

The Task Ahead for Japan

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In the present chapter, I will summarize the discussions in Chapters 1 through 3 as well as the assessments made by SJNKEF's Environmental Issue Research Group and the outcomes of its interim report symposium.¹ I will also make policy recommendations for each of the challenges identified.

1. Climate Change Policy: Combining Mitigation and Adaptation

Climate change has become a reality and it is getting worse. Efforts to reduce emissions of greenhouse gases and stabilize the climate through mitigation, however, have not delivered the anticipated results.

Total global emissions need to be reduced to half their current level (30 billion tons per year) by 2050 in order to stabilize climate and limit global temperature rise to 2 degrees Celsius above pre-industrial levels. That is 8 billion tons (8Gt) more than the combined reductions currently pledged by the world's nations—a problem dubbed the "gigaton gap."

As described in 1-1 Climate Change Impacts, as mitigation efforts take time to yield tangible results, the projected impacts of climate change have started to appear all around us. One impact is the central theme of this book: the growing frequency and intensity of disasters resulting from natural hazards. The impacts of disaster, while common to nations both developed and developing, are intensifying nowhere as in Asia.

Like the wheels of a car, mitigation and adaptation must be pursued in a balanced manner: reducing greenhouse gas emissions to stabilize climate while adjusting ourselves well to changing climate and sustaining life and productive capacities. The reality, however, is that adaptation has taken a back seat to mitigation. There are also some who, hoping to prevent the misconception that adaptation by itself is a viable solution, caution against focusing too much on adaptation, lest resources be diverted away from mitigation.

The problem of climate change cannot be solved through mitigation or adaptation alone. As discussed in 1-2 Practical Challenges to Adaptation, measures should be chosen in a way that, capitalizing on the synergies between mitigation and adaptation, enhances the effectiveness of both sets of measures and secures the highest cost-effectiveness overall. As touched on in 1-3 Recent Developments in International Adaptation Negotiations, more capital, technology and skills are needed to implement adaptation measures, especially in developing countries. Ways to expand financing and provide effective technical support for adaptation measures deserve more consideration. New mechanisms also need to be created that will direct the attention of governments of developing countries toward assessing long-term risks. At any rate, real action on adaptation is yet to come.

¹ Interim report symposium of the Environmental Issue Research Group, Sompo Japan Nipponkoa Environment Foundation (November 2012), *Toward a Climate Resilient Society*, http://www.sjnkef.org/about/sje_symposium2012/ (Japanese).

2. Recommendations for Addressing Adaptation Challenges

Adaptation must be made a higher priority in all areas of society going forward. To start, it is crucial that all stakeholders work broadly to raise awareness of adaptation and its importance, which is far from where it needs to be. The sharing of scientific knowledge is a critical part of this effort.

In this book, we have presented the latest findings on adaptation from both the theoretical and practical standpoints, together with specific examples. Based on the conclusions derived from these discussions, I would like to recommend some basic strategies that would be considered particularly important when promoting the implementation of specific adaptation measures.

Table 1. Recommendations for addressing adaptation challenges

Climate change characteristic	Challenge	Recommended strategy
Irreversibility	Once set in motion, impacts can result in irreparable, irreversible changes	Precautionary measures that preempt changes
Prolonged impacts	Sea-level rise and other global warming impacts occur over a long period	
Uncertainty	Where, when, what, and the degree to which changes will occur are still hard to predict	Flexible, adaptive approach that regularly revises adaptation measures to reflect progress in scientific understanding and changing circumstances
Site-specificity and variability	Because climate changes, while globally prevalent, vary greatly from one region to another, general knowledge of adaptation is insufficient	Multi-stakeholder process that combines top-down and bottom-up approaches and is linked to local circumstances
Mainstreaming	There are few examples of the adaptation perspective being integrated into existing activities	Adaptation measures that are integrated into day-to-day decisions and actions

I. Precautionary approach

Irreparable and irreversible events due to climate change, such as widespread ecological change and species loss, are likely to take place on a global scale in the coming future, and some of these

phenomena are already being observed. Global warming impacts such as sea-level rise, for instance, will take place over the course of centuries.

