

## S1-5 Japan's Policy for Low Carbon Society

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In Japan, strategies for a low-carbon society can be depicted by the following three topics: 1) the Action Plan for Achieving a Low-Carbon Society (July 29, 2008 Decision at the Cabinet Meeting); 2) the Global Environment Research Fund, and 3) the “Hatoyama Initiative”.

### Action Plan for Achieving a Low-Carbon Society

This plan consists of four sections. The first is “Japan’s target”. Japan has set up a) long-term goal to reduce 60–80% of the current level of GHGs emissions by 2050, b) a quantified national target –“mid-term target<sup>1</sup>”, and c) several initiatives to support other countries’ efforts such as “The Cool Earth Partnership”.

The second section is “Dissemination of innovative technologies and existing advanced technologies”. It will not be possible to achieve drastic cuts in GHGs emissions only through the dissemination of existing technologies. Development of innovative technologies and dissemination of existing advanced technology are both indispensable. For innovative technologies, Japan will invest around USD 30 billion in implementing the Low Carbon Technology Plan (May, 2008) over the next five years, which encompasses first-breeder reactor cycle technology; technology for biomass; low-fuel consumption aircraft; high-efficiency ships; improved traffic and goods distribution through ITS. Upgrading coal use is another key and CCS has the potential for massive emissions reductions in thermal power generation. Japan will promote the development of this technology with the target of the cost of CCS in the order of JPY 2000 /ton by around 2015, falling to JPY1000 /ton by 2020.

Regarding existing technologies, the plan sets up a series of technologies and measures such as solar

power generation facilities<sup>2</sup>; raising the proportion of zero-emission energy sources to over 50% (by wind power generation; hydroelectric generation; biomass; snow and ice); introduction of next-generation vehicle (proportion to half of new car sales by 2020); changing from incandescent light bulbs to low-energy lamps; accelerating the introduction of energy-efficient TVs, water heaters, air-conditioning units and refrigerators; promoting energy-efficient housing and office buildings with a project known as “200-year Housing”, and promotion of nuclear power.

The third section is “Framework to move the whole country toward reduced carbon”. Emission trading, tax system, visualization and formulating standards and frameworks to facilitate flow of capital into environmental business are the main mechanisms. The fourth section of the plan is “Support for regional and citizens’ initiatives”, which consist of reducing carbon by using the functions of agriculture and forestry, creating low-carbon cities and regions, frameworks of learning about low-carbon and sustainable societies, and urging changes to business styles and lifestyles.

### Global Environment Research Fund (GERF)

As seen in this action plan, science and research on LCS would support setting targets, disseminating green technologies, strategically planning frameworks and supporting regional and citizens’ initiative. The Global Environment Research Fund would contribute to fulfil this purpose.

The Global Environment Research Fund (GERF) has played a role as a core fund in Japan for promoting global environmental studies with a competitive grant scheme, where the administration indicates desirable themes for research to obtain scientific evidence necessary for drafting and implementing policies to

<sup>1</sup> It was announced in June 2009 that Japan’s mid-term goal was a 15% reduction (without the use of sinks or credits) by 2020. However, the new cabinet has just started the reconsideration for upward revision.

<sup>2</sup> In this plan, Japan is promoting a huge increase in the installation of solar power generation facilities with the target of increasing the amount of installations 10-fold by 2020 and 40-fold by 2030.

protect the global environment. Since FY2008, the Low Carbon Society division has set research fields together with wise adaptation to climate change division.” The “Japan Low Carbon Society 2050 (S-3)” project was conducted in FY2004-2008, and its scientific outputs were referred to in the process of mid-term goal setting in Japan, resulting into international LCS research collaboration with the UK and fostering the foundation of LCS-RNet.

Scientific outputs of such projects are very important for policy-making on climate change issue.

### **"Hatoyama Initiative"**

On 22 September 2009 in New York Prime Minister Yukio Hatoyama gave a statement at the United Nations Summit on Climate Change. He said “it is my view that Japan should positively commit itself to setting a long-term reduction target. For its mid-term goal, Japan will aim to reduce its emissions by 25% by 2020, if compared to the 1990 level, consistent with what the science calls for in order to halt global warming.” “However, Japan’s efforts alone cannot halt climate change, even if it sets an ambitious reduction target. It is imperative to establish a fair and effective international framework in which all major economies participate. The commitment of Japan to the world is premised on agreement on ambitious targets by all the major economies.” Regarding support for developing countries, Japan deems the four principles essential in assisting developing countries: a) new and additional public and private financing, b) in a measurable, reportable and verifiable manner, c) innovative mechanisms to be implemented in a predictable manner, and d) the protection of intellectual property rights. The Prime Minister concluded that active measures to address climate change such as the Green New Deal initiated by President Obama will open new

frontiers and create new opportunities for employment in the world economy. He added that Japan is expected to take the lead in the international community in setting its own reduction target, and to achieve such target through the development of innovative technologies and that political leaders at this time also have a responsibility to future generations to create a sustainable society by transforming the social structure that we have known since the Industrial Revolution.

### **Conclusion**

A government develops a long-term national plan on LCS but sometimes it is a kind of compilation of sectoral policies by relevant ministries. There is not much logical coherence. One of the significant contributions of LCS research is to give a policy-technology consistency to a developed long-term national action plan by using a scientific backdrop.

A back-casting method has a high potential in a policy-making/national-designing process. Researches should, for example, indicate the best timing of introduction of innovative technologies, taking into account lead-time, lead-cost, or cost-curve, etc. It should provide policy-makers with a directive and show several optional but realistic scenarios.

Current LSC researches seem to cover domestic behaviours. Making full use of the entity of “network”, it can be expected, as one of its outcomes, that this network will elucidate a mechanism – the question of what would happen between two or several economically close countries or in a (sub)region when each country moves forward to achieve its LSC national plan, for instance, focusing on economical reaction.