

Japan's Energy Policy Going Against the Paris Agreement

—'CASA 2050 Model' estimation result—

UNFCCC COP27/CMP17/CMA4

Sharm El-Sheikh, Egypt



Accident at Fukushima Dai-ichi nuclear power plant

March 11th, 2011

explosions at Plants 1, 3 and 4

Plant 1, 13 March, 15:36



Plant 3, 14 March, 11:01



Plant 4, 15 March, 6:00



Accident at Fukushima Dai-ichi nuclear power plant

- The Great East Japan Earthquake occurred at 2:46 p.m. on March 11, 2011.
- Its magnitude was 9.0.
- The tsunami of 14 – 15 meters high surged over Fukushima Dai-ichi nuclear power plant.
- The external power supply got cut, 12 out of 13 emergency power systems were destroyed.
- 4 of 6 plants were cut the power supply.
- The accident caused meltdown at Plants 1 – 3, which were in operation at that time.
- Reactor-core damages cumulated hydrogen to explosion, and the reactor buildings at Plants 1, 3 and 4 got seriously damaged.

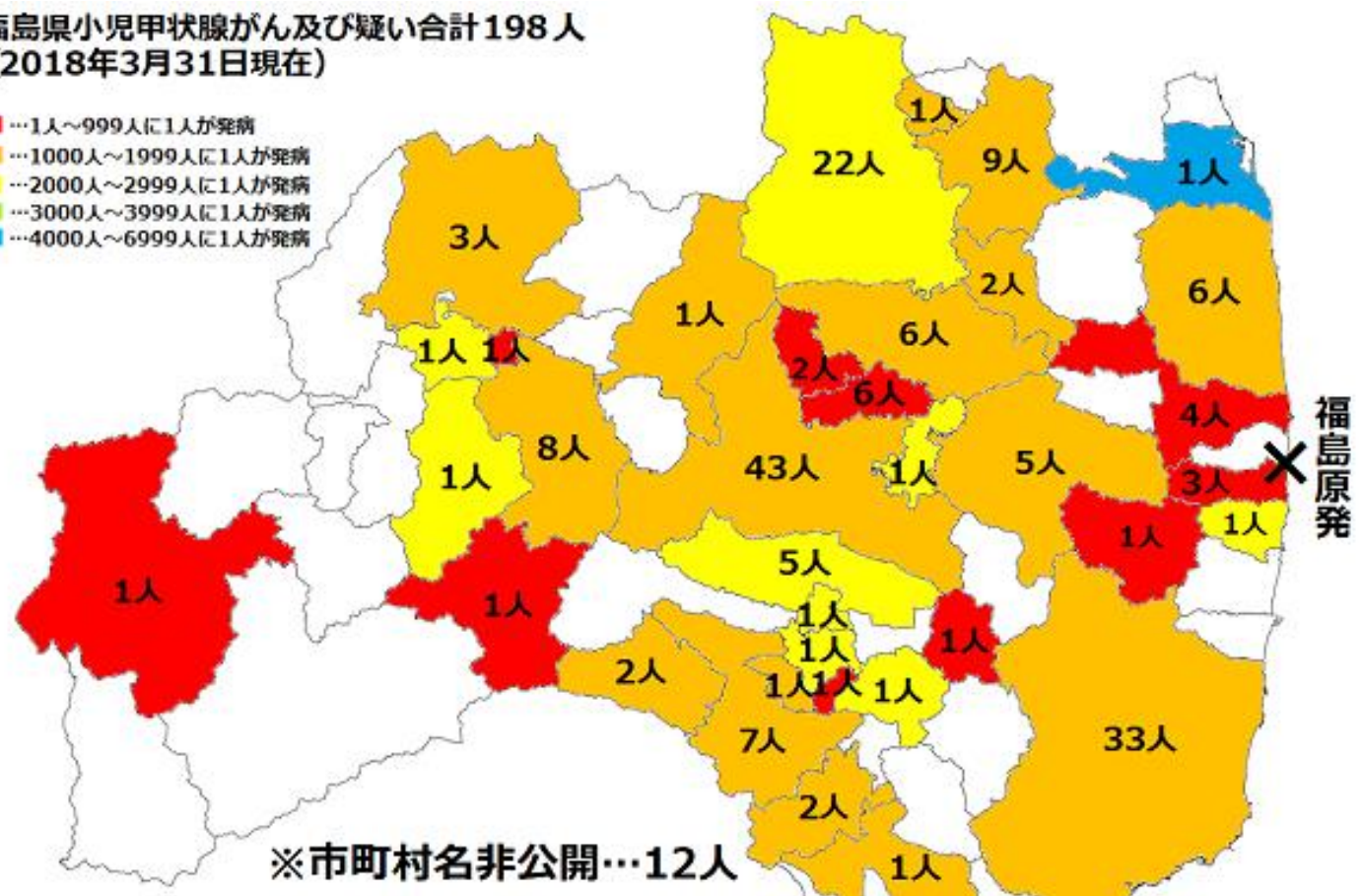
Since the Nuclear Accident

- It has passed about 11 years and 8 months.
- Around 33,365 people are still in the status of evacuation as of February, 2022.
- The causes of the accident have not yet been clarified.
- No one is able to capture the situation of the ruptured containment vessel and the melted nuclear fuel debris.
- This means that, even now, no one can figure out how to clean up the Fukushima Daiichi nuclear disaster.

