

Climate Change
Adaptation for
the Future

Organization and activities



Background

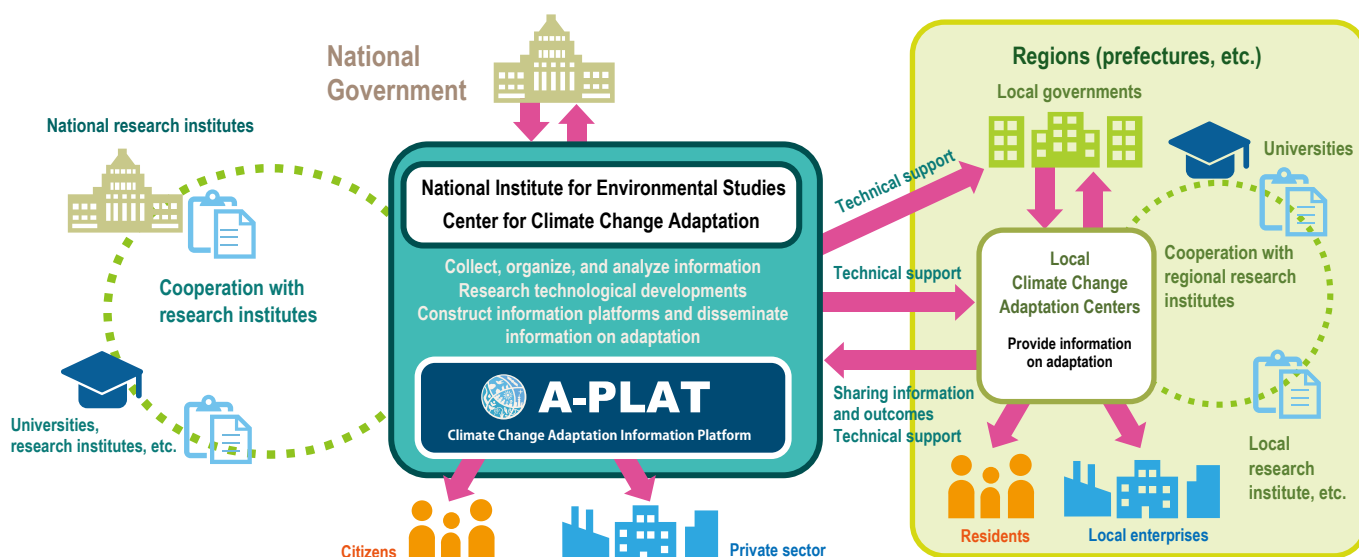
The Climate Change Adaptation Act (Law No. 50 of 2018) enforced in December 2018 specifies that the National Institute for Environmental Studies (NIES) shall be responsible to collect, organize, analyze, and provide information about the climate change impacts and adaptation as well as offer technical advice to local governments and Local Climate Change Adaptation Centers (LCCACs) to support efforts to cope with climate change.

The Center for Climate Change Adaptation (CCCA) was established on December 1, 2018 to conduct such services and research on climate change adaptation.



Missions of CCCA

CCCA helps formulate plans to adapt to climate change and implement adaptation measures by central and local governments. Additionally, CCCA supports climate change adaptation efforts by major players, including business operators and individuals. These are achieved by promoting the collection, organization, and analysis of climate change information and disseminating research results on the impact and adaptation to climate change.



Climate Change Adaptation Act

1. Comprehensively promote adaptation

The National Adaptation Plan aims to clarify the roles played by national and local public entities, businesses, and citizens to promote climate change adaptation.

The national government formulates a comprehensive climate change adaptation plan that promotes adaptation in diverse fields such as agriculture and disaster prevention as well as develop methods to understand and evaluate progress.

The impact of climate change is assessed approximately every five years and the National Adaptation Plan is revised accordingly.

Effective adaptation measures are promoted based on reliable and detailed information in the fields of agriculture, fisheries and forestry, water environment/water resources, natural ecosystems, natural disasters, health, industrial/economic activities, and the living standards of local residents.

