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Adaptation Governance: Japan's case

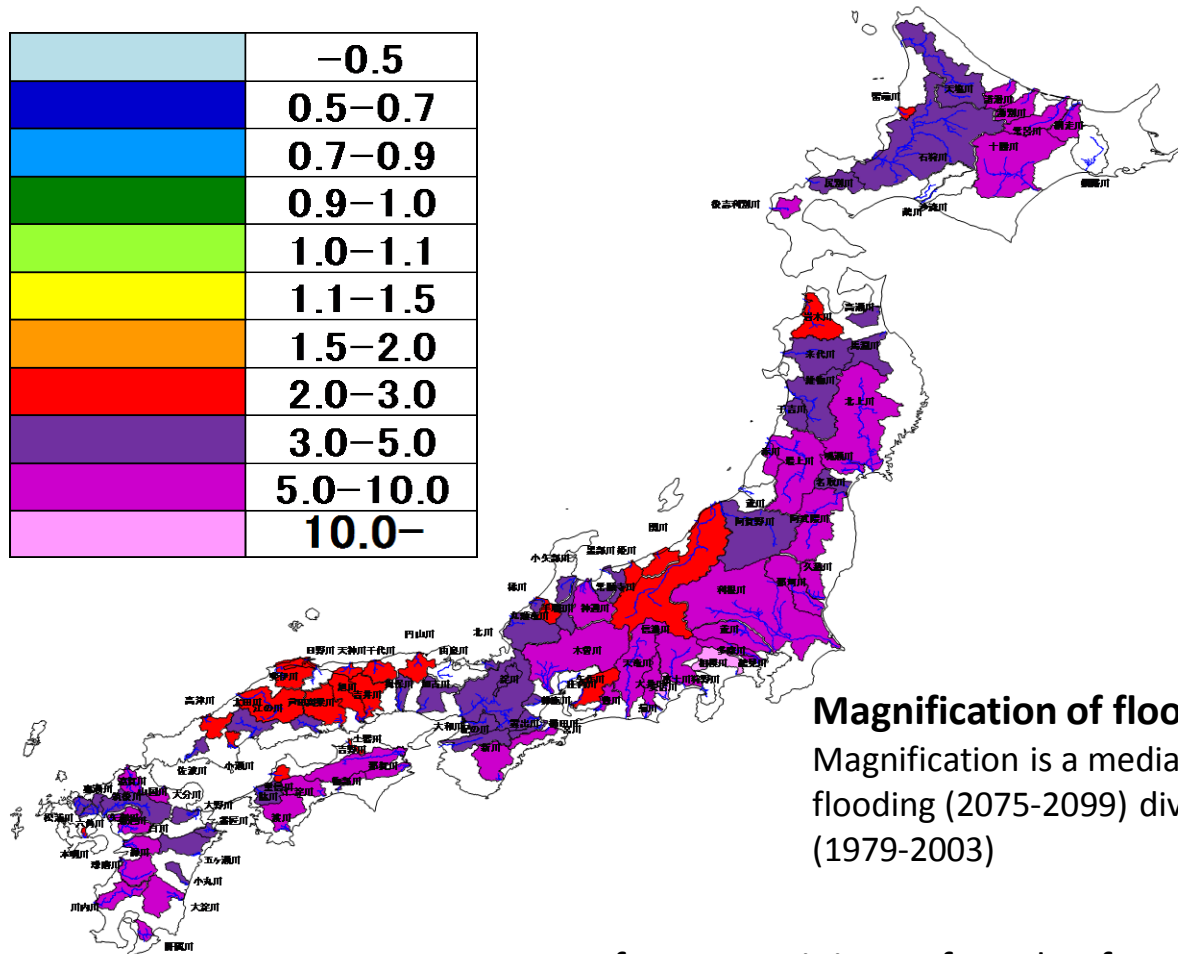


APN Climate Change Adaptation Framework Workshop
22 August 2013 Kobe, Japan

Climate Change Impacts (1) Heavy Rain Disaster

- Disaster risks due to heavy rain are predicted to increase
- Possibilities of floods, which exceed final river maintenance target, are projected to be 1.8 – 4.4 times higher than current levels in Japan (based on the research for first-grade rivers in Japan)

