

ADB-APAN Workshop on Climate Risk Management in Planning and Investment Project,
Manila, 9-10 February 2015

Climate Change Impact Assessment for Preparing National Adaptation Plan in Japan

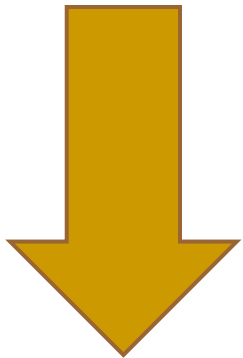
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【Summary】

- “National Adaptation Plan” of Japanese government on climate change impact will be completed around summer of 2015.
- The formulation of the “National Adaptation Plan” should be based on climate change impacts
- At the Expert Committee on Climate Change Impact Assessment in the Global Environmental Subcommittee of the Central Environmental Council, future prediction of climate change in existing research results and climate change impacts to nature and human societies in Japan have been stock taken.
- Ministry of the Environment are asking for public comments on a draft of climate change impact assessment in Japan from Jan. 2015.
- The results of the subcommittee and its working group, the climate change impact in Japan has been summarized from scientific point of view, including, (1) **significance** (magnitude and probability, (2) **urgency** (timing of appearing impacts and taking adaptation actions and important decision-making), and (3) **confidence level** (degree of evidence) are compiled from a scientific point of view.

Steps towards National Adaptation Plan

Establish “Expert Committee on Climate Change Impact Assessment” at 114th Global Environmental Subcommittee, Central Environmental Council (2 July, 2013)



- Further detailed projection of climate change in Japan for extreme events
- To classify the impacts into 7 categories, 30 large and 56 small sectors
- Deliberation on current situation, future predicted impacts in each sectors
- Assessment based on significance, urgency, confidence, etc.

Release climate change impacts, risk assessment and future issues (around March, 2015)



Develop National Adaptation Plan as a government-wide integrated plan (around summer, 2015)

***Periodical review (about every 5 years)**

【Method for assessment, framework】

2013 Established subcommittee

- ◆ Organized existing literature, related events and information, categories and sectors of future impact
- ◆ Compile an interim report at 4th Expert Committee on Climate Change Impact Assessment (March 3, 2014)

2014 Selection of Literature and Review

- ◆ Call for public comment based on the interim report
- ◆ Inquiry to local authorities and academies
- ◆ Adopt **533 papers** after deliberations at the Expert Committee

The 6th Expert Committee (August 27, 2014)

- ◆ Deliberated assessment method based on significance, urgency, confidence, and completed the basic policies.

Established working groups (Sep. 2014 – Jan. 2015)

- ◆ Consist of expert committee members and reviewers: **Total 57 members**
- ◆ Classify the impacts into **7 categories, 30 large and 56 small sectors.**
- ◆ Reviewed current situation, future impacts in each sectors
- ◆ **Assessment on significance, urgency, confidence level were based on literature and expert judgment**

<Assessment of Significance>

- Evaluated from view point of “**Social**” ”**Economic**” ”**Environmental**” in the following 4 elements of impacts; (1) Magnitude (area/term), (2) Probability, (3) Irreversibility (Difficulty of recovering the original state), (4) Magnitude of persistent vulnerability and exposure to the impacts
 - Identify as “Very high” significance if one of more of the following is true.
 - Social
 - Loss of human life, load against health
 - Degree of impacts to communities
 - Degree of impacts to cultural assets and community services
 - Economic
 - Economic loss
 - Environmental
 - Loss of natural environment and ecosystem