2. Develop information platforms

The National Institute for Environmental Studies (NIES) is positioned at the core of information platforms on adaptation and is responsible for the following services:

- Collect, organize, analyze, and provide information on the impact and adaptation to climate change
- Provide technical advice to local governments and Local Climate Change Adaptation Centers (LCCACs)

3. Strengthen adaptation at the local level

Prefectures and municipalities must make efforts towards formulating local climate change adaptation plans.

Systems to collect and disseminate information on adaptation are ensured at the local level (Local Climate Change Adaptation Centers).

4. International expansion of adaptation

Promote international cooperation

Promote efforts and adaptation businesses, etc.



Key Activities

Development of information platforms

CCCCA posts information on the climate change impacts and adaptation using the "Climate Change Adaptation Information Platform (A-PLAT)". A-PLAT was launched as an information platform to promote efforts of local governments, businesses, etc.

In addition, to contribute to international cooperation in the area of climate change adaptation, CCCC constructs "Asia-Pacific Climate Change Adaptation Information Platform (AP-PLAT)" as a platform to support the formulation and implementation of adaptation plans in developing countries of the Asia-Pacific region.

Support to local governments and LCCACs

The impact of climate change as well as the economic and social environments varies greatly by region. Therefore, regional efforts are extremely important to implement effective adaptation measures to mitigate damage caused by climate change.

By disseminating information via A-PLAT and collaborating with research institutions on climate change, NIES provides the following to support activities implemented by local governments and Local Climate Change Adaptation Centers (LCCACs):

- ① Technical advice to local governments and LCCACs to formulate and promote climate change adaptation plans
- ② Materials, information, and opinions at the request of Local Councils on climate change adaptation

Climate Change Adaptation Research Programs

To scientifically support initiatives that promote climate change adaptation made by stakeholders, CCCC implements Climate Change Adaptation Research Programs on observations and monitoring of the climate change impact, assessment of climate change impacts, and climate change adaptation strategies.

Outreach activities

The Center hosts symposiums, lectures, and workshops on climate change impacts and adaptation for businesses and individuals. Additionally, the Center provides pamphlets and other materials to support initiatives related to climate change adaptation.

Greeting from the Director of CCCC

The "Center for Climate Change Adaptation (CCCCA)" was established in conjunction with the enforcement of the "Climate Change Adaptation Act" on December 1, 2018. It will celebrate its 5th anniversary in 2023.



Dr. Yasuaki HIJIOKA
Director

The "Climate Change Adaptation Act" is comprised of four pillars: comprehensive promotion of adaptation, development of information infrastructure, strengthening of adaptation at the local level, and international expansion of adaptation efforts.

Under this act, the role of the National Institute for Environmental Studies includes the collection, organization, analysis, and provision of information on climate change impacts and adaptation, technical advice and assistance to prefectures and municipalities on the formulation and promotion of local climate change adaptation plans, and technical advice and assistance to local climate change adaptation centers (LCCACs). Moreover, under a close collaboration among related research institutions, with the CCCC as the core, comprehensive efforts are made to promote technical assistance for adaptation by the national and local government, businesses, and the general public, as well as to advance research on climate change adaptation.

In the 5th the Mid-and-Long Term Plan, the "Office for Climate Change Adaptation Promotion" is collaborating with four other research laboratories to provide technical assistance, dispatch lecturers, strengthen and enhance the Climate Change Adaptation Information Platform (A-PLAT), engage in exchanges of opinions and hold training sessions with local governments and LCCACs, businesses, and others. Additionally, the "Asia-Pacific Climate Change Adaptation Research Section," established in April 2021, is working to build partnerships with relevant institutions in the Asia-Pacific region and expand and operate the Asia-Pacific Climate Change Adaptation Information Platform (AP-PLAT).

Regarding climate change adaptation research, the "Climate Change Impacts Monitoring Research Section" aims to detect climate change impacts from the past to the present and elucidate their mechanisms. The "Climate Change Impacts Assessment Research Section" focuses on advancing evaluation methodologies for climate change impacts in multiple fields and spatial scales. The "Climate Change Adaptation Strategy Research Section" scientifically supports the development and strengthening of adaptation strategies considering social dynamics and regional characteristics. These three sections serve as the core for strategic research programs such as the "Climate Change Adaptation Research Program" and engage in collaborative research with LCCACs focusing on climate change adaptation, as well as intellectual research infrastructure development projects.