	-0.5
	0.5-0.7
	0.7-0.9
	0.9-1.0
	1.0-1.1
	1.1-1.5
	1.5-2.0
	2.0-3.0
	3.0-5.0
	5.0-10.0
	10.0-

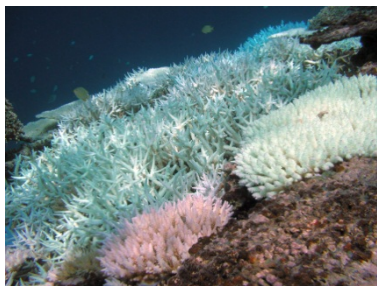
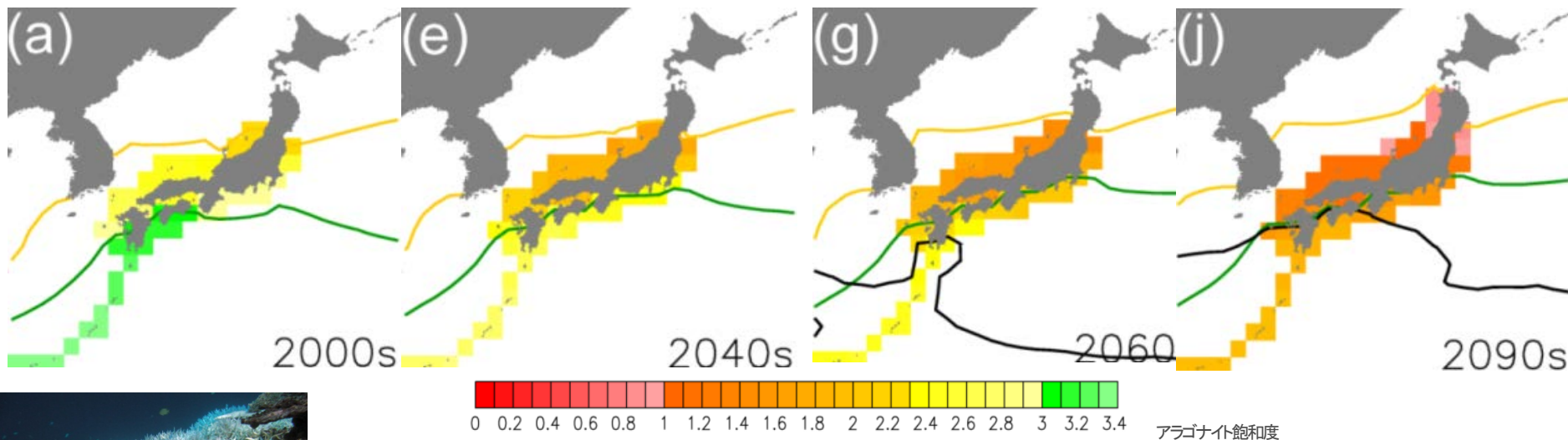


Magnification of flooding in hydrographic basin

Magnification is a median of future magnification of flooding (2075-2099) divided by current magnification (1979-2003)

Climate Change Impacts (2) Habitat Change to North

- Future prediction shows that suitable water temperature for corals will shift northwards. However, coral habitats will be trapped between increased coral bleaching area and acidified area which are not suitable for coral growth.
- The habitat for tropical/subtropical corals around Japan might be decreased by half between 2020-2030 and lost completely between 2030-2040.

