

The 19th IEEJ Webinar for the World November 11th (JST), 2025

IEEJ Outlook 2026

The importance of climate change targets
and adaptation grounded in reality

~Advanced Technologies Scenario as a milestone for
achieving the 2°C target~

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Recent developments concerning the 1.5°C target (Developed countries)

The Paris Agreement (2015) stipulates the global temperature rise mitigation target as well below 2°C and to pursue efforts to limit the increase to 1.5°C.

Subsequently, driven by successive net-zero declarations from major nations around 2020, the pursuit of the 1.5°C target and the associated goal of net-zero greenhouse gas (GHG) emissions became the global trend.

However, in reality, global GHG emissions continue to rise, making the prospects for achieving the 1.5°C target increasingly challenging. Against this backdrop, new realities illustrating the difficulty of realising the 1.5°C target are becoming apparent worldwide. In developed countries and industries,

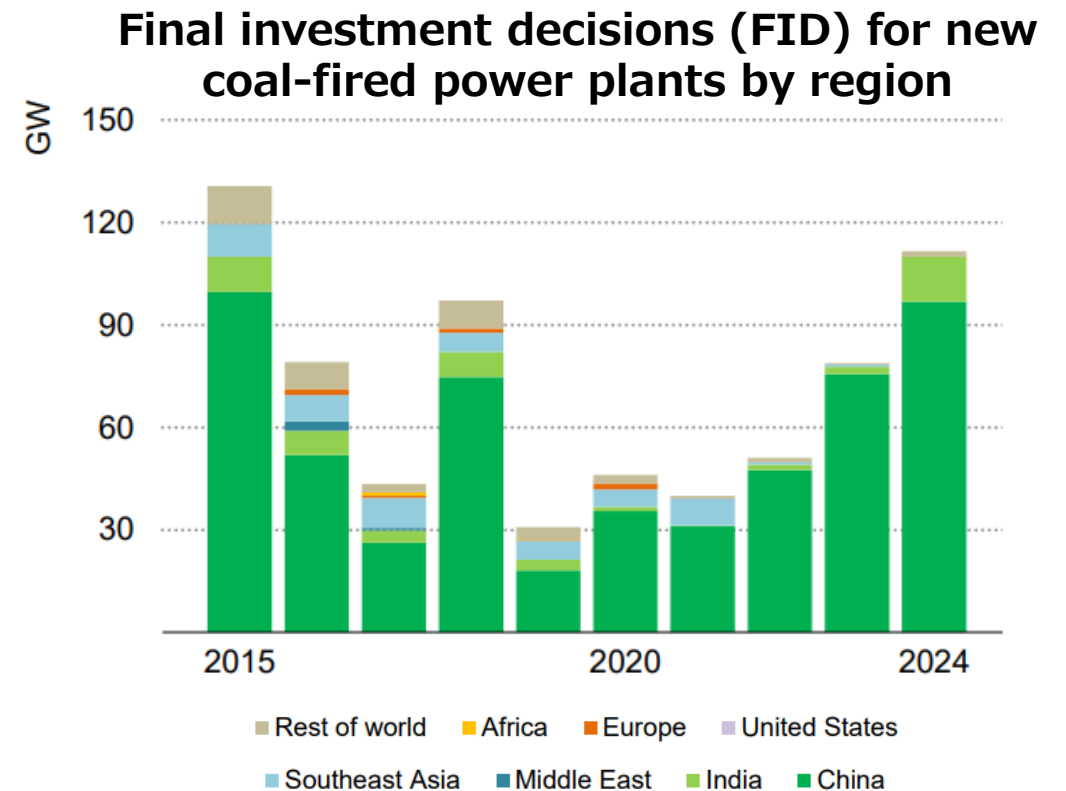
- The United States has announced its withdrawal from the Paris Agreement and is also advancing domestic measures, including the early termination of tax credits under the Inflation Reduction Act (IRA), the revocation of the GHG endangerment finding, and the removal of emission regulations for automobiles and fossil-fuel power plants.
- The G7 excluding Japan and the EU are currently exceeding the emissions pathway required to achieve net-zero by 2050. Furthermore, Canada's new 2035 NDC target exceeds the emissions pathway required to achieve net-zero by 2050 from current levels.
- Kemi Badenoch, leader of the UK Conservative Party, stated in March 2025: “Net zero by 2050 is impossible. I don’t say that with pleasure. I want a better future and a better environment for our children. But we have to get real.” (The Conservative Party was in government when the UK hosted COP26.)
- The NZBA (Net-Zero Banking Alliance) changed its policy to allow the 2°C target in April this year, from its position of seeking to align the 1.5°C target of financed emissions in response to the withdrawal of six major U.S. banks at the end of last year and the subsequent withdrawal of Japanese banks.