Climate change adaptation is a preparation for an uncertain future. Implementing climate change adaptation in society is not easy. However, with a mission to achieve a sustainable future that overcomes climate risks, we are committed to moving forward without pause, exploring the path of adaptation with passion.

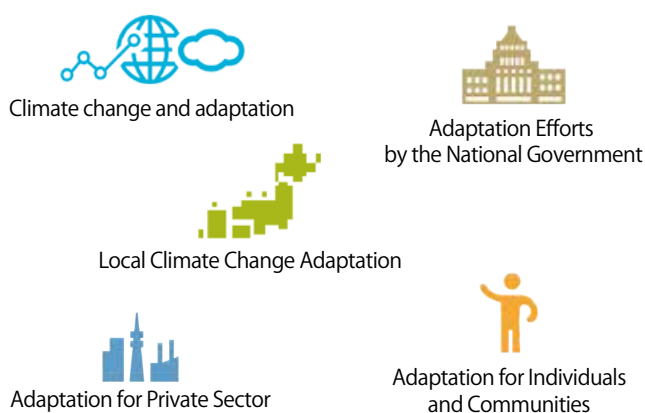


A-PLAT provides information on climate change and scientific knowledge based on monitoring the impact of climate change, assessments of future impact, and adaptation strategies for a broad audience in an easy-to-use manner.

For example, A-PLAT provides data on future predictions in various fields such as meteorological information, the agricultural and human health sectors, databases on adaptation measures, interviews with local governments, and information related to scientific findings about climate change impacts and adaptation. We plan to expand the A-PLAT to include information about adaptation businesses and awareness-raising tools so that it not only supports activities for climate change adaptation initiated by local governments and LCCACs, but also contributes to the initiatives of various stakeholders such as businesses and individuals.



Key Contents of A-PLAT



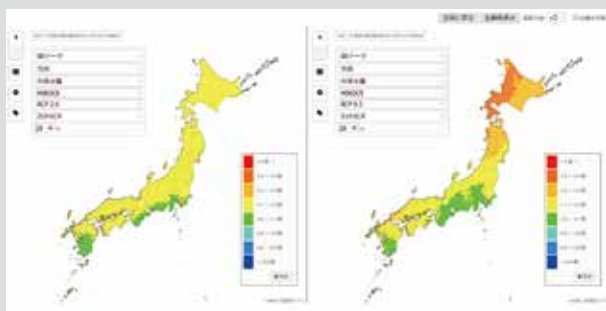
Other contents

References/statistics, Activity reports, Adaptation measure database, Adaptation businesses, Climate risk management, etc.

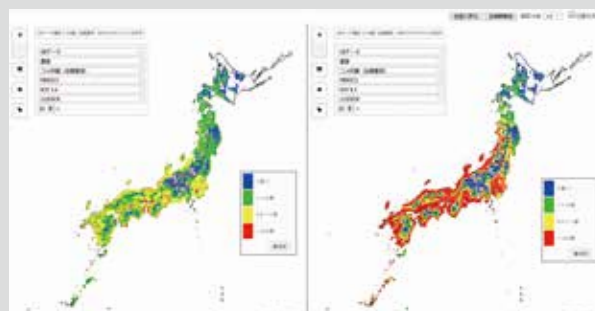


National and prefectural information (WebGIS)

We provide information on climate predictions (mean annual temperature, extremely hot days above 30 °C, and the frequency of hourly precipitation over 50 mm, etc.), agriculture (rice yields, etc.), water environments (chlorophyll-a concentration), natural ecosystems (potential beech habitats, etc.), natural disasters (sandy beach erosion rates, etc.), and human health (number of heatstroke patients transported to hospitals, etc.). The predicted impact of climate change on each sector at the prefectural level is denoted by different colors on a map.



● "Annual precipitation" at the end of the 21st century, a comparison between RCP2.6 and RCP8.5 (S-8 data)



● "Rice (quality-oriented)" at the end of the 21st century, a comparison between RCP2.6 and RCP8.5 (S-8 data)

Adaptation measures database

We introduce examples of adaptation measures to combat the impact of climate change implemented by local governments, research organizations, businesses, etc. in each field and region in Japan and the world.

