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Barriers and Drivers of Mainstreaming Adaptation to Climate change in Disaster Risk Reduction

Implications from Stakeholder Analysis in Tokyo

Abstract:

Local governments are expected to play a significant role especially in disaster risk reduction and climate change adaptation to make cities resilient. Recently, Tokyo Metropolitan Government (TMG) and municipalities face the situation to respond to frequent extreme climate like heavy rain. Although TMG has played a leading role in climate change mitigation among Japanese local governments, climate change adaptation is quite unfamiliar concept even in TMG. Therefore this study clarifies barriers and drivers of mainstreaming adaptation to climate change in disaster risk reduction field through stakeholder analysis.

We conducted semi-structured interviews to 22 stakeholders who are involved in climate change and disaster risk reduction in actually flooding damaged areas in Tokyo. We then identified their interests on four issues. The findings are as follows. All stakeholder doesn't know climate change adaptation so that the policy implementation is poorly-equipped. There are some problems to be solved such as "a lack of understanding", "a lock-in effect in GHG emissions-reduction" and "a difficulty in agenda-setting". It is therefore essential for stakeholders to share scientific fact each other. Developing a communication strategy of climate change adaptation to deliver the information of the relationship between climate change mitigation and adaptation in accuracy is also important. Moreover, equipping a risk management approach with local government's administration plan based on long term scientific prediction and realizing policy integration by interdepartmental organization are significant to have local governments put climate change adaptation on agenda.

Keywords: Consensus building, Policy process, Risk communication

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1 Introduction

It has been pointed out that in implementing adaptation measures for climate change there is a need for approaches such as integration with mitigation measures and communication and cooperation between experts and the public in forecasting effects, assessing risks, and assessing vulnerability at the regional level (examples include Kirshen et al. 2008; Laukkonen et al. 2009, Halsnaes et al. 2009). In particular, to increase receptiveness to adaptation measures it is essential to carry out efforts to eliminate potential gaps in understanding between policymakers, experts, and the general public on the effects and risks of climate change and to obtain understanding and cooperation concerning measures implemented (for example, see van Aalst, et al. 2008).

Baba et al. (2011) referred to the primary factors and mechanisms behind attitude formation in the general public concerning adaptation measures, mainly in the disaster risk reduction fields, through analysis of data from an Internet survey. In addition, Baba et al. (2011) uses semi-structured interviews of experts in disaster risk reduction and climate change to clarify gaps in recognition among experts concerning uncertainty with regard to adaptation measures for climate change in the disaster risk reduction fields. However, implementation of a policy depends on a policy process based on the interests of a variety of stakeholders involved in the policy. For this reason, this study aims to analyse the interests of stakeholders involved in such policies, to obtain knowledge related to implementation of policies by local governments.

2 Survey and analytical method

This study focuses on urban flooding due to localized torrential downpours, since as Baba et al. (2011) pointed out that wind and water damage are often cited as effects of climate change actually experienced by the general public. As this study looks mainly at climate change policy rather than disaster risk reduction, Tokyo has been chosen as the region subject to the survey because it is prominent among local governments in implementation of advanced climate change mitigation measures and is considering adaptation measures as well. For these reasons, we first conducted a pre-survey of personnel responsible for adaptation measures in the Tokyo Metropolitan Government's (TMG) Bureau of Environment, to ascertain the state of study of adaptation measures in Tokyo and narrow down the fields and regions subject to survey. Together with this, we also surveyed cases over the past 10 years of water damage involving 100 or more submerged buildings in Tokyo. In consideration of the fact that according to these findings flooding from external water is concentrated on damage in the Arakawa water

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system, and the fact that flooding from internal water occurs there often as well, we chose Nakano, Suginami, and Nerima wards as the subject regions.

Table 1 shows an outline of the semi-structured interviews. We took snowballing sampling with the initial list of stakeholders which got at pre-survey, then derived others from them, and finalizing when the list reaches saturation. The survey items set up in the common questionnaires through the literature review and pre-survey can be grouped into the following three main categories. The first consists of related administrative plans, and formulation process of individual measures, the second concerns regional community conditions such as self-help and mutual aid, and the third concerns matters such as perception of climate change risk and attitude toward adaptation measures. We asked stakeholders selected questions from these categories as appropriate. We sent each stakeholder a request letter and then conducted a semi-structured interview, roughly one to one and one-half hours in length, of each stakeholder who consented.