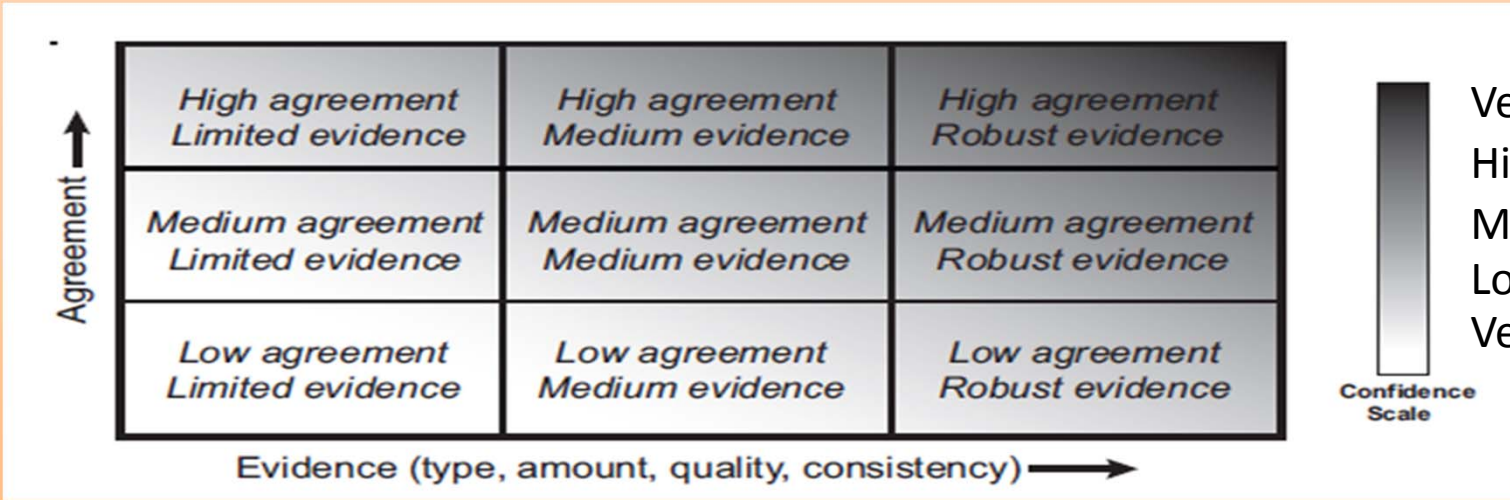
<Assessment of Urgency>

Scale	Urgency scale			Final Results
	High	Medium	Low	
1. Timing of appearing impacts	Impacts are already seen	Highly possible that impacts will be seen by around 2030	Possibly impacts will be seen after 2030. Or too uncertain.	Indicate 3 level of urgency considering 1 and 2 together, then adopt higher urgent issues.
2. Timing of taking adaptation actions and important decision-making	Important decision-making is necessary as soon as possible	Important decision-making is needed before 2030	Less possible that important decision-making is needed before 2030	

<Assessment of Confidence level>

Scale	Confidence level scale			Final Results
	High	Medium	Low	
IPCC Confidence level assessment ● Type, amount, quality, consistency ● Agreement	equivalent to IPCC confidence scale "High" or "Very High"	equivalent to IPCC confidence scale "Medium"	equivalent to IPCC confidence scale "Low" or "Very Low"	Use of IPCC confidence level assessment and evaluate in 3 scales in small sectors.

IPCC confidence level assessment



Draft of Assessment of Climate Change Impact of Japan (excerpt) 1

Categories	Sectors	Small sectors	Prediction	Significance	Urgency	Confidence
Agriculture Forestry Fishery	Agriculture	Rice	<ul style="list-style-type: none"> ● The rice yield will increase below 3 centigrade, but it will decrease more than 3 centigrade except Northern Japan. ● Rising temperature in duration of grain filling decreases the ratio of first class rice. The ratio of first class rice in Kyushu area will be about 30% less in the middle of this century, about 40% reduction at the end of the century under A1B or A2 scenario. 	Very high	High	High
		Fruit	<ul style="list-style-type: none"> ● Suitable temperature zone for cultivation is moving to north every year. ● Current major product areas of satsuma mandarin become difficult for the cultivation in 2060's under IS92a scenario, while current unsuitable areas become possible ● As for apple, the cultivation becomes difficult in the plains of northeast central Tohoku in 2060's under IS92a scenario. 	Very high	High	High
	Fishery	Migratory fish/shellfish	<ul style="list-style-type: none"> ● Sardine moves north ocean area suitable for survival of their young fish. 	Very high	High	Medium
Water environment/ Water resources	Water resources	Water supply (Surface water)	<ul style="list-style-type: none"> ● Serious drought is predicted from the near future (2015-2039) under A1B scenario except in the northern Japan and central mountain area ● The decrease in river flow rate by early snow melting time makes mismatch of supply and demand 	Very high	High	Medium

Draft of Assessment of Climate Change Impact of Japan (excerpt) 2

Categories	Sectors	Small sectors	Prediction	Significance	Urgency	Confidence
Natural ecosystem	Coastal ecosystem	Sub tropics	<ul style="list-style-type: none"> ● Suitable areas for the growth of reef-building coral will reduce by half in 2030 and disappear until 2040 under A2 scenario. 	Very high	High	Medium
Natural disasters / coastal areas	Rivers	Flood	<ul style="list-style-type: none"> ● In typical river basin at the end of this century, heavy rain events which may cause flooding will increase significantly. ● Rainfall in heavy rain increases in 10-30% under A1B scenario etc. 	Very high	High	High
	Coasts	Storm surge/ high waves	<ul style="list-style-type: none"> ● Possibility of sea level rise is very high and rises the risk of high waves. ● Increases risks of high waves in the Pacific Ocean coastal areas by strong typhoon increase etc. ● Predicted damages to harbor and fishing port breakwaters due to increase of tidal waves and high tide water. 	Very high	High	High
Health	Heat	Mortality risk	<ul style="list-style-type: none"> ● Increase of generation of heat stress related to mortality and morbidity caused by possible more frequent heat waves in big cities. 	Very high	High	High
Indust/economic activities	Tourism	Leisure	<ul style="list-style-type: none"> ● Snow depth is reduced in most ski resorts except in part of inland Hokkaido and Honshu in 2031-2050. 	Very high	Medium	High
Life /urban life	Urban infrastr./ life line	Water/ traffic	<ul style="list-style-type: none"> ● Increased short period of heavy rain, drought, strong typhoon create the impact on infrastructure and lifeline 	Very high	High	Low

MOEJ's New Initiative to support Impact Assessment for NAP and LAP formulation

- Under the **PM's Adaptation Initiative**, MOEJ in cooperation with relevant Ministries and Agencies is willing to support developing countries to conduct climate change impact assessment, as the 1st phase of our new programme to support formulation of NAP/LAP in Asian Countries.
- Climate projection will be conducted with **regional climate models**. Downscaling, calibration and validation of data, projection of impacts through **impact assessment models** can also be conducted with support by experts both from Japan and host countries .
- MOEJ is now establishing a consortium on impact assessment. This will conduct above mentioned cooperation with dispatching Japanese experts and/or inviting other countries' experts for training.
- For small island states, impact assessment could be conducted thorough creation of hazard maps, which will be beneficial to identify areas vulnerable to climate change impacts in the countries.

Thank you for your attention

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