Recent developments concerning the 1.5°C target (Emerging countries)

- In China, final investment decisions (FID) were made for the construction of 100 GW of new coal-fired power plants in 2024 alone. This represents the largest scale in the past decade. In comparison,
 - Coal-fired power plant decommissioning over the past five years averaged just 4.7 GW annually
 - In 2024, 341 GW of solar PV and 80 GW of wind power were newly installed, but their combined electricity generation is equivalent to that of 100 GW of newly built coal-fired power operating at a 50% capacity factor.

Thus, the impact of 100 GW of new coal-fired power plants per year on China's CO₂ emissions is immeasurable.

- Similarly, India saw FIDs for 15 GW of new coal-fired power plants in 2024, again the largest scale in the past decade. Coal India, the world's largest coal company, announced the resumption of 32 dormant coal mines and the development of five new coal mines in June this year.
- The current reality presents a challenging situation for achieving net-zero GHG emissions.

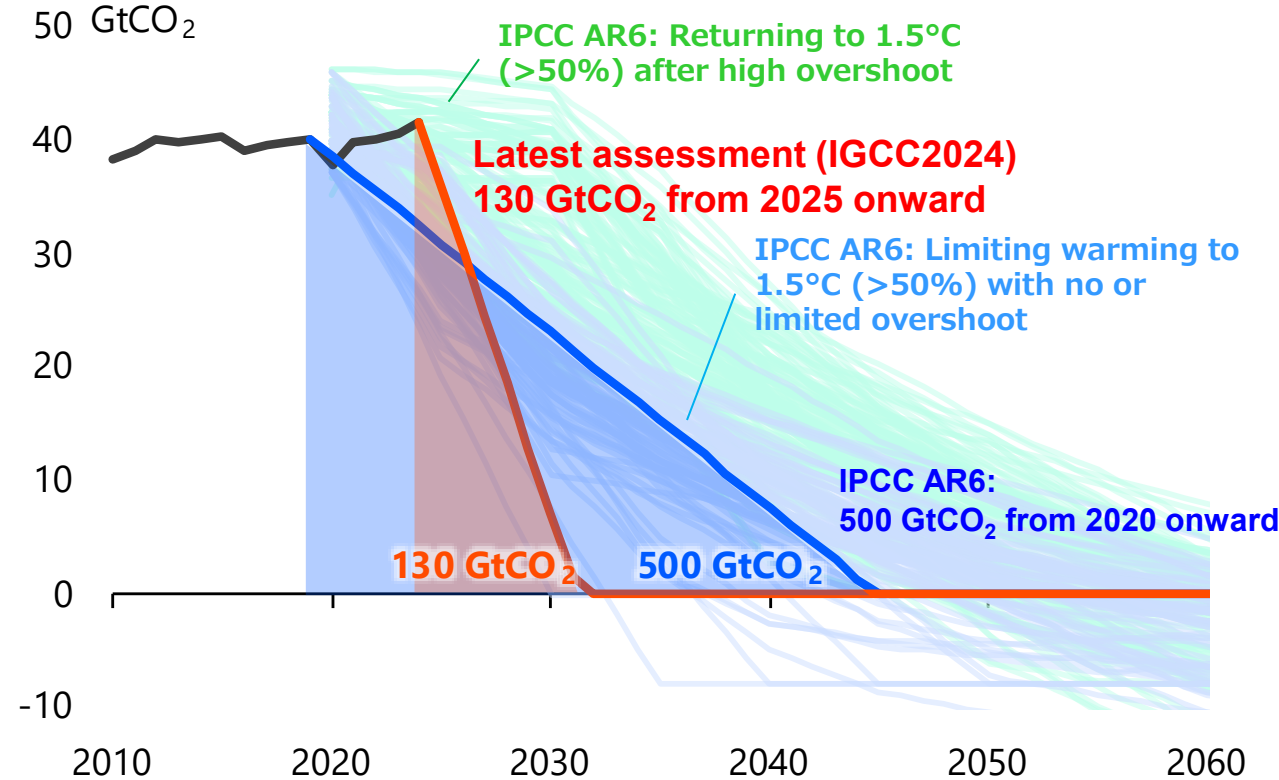


(Source) IEA, World Energy Investment 2025

1.5°C target effectively unattainable

- Compared to the IPCC AR6, the remaining carbon budget^{*1} toward 1.5°C with a 50% probability is rapidly decreasing.
*1: The total amount of CO₂ emissions permitted globally going forward to achieve a target.
- The latest assessment is 130 GtCO₂^{*2} from 2025 onward, which is less than four years' worth of current emissions, and a simple calculation assuming linear emissions reductions requires net-zero by 2032. Given the latest remaining carbon budget assessment, the 1.5°C target can be considered effectively unattainable. → Need to assume a 2°C target. This does not necessarily signify a retreat but rather a return to the original objective of the Paris Agreement..