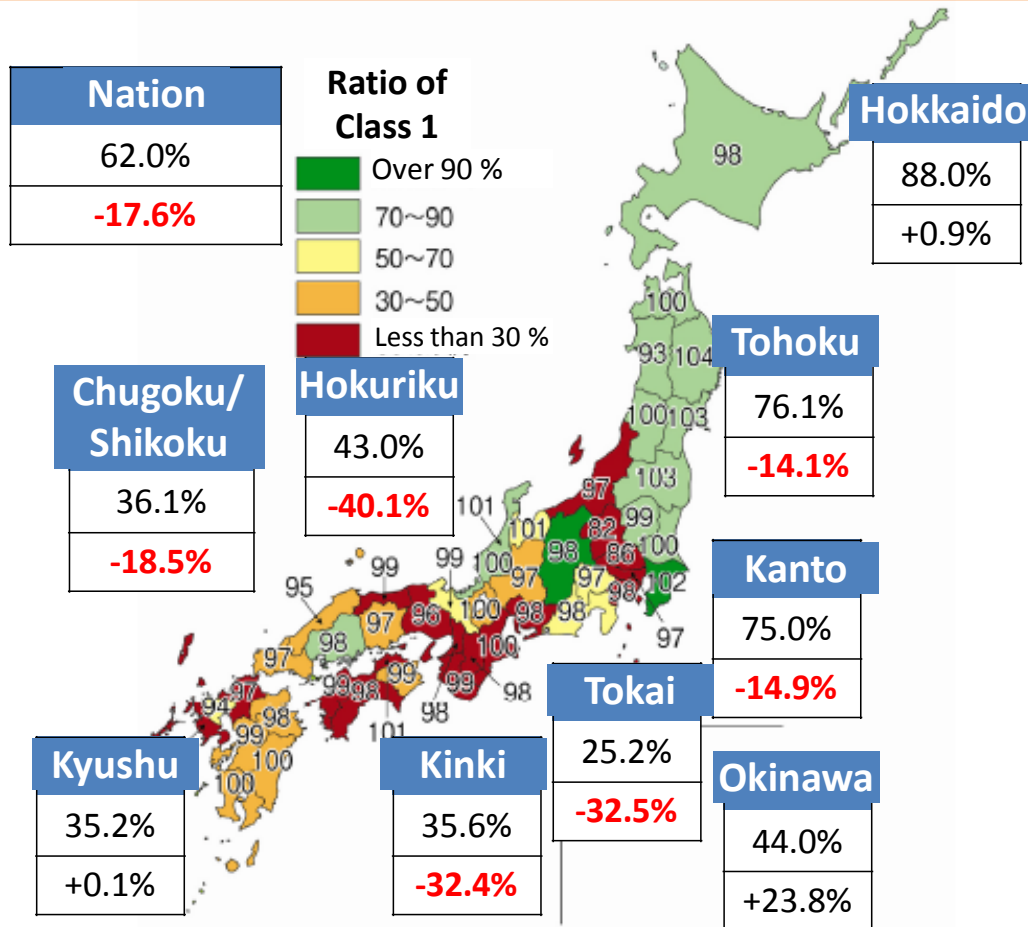


Changes in Coral Habitats shifting North between Current (2000) and Future (2040, 2060 and 2090)

- Green line: northern limit of tropical/subtropical coral habitat
- Yellow line: northern limit of temperature coral habitat
- Black line: 30 °C water temperature line (not suitable for coral habitat)
- Mesh: indicator of acidification (saturation of aragonite) . Saturation of aragonite is decreased when carbon dioxide melts into the sea, and aragonite is dissolved when it is under 1.

