



JRI news release

**Structural Changes in Environmental
Infrastructure in the 21st Century and
Creation of New Business Models**

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【Outline】

In the past, public works projects in the sphere of environmental infrastructure (waste disposal, water supply and sewerage projects) were premised on the steady growth of economy, population and demand. Now that such a premise has been undercut, it is essential to revamp the basic policies for the development of environmental infrastructure.

This report describes problems in current environmental infrastructure projects and proposes some concrete measures to change the way in which such projects are conducted in the 21st century.

1. Problems in Environmental Infrastructure Projects

- (1) The development of environmental infrastructure used to be predicated on the steadily growing economy. However, Japan's population is projected to decrease after peaking in 2006. In addition, the success of environmental policies such as recycling will certainly reduce the volumes of waste and the amounts of water use and wastewater. If we continue to build environmental infrastructure as before, it will lead to over-investment and a heavier burden on ourselves.
- (2) In the future, it will be necessary to plan and build facilities in such a manner that changes in demand can be flexibly dealt with. For this, it would be effective to introduce "wide-area management" in which decentralized small-to medium-sized facilities can be operated in a unified and coordinated way and their personnel and systems can be shared.

2. Impact of Decrease in Demand on the Private Sector

- (1) Since the enactment in 1999 of the Private Finance Initiative Promotion Law, environmental infrastructure projects have been regarded as candidates for improving efficiency through PFI and outsourcing to the private sector, and such new methods have been introduced.
- (2) Decrease in demand does have an impact on the private sector providing PFI and outsourcing, which cannot cope with changes in circumstances so long as they are based on fixed contracts. It is high time that more flexible new models of public-private partnership were developed.

3. Business Models for Waste Disposal

- (1) For garbage collection, the policy of wide-area waste disposal has been adopted with large-scale garbage incinerators being built to accommodate wider areas. However, building large-scale facilities can be risky when their demand is expected to decrease. Waste disposal will be more efficient without building large-scale facilities if wide-area waste disposal plans are devised which would utilize existing facilities in an effective way.
- (2) The following are three new models of public-private partnership for waste disposal.

Model 1: Acceptance of waste from other municipalities

At present, a waste disposal plant usually treats domestic waste generated from a single municipality. If it can accept domestic waste from other municipalities, agricultural waste and industrial waste, its availability factor will be increased. This model can be applied to existing PFI projects, too.

Model 2: Outsourcing of management of multiple disposal plants

At present, only the management of individual waste disposal plants is outsourced to private companies. If private companies can manage multiple plants in a comprehensive way, their availability factor will be increased as a whole.

Model 3: Expansion of the scope of business

The scope of the outsourced waste disposal-related business may be expanded to include not only the management of incineration plants, but also recycling centers and garbage collection. In this model, incentive for the efforts of private companies will have the effects of waste reduction, an improved recycling rate and increased efficiency in waste disposal.

4. Business Models for Water Supply

- (1) With the demand for water decreasing, there is a significant deterioration in the business conditions of water services. To counter this, radical reform plans are necessary which go beyond the efficient management of existing facilities.
- (2) To cope with the reduced demand for water and the concentration of population in cities, it is necessary to introduce decentralized water supply systems with onsite water treatment plants in addition to the present waterworks. With electricity, the use of decentralized electric power sources instead of transmission by wires in remote places has been studied.
- (3) The following are two models of the decentralized water supply system.
 - Fully independent decentralized system
System that supplies water utilizing groundwater. It may be useful in areas where water supply by pipes is not economical.
 - Partially decentralized system
System under which water treatment facilities are built near large-scale users. It can cope with the diversification of users' needs in cities.
- (4) Trading of water rights will promote the effective use of water. If water rights are priced and sold by their owners, we will be able to utilize dormant water rights and save water.

5. New Development of Smart Community Consortium (SCC) 2003

- (1) SCC 2003 will study the feasibility of new business models for environmental infrastructure projects described in this report.
- (2) SCC 2003 will study individual cases in collaboration with some municipalities, estimating the advantages of business models and addressing problems that may arise with their introduction.