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Sendai City (Japan)

Environmental Audits by an External Committee and Environmental Reports As part of Sendai Ecological Initiative

In 1998, Sendai launched the "Leading Eco Plan Sendai," an Ecological Initiative led by the City. It attracted great attention for being a highly effective plan working in concert with the environmental management system advocated by the International Organization for Standardization. Sendai is also the first city in Japan to conduct environmental audit by external organizations and publish audit results in environmental reports to the public.

To prevent plans from ending up before it gets to be carried out, which is not uncommon to bureaucratic operations, the most effective way is to have a third party conducting the audits and to keep the public informed. Sendai Ecological Initiative- Project Report for Fiscal Year of 1999, environmental report, incorporating both the external audit and information disclosure, has won a Special Recognition in the Fourth Environmental Report Awards in 2000.

City Profile

Sendai with a population of one million, which situated at the center of the Sendai Plain, has prospered around the Sendai Castle since the Edo era. In 1989, it became a designated Metropolitan City. In 1997, it adopted "The City of Trees Environment Plan" (Basic Environmental Plan of Sendai City) and has enthusiastically taken various environmental measures as an eco-friendly city.

Based on Sendai's environmental report describing its achievements in 1999, this article introduces the progress in implementing the City Ecological Initiative, giving a summary of the plan, activity results, environmental audit, and responses to the problems identified in the environmental audit.

A Summary of the Ecological Initiative

Sendai Ecological Initiative is a 3-year plan covering the period from FY1998 to 2000. It is targeted at the City office, as well as all other public facilities including city hospitals and public schools. The plan's ten basic principles are outlined below.

- Prevention of global warming by energy-saving



Case Study

- Effective use of limited resources
- Waste reduction and recycling
- Introducing low-pollution cars as official
- Creation of a sound water cycle
- Pollution prevention for atmospheric and aquatic environments
- Prevention of the depletion of the ozone layer
- Preservation and improvement of the various environmental functions of greenery and promotion of clean-up campaigns
- Increasing city employees' awareness for protection of the environment and creation of favorable environment for employees to participate in environmental activities
- Providing the necessary training and education for the plan's implementation, conducting the environmental management, and publishing annual report on measures undertaken

According to these basic principles, 23 goals were set up. For 14 of these goals, the 1996 data were used as the baseline; for example, "reduce CO₂ emission by over 5%," "increase the number of facilities using new energies to over 22," and "maintain the recycling ratio of asphalt and concrete blocks at over 90%." By setting specific goals, the initiative becomes more concrete and effective.

Ms. Masako Arai, Supervisor at the Environmental Planning Section of the city's Environment Department, explained the significance of disclosing the results of environmental activities to the public. She recalled the preparation of the environmental report saying, "Our main objective was to encourage citizens and businesses to take part in environmental activities by letting them know that the city was taking the lead in these activities. Since tax money was used, it was quite natural and reasonable for us to disclose information to the taxpayers. Furthermore, because information would be made public, the city employees would be pressured to work more seriously in carrying out activities."

Results and Evaluation of Implementation

Having outside committee to conduct environmental audit is a dominant feature of Sendai Ecological Initiative. In preparation for the environmental audit, the city carries out self-inspection and self-assessment four times a year to monitor and evaluate the progress of its implementation. (See the Table 1)

The team which consists of section-manager level members carries out the evaluation using the following four levels of rating.

- +++ Have achieved the FY 2000 goal
- ++ Likely to achieve the goal if current activity continues
- + Moving toward the goal but needs much more effort
- Unlikely to achieve the goal even if current activity continues

The result indicated that among the 23 items evaluated, three items including the facilities using new energies received the first "+++" rating; three items including the use of low-emission vehicles for public service cars and the percentage of low-emission vehicles received the second "++" rating; seven items including the total consumption of electricity received the third "+" rating, and three items including the total consumption of gasoline received the fourth "-" rating.

The environmental report announces current state of the progress and its evaluation regarding each of the 23 goals. The total consumption of gasoline received the fourth “-” rating due to the 13.6% increase compared to the 1996 level. This is due to a switch from diesel to gasoline cars. The total consumption of water, which received the same “-” rating, also had a 1.5% increase compared to the 1996. The increased use of swimming pool at schools is said to be the cause.

Further, concerning the ten items identified as goals and action items of the City Ecological Initiative, the evaluation team also examines them from two standpoints, namely, "the ratio of staffs involved in the action" and "the thoroughness of the action" employing a 10-point rating system. The city also publishes yearly changes of the evaluation results.

The 1999 evaluation showed that, compared to 1998, the city's overall performance improved from 7.2 to 7.7, and the department in charge of the office maintenance also improved from 7.1 to 7.6, both gaining higher scores in the 1999 evaluation. Measures to "improve the employees' awareness for protection of the environment" scored the lowest point. The city was frank in admitting in official documents, "the Agricultural Committee Office, followed by the Transportation Bureau, scored extremely low points in this respect. On the other hand, even the Citizens Bureau, Environment Bureau, and the Izumi Ward Office, which scored relatively high scores, were below the 8-point level. Compared to the other items, the effort in raising environmental awareness is still insufficient. It is necessary to improve the overall level by working out concrete methods."