CO₂ emissions pathway consistent with the 1.5°C target



*2: According to the Indicators of Global Climate Change (IGCC) 2024. The difference from 500 GtCO₂ at the time of AR6 is due to a decrease of 200 GtCO₂ in emissions from 2020 to 2024, a decrease of just over 100 GtCO₂ due to an upward revision of global warming due to the reduction of aerosols with cooling effects, and a decrease of about 40 GtCO₂ due to an increase in global warming estimates due to high temperature observations over the past few years.

Comparison of the Advanced Technologies Scenario and the 2°C target (Assumptions)

- Based on the energy-related CO₂ emission pathway to 2050 in the IEEJ Outlook 2026 Advanced Technologies Scenario, the total anthropogenic CO₂ emission pathway including non-energy by the year of achieving net-zero was estimated.

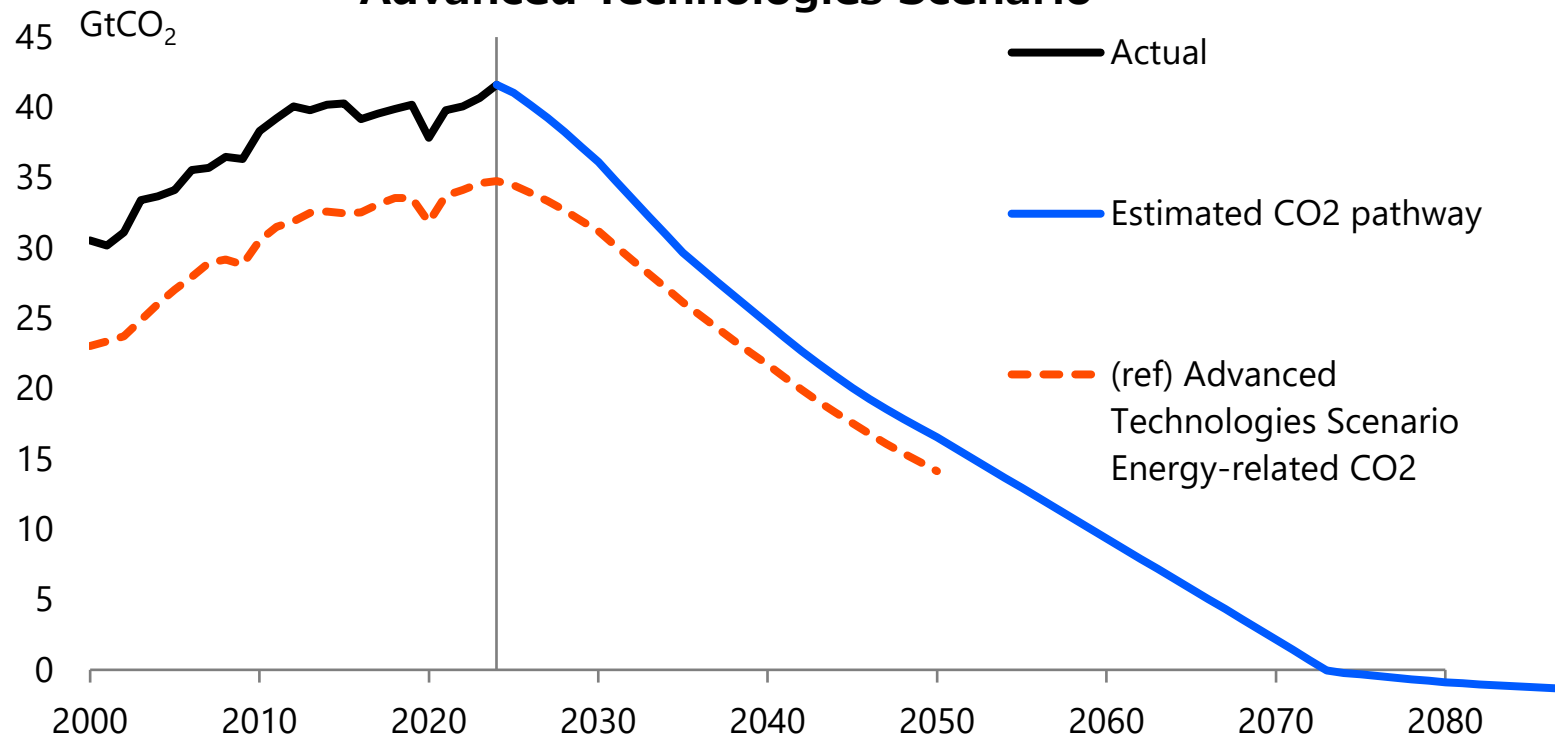
Indicators		Assumptions
Energy-related CO ₂	–2050	IEEJ Outlook 2026 Advanced Technologies Scenario
	2051–	Assuming continuation of 2050 reduction rate (-0.61 GtCO ₂ /yr) Emissions flat after net-zero
Non energy-related CO ₂ (Land-use change, cement emissions, cement absorption, flaring, and other sources)		Referencing the ModAct (Moderate Action) scenario—one of the Illustrative Mitigation Pathways (IMPs) in the IPCC AR6 WG3—which aligns with climate policies based on the NDCs submitted in 2020. (Although the IMPs encompass pathways with varying levels of mitigation ambition, non-energy CO ₂ emissions are assumed somewhat conservatively.)