Increasing number of thyroid cancer patients

福島県小児甲状腺がん及び疑い合計198人
(2018年3月31日現在)

- …1人～999人に1人が発病
- …1000人～1999人に1人が発病
- …2000人～2999人に1人が発病
- …3000人～3999人に1人が発病
- …4000人～6999人に1人が発病



Contaminated water continues to increase



- Contaminated water up to 1.37million tons.
- The number of the tanks reached about 1,000. One tank contains 1,000tons.

Contaminated water continues to increase

- To purify the contaminated water, ALPS (Advanced Liquid Processing System) has been utilized. It was expected to be got rid of 62 nuclides except Tritium, but 80% of the ‘purified water’ contains radioactive substances such as Cesium-137 beyond reference value.
- Some contains Strontium-90 beyond reference value by 20 thousand times.

No one would take responsibility regarding to the decision of re-start

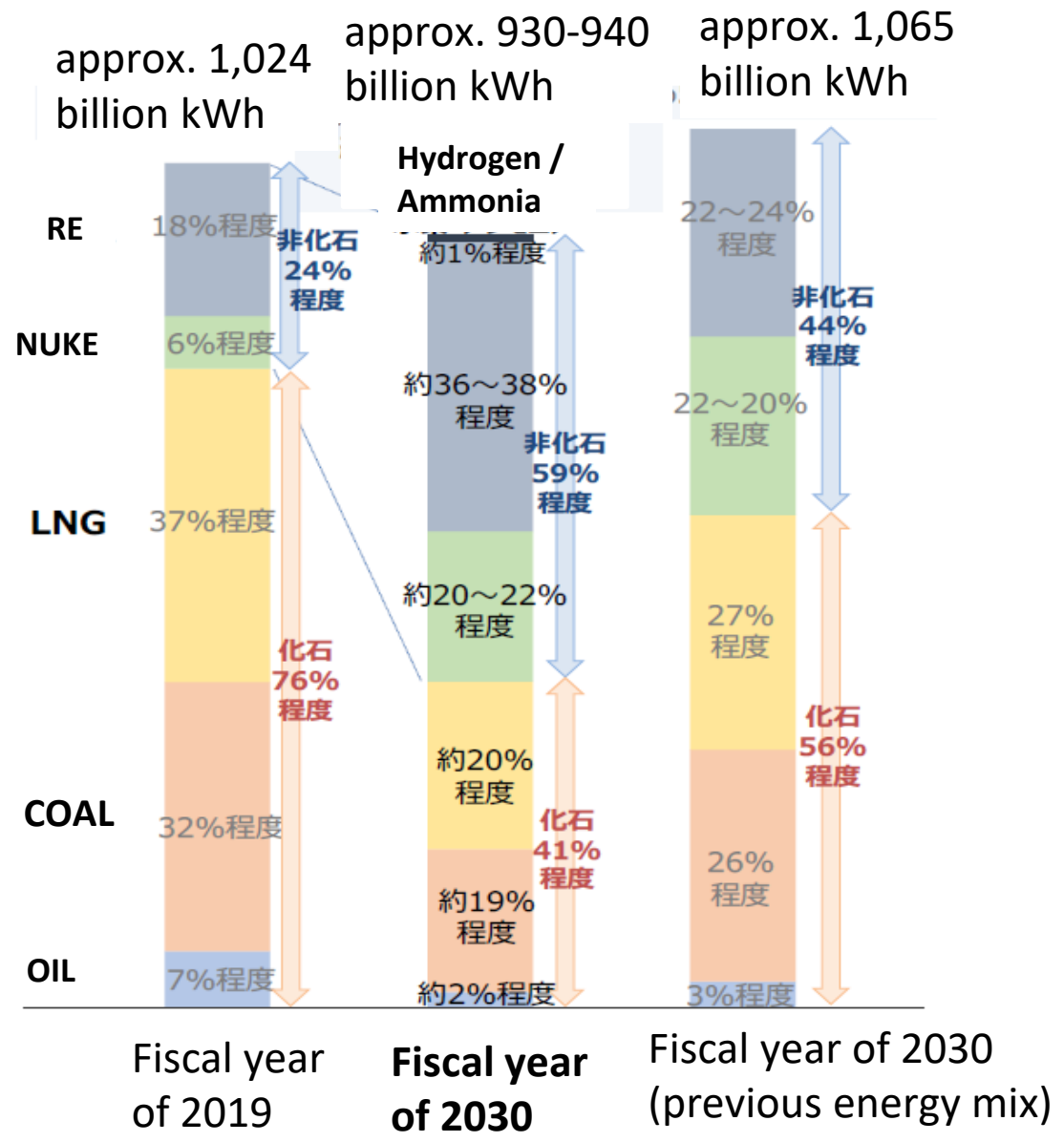
- **Government of Japan** says
 - When nuclear power plants meet the new requirements formulated by Nuclear Regulation Authority (NRC), respect the assessment and proceed with their restart.
- **Nuclear Regulatory Commission (NRC)** says
 - NRC's review result does not mean the safety of the nuclear power plant. NRC will not make judgement on restart.

