

# Learning Notes for Climate Action from Budapest Eurasia Forum 2022

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# Summary of activities

- Time: 19-20 September 2022
- Place: Central Bank of Hungary, Budapest
- Occasion: Budapest Eurasia Forum 2022
  
- Was invited to attend the forum by Dr. Byungil Choi, the executive secretary of Korea Foundation for Advanced Studies (KFAS), at the foundation's expense
- Met and discussed issues and strategies concerning climate crisis and international cooperation. Learning notes that I assembled follow the head slides in the file
- Ban Ki Moon Foundation (BKMF) and KFAS have programs for international cooperation in the area noted above. BKMF has offers from institutions in central and eastern Europe and central Asia to develop degree programs for climate action. KFAS is launching an exchange program for students from Korea and Sweden to explore room for collaboration and mutual learning for sustainable development.
- After the forum, I have been talking with the two foundations regarding possible cooperation with KDIS. I plan to discuss feasibilities with faculty colleagues for a possible recommendation.

# Climate crisis in a nutshell

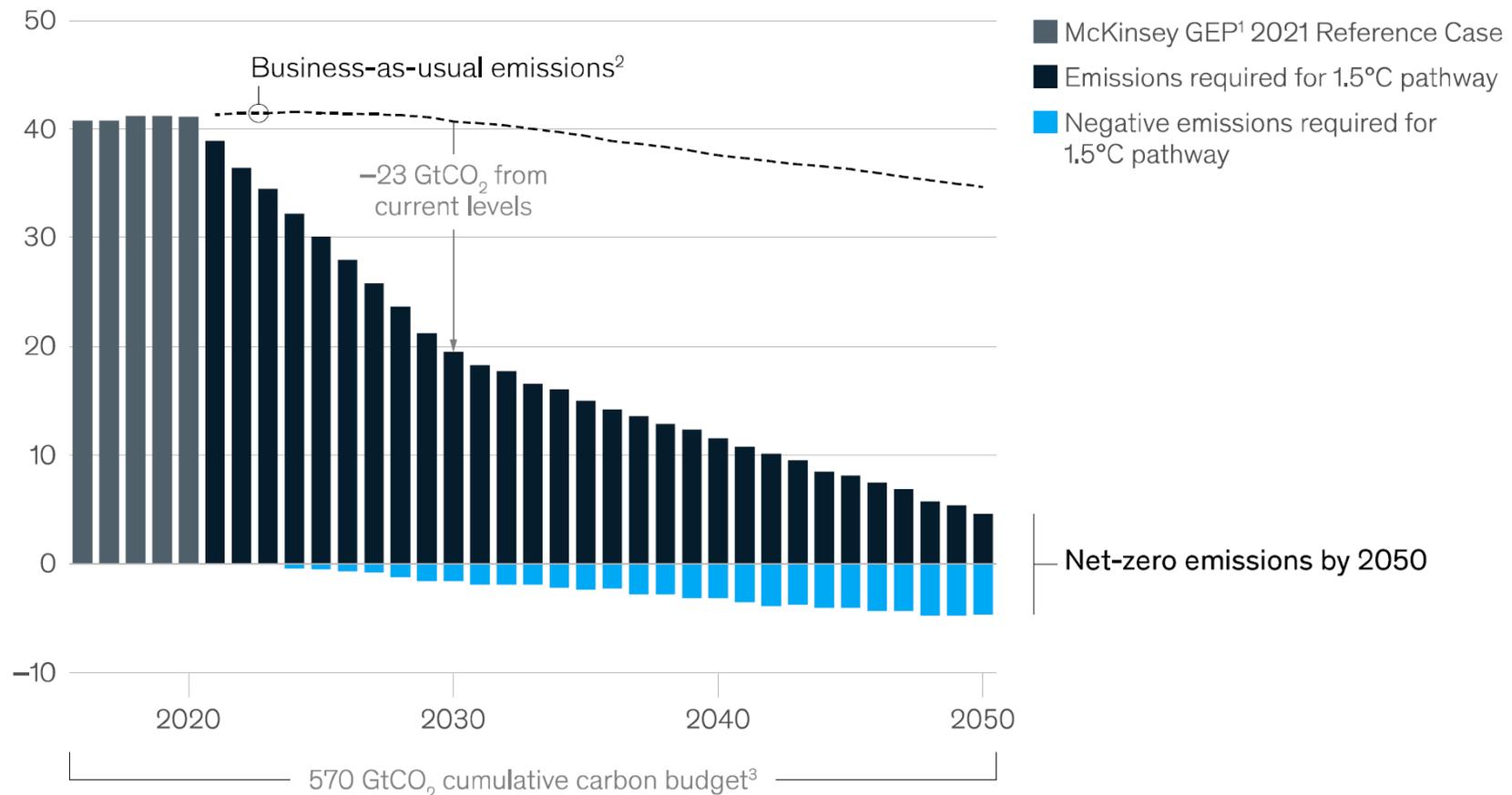
- Concentration of greenhouse gases in the atmosphere traps heat
  - Carbon dioxide from burning fossil fuels and deforestation
  - Methane and nitrous oxide from agriculture, animal husbandry in particular
- Concentration of greenhouse gases has never been higher, and the global temperature has never been higher