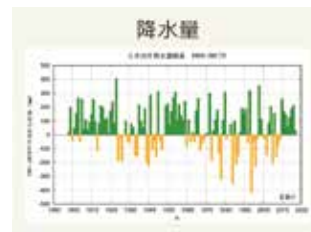
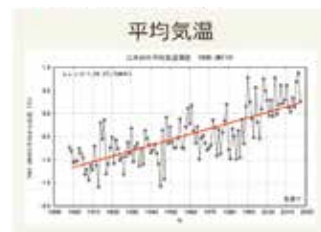


- The Adaptation Measures Database



Meteorological observation data

Meteorological observation data is graphed in cooperation with the Meteorological Agency of Japan to reveal long-term trends of weather changes at the prefectural level (temperature, precipitation, hot days, extremely hot days above 35 °C, etc.).

[illegible]

●Observation data in the local government' s page / Data provided by the Japan Meteorological Agency



Interviews on the topic of climate change adaptation

We post articles about the challenges encountered by local governments when formulating regional adaptation plans, their innovations to these challenges, and examples of characteristic adaptation measures implemented at the regional level.



Awareness-raising tools

We provide awareness-raising tools such as pamphlets explaining “adaptation” to the impact of climate change that can be utilized for awareness-raising activities initiated by local governments and other parties as well as for locally organized environmental events.



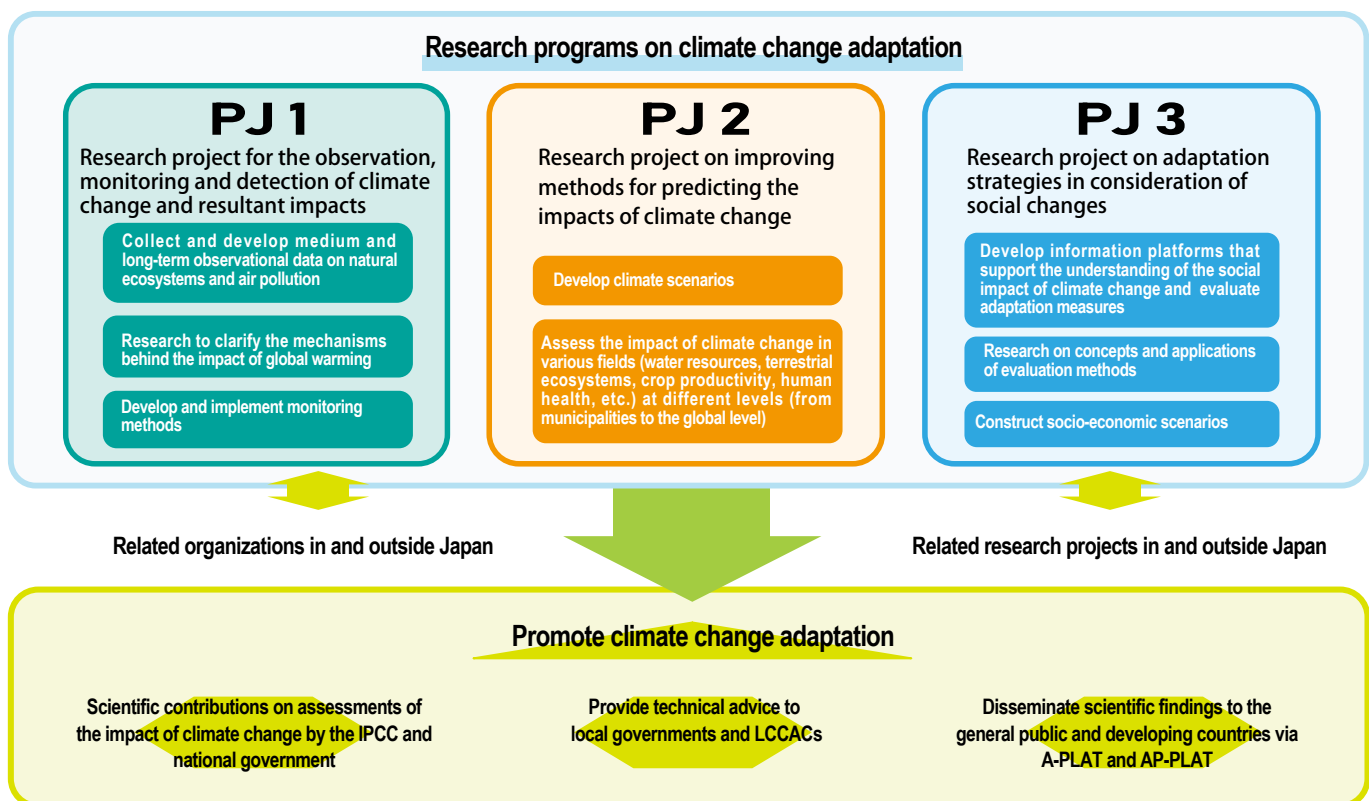
- Pamphlet example (PDF version can be downloaded from A-PLAT)

