

Urban Resources Recycling Under the Internet Age

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1. Preface
2. Waste Management of Tokyo
3. Use of Information & Telecommunication System for Resources Recycling
 - (1) Related to regional information society of Ishinomaki Area
 - (2) Toward Urban Recycling Society Under the Internet Age

1. Preface

Environment problems are now earth scale matters with sustainable development of urban and regional areas, not only in the developed countries, but also in the developing countries.

Our two groups are now functioning. The one is a joint research group of University Professors and the other is the supporting organization of <Inter-City Communication Forum>. The former are being conformed by interdisciplinary members of political science, economics, public and business administration, and technical engineer of waste management, and the network of resources recycling with the theoretical framework of information and communication. The latter is the Organization acknowledged by Ministry of Posts and Telecommunications, which is research, training and conference organ for the use of information & communication towards urban & regional areas within domestic and international, especially within Asia and Pacific Region. This is <Urban & Regional Management in the Age of Internet System Development> .

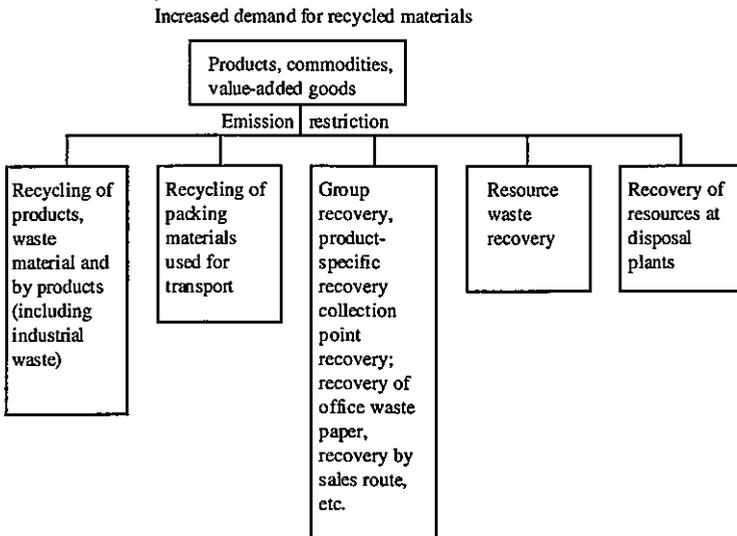
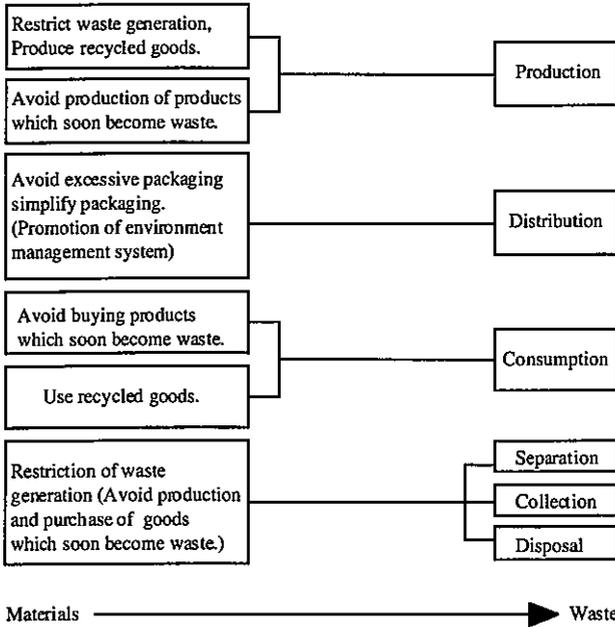
2. Waste Management of Tokyo

From December 1996, Tokyo began levying charges on all business generated waste in an effort to make businesses fully accountable for waste disposal and to encourage reduction of business-generated waste, which accounts for 60% of waste generated in Tokyo's 23 wards. On the national level, the <Law for Promotion of Sorted Collection and Recycling of Containers and Packing> was established in June 1995.

The purpose of this legislation was to make the recycling of all container and packing waste, such as bottles, cans, polyethylene bottles and paper drink containers which make up 60% of all general waste, obligatory for businesses, and to encourage them to give greater impetus to recycling and to convert to readily recyclable materials.

In December 1997, the Tokyo Metropolis Basic Plan for General Waste Disposal-Tokyo Slim Plan 21 was adopted. From now on city residents, businesses and the government must each promote concrete measures in accordance with the Plan.

Chart 1
Waste Reduction and Recycling System



Primarily, general waste disposal is regarded as the domain of local communities. The Tokyo Metropolitan Government functions as a local municipality only for disposal in the 23 wards.

Reform to the city ward system and transfer of control over sanitation works wards is currently scheduled for the year 2000. When drafting policies in the future, we will need to give greater consideration to this transfer of control.