Problem areas in Japan's Energy Policy

Japan's 6th Strategic Energy Plan

- The Government of Japan formulated the 6th Strategic Energy Plan in October, 2021.
- It is too low introduction target of renewable energy.
- Coal-fired and nuclear power generations have been regarded as base load power.
- Though the Paris Agreement has been adopted 7 years ago, the Government of Japan still continue to promote coal-fired power plants. The 6th Strategic Energy Plan is against the Paris Agreement.

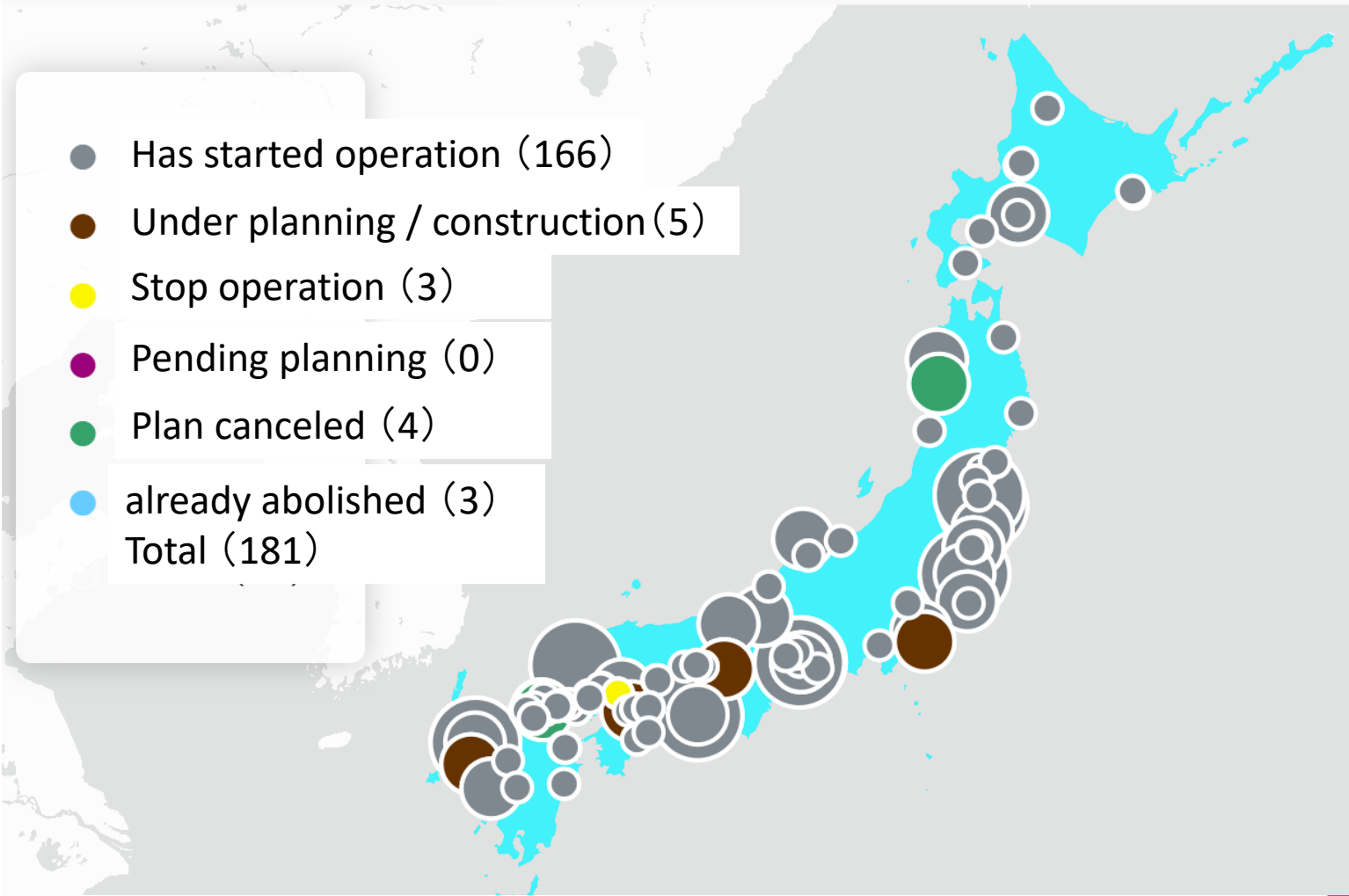
Japan's Energy MIX in 2030



Problem in Japan's Energy Policy

- RE: 2030 target of installed capacity is too low
- Coal-fired power generation: going to increase
- **Japan's energy policy is going against the Paris Agreement.**