- Carbon budget comparison targets
 - IPCC 6th Assessment Report Synthesis Report (IPCC AR6 SYR)
 - Global Carbon Budget 2024 (GCB 2024) : International research projects, updated annually
 - Indicators of Global Climate Change 2024 (IGCC 2024) : Same above

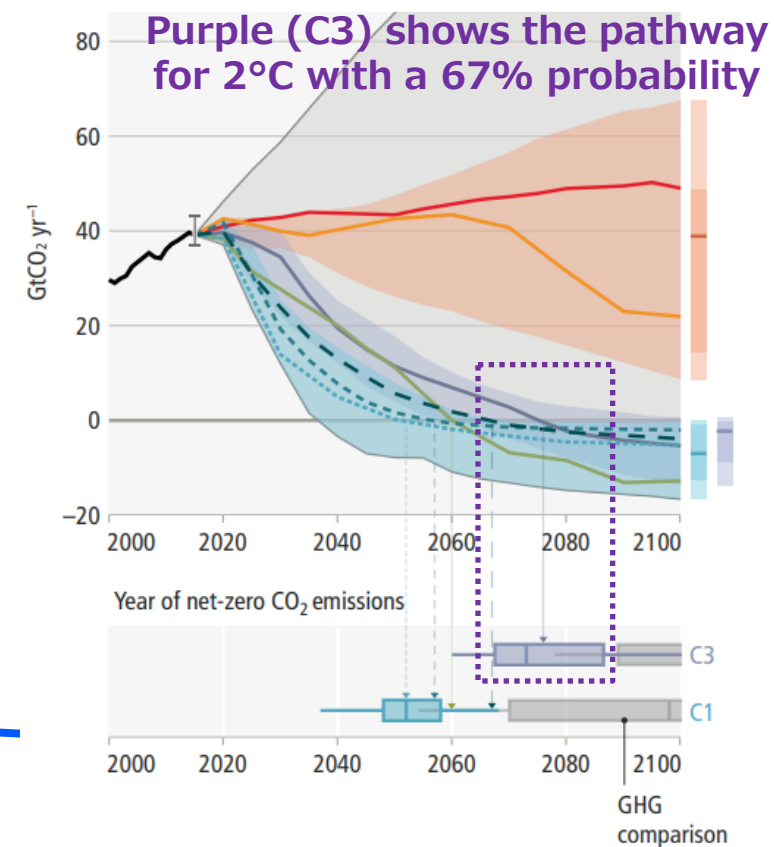
Comparison of the Advanced Technologies Scenario and the 2°C target (CO₂ emissions pathway)

- The estimated CO₂ emissions pathway achieves net-zero in 2073. The IPCC AR6 Working Group III (WG3) report states that the CO₂ emissions pathway for 2°C with a 67% probability (C3) achieves net-zero around 2070 to 2080, which is consistent with our estimates, but to be precise, it needs to be compared with the remaining carbon budget.