Environmental Audit by External Committee

Sendai's Environmental Audit Committee is composed of four members (Chaired by Ken Morishita, President of the Eco-Management Institute, with members from academia, business and citizens). After auditing all the documents and inspecting sites, the Committee submits an environmental audit report to the Mayor.

The committee made general comments in its report as follows: "Compared to 1998, there are more areas that needed improvement." It was pointed out that the improvement in services for the citizens and the abolition of small incinerators at schools were causing the increases in electricity consumption and volume of waste. The report demanded, "Each unit of the schools, public facilities, and business organizations shall set up environmental plans and specific goals to reduce the consumption of resources and energy, and to reduce environmental impacts." Although the audit report rated the overall environmental action plan highly, it required the further improvement and additional effort in five general and five specific items.

A characteristic of Sendai's environmental report is that the city immediately addresses the problem areas identified by the environmental audit and announces their responses to it. In the FY1999 environmental audit report, 18 areas of improvement were identified. For example, in terms of goal setting and assessment of progress, the audit report pointed out that only a general evaluation of the overall city offices was conducted. The report recommended setting numerical targets for the bureaus and departments as well, thus raising the environmental awareness of employees. The environmental report made the following response.

"Consideration shall be given, at the stage of planning, to setting up bureau-specific numerical goals, establishing a system for self-management, and devising methods in which the employees are kept informed of their action results to tie them back to future efforts, taking employees' opinions into account,"

In regard to the comment that it was desirable for the city to build a cooperative relationship with NGOs, universities, and businesses, and to expand the environmental activities to the whole community, the environmental report wrote, "The city seeks to enhance cooperation with various organizations and businesses to spread practices to reduce environmental impacts."

Winner of the Environmental Report Award

Sendai's environmental report won an Achievement Award in the Fourth Environmental Report Award in 2000 (hosted by the Global Environmental Forum with Mr. Ryoichi Yamamoto, professor at the Center for Collaborative Research of The University of Tokyo, as chairman of the Selection Committee). The report won acclaim for having released two editions of the report; one including detailed data and summaries and evaluations of current efforts and the second-a lay report for the residents. The city's commitment was highly praised for its will to communicate the results of environmental activities to both citizens and businesses."

In response to the attention the report is getting from other local authorities, Ms. Arai emphasized the effectiveness of information disclosure and third-party audit saying, "Since the report is easy to understand, it is useful as a training material for city employees. Sometimes, city employees may feel that their jobs are quite trivial, but when their works are evaluated highly by outside organizations, they gain more confidence and have more incentive to make improvement."

About 300 companies in Japan publish their environmental reports and currently the number is increasing. In an era when companies are required to undertake environmental measures, they seek to communicate the results to consumers and investors. However, there are still few municipalities in Japan engaged in such activities.

An environmental report is not only propaganda material for the city; it also discloses unfavorable information. For this reason, it was difficult to gain the understanding of high-level city officials in many cases. However, as there are more demands for evaluating the city's administrative evaluation and disclosing information, it is likely that more and more local governments will start publishing their own environmental reports.

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Table 1 Major Numerical Targets and Results (1999)

Target	Numerical target	1998 result (compared with 1996)	1999 result (compared with 1996)	1999 Evaluation
Targets related to the prevention of global warming				
Emission of carbon dioxide from electricity and fuel consumption (carbon conversion)	5% plus reduction	Approx. 41,601 tons (4.3% decrease)	Approx. 40,912 tons (0.7% reduction)	+
Total consumption of electricity	3% plus reduction	Approx. 244million kWh	Approx. 233 million kWh	+
Total consumption of:				
City gas (LG)	8% plus reduction for each	Approx. 10.1 million m ³ (18% decrease)	Approx. 11.8 million m ³ (3.5% decrease)	+
Propane gas		Approx. 225,000 m ³ (0.4% decrease)	Approx. 222,000 m ³ (0.3% increase)	-
Kerosene/heavy oil		6.2 million liters (11% decrease)	6.3 million liters (5.2% decrease)	+
Total consumption of:				
Gasoline	7% plus reduction for each	Approx. 820,000 liters (6.5% increase)	Approx. 870,000 liters (13.6% increase)	-
Diesel oil		Approx. 10,560,000 liters (5% increase)	Approx. 10,530,000 liters (5.3% decrease)	+
Number of facilities using renewable energy	22 or more	17	23	+++
Targets related to waste reduction and recycling				
Total amount of waste from administrative work	20% plus reduction	Approx. 5,949 tons (3.3% decrease)	Approx. 6,922 tons (12.5% increase)	+
Recycling ratio of waste from administrative work	Over 40%	30%	22.9%	+
Recycling ratio of asphalt and concrete blocks	Maintain a level above 90%	Asphalt: 100% Concrete: 99%	Asphalt: 100% Concrete: 94%	+++
Targets related to the prevention of pollution through the use of city-owned vehicle				
Ratio of low-pollution public service vehicles	Raise to over 25%	10.3%	18.8%	++
Total volume of nitrogen oxides from city-owned cars	15% plus reduction	3.3% decrease	5.7% decrease	+
Targets related to greening and clean-up				
Greening of public facility grounds (Areas where trees are newly planted in city owned sites, public facilities, etc.)	Over 20%	Less than 20% in both of the 2 targeted facilities	Achieved in 6 out of the 8 targeted facilities	++

Case Study