Adaptation measures, therefore, should be devised in consideration of Principle 15 of the Rio Declaration—i.e., the precautionary approach—announced at the United Nations Conference on Environment and Development (Earth Summit) held in Rio de Janeiro, Brazil, in 1992.

Principle 15 states that "in order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation."

While such cost-effective measures should not be postponed, their costs and benefits must be assessed not from the short but rather the medium to long term perspective; this position is also taken in the Stern Review.^{2,3} And as stated in 2-4 How Should the Cost of Disasters Be Assessed?, the damages wrought by climate change need to be perceived from a broader perspective.

II. Flexible, adaptive approach

Despite the progress made in climate modeling research, uncertainty remains; scientists are still unable to adequately predict where, when, what, and the degree to which changes will occur. As discussed in 2-5 When Should Measures be Implemented?, making decisions within a context of uncertain and irreversible change is difficult.

However, the stance of withholding action until climate change projections can be made with a higher degree of certainty poses the greater risk. The more effective strategy would be to take action based on our current scientific understanding, and then to modify initial plans as circumstances change and research progresses. This adaptive approach should be combined with the precautionary approach, which explains how decisions should be made within a context of uncertainty.

The IPCC Fifth Assessment Report (AR5) to be released in the first half of 2014 will bring our scientific understanding of climate change up to date. Since AR5 is intended to be used as a basis for determining public policy, it goes without saying that public policy will also require updating. As research on the effects of climate change progresses, more precise and more accurate projections and research data will emerge for each region and field. Therefore, adaptation measures must be considered from a broad, flexible mindset that, viewing uncertainty as a given, takes into account ongoing developments in our scientific understanding and in surrounding circumstances.⁴

As described in 3-1-2 Adaptation Efforts in the UK, Britain's national strategy has included a process

² Nicholas Stern's "The Economics of Climate Change" (2006) states that extensive economic loss amounting to between 5% and up to 20% of GDP could be averted by directing 1% of GDP toward climate actions.

³ The environment section of ISO 26000, the international guidance on social responsibility, provides the following statement regarding the precautionary principle: "When considering the cost-effectiveness of actions, organizations should consider not only the organization's short-term economic costs but also the long-term costs and benefits of those actions."

⁴ Consider the following remarks made by Prof. Nobuo Mimura at the interim report symposium of SJNKEF: "Real-time adaptation, a strategy that includes monitoring and early warning systems based on current policy, should be implemented in the near term, while adaptive adaptation, a strategy where adaptation measures are periodically revised by incorporating the latest scientific information, should be adopted over the medium to long term." (Global Environmental Forum, "Global Net" Issue 267, February 2013)

of periodic revision from the very beginning. And in 3-1-4 Adaptation from a Local Government Perspective, we touched on the effectiveness of an approach where plans and targets are revised at certain times as changes happen. These serve as examples of the need for an approach that employs a flexible, adaptive response based on ongoing developments in our scientific understanding and surrounding circumstances.

Responding flexibly amidst uncertainty also requires an effective combination of hard (tangible) and soft (intangible) measures. As presented in 2-2 Disaster Risk Management as an Adaptation Strategy in a Changing Climate, 2-3 Risk Finance, and 2-7 Government Involvement in Creating Effective Insurance for Water-Related Disasters, both hard and soft measures can be taken for adapting to the projected rise in weather disasters. Hard measures include infrastructural projects such as the construction of dams and breakwaters, while soft measures include evacuation drills, insurance that provides assistance for post-disaster reconstruction, and voluntary grassroots activities.

When you consider the 30 to 100-year replacement cycle for infrastructure, the skillful application of soft measures provides flexibility for deciding the timing and size of hard measures, which are often costly. It also makes it possible to plan and implement adaptation measures in a timely manner as scientific knowledge develops and circumstances change.

III. Multi-stakeholder process

Because the effects of climate change vary by region, a blanket top-down approach to adaptation is inadequate; a bottom-up process that takes local circumstances into account is also necessary. Underscoring this is the fact that local stakeholders do much of the work of implementing a wide range of solutions.