Estimated CO₂ emissions pathway based on the Advanced Technologies Scenario



CO₂ emissions pathways in IPCC AR6 WG3



Note: (Left) The estimated CO₂ pathway shows total CO₂. The Advanced Technologies Scenario shows energy-related CO₂.
(Right) IPCC AR6 WG3 SPM p.26

Comparison of the Advanced Technologies Scenario and the 2°C target (Carbon budget)

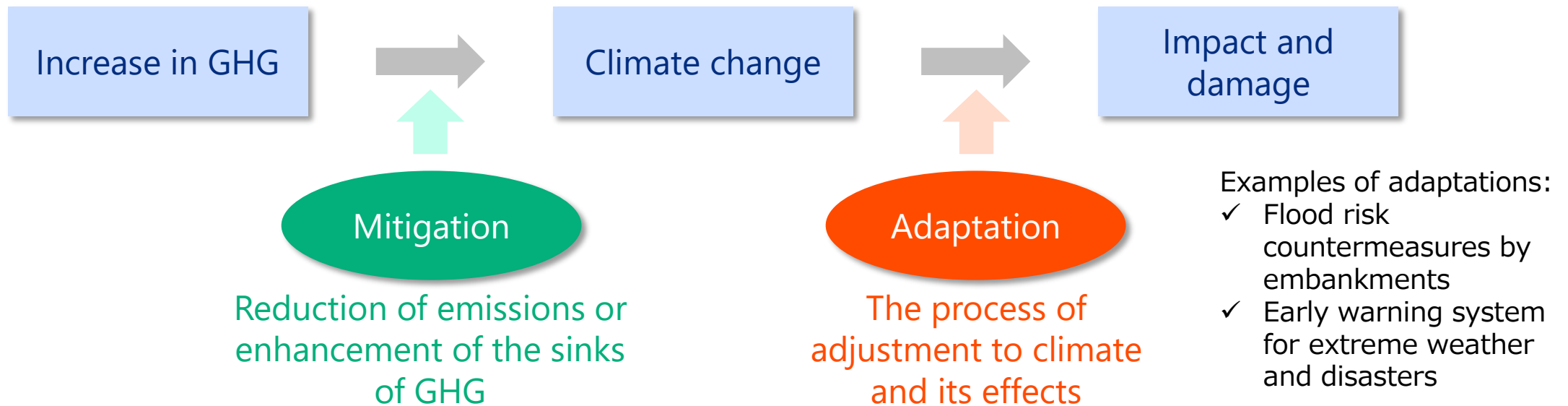
- The cumulative emissions from 2025 onwards until net-zero is achieved in the estimated CO₂ emission pathway would total 906 GtCO₂, a level comparable to the latest remaining carbon budget and sufficient to limit global temperature rise to 2°C with 50% probability.
- However, it slightly exceeds the remaining carbon budget for the 2 °C target with a 67% probability according to IGCC 2024. → To meet the 2°C target with the highest possible probability, it remains crucial to explore and pursue reduction potentials exceeding those of the Advanced Technologies Scenario.

Scenarios		Cumulative CO ₂ from 2025 onwards (GtCO ₂)
Estimated pathway (cumulative to net-zero)		906
2°C with 50% probability	IPCC AR6 SYR (Starting point adjusted)	1,150
	GCB2024	1,110
	IGCC2024	1,050
2°C with 67% probability	IPCC AR6 SYR (Starting point adjusted)	950
	GCB2024	NA
	IGCC2024	870
1.7°C with 50% probability	IGCC2024	490

Note: Since the IPCC AR6 SYR budget starts in 2020, the value is listed after deducting 200 GtCO₂ emissions for 5 years from 2020 to 2024.

What is adaptation?