Plan to build 171 coal-fired power plants in Japan

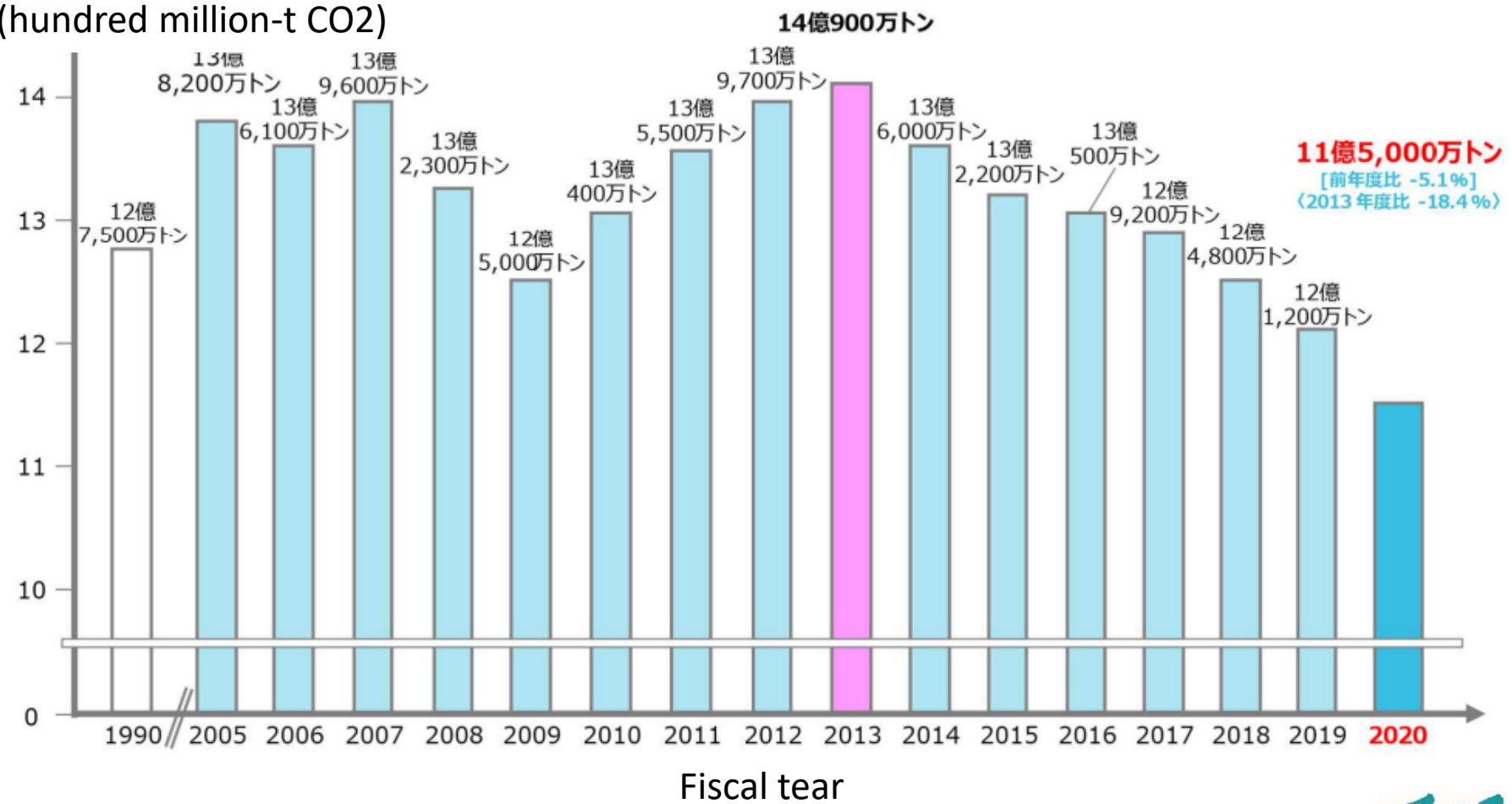


“Japan Beyond Coal” Webpage



Japan's GHG emissions

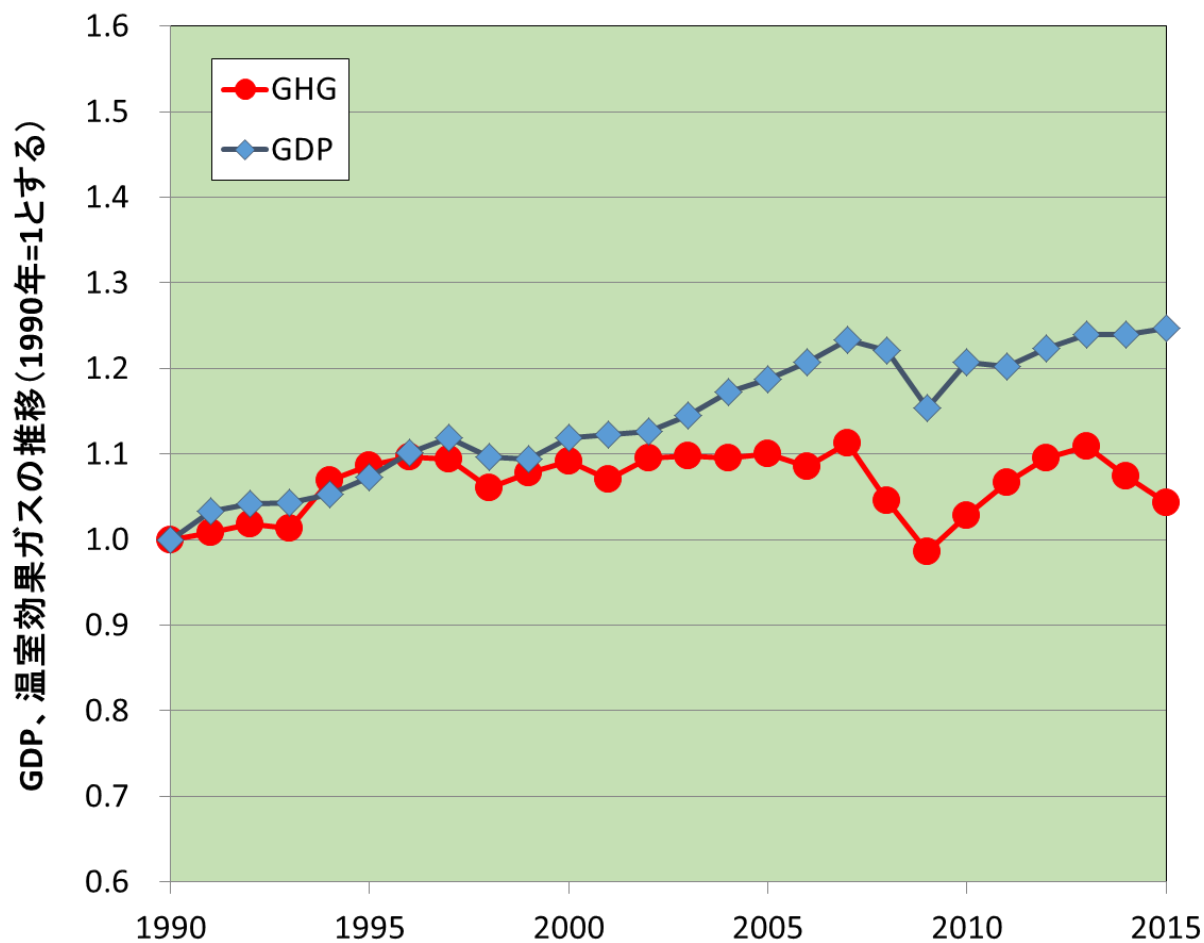
GHG emissions
(hundred million-t CO₂)