# Climate tipping points

- Greenland ice sheet disintegration
- West Antarctic ice sheet disintegration
- East Antarctic ice sheet disintegration
- Amazon rainforest dieback
- Permafrost thaw
- Atlantic Meridional Overturning Circulation
- Coral reef die-off
- With possible cascading tipping points

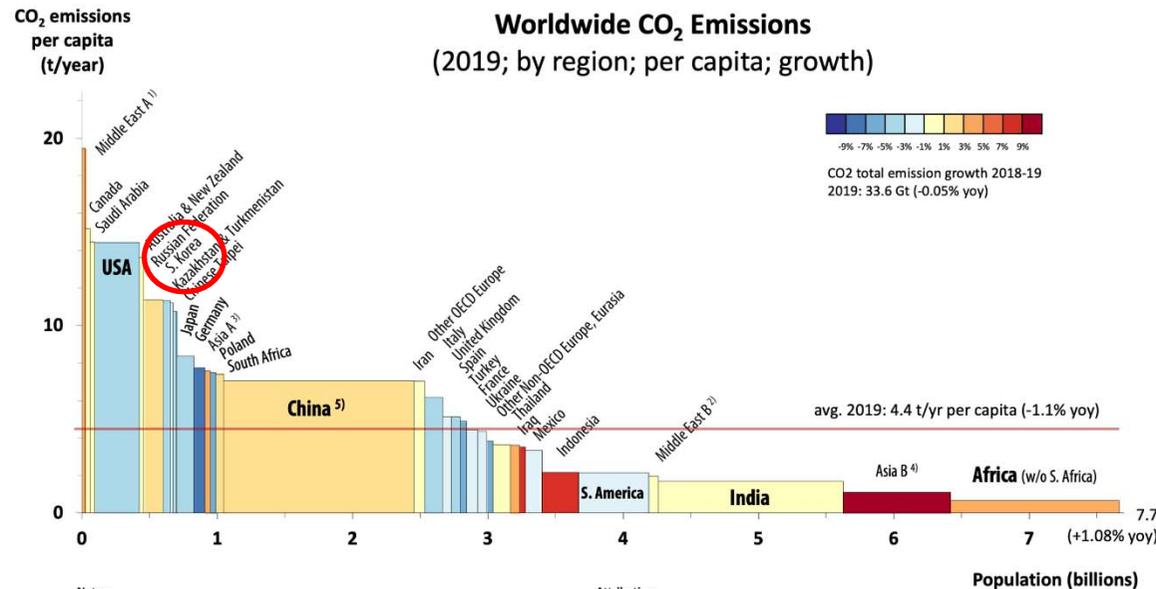
# Greenhouse gas emission and 1.5°C pathway

Global carbon-dioxide emissions, gigatons (GtCO<sub>2</sub>) per year



# Greenhouse gas emission: international comparison

Source:  
[https://en.wikipedia.org/wiki/List\\_of\\_countries\\_by\\_carbon\\_dioxide\\_emissions\\_per\\_capita#/media/File:2019\\_Worldwide\\_CO2\\_Emissions\\_\(by\\_region,\\_per\\_capita\),\\_variwide\\_chart.png](https://en.wikipedia.org/wiki/List_of_countries_by_carbon_dioxide_emissions_per_capita#/media/File:2019_Worldwide_CO2_Emissions_(by_region,_per_capita),_variwide_chart.png)



**Notes:**

CO<sub>2</sub> emissions from fuel combustion only; no other greenhouse gases or natural sources; aviation and marine bunkers not shown as territory but included in average and totals.