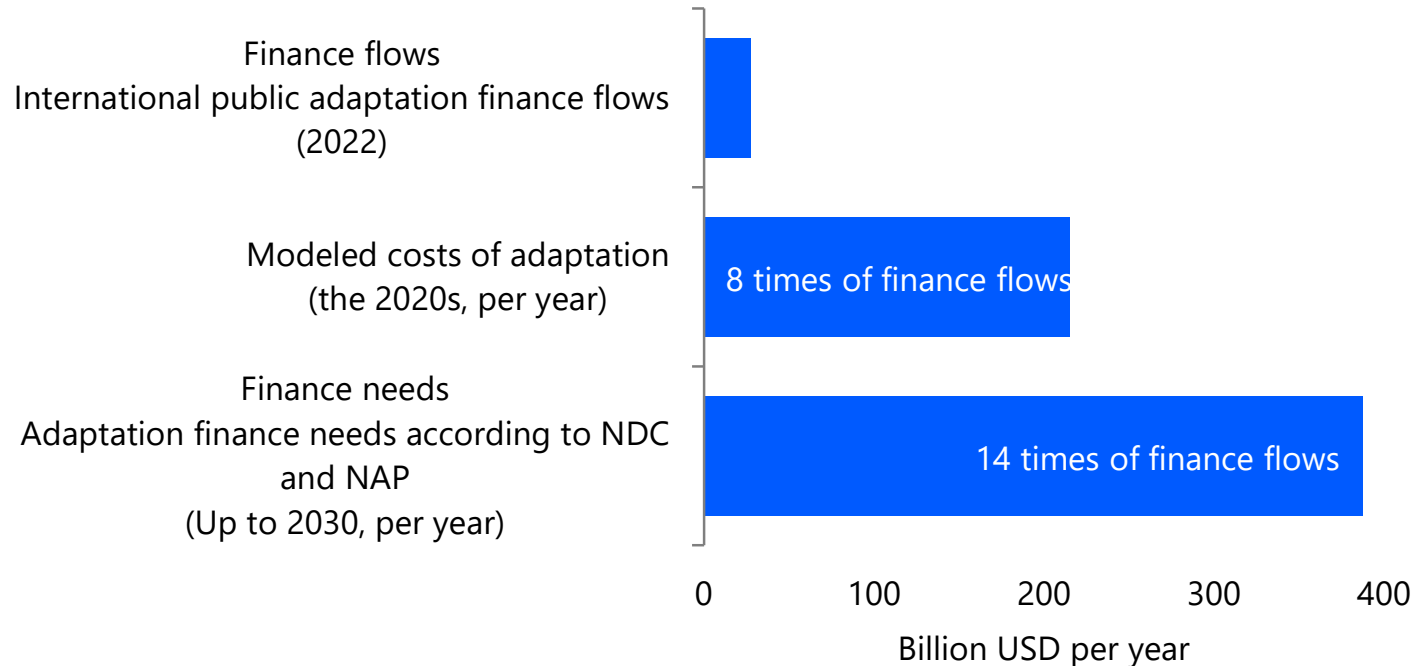
- Current mitigation efforts are not sufficient in scale or level to keep the rise in global mean temperature within the Paris Agreement's long-term climate targets. As a result, global temperatures are rapidly approaching over 1.5 °C increase above pre-industrial levels. The growing frequency and intensity of climate impacts demonstrate how severe the challenges of climate impacts and adaptation have become. Effective and appropriate adaptation measures are now needed more urgently than ever.
- What is adaptation?



- The primary approach is to mitigate the impacts of climate change through mitigation; if this proves difficult, it becomes crucial to combine it with adaptation. With the 1.5°C target now effectively unattainable, the importance of adaptation will only continue to grow.

What is the gap in adaptation finance?