For example, as described in 3-1-5 History and Case Study of Adaptation Measures in Nagano, direct involvement of citizens in the monitoring of climate change impacts helps them become more aware of the issue on a routine basis.

Adaptation thus is by necessity a local effort, with specific actions necessary for each of the varying effects that can take place in the natural, economic, and social environments. Consequently, it is essential that diverse stakeholders voluntarily work toward implementing solutions.

For that to happen, a participatory process whereby stakeholders can take part in discussing, deciding, and implementing actions is critical. Since the interests of such groups vary, however, this process can also engender negative secondary effects or situations involving trade-offs. Consensus must be built, therefore, among stakeholder groups through information sharing and dialogue. A collaborative multi-stakeholder process in which various entities participate, come to agreement, and take action is effective for advancing adaptation from the bottom up. Indeed, as touched on in Chapter 3, Section 3 Grassroots Initiatives, a sufficient impact is hard to achieve without the involvement of local residents and various other stakeholders.

While partnership is an effective means of solving problems in general, this is especially true of adaptation, and for various reasons: Enhancing a community's adaptive capacity as a whole requires a range of measures, which require the participation of many stakeholders; a sustained effort is needed to enhance resilience over the long term; and cross-organizational mechanisms that optimize

the adaptation effort as a whole are necessary and also improve the effectiveness of individual actions.

It is especially important that governments and businesses share scientific knowledge as a basis for partnership and apply the same understanding to their strategies and actions. For that reason, increased dialogue and collaboration is needed between researchers and decision makers in public policy and business. Such cross-sector partnership will likely enable more effective use of talent, know-how, and financial resources.

Indeed, as we saw in Chapter 3 Adaptation in Practice, new pilot projects are being launched around the world that, through collaboration between various stakeholders, including UN agencies, local governments, NGOs, businesses, and local residents, aim to address vulnerabilities to climate change, end poverty, and build more vibrant communities.

IV. Top-down and bottom-up approaches

As stated in 3-1-3 Trends and Challenges to Adaptation Efforts by Local Governments, a lack of clear priority given to adaptation on a national policy level can hinder the progress of adaptation efforts by local governments, a key stakeholder for advancing work on the ground.

Assigning adaptation a place in national strategy is essential to advancing adaptation measures in Japan. Countries such as the US, UK, and EU, as well as China and South Korea in Asia, are leading the formulation of such a strategy, called a national adaptation plan (NAP). As mentioned in 3-1-1 Adaptation Efforts in Japan, the Japanese government intends to formulate its own adaptation plan around the summer of 2015. This is a necessary step toward raising adaptation as a national priority. Government leaders can start the process by clarifying their commitment to adaptation as a leading policy issue.

Formulating a national plan from a top-down approach provides a basis for local governments to prepare their own plans and take other actions. It substantiates the implementation of necessary budgetary and policy actions, and provides support for advancing concrete adaptation policies.

As stated in 2-6 Government Support for Smart Action on Disasters, "strict" interventions that force or limit corporate and civic selection of adaptation measures may be necessary. But more emphasis should be placed on "light" interventions that support smarter, more effective adaptation choices in the market.

A global perspective is also needed, for the impacts of climate change are global. As mentioned in 3-2-2 Efforts in the Manufacturing Sector, the 2011 floods in Thailand dealt a heavy blow to Japanese companies with their supply chain, and as cross-border dependency deepens, Japan will continue to face major impacts from natural disasters and other events that happen in other countries. Japan, therefore, needs not only to increase resilience domestically but also to more actively involve itself in the problems of countries in Asia and other regions that are vulnerable to climate change. International networks of researchers and other stakeholders are being created, such as the Global Programme of Research on Climate Change Vulnerability, Impacts and Adaptation (PROVIA) and the Asia Pacific Adaptation Network (APAN), presented in 1-1 Climate Change Impacts. Japan must actively participate in and make its own contribution to these networks.

In parallel to this national-level strategy building, various examples of action and partnership among various stakeholders on a local-community level in Japan and elsewhere in the world are starting to emerge. Some of these were covered in the local government initiatives presented in 3-1-3, 3-1-4, 3-1-5, in Chapter 3, Section 2 Corporate Initiatives, and Chapter 3, Section 3 Grassroots Initiatives. Only through a combination of these two processes—a top-down process on a national level, and a bottom-up process involving multiple sectors in various parallel initiatives on a local and global level—can effective adaptation be achieved.