Climate Change Adaptation research programs

To provide scientific support of our mission, we engage in research and technological development of observations and monitoring of the impact of climate change, improve methods to assess the impact of climate change, and promote climate change adaptation strategies. Outcomes of the climate change adaptation research program contribute to policy decisions by governments such as reports on the comprehensive assessment of climate change impacts, changes to the National Adaptation Plan, and initiatives by other key players, including local governments for climate change adaptation by publicizing the outcomes via A-PLAT and AP-PLAT.

These research programs address the following three issues:

- ① Research to construct climate change observation/monitoring systems, establish theories (mechanisms) and methods to analyze the relationship between long-term climate change trends and the resultant impacts, and identify the causes.
- ② Improve assessment methods of the impact of climate change in multiple areas, evaluate the impact of climate change utilizing the latest climate change and socio-economic scenarios, and construct systems to provide global and national climate change scenarios.
- ③ Organize knowledge regarding adaptation options and the impact of climate change in multiple sectors/fields, identify gaps and inhibitory factors that exist between adaptation plans and scientific knowledge, implement adaptation measures, and consider methods to formulate effective adaptation strategies.



PJ 1 Research project for the observation, monitoring and detection of climate change and resultant impacts

We collect and organize long-term monitoring data in relation to natural ecosystems (terrestrial ecosystems, coastal-area/ enclosed-sea ecosystems, marine ecosystems, coastal ecosystems, and lake/watershed ecosystems), air pollution (ozone, particle matter (PM), etc.), and associated meteorological factors (e.g. air temperature, precipitation, wind velocity, humidity, etc.) to analyze the relationship between medium and long-term trends of climate change and its impacts.

We also strive to clarify the mechanisms behind the impact of climate change and develop effective monitoring methods to observe the impact of climate change.

The results of these activities are publicized on A-PLAT and AP-PLAT to disseminate to a broad public audience and promote the understanding of the impact of climate change.

PJ2 Research project on improving methods for predicting the impacts of climate change

We assess the impact of climate change in diverse fields (e.g. water resources, terrestrial ecosystems, crop yields, and human health) and at a variety of levels (from the global level to municipalities). We refer to the data and mechanisms behind the impact of climate change from PJ1 and work to establish advanced means to assess the impact of climate change in considering of the resulting socio-economic changes and a range of climatic factors, including temperature changes, changes in the amount of rainfall, sea-level rises, and ocean acidification.

Through these activities, we hope to contribute to adaptation methods such as improving the assessment of climate change impacts, identifying priority areas, enhancing the understanding of climate change risks among society by publicizing established climate scenarios, and disseminating impact assessment results via A-PLAT and AP-PLAT.

PJ3 Research project on adaptation strategies in consideration of social changes

This project investigates methods to accumulate and communicate scientific information related to adaptation, inhibitory factors on the perception of climate change risks, and implementation of adaptation measures. In addition, we collect and consolidate socio-economic scenarios currently under development. These are used to assess the impact of climate change and adaptation/mitigation measures by Japan and local governments.