Climate Change Impacts (3) Agriculture

- Yields of irrigated rice will be increased but the quality might be negatively impacted



Map of Japan shows:

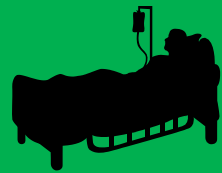
- Indicator of rice production in each prefecture (number on prefecture)
- Ratio of Class 1 rice (colour of prefecture)

Number in the box shows:

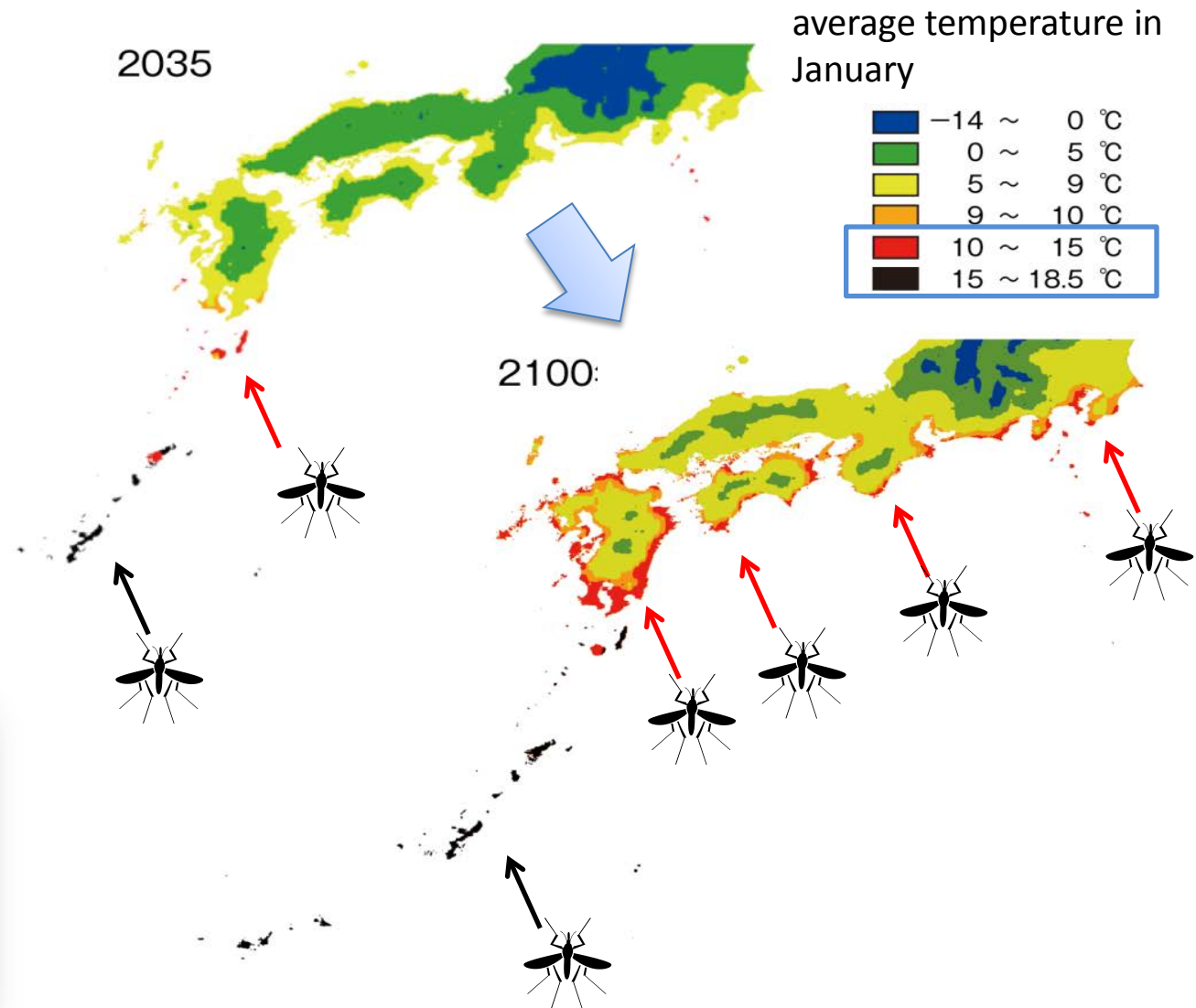
- the ratio of class 1 rice in 2010 (upper box)
- deviation from average over last 5 years