<sup>1</sup> Middle East A: Bahrain, Oman, Kuwait, Qatar, United Arab Emirates

<sup>2</sup> Middle East B: Israel, Jordan, Lebanon, Syrian Arab Republic, Yemen

<sup>3</sup> Asia A: Brunei Darussalam, Malaysia, Mongolia, Singapore

<sup>4</sup> Asia B: Asia without Asia A, China, India, Thailand, Chinese Taipei, Indonesia, S. Korea, Japan

<sup>5</sup> China: People's Rep. of China, Hong Kong

**Attribution:**

Based on IEA (2021), "Greenhouse gas emissions from energy", [www.iea.org/statistics](http://www.iea.org/statistics). All rights reserved; as modified by Thomas Schulz, AQAL Capital GmbH.

This map is without prejudice to the status of or sovereignty over any territory, to the delimitation of international frontiers and boundaries and to the name of any territory, city or area.

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**Version:**

02-Nov-2021 by Thomas Schulz, AQAL Capital GmbH  
<https://aqalcapital.com/2019-worldwide-co2-emissions>



- South Korea 7<sup>th</sup> after China, US, India, Russia, Japan, and Germany
- Total emission from SK about 600 million ton in 2019
- Per capita emission from SK about 12 tons

# Visualizing one ton of carbon dioxide

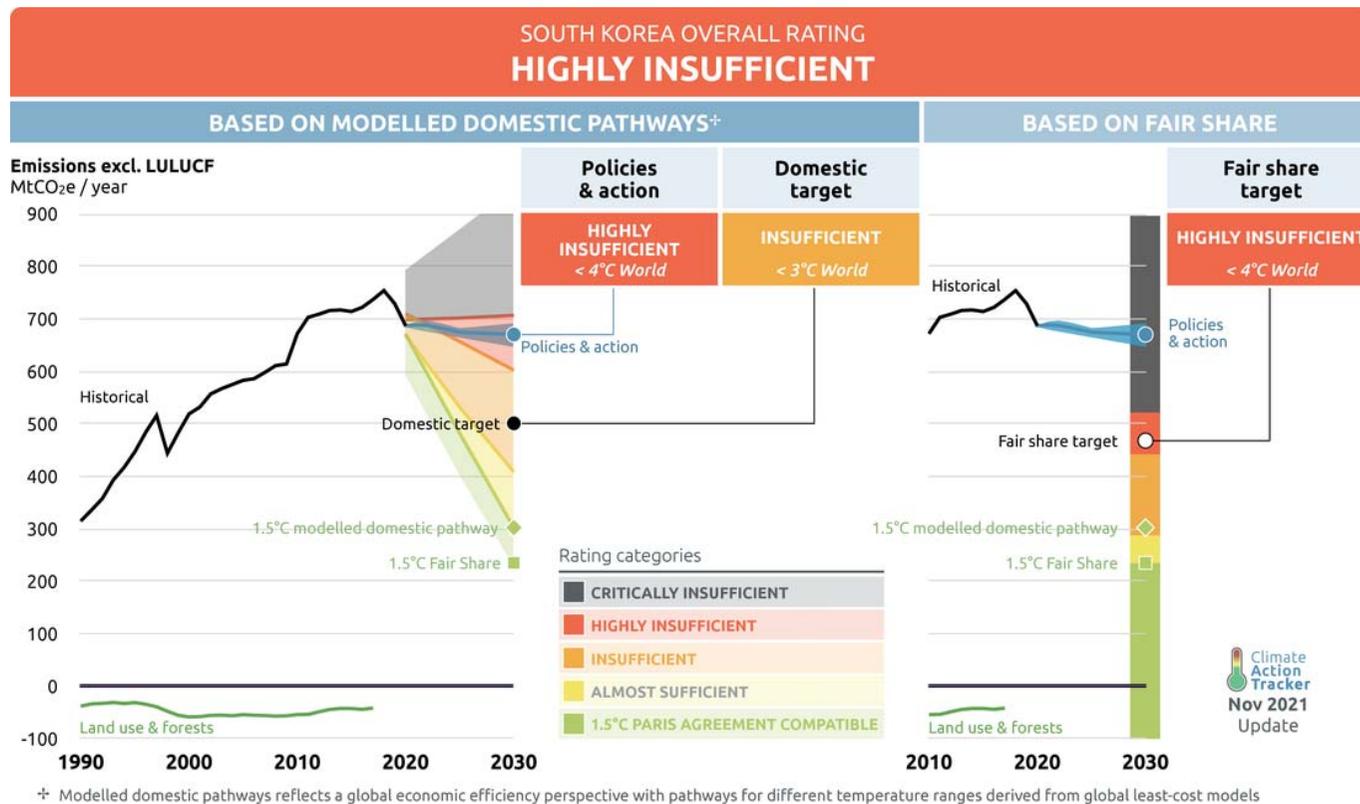


- Installation in Suncheon Bay National Garden
- This ball with a diameter of 4.1m contains 0.1ton of carbon dioxide