Adaptation finance gap

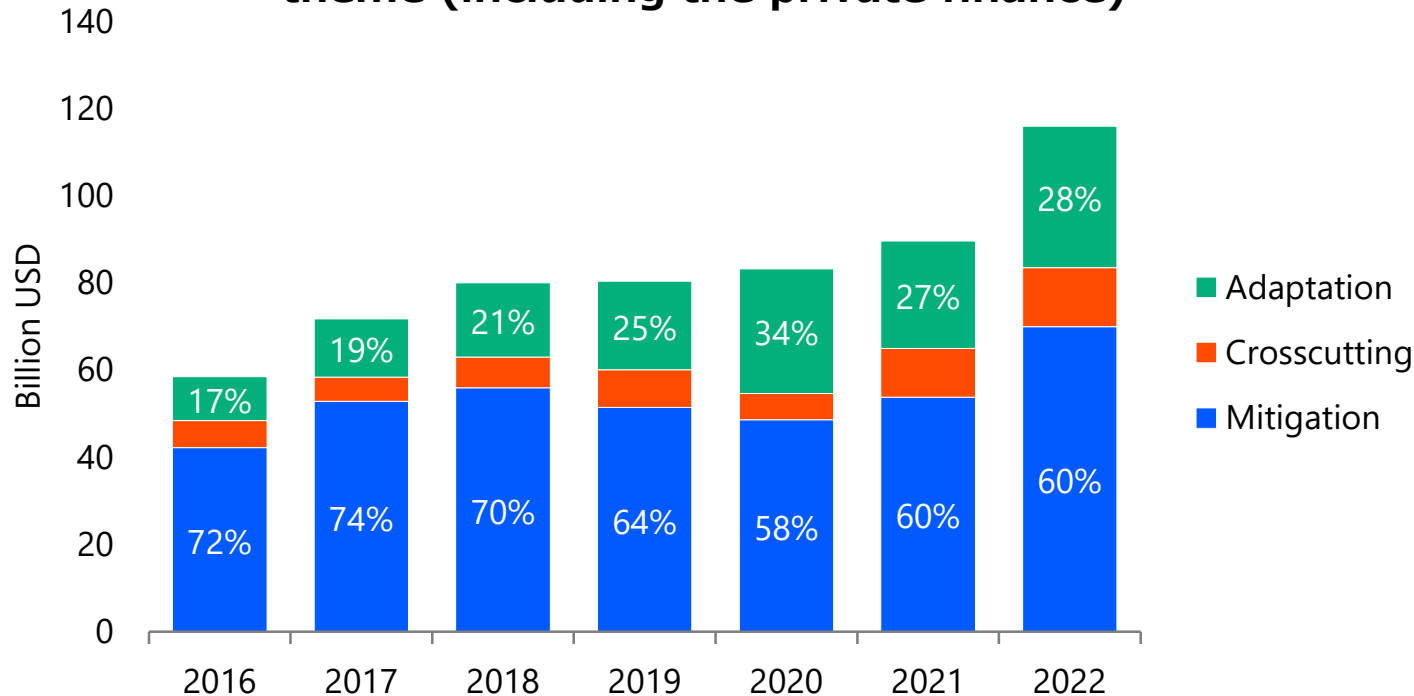


Note: NAP (National Adaptation Plan)

- Adaptation needs estimated by the United Nations Environment Program (UNEP) “Adaptation Gap Report” shows that the modeled costs of adaptation is \$215 billion per year and the finance needs are \$387 billion per year.
- Meanwhile, actual international public adaptation finance flows to developing countries were only \$28 billion in 2022.
- Comparing adaptation needs with international public finance flows in 2022 shows that a huge adaptation finance gap still exists. There is an 8 to 14-fold gap between the finance required for adaptation and the current level of finance provision.
- The adaptation finance gap is substantial, and closing this gap is a priority.

Balance between adaptation and mitigation finance

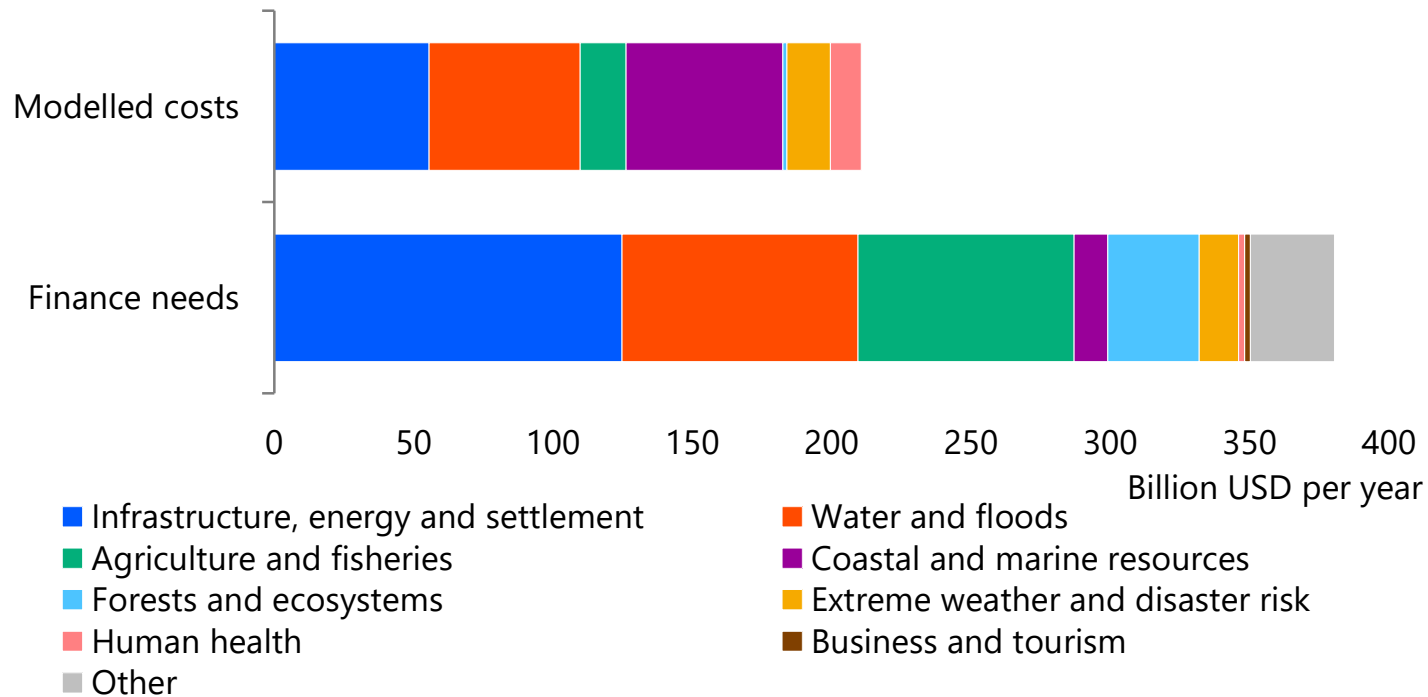
Climate finance provided and mobilised by climate theme (including the private finance)



