



## Waste reduction through citizen collaboration and conservation of the Fujimae Tidal Flat, City of Nagoya, Japan

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**Short title:** Waste reduction to conserve tidal flat, Japan

**Key Message:** By introducing waste reduction measures implemented through collaboration with citizens and businesses, Nagoya was able to stave off a crisis involving reclamation of the tidal flat, which was slated to become a new landfill site.

**Reviewer:** Ryo Kohsaka

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### 1. What was the problem?

Prior to the introduction of waste reduction measures in 1998, the waste processing volume of the City of Nagoya kept on increasing as if symbolizing the 20th century society of mass-production, mass-consumption, and mass-disposal. The landfill sites in use at the time had only two more years before they reached the maximum processing capacity. It was planned that part of the Fujimae Tidal Flat at the Nagoya Port would be reclaimed to build a new landfill site.

### 2. Which ecosystem services were examined and how?

The tidal flats are a vital stopover site for migratory birds that fly to Siberia and Alaska during summer and to East Asia and Australia in winter. It is also an invaluable biodiversity treasure house in the big city which provides also recreational services to the citizens of the city.

### 3. What decisions were taken and what was their impact?

Due to the awareness of the ecological importance of the tidal flat the reclamation plan was abandoned and it was decided to conserve the tidal flat. Therefore, the City of Nagoya had to reduce its waste drastically. In 1998 the City of Nagoya issued the "Emergency Announcement for Waste Reduction" and announced a target to reduce waste by 200,000 tons, 20% of the total volume, in two years.

The following measures were taken to enforce sorted collection and recycling:

- Expanded collection of empty bottles and cans throughout the city,
- Introduced designated plastic garbage bag system,
- Collected new recyclable resources, such as paper/plastic containers and packaging materials.

What gave the city big rewards but a big headache at the same time were the paper and plastic containers and packaging materials, which accounted for 60% of the volume of household waste. According to the Law for the Promotion of Sorted Collection and Recycling of Containers and Packaging (see Ministry of Economy, Trade and Industry 2003), these materials need to be collected not as garbage but as resources. The Law stipulates that it is the responsibility of municipal governments to remove foreign articles before collection and recycling of these resources. Since such stipulation poses the burden of sorting on citizens and entails cost, many municipalities were having second thoughts about the Law's implementation. Nagoya, however, set a precedent for other cities to fully implement the Law.

### **Confusion among citizens**

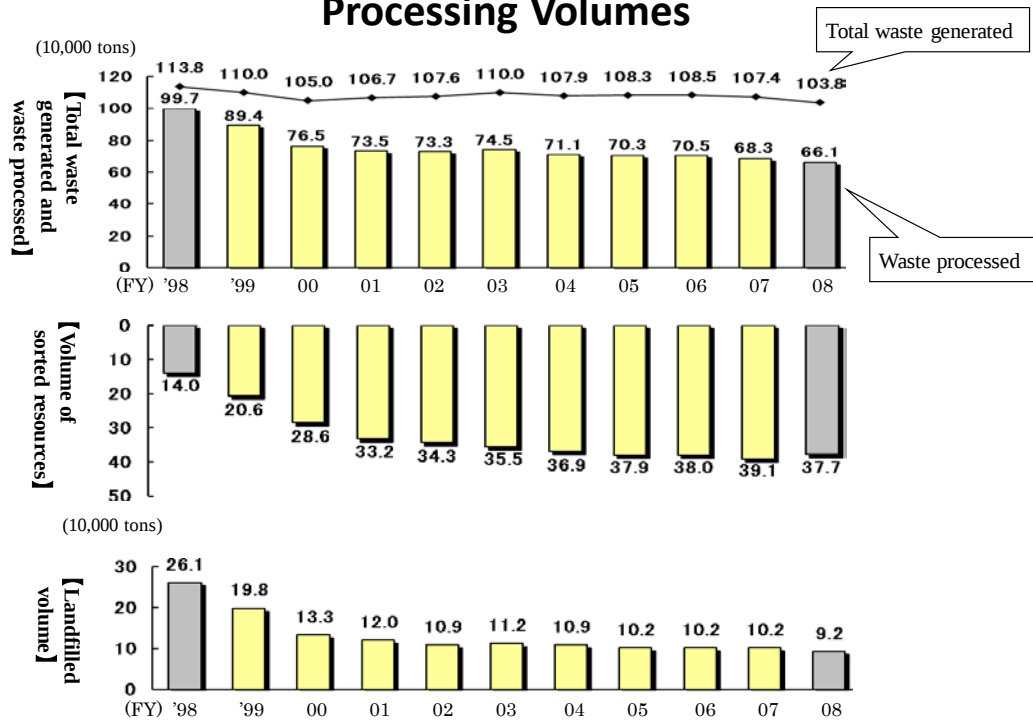
At the time, there was a wide range of paper and plastic containers and packaging materials. Since there were no identification markings yet, it was very difficult to make known to the general public the definition of containers and packaging as stipulated by the national law. Before the start of this new resource collection system, the Environmental Affairs Bureau of the city disseminated information using not only public relations publications but also Bureau employees to visit districts during days and nights and on weekends to explain the implementation. Approximately 2300 informational meetings were held within two months, with approximately 210,000 participants. Despite the efforts, there were still incessant complaints from the citizens, and the confusion was reported by the mass media almost daily.