Japan's GDP Growth and GHG emissions

- Since 1990, Japan has increased GHG emissions.

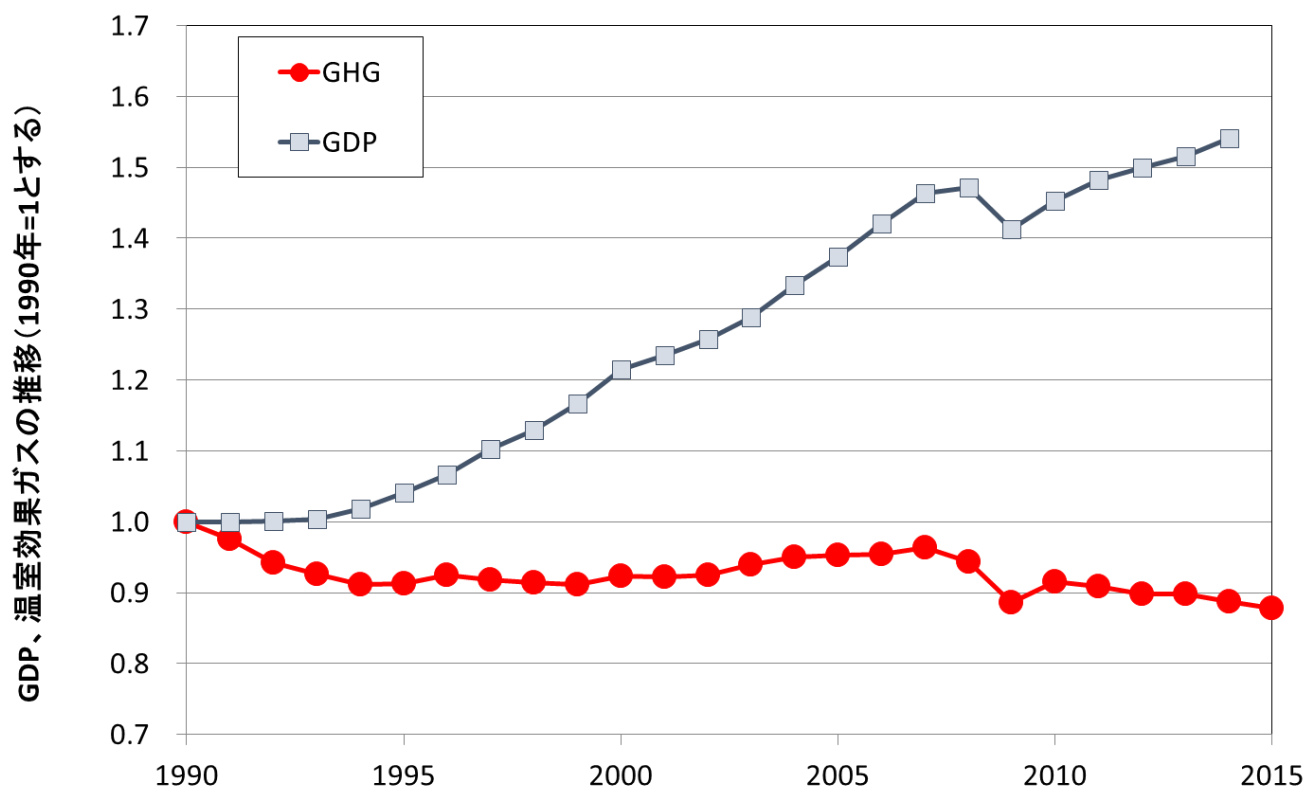
(the year of 1990=1)



Annex-I Parties' GDP Growth and GHG Emissions

- In total, GHG Emissions from Annex-I Parties have been reduced since 1990, but as for Japan, it has failed to reduce its GHG emissions.