Quality and crop situation of irrigated rice in 2010

Climate Change Impact (4) Human Health



Human health

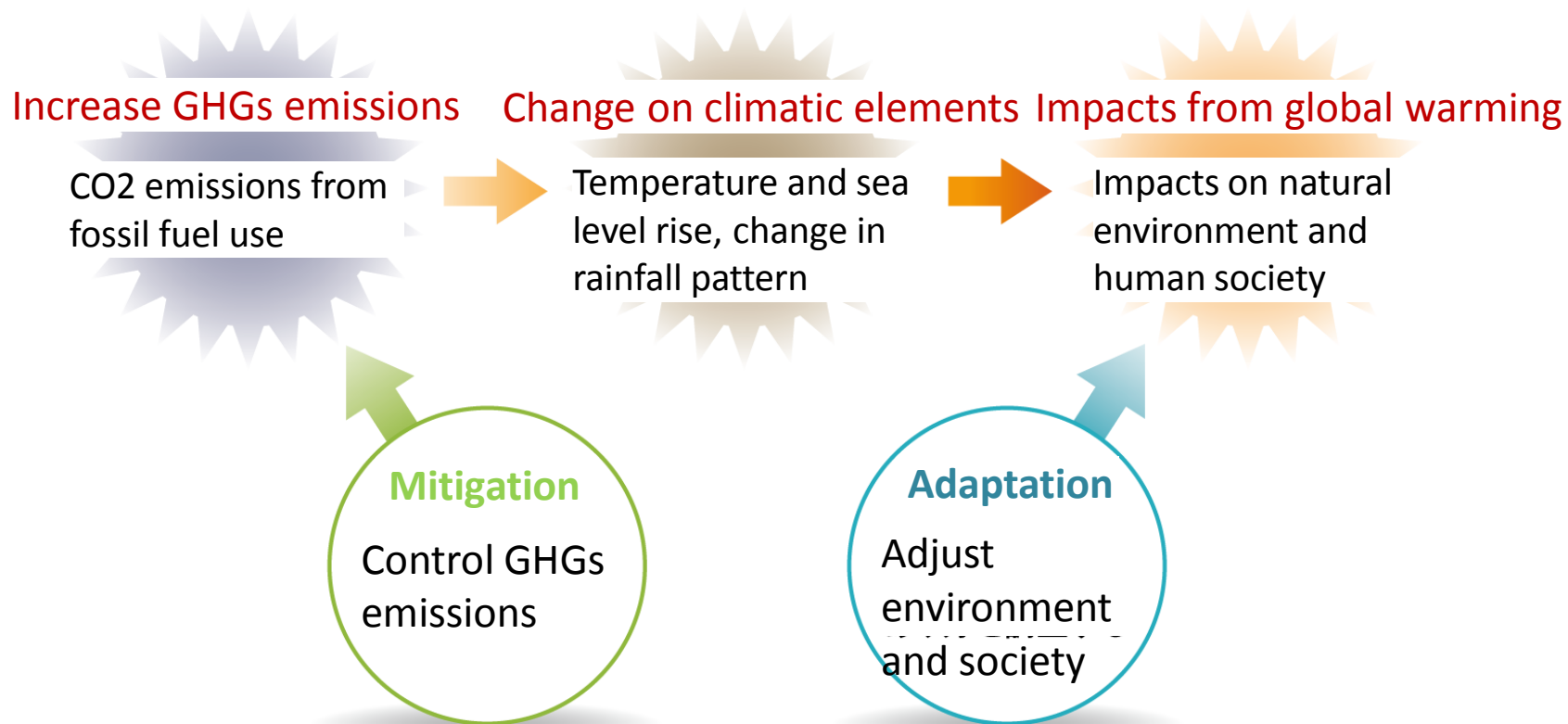


Aedes aegypti

(Kobayashi, M. et al., 2008)

Measures on Climate Change Adaptation

- **Mitigation: Control emissions of GHGs, a cause of global warming**
- **Adaptation: Adjust society and environment to global warming impacts which have been happening and are likely to happen**