- Article 9, paragraph 4 of the Paris Agreement states, "The provision of scaled-up financial resources should aim to achieve a balance between adaptation and mitigation". This is likely to bring the ratio of adaptation and mitigation finances closer to 1:1.
- Breaking down the climate finance provided and mobilised by advanced economies reveals that mitigation finance accounted for 72% of the total in 2016 and 60% in 2022. Meanwhile, the proportion allocated to adaptation has increased, rising from 17% in 2016 to 28% in 2022, but still remains far from being balanced with mitigation finance.
- It is necessary to strike a balance between adaptation and mitigation finances

Main areas that need adaptation

Finance needs and modeled costs



- The finance needs are large in "Agriculture and fisheries", "Water and floods" and "Infrastructure, energy and settlement".
- The modeled costs are large in "Water and floods" and "Infrastructure, energy and settlement". "Coastal and marine resources" is also large.
- In addition, "Forests and ecosystems" accounts for a large proportion of the finance needs, and "Human health" accounts for a large proportion of the modeled costs.
- It is necessary to consider which areas of adaptation should be prioritised, considering both current and future needs.

(Reference) Main areas that need to be adapted

Areas and sectors	Contents
Infrastructure, energy and Settlement	<ul style="list-style-type: none"> • Making infrastructure resilient in the energy and transportation subsectors
Water and floods	<ul style="list-style-type: none"> • River flood protection (structures)
Agriculture and fisheries	<ul style="list-style-type: none"> • Agricultural research and development, water management and infrastructure to address the impact of climate change on chronic hunger • Addressing changes in fish catch potential, improving marine and coastal ecosystems (expanding marine protected areas) and safety at sea (responding to hazards from tropical windstorms, etc.)
Coastal and marine resources	<ul style="list-style-type: none"> • Coastal protection (to address flood risks using dikes, etc.) and beach nourishment (to reduce erosion)
Forests and ecosystems	<ul style="list-style-type: none"> • Expansion of protected areas
Extreme weather and disaster risk	<ul style="list-style-type: none"> • Weather and climate services (early warning systems, etc.) and social protection (funding for shock (climate extremes) response programs)
Human health	<ul style="list-style-type: none"> • Disease control to address increase in malaria, dengue and diarrhoeal diseases, heat-alert schemes and supporting health sector responses to address increased heat-related mortality, disease surveillance, and making future water, sanitation and hygiene (WASH) investment resilient

- Developed countries continue to deviate from the emissions pathway to achieve the 1.5°C target, and there is even a trend of increasing coal use in developing countries. Some industries are also reviewing their efforts to align with the 1.5°C target.
- The remaining carbon budget to achieve the 1.5°C target is depleting, and it is time to take the 2°C target as a realistic target. This does not necessarily signify a retreat but rather a return to the original objective of the Paris Agreement.
- The Advanced Technologies Scenario is consistent with the 2°C target. Moreover, it is a forward-casting scenario and can serve as a milestone for future efforts grounded in reality.
- Adaptation will become more and more important in the future. Adaptation has a clearer effect than mitigation, but there is a large gap between the finance needed and provided. It is necessary to reconsider the balance of public financial support for adaptation and mitigation.