### **Waste reduction achieved and cost reduction by cultivating the habit of sorted collection**

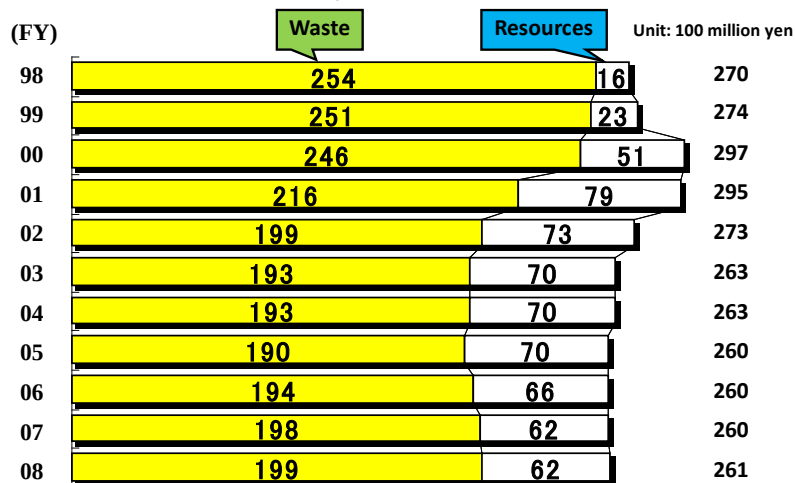
The big confusion was overcome thanks to the steadfast efforts of community leaders and citizens. The collaboration with citizens and businesses has helped achieve the target of 20% reduction in two years, reducing 200,000 tons of waste. In the last ten years, the volume of sorted resources has tripled, the volume of waste processed is down 30%, and the volume of landfill has been reduced by 60%. Furthermore, CO2 emissions that resulted from waste treatment have also been halved.

When the new sorted collection system was first introduced, the cost for collecting and processing waste/recyclable resources increased 10% compared to 1998, when the volume of waste processed was at its peak. It was because the collection and processing of one ton of recyclable resources was 20% more expensive than the collection and processing of one ton of waste. However, as the collection system has become more efficient, Nagoya is now able to keep the cost below the level of the year when the "Emergency Announcement for Waste Reduction" was issued.

## Trends in Waste/Recyclable Resources Processing Volumes



## Costs for the Collection and Processing of Waste/Recyclable Resources



### 4. Lessons learned

Aiming for a recycling-based society

These initiatives received recognition in the “Environment Grand Prix 2003” for local municipalities sponsored by an affiliated organization of the Ministry of Economy, Trade and Industry in 2003 (Japan Productivity Center). The City of Nagoya and its 2.2 million citizens simultaneously received the “Award of the Minister of the

Environment” and the “Grand Prix.” The winning of such awards not only enhanced the environmental awareness of citizens and businesses but also prompted other municipalities working on waste reduction to follow Nagoya’s example.

The Fujimae Tidal Flat, which escaped the crisis of reclamation, were recognized internationally as a vital stopover site for migratory birds and were listed on the Ramsar List of Wetlands of International Importance in 2002. On May 22 of 2007, the International Day for Biological Diversity, Nagoya and Geelong of Australia signed a wetland affiliation to facilitate mutual exchanges of personnel and information, and to work together in the conservation and utilization of wetlands.

The City of Nagoya aims to further expand this “Nagoya-style” collaboration with citizens, cultivated through the experiences, to work toward a recycling-based society that uses minimal input of natural resources and exerts minimal burden on the environment.

### **Acknowledgement**

Thanks go in particular to Silvia Wissel for her helpful inputs and efforts in compiling this case.

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### **For further information:**

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