

*Yoshiki Ogawa*

## **SCIENCE AND TECHNOLOGY POLICY OF ENVIRONMENT AND ENERGY SECTOR IN JAPAN**

Department of Social Economic System, the Faculty of Economics, Toyo University  
5-28-20 Hakusan, Bunkyo-ku, Tokyo 112-8606 Japan  
Phone: 81-3-3945-4736, Fax: 81-3-3945-7667, E-Mail: y-ogawa@toyonet.toyo.ac.jp

### **Overview**

The environment and energy sector is a quite important one where the developments of innovative technologies should be made strategically for the sake of establishing the international competitiveness of Japan in the 21st century. In this paper, I would like to extract issues which should be examined for strategically promoting technology developments standing at long-term viewpoints toward 2030, 2050 or 2100, while summarizing development situations and directions of innovative technologies in environment and energy sector in the present and pointing out their problems. Then I would like to make concluding remarks and suggestions for the science and technology policy of environment and energy sector in Japan.

### **Method**

I analyzed the following issues using (1) historical data analysis, (2) cost-benefit analysis and (3) comparison analysis:

- (1) Technology development standing at the long-term viewpoints toward 2030, 2050 or 2100 in Japan,
  - (2) Future aspects of technology developments based on past and present experiences in Japan,
  - (3) Importance on combination and integration of technologies in Japan,
  - (4) Technology developments to strengthen advantages in Asian consuming area including Japan,
- and
- (5) Development of strategic technology to be a domestic all-mighty card-- promising option for the second commitment period.

### **Results**

The results of this paper are as follows:

- + Japan need to tackle the long-term technology developments in order to overcome the gap between the energy thinking that the fossil fuel era will continue up to 2030 and the global environment thinking that the stabilization of GHG concentration in the air should be achieved in the long-run.
- + If the special treatment is given to the technology developments strategically like the case of fuel cell, the reasons for the necessity of special treatment should be analyzed by careful observations and examinations and should be explained to public thoroughly.
- + The special treatment by the subsidy policy is not always an effective tool to develop technologies in the environment and energy sector efficiently. On the contrary, there are some possibilities to bring inefficient results with higher expense.
- + Technology developments related to energy saving and environment protection should be made on the arena for competition prepared by establishing constraint conditions

which our society could agree to avoid absolutely, rather than made through the special treatment by the subsidy from government.

- + Japan should make technology developments to strengthen advantages in consuming area strategically, though the supply side was regarded as important in the past technology developments.
- + Japan should concentrate her large efforts on innovative technologies for energy conservation, technologies to increase the flexibility in consuming area such as gasification plant and technologies to make suitable energy mix by putting the right one in the right place such as clean coal technology, as a field of technology developments to strengthen advantages in consuming area,
- + In addition to these developments, Japan should tackle the development of CO<sub>2</sub> fixation and sequestration technology which has the moderate cost level and the quite large volume potential as a domestic promising option.

### **Conclusion**

Based on the above-mentioned results, it is extremely dispensable for Japan to develop environment and energy technologies having true competitiveness efficiently and strategically. It is also quite important for Japan to practice the programs seriously aiming at the long-term such as 2030, 2050 or 2100, not drawing all eyes on only the target achievement of Kyoto protocol in the short-term of 2010.