- One ton will fit a ball with a diameter of 10.1m

생활 수칙	CO <sub>2</sub> 저감량 (kgCO <sub>2</sub> /년)
<b>내가 실천하여 줄일 수 있는 CO<sub>2</sub> 감축량</b>	<b>1,233.4</b>
5장의 종이청구서를 이메일이나 스마트폰으로 바꾸기	0.2
눈건강을 위한 하루 1시간 점등하기(형광등 1개 기준)	1.9
종이타올 대신 개인 손수건 사용하기	6
컴퓨터절전프로그램(그린터치) 사용하기	22.5
종이컵 대신 개인컵 사용하기(종이컵 3개 기준)	8.3
비닐봉투 대신 장바구니 사용하기	13.6
수입식품 사용 10% 줄이기	14.2
음식물쓰레기 20% 줄이기	15.2
재활용이 가능한 유리병, 캔 등 분리배출하기	22
절수기기 사용 늘리기	17.0
피부건강을 위해 샤워시간 줄이기(10분 이내)	2.8
물을 받아서 설거지 하기	4.4
에어컨 사용시간 1시간 줄이기	13.1
에어컨 냉방온도 2°C 높이기	3.2
에어컨 필터를 주기적으로 청소하기	1
보일러 사용시간 1시간 줄이기	135.5
겨울철 보일러 난방온도 2°C 낮추기	52.9
문풍지 같은 단열재로 열손실 방지하기	52.9
보일러 내부를 주기적으로 청소하기	20.3
전등장판사용보다 배선착용하기(전등장판사용시간 줄이기)	2.7
사용자습기 사용시간 줄이기	12.8
에너지효율이 높은 TV 사용하기	20.3
에너지효율이 높은 세탁기 사용하기	2.2
에너지효율이 높은 냉장고 사용하기	8.9
에너지효율이 높은 전기밥솥 사용하기	10.5
에너지효율이 높은 조명(LED) 사용하기	4.9
가족과의 대화시간 늘리기(TV 사용시간 1시간 줄이기)	7.4
먹을 만큼만 밥하기(전기밥솥 보온시간 3시간 줄이기)	24.0
세탁은 모아서 하기(세탁횟수 주 1회만 줄이기)	2.2
가까운 거리는 도보나 자전거 이용하기(1주일에 1번)	27.5
자동차 1주일마다 정기점검을 받으려 하기	455.2
급제동, 급출발 하지 않기(하루 5회)	29.8
불필요한 엔진공회전 하지 않기(하루 5분)	28.6
경제속도(60~80km/h) 20% 준수하기	63.9
불필요한 짐을 싣고 다니지 않기	23.0
내리막길 운전시 가속페달 밟지 않기	8.9
신호대기 시 자동변속 기어를 중립으로 놓기(5분)	14.1
자동차 에어컨 사용 20% 줄이기	31.5
차량 주기적인 점검(공기압 체크)	32.0
출발 전 주행경로와 시간을 파악하기	16.0

- To-do list to reduce emission by one ton/year
- Published by the Korea Climate and Environment Network in 2015