We develop systems to quantitatively assess the effectiveness of adaptation measures that combine statistical analytical methods, including areal statistics based on statistical data, measured activity volume, and environmental data. We are also building a framework to assess the impact of climate change and adaptation measures based on Quality of Life (QOL) indices in consideration of the knock-on effect to local communities and the economy as well as conduct analysis using such systems and framework. Moreover, we clarify the effect that the impact of climate change occurring outside Japan will have on the production and consumption activities in Japan through international input-output analysis and applied general equilibrium model analysis, etc.

Through these activities, we hope to formulate effective adaptation strategies, promote the development of adaptation plans and implementation of adaptation measures by local governments, and communicate with stakeholders by publicizing obtained scientific knowledge and innovative systems on A-PLAT and AP-PLAT.

Framework of the Center for Climate Change Adaptation



Office for Climate Change Adaptation Coordination

Coordination of adaptation promotion measures along with cooperation with local governments and Local Centers for Climate Change Adaptation

Climate Change Impacts Observation and Monitoring Research Section

PJ1

Research project for the observation, monitoring and detection of climate change and resultant impacts

Climate Change Impacts Assessment Research Section

PJ2

Research project on improving methods for predicting the impacts of climate change

Climate Change Adaptation Strategy Research Section

PJ3

Research project on adaptation strategies in consideration of social changes

AP-PLAT



Asia-Pacific Climate Change Adaptation Information Platform

In June 2019, we launched the AP-PLAT as an information platform to support the formulation of adaptation plans and adaptation measures in developing countries throughout the Asia-Pacific region based on scientific findings. We post outcomes of the bilateral projects implemented by Ministry of the Environment and other programs and information required to promote adaptation measures in Asia and the Pacific.

We also provide support to launch an original platform that collects climate risk information provided by countries in the Asia-Pacific region in collaboration with international efforts to share climate risk information.

Three Key Activities under AP-PLAT

1. Develop datasets on the projection of climate change impacts in the region through bilateral cooperation & targeted studies
2. Develop supporting toolkits for officials and stakeholders engaged in adaptation planning
3. Build capacity on the climate change impact assessments & adaptation planning



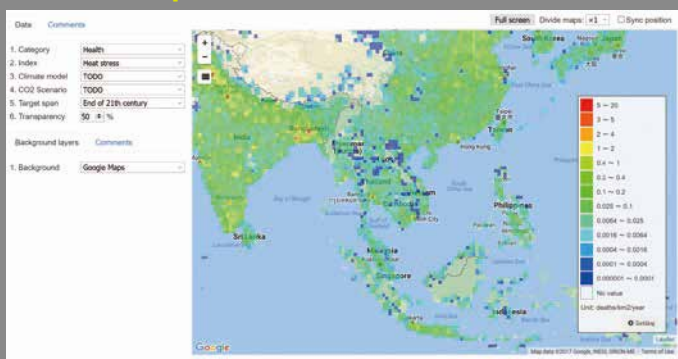
AP-PLAT



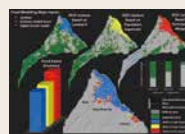
Key Contents of AP-PLAT

Climate Impact Viewer

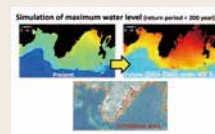
Research application to support adaptation planning in the Asia-Pacific region.



Good practices, experiences and lessons learned from bilateral cooperation



Flood extent of different land-use scenarios under event-based precipitation in Silang-Sta. Rosa sub-watershed, Philippines

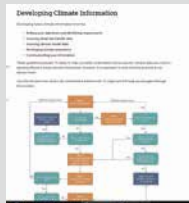


Coastal hazard maps of Suva, Fiji using satellite-based bathymetry, digital elevation model and wave-surge-current model

Integrating useful resources from our partners - Examples of collaboration with ADB-



Regional Climate Consortium for Asia and the Pacific



Guidance for Climate Information Development



Case Studies

1. Information developed under ADB's technical assistance project "Regional Climate Projections Consortium and Data Facility in Asia and the Pacific"
2. Climate risk and vulnerability assessments conducted within the context of ADB investment projects

AP-PLAT Website



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CCCA Website

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