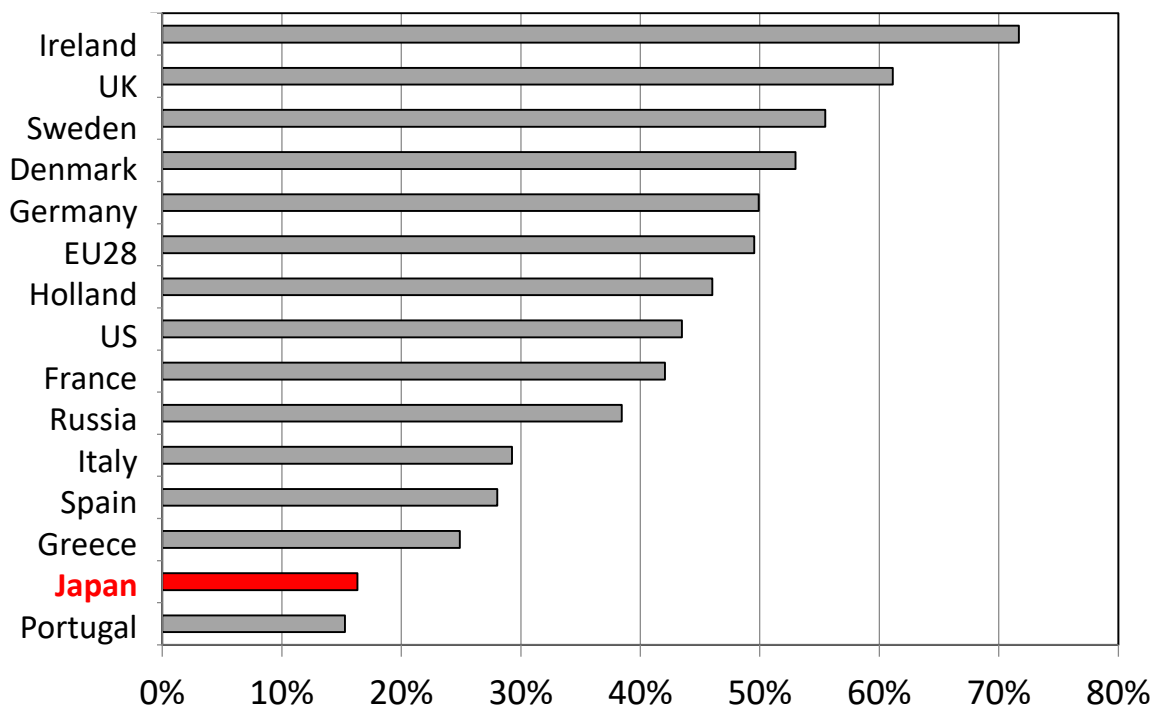
(the year of 1990=1)



GHG reductions rate per GDP

- Japan is behind in GHG emissions reduction rate among developed country Parties.
- Today Japan can't be regarded as advanced in energy efficiency.

(1990-2015)



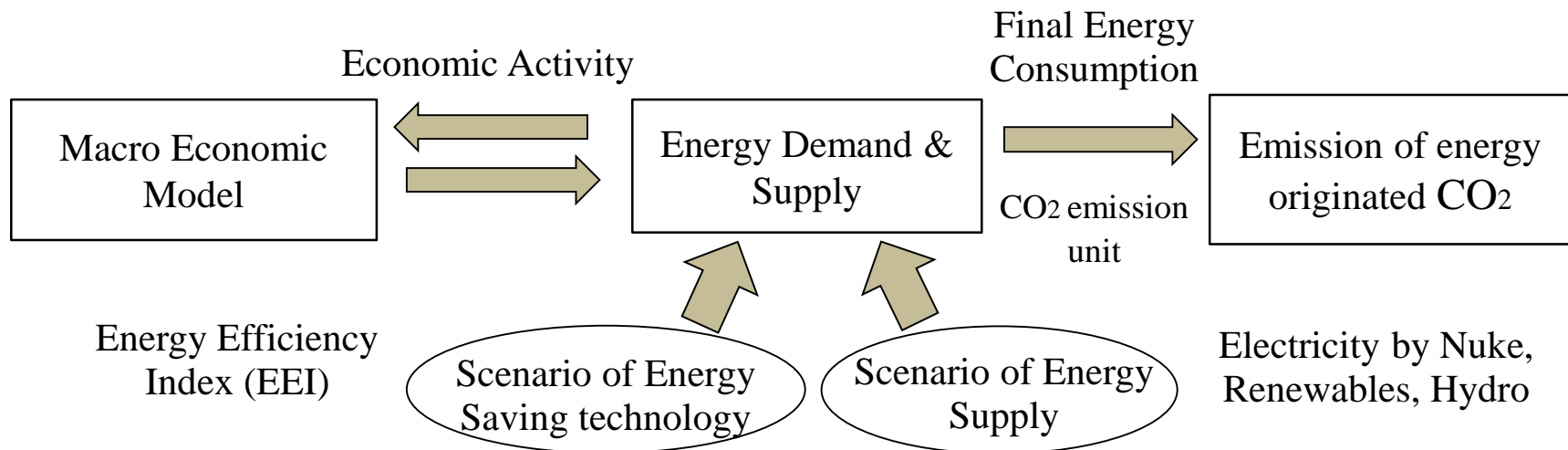
Potentials for CO₂ emission reduction 60% in 2030

In Japan

—‘CASA 2050 Model’ estimation result—

Structure of 'CASA 2050 Model'

- 'CASA 2050 Model' Shows **the concrete scenario of climate change countermeasures**, and estimates the economic impact **by Macro Economic Model**.