3 The results of Stakeholder analysis

3.1 Necessity of mitigation measures

Despite some differences in degree, all stakeholders were aware that climate change is progressing and that activities are being deployed toward prevention of warming, and all recognized the need to take some kind of measures and activities to prevent warming. However, despite recognition that reducing carbon-dioxide emissions was central to such efforts, respondents were not aware of the term “mitigation measures.” Some ward offices departments used the term “warming countermeasures” in their names, and one could see that they had adopted an attitude of proactively promoting such measures. Also, some people in citizens’ groups are taking leadership on reducing carbon-dioxide emissions as group activities and striving to reduce carbon-dioxide emissions as individuals themselves. For this reason, all

Table 1 Outline of the Semi-structured Interview

Sampling	Snowballing (Setting up the initial stakeholders, deriving others from them, and finalizing when the list reaches saturation)
N of stakeholders	22 organizations
Implementation term	Aug. - Nov. 2011
Main questions	<ul style="list-style-type: none"> ● Implementation status of the Involved policies and measures on disaster risk reduction and climate change, and their process ● Settings of the community (e.g. self-help, mutual aid) ● Perception of climate change risk and attitude towards adaptation measures

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stakeholders can be said to have a high degree of interest in the need for mitigation measures.

3.2 Necessity of adaptation measures

Although no stakeholders stated clearly that there was no need for adaptation measures, interest within ward offices in the necessity of adaptation measures was not very high, since the respondents were unable to envision how such measures were connected to their own duties or what they involved specifically. Rather, the respondents in environmental departments had a negative image of adaptation measures, expressing concerns that they would discourage the mitigation measures that they were just about ready to begin promoting. Some felt that promoting both mitigation and adaptation measures would lead people to give up on mitigation measures, negating their efforts, and some were concerned that the public would think that adaptation measures alone were sufficient and that this could affect mitigation measures. One conceivable cause behind these concerns is the lack of accurate knowledge, as the respondents based their judgments solely on simple information from the interviews concerning the content of adaptation measures.

TMG believes that while the cause-and-effect relationship with climate change is unclear, it is a fact that localized torrential downpours are increasing and countermeasures are needed. However, it lacks awareness that this is linked to adaptation measures.

Among citizens' groups, while community association for disaster risk reduction is aware of

Table 2 Interests of Stakeholders on Each Issue

	Necessity of mitigation measures	Necessity of adaptation measures	Efforts toward adaptation measures	Consideration of climate change risk
Ward Office (civil eng. dept.)	○	△	×	×
Ward Office (env. dept.)	○	△	×	×
TMG (civil eng. dept.)	○	△	△	△
Community assoc. for DRR	○	△	×	—
Citizens' groups for DRR	○	○	×	—
Citizens' groups for env.	○	○	△	—
Citizens' groups for river	○	○	△	—

○: Having a vested interest, △: Yes and no, ×: Lack of interest, —: Unmentioned

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the need for some kind of climate change policy, their thinking has not reached the level of adaptation measures because they cannot envision a specific image of such measures. Since citizens' groups involved in disaster risk reduction activities include many members interested in the environment, and since environmental citizens' groups and river-related citizens' groups have high levels of awareness of the environment, when adaptation measures are described to them they understand their importance and also recognize their necessity. Environmental citizens' groups include people taking part in disaster risk reduction activities, and such people who are participating in some kind of citizens' activities showed a general tendency to have high levels of interest in various community issues and to take an active interest in new measures.

3.3 Efforts toward adaptation measures

Currently, the level of ward offices efforts toward adaptation measures is low. The reasons given were that since the most effective countermeasures against climate change risks are large-scale physical improvements that cannot be carried out at the municipalities and climate change is included in TMG target figures, aiming to achieve such targets should be enough, and that since plans already had been formulated from a long-term perspective in the disaster-prevention and civil-engineering fields there was no need to bring forward new adaptation measures. One environmental department even stated the view that since it did not consider adaptation measures to be new measures like mitigation measures an environmental department should not take the lead on advancing them.