In order for the great metropolis of Tokyo to sustain development into the future, it must become a recycling society which is in time with the environment. The burden on the Tokyo Metropolitan Government in achieving this goal will be extremely heavy. On the eve time of the 21st Century, in order to maintain its attractive image, Tokyo has an obligation to devote its energy toward implementing the appropriate countermeasures aimed at the waste problem and strive to become a city in which people coexist in harmony with the environment.

Speaking waste management in Japan generally, each municipality is responsible for disposal of general waste. Therefore, municipalities in the Tama district and the Izu islands dispose of general waste independently. However, in the ward area, the Metropolitan Government is carrying out waste disposal in place of the wards for the time being.

Waste generally is collected and transported by the Bureau of Waste Management and waste disposal firms licensed by the Metropolitan Government, and disposed of at the Bureau's waste disposal facilities. The Bureau collects household waste and waste from small business establishments that generate small quantities. Most businesses and offices which produce large quantities have consigned collection and transportation to waste disposal firms. Some businesses and offices bring waste to Metropolitan disposal facilities directly.

The TMG also carries out the following in its capacity as a prefecture, (1) financial and technical support to municipalities in the metropolis with regard to waste proposal, (2) provision of guidance and advice on the maintenance and management

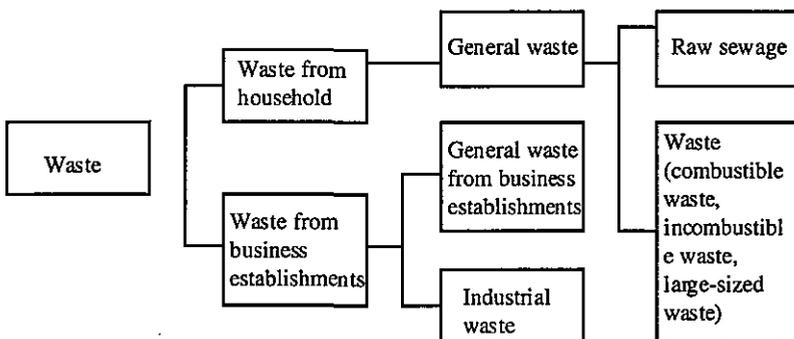
of waste and raw sewage disposal facilities, and (3) formulation of plans for proper disposal of industrial waste.

Following to classification of waste, a total of 19 types of waste, such as ash, sludge, waste oil, waste acid and alkalis, and waste plastics generated by production activities, have been defined by law as <industrial waste>. Producers of these types of waste are responsible for disposing of them. The metropolitan disposal sites also accept industrial waste from medium and small businesses, which have difficulty securing disposal facilities, as long as it meets the prescribed standards.

Also, the Bureau cleans the roads and rivers in the ward area under the control of Tokyo Governor and disposes of animal carcasses.

At present, there is a movement to reform the present system of special wards in relationship to the Tokyo Metropolitan Government by strengthening the wards' autonomous powers. Under such an arrangement, the 23 special wards will be responsible for waste disposal in place of the TMG. Classification of waste, at present, will be shown as a following map.

Chart 2
Classification of Waste



19 types specified by Waste Disposal Law,
Article 2, Section 4 and Enforcement Order,

Article 2

Cinders, sludge, waste oil, waste acid, waste alkali, waste plastic, waste paper, waste chips, waste textiles, animal and plant residues, waste rubber scrapmetal, waste glass and ceramics, slag, construction wastes, raw sewage from livestock, livestock car casses, dust, other treated industrial wastes.

3. Use of Information & Telecommunication System for System for Resources Recycling

Liberalization of telecommunication and advancement of computer & communication which has started just before 1985, is now rapidly in progress for practical use toward urban & regional problems which will include resource recycling.

(1) Related to regional information society of Ishinomaki Area

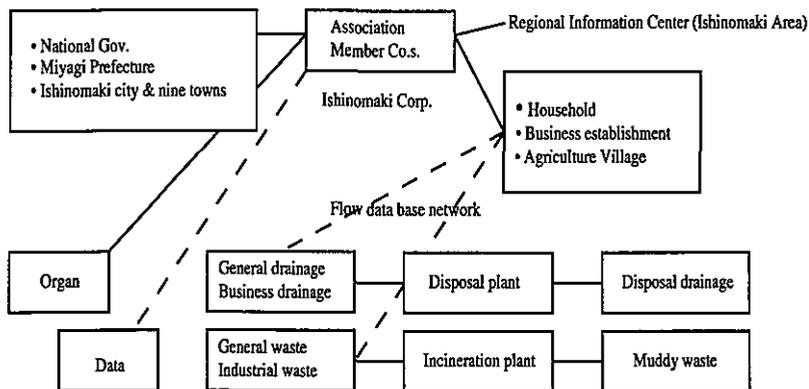
In Ishinomaki Area of