Precondition of 'CASA 2050 Model'

- 'CASA 2050 Model' Shows **the concrete scenario of climate change** countermeasures, and estimates the economic impact **by Macro Economic Model**.

Case	Precondition				Result in 2050	
	Energy Efficiency	Renewables increase	Nuke	Fossil fuels	CO2 change rate (from 2013)	Real GDP (trillion JPY)
Business as usual (BaU)	BaU	BaU	40 years Nuke Abolished	Keep dependent on	-39%	611
CASA measures	Great progress	Great progress	Zero	Almost decarbonized	-94%	614



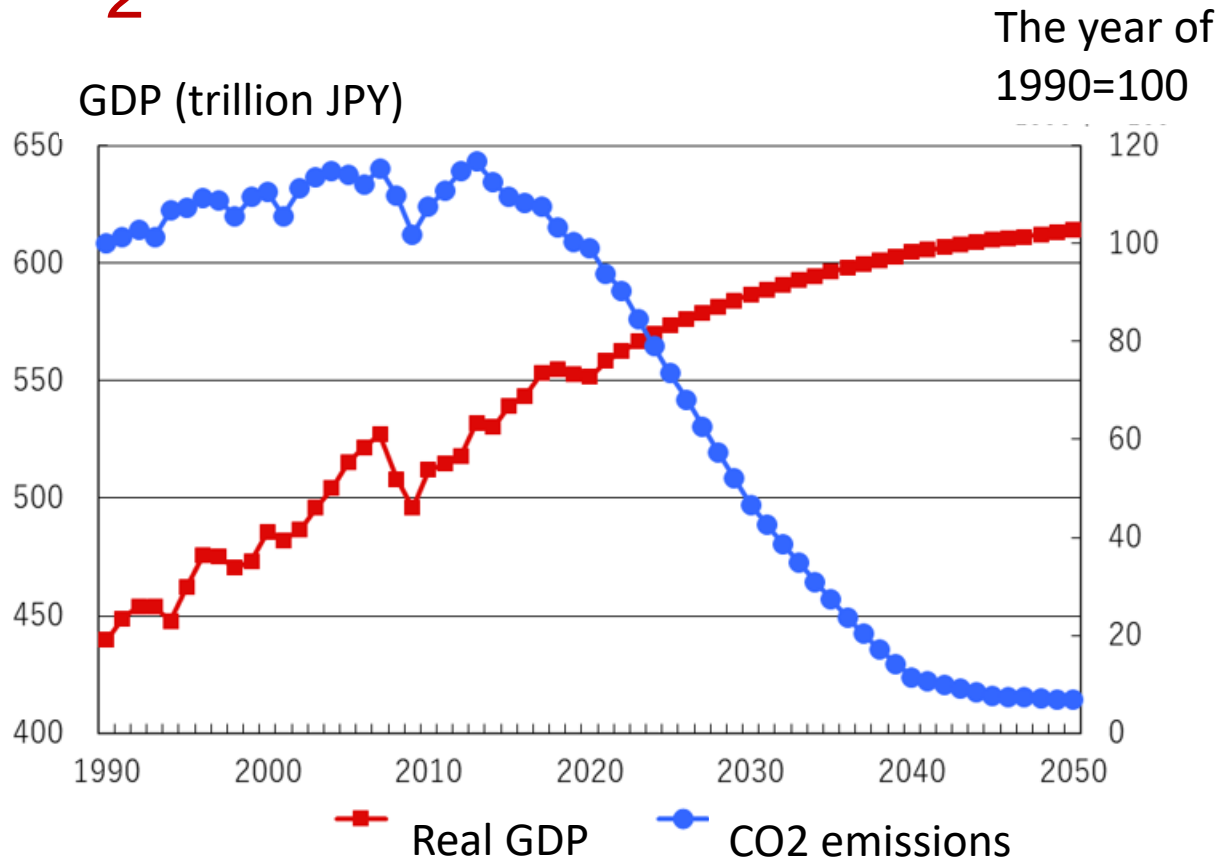
CASA 2050 Model

- CASA developed the “CASA 2050 Model” by integrating the bottom-up method model, based on scenarios with energy efficiency measures and technology measures such as the deployment of renewable energy, and the macro-economic method model.
- **As a result, the model shows clear feasibility for a 60% reduction of CO2 emissions by 2030—from the level of 1990—even in the case of immediate shutdowns of all the nuclear power reactors in Japan, without causing a negative impact on its economy.**