National approach for developing adaptation strategy

- The role of national government for adaptation is to set foundation in the form of legislation, guidelines, regulation etc, and prepare enabling environment. So far, the Ministry of the Environment mainly takes this responsibility.
- Many assessments have been carried out on the projection of climate change and its impacts, and adaptation strategies, which were effective for increasing public awareness. However, inter-ministrial coordination is difficult when adaptation planning and implementation is pursued.
- The Fourth National Basic Environment Plan developed in 2012, which emphasized CC adaptation, has triggered local governments to start considering adaptation. Such action within the national government is an important factor of the adaptation governance.

Recent activities in Japan

- 2007-2008 Committee on Climate Change Impact and Adaptation Research (2008), MOE
- 2009 Ministry of Education, Culture, Sports, Science and Technology, Japan Meteorological Agency, and MOE (2009), Synthesis Report on Observations, Projections, and Impact Assessment: “Climate Change and Its Impacts in Japan”
- 2009-2010 Task Force for Planning Technological Development towards Realizing a Society Adapting to Climate Change (2010), Council of Science and Technology Promotion, The Cabinet Office
- 2009-2010 Committee on Approaches to Climate Change Adaptation (2010), MOE
- 2010-2014 Research Projects of S-8 and RECCA
- 2012 Fourth Basic Environment Plan
- 2015 Establish National Adaptation Plan

Countermeasures for adaptation to climate change by MOEJ

	R and D	Achievements
1994~ 2001		“Climate change impact in Japan”
2008	Project for comprehensive projection of climate change impacts (2005-09)	“Wise adaptation to climate change”
2009		“Comprehensive report on observation and prediction of climate change”
2010	Comprehensive Research on Climate Change Impact Assessment and Adaptation Policies (2010-14)	“Approaches to climate change adaptation”
2011		“Statistic report and portal site for climate change impact”
2013		“Integrated report on observation, prediction and impact assessment of climate change”

Wise adaptation approach

Wise adaptation approach was developed by the Committee on Approaches to Climate Change Adaptation, MOE, in 2010.

1) Short-term adaptation

- respond to occurring climatic extremes e.g. DRM
 - monitoring/early warning, evacuation, rehabilitation
 - strengthen the existing policies and institutions
- “real time adaptation”

2) Long-term adaptation

- flexible adjustment of adaptation planning
 - incorporate the latest scientific information
- “adaptive adaptation”

Report Summary

"Climate Change Adaptation: Approaches for National and Local Governments"

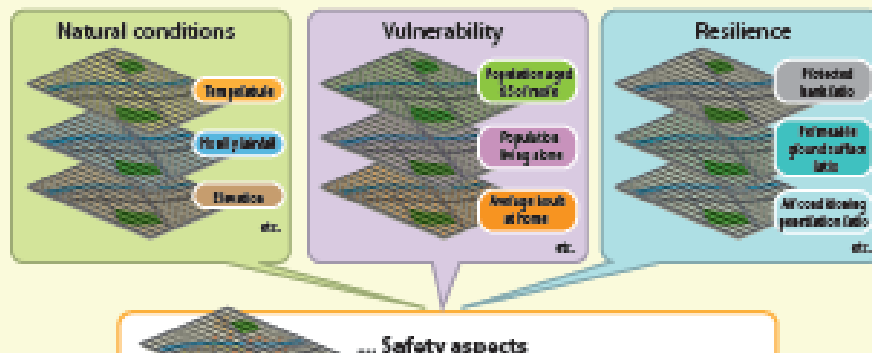
The Fourth Assessment Report (AR4) of the Intergovernmental Panel on Climate Change (IPCC) pointed out that even the most stringent mitigation efforts (i.e., reduction of greenhouse gases (GHGs)) cannot avoid further impacts of climate change in the next few decades. It is therefore essential to carry out not only initiatives for the long-term mitigation of climate change, but also initiatives to adapt to climate change.