TMG indicated a stance of carrying out countermeasures against torrential downpours as part of existing measures, instead of recognizing these as adaptation measures. However, as touched on in the preceding section, not only does this approach not constitute an awareness linked to adaptation measures but it also involves the apparent difficulty of an environmental department drafting and implementing adaptation measures across multiple departments.

Community association and citizens' groups for disaster risk reduction were unable to envision a practical image of what they could do as adaptation measures, they had not reached the level of making conscious efforts on their own. River-related citizens' groups did understand adaptation measures as an extension of the greening and other activities they have conducted through now. Environmental citizens' groups indicated understanding of the need to communicate, together with the necessity of mitigation measures, information to the general public on why adaptation measures were needed to avoid the misunderstanding that

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such efforts alone would solve the problem of climate change and of the fact that they probably would be the ones charged with that responsibility.

3.4 Consideration of climate change risk in administrative plans

Ward offices, which are responsible for formulation of global-warming countermeasure implementation plans and community disaster risk reduction plans, showed no intention of incorporating climate change-related risks when formulating and advancing administrative plans and measures. The most important reason for this is because the departments responsible lack accurate knowledge on adaptation measures. However, even in the presence of related knowledge the following points probably could be identified as factors hindering advancement of formulation of plans reflecting climate change risks.

The first is the fact that under conditions in which the government and TMG have not officially stated the view that localized torrential downpours will increase in the future as an effect of climate change it would be difficult for municipalities to formulate plans based on matters for which they cannot explain the grounding clearly. Second, there are concerns that adding climate change risk could confuse residents by blurring the objectives of measures. For example, adding future climate change risks to hazard maps would greatly expand the areas where flooding is forecast, blurring the objective of hazard maps, which is to warn residents of areas where the danger of flooding is particularly high.

Behind these one probably also can see the reasons for not conducting efforts, as mentioned in the previous section, that they should not be conducted by municipalities because climate change probably is taken into consideration in TMG's plans and that plans based on a long-term perspective already have been developed in the river and civil-engineering fields.

4 Conclusions

In this study, we conducted semi-structured interviews to 22 stakeholders who are involved in climate change and disaster risk reduction in actually flooding damaged areas. We then identified their interests on four issues. The findings are as follows.

First, although they may not know the term "mitigation measures" itself, all stakeholders have high levels of interest in reducing carbon-dioxide emissions. On the other hand, all stakeholders are unaware of both the term "adaptation measures" and the content of such measures, and not only were neither the requisite awareness nor the needed systems in place for promoting adaptation measures, but some stakeholders indicated concern that such measures would, rather, discourage mitigation measures. These facts suggest a lack of

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understanding of adaptation measures and the firmly locked-in situation that climate change policy is equivalent to reducing greenhouse-gas emissions as well as the difficulty of setting an agenda for incorporating climate change risk into administrative plans.

Second, in order to resolve the lack of understanding of adaptation measures it is important to share scientific facts among stakeholders. The central government and research institutions are required to provide the grounding for planning by demonstrating scientific facts concerning the risks and forecasts of the effects of climate change, downscaled to the community level. In this sense, the examples of New York City's Panel of Climate Change and stakeholder task force are instructive (NPCC 2010). To resolve the firmly locked-in situation that climate change policy is equivalent to reducing greenhouse-gas emissions, there is a need for communication strategies to communicate accurately the relationship between adaptation measures and mitigation measures, referring to examples such as the U.K. Department for Environment, Food and Rural Affairs' Climate change Communication Strategy.

Third, on the subject of the difficulty of setting the agenda, first of all integration of disaster-prevention and -mitigation policies with adaptation measures involves difficulties related to the lack of a platform cutting across government departments in Japan. On this subject, New York City's example of a cross-departmental organization with external membership under the leadership of the head of government that has introduced into administrative plans the concept of flexible risk management while making adjustments among stakeholders and incorporating the views of the panel of experts is instructive. On the subject of agenda setting, the current period in Japan, which recently experienced the Great East Japan Earthquake, can be said to be the most opportune time ever for implementing risk-management methods based on the results of long-term forecasting within local governments' administrative plans. What this opportunity requires are formulation of a national adaptation strategy and changes to ways of planning, for example by introducing risk-management methods into the administrative plans of local governments.

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