CASA 2050 Model

CASA measures

Decoupling of real GDP growth and CO₂ emissions



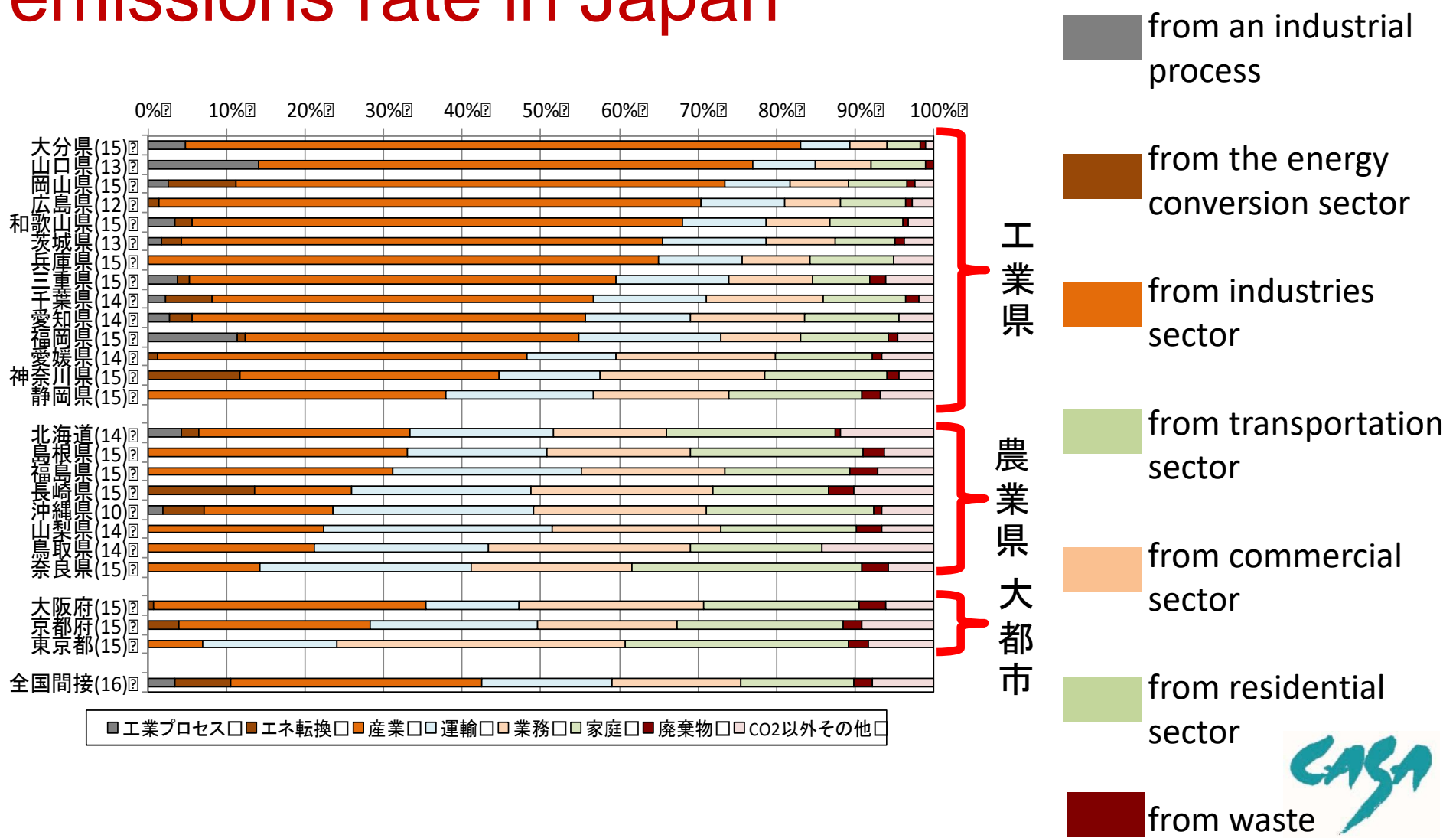
- CO₂ emissions could be cut by **60%** and real GDP growth could be **steadily increased.**

Carbon budget approach in Japan

- Japan's GHG emissions is **the 5th** in the world (current GHG emissions) / **the 6th** in the world (cumulative GHG emissions). Japan has great responsibility to tackle with the climate change issue.
- In order to achieve the long term goal and objectives of the Paris Agreement, the carbon budget approach is needed and the budget of each Party should be allocated recalling the historical responsibility.
- Now CASA has started the process to consider both all-over Japan carbon budget approach and respective area carbon budget approach with model-case local government carbon budget.

CASA 2050 Model

Prefecture greenhouse gas indirect emissions rate in Japan



CASA 2050 Model

Respective carbon budget approach could be useful and essential

- The breakdown of the local GHG emissions is apparently different from each other because of the regional characteristics.
- CASA recognises the urgent need to cultivate regional carbon budget approach so called “Regional Decarbonization Plan”

The Climate is Rapidly Changing

- The monthly CO₂ concentration throughout the entire atmosphere has now surpassed 415.7 ppm. Additionally, reports on extreme weather events keep coming in from around the world.
- IPCC AR6 and Special Report on 1.5°C points the countermeasures before 2030 are critical.
- There is no time to waste and urgency should be recognized. Acts are needed now for our future generations.