As a result, global mechanisms that coordinate adaptation efforts to ensure that both processes complement each other and are well synchronized will be important going forward. As a leading example, Australia, following federal government plans, established the Queensland Climate Change Centre of Excellence (QCCCE) through which it is comprehensively promoting activities by various local sectors. Through programs intended to encourage participation and voluntary action from a wide range of stakeholders, such as roundtable meetings for businesses, awards for best practices, and a registration system for disaster response volunteers, the QCCCE is systematically advancing adaptation measures on a community level.

V. Mainstreaming

Mainstreaming refers to the integration of adaptation considerations into existing decision-making processes. It is the act and process of various stakeholders incorporating adaptation into their business or activities, not as a special concern but as part of their routine decision-making and behavior. For central governments this means weaving adaptation—i.e., management of climate change risks—into the policies of their respective administrative agencies, and for companies, into their business strategy and the operations of their respective divisions.

Despite the growing move to view climate change as a risk management issue, as discussed in 2-1 Climate Change Risk Management and Risk Analysis, there are as yet few cases of adaptation perspective being incorporated into existing risk management systems in a cross-organizational manner. As stated in 2-2 Disaster Risk Management as an Adaptation Strategy in a Changing Climate, we would like to see adaptation used as an opportunity for developing a new integrated approach to managing risk.

One obstacle to mainstreaming adaptation is conventionalism. Whether it is a central government, corporation, or non-profit, many organizations frequently rely on past experience and statistical data when making decisions. Formulating and implementing plans based solely on past experience and custom can make an organization ill-prepared for new risks and changes that can arise in the future. In 3-3-2 Initiatives in the Philippines, India, and Ethiopia, we gave examples of development aid being given based on analysis of the effects of climate change on certain communities. As these examples show, the results of projection modeling and simulations should be factored into decisions. To be sure, there exists a certain amount of opposition and resistance to making decisions based on uncertain projections. But the reality is that this process is necessary for making organizations and societies more resilient.

Another factor critical to the success of a mainstreaming effort is the elimination or overcoming of silo mentality within organizations. As explained in 3-1-5 History and Case Study of Adaptation Measures in Nagano, Nagano Prefecture held discussions involving all agencies relevant to the various themes of adaptation, such as disaster risk management, agriculture, human health, tourism,

and the environment. Rather than each agency laboring alone, it is important to have cross-functional discussions.

When it later comes to implementation, it is also crucial that adaptation measures be incorporated into daily procedures and continually checked and improved upon through a PDCA cycle, rather than being made into a temporary, one-time effort.

3. The role of business and various sectors

Building a climate-resilient society requires the participation of many stakeholders. These stakeholders are called upon to work on integrating adaptation into their daily activities, or within the framework or as an extension of their existing project.

At the same time, however, some aspects of climate change will require measures that entail a major reworking of social structures, or groundbreaking ways of overcoming the obstacles created by conventional knowledge and existing technologies. In short: technical and social innovation is needed. As a result, increasing expectations are being placed on companies that possess innovative problem-solving skills and can provide new solutions related to adaptation. An effective way to harness the potential of such businesses is to integrate adaptation into the economy—in other words, to use the power of the market to encourage companies to view and tackle adaptation as a business opportunity. It is desirable to frame adaptation as a new growth area, and to bring the problem-solving capabilities of such companies to bear in advancing adaptation through their innovations.

That said, climate adaptation as a market is still in its infancy. There are few examples of corporations going beyond risk management as a form of self-protection to actually taking action, as a business opportunity, to enhance the resilience of greater society. As covered in Chapter 3, Section 2 Corporate Initiatives, however, some innovative examples are emerging in the various corporate sectors.

While leveraging the power of innovation in the corporate sector in this way, quicker action on adaptation is needed from central and local governments, citizens, researchers, and all other stakeholders. The time has come when our ability to share and act on scientific knowledge and work together to effect bold changes will determine our collective fate.

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