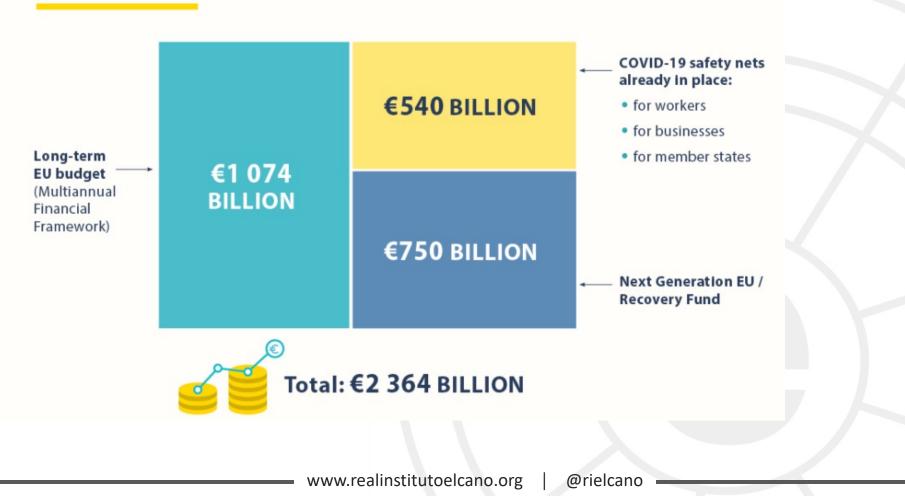
- US\$ 14.9 trillion- US\$ 4.6 to GHG relevant sectors (energy, transport, land use, waste) 1.8'Green recovery' (12.08% which is less than the 15% allocated after the 2008 Global Financial Crisis, Barbier, 2010 out of a total od US\$ 3 trillion!)
- US\$ 195 Harmful but beware of deregulatory spree! (Vivid Economics, 2020) Earlier analysis (Oxford- Hepburn *et al* 2020)
- 4% Green, 4% Brown, 92% colourless!

Need to align financial flows with climate goals (art 2.1.c of the Paris Agreement)

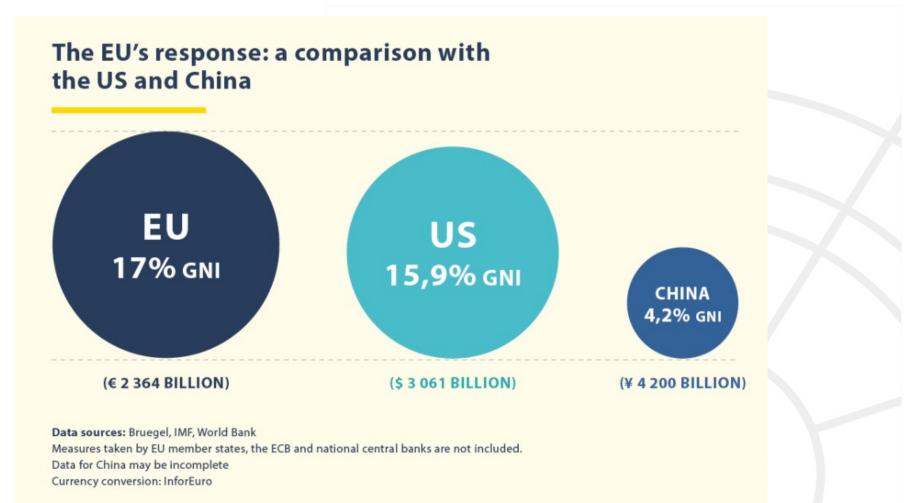


EU recovery: 30% Green MFF & NGEU (37% RRM: 90% NGEU funds) & do no harm

Overall architecture



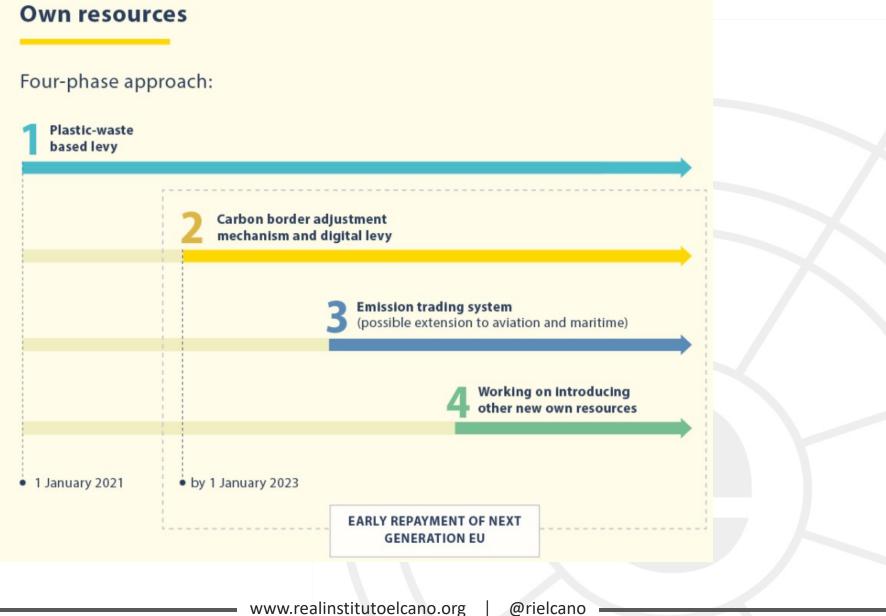




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Party	Commitment/statements
China 'Mountains and rivers green are mountains of silver and gold'. (Xi Jinping)	The world should close ranks as regards climate cooperation. We should increase ambition and support, subject to the principle of common but differentiated responsibilities and respective capabilities in the light of national circumstances. Green recovery should be fostered. China's pledges: Peaking of CO_2 emissions will be reached ahead of 2030. Carbon neutrality will be achieved before 2060. China will lower its CO_2 emissions per unit of GDP by over 65% from 2005 levels by 2030. It will also increase the share of non-fossil fuels in primary energy consumption to around 25%. The forest stock volume will be increased by 6 billion m ³ from 2005 levels. China's level of installed capacity of wind and solar capacity to 1.2 billion kilowatts.
EU 'Climate change is more than a European issue. It is a human issue Let's walk this road together'. (Ursula von der Leyen)	GHG emissions reductions of at least 55% versus 1990 levels by 2030 and become climate neutral by 2050 with 30% of the EU's recovery package allocated to green projects.
India 'We must not only revise our ambitions but also review our achievements against the targets already set. Only then can our voices be credible for future generations.' (Narendra Modi)	450GW of renewable energy capacity will be installed by 2030.





- Green recovery as a key theme
- Governance of green recovery
 - Define Green! Taxonomy?
- Shovel-ready projects
- Implementation guidelines to be finished
 - Article 6 on market and non-market mechanisms
 - NDCs- 2nd round
 - Long Term Decarbonisation Strategies



Thank you!

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