# Gap between the NDC and the reality in South Korea



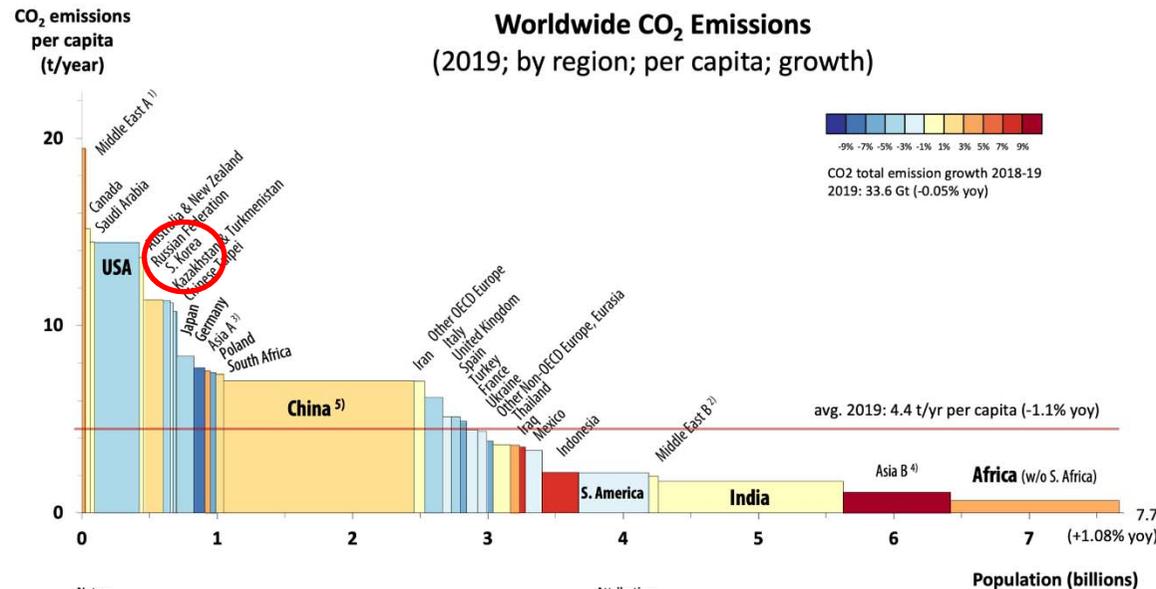
<https://climateactiontracker.org/countries/south-korea/>

# Inertia in the climate-human behavior nexus

- Geophysical inertia: feedback loops in the climate system make it difficult to reverse trends
- Inertia in physical capital: it will take time before an economic system that depends on fossil fuels changes
- Inertia in human behavior:
  - Habits in consumption
  - Aspirations
  - Knowledge and practice on the part of producers
  - The political system that hinges on fossil fuels and related subsidies
- Can insights from behavioral sciences help?
  - Automatic thinking, cognitive illusions, outdated mental models, and social norms may hamper efforts for reform
  - In addition to appropriate economic policies for carbon pricing, cap-and-trade, and property rights in carbon abatement

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# From NDC (Nationally Determined Contribution) to PDC (Personally Determined Contribution): a South Korean platform for collective action

- From 600 million ton to 500 million: salvaging the government-announced NCD through voluntary civil action
  - 2 ton reduction per person may be possible through public campaigns
- Requisite global citizens' climate action: from 600 million to 300 million by 2030
  - Per capita reduction of 6 tons per year may be beyond reach through conservation efforts
- Voluntary carbon offsets are perhaps an essential part of the climate action package

# Voluntary carbon offsets: market and trends

- Sources of carbon credits
  - “nature-based projects”: reforestation and avoidance of deforestation
  - Renewable energy projects (solar, wind, and tidal)
  - Waste management
  - Local community projects such as energy-efficient stoves
- “Standards” and “Registries”: Gold Standard; Verified Carbon Standard (Verra), etc.
- Average price of 1 ton carbon offset about 4 dollars in 2020
- The volume of trade in the voluntary carbon offset market about 2 billion dollars
- The volume predicted to grow over 50 billion dollars by 2030
- Price of voluntary carbon credit also forecast to rise quickly to about 30 dollars by 2030
- High quality, perhaps more credible, carbon offsets already cost more than 4 dollars