Japan has already pursued energy conservation for many decades, and has been progressive in its climate change mitigation efforts. In parallel with those efforts, Japan has recognized the significance of the impacts of global warming and climate change, and has been engaged in extensive research, studies and policy discussions since the 1990s.

In 2008, MOEJ released "Wise Adaptation to Climate Change." That report summarized the scientific knowledge available to date on the impacts of, and adaptation to, climate change in Japan and Asian developing countries, and to present concepts of "wise" (effective and efficient) adaptation. Together, various MOEJ reports provide the latest information on the impacts of and adaptation to climate change, and propose further research necessary taking into

It is in this context that the Committee on Approaches to Climate Change Adaptation (chaired by Professor Nobuo Mimura of Ibaraki University) was established in 2010, and—based on trends in Japan and internationally relating to adaptation—examined approaches and steps for the national and local governments to take when dealing with adaptation. The committee was comprised of researchers in fields relating to climate change impacts, experts in various sectors, and responsible government personnel. Their findings are summarized in a report entitled "Climate Change Adaptation: Approaches for National and Local Governments."

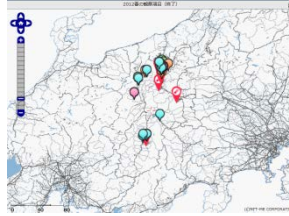
The "Wise Adaptation to Climate Change" report refers to the importance of regional vulnerability assessments.



Adaptation measures in prefectures

Nagano prefecture

- Establishing monitoring network with citizens' participation
- Establishing Task Force for adaptation in strategy meeting for climate change



Kyoto prefecture

- Adaptation measures (ex. Alert system for flood, heat stroke, local production for local consumption of food) in Prefectural Action Plan



Saitama prefecture

- Prescribed adaptation in prefectural ordinance
- Adaptation measures (ex. Heat stroke, drought, crops) in Prefectural Action Plan



Mie prefecture

- Basic investigation throughout the prefecture(2012-13)
- Starting the discussion for Adaptation Plan



Kumamoto prefecture

- Special Committee for adaptation measures



Okinawa prefecture

- Adaptation measures (ex. Protection of coast, influences on agriculture, water resources) in Prefectural Action Plan



Research support

For Japanese Researchers:

- Comprehensive Assessment Project
- Integrated Research on Climate Change Scenarios to Increase Public Awareness and Contribute to the Policy Process
- A Comprehensive Research on the Development of Global Climate Risk Management Strategies
- Innovative Program of Climate Change Projection for the 21st century
- Development of the Resilient city policy model and its implementation.

Approaches to Loss and Damage

- ✓ **Risk reduction can be the most cost effective way of reducing loss & damage.**
 - implementing cost-effective risk reduction measures.
- ✓ **To address loss and damage should be seen in the context of mitigation and adaptation and not as a separate issue.**
 - To reduce the risk of loss and damage, we should make efforts in the context of mitigation as well as adaptation.
- ✓ **It's important to encourage the on-going efforts, initiatives and network at the regional, national and local level to address loss and damage.**

Expected Scientific themes, regional research and capacity development under the APN

- Projection of Climate Change in the Region
- Higher accuracy of impact assessment
- Observation and data collection for higher accuracy of Impact assessment
- Research for adaptation technologies (Agriculture, Ecosystem, Disaster Prevention)



1. The limits to adaptation (What's Loss & Damage?)
2. Gap analysis on regional needs and status quo in the Asia-Pacific region.
3. Development of policy planning methodology in response to Loss & Damage

Knowledge Sharing Support

✓ **Earmark Funding For APN Adaptation Framework**
Joint Research, Capacity Building, Workshops

✓ **Asia-Pacific Adaptation Network(APAN)**
“Adaptation and Loss & Damage Conference”
30-31 August 2013 in Bangkok, Thailand

<http://www.asiapacificadapt.net/loss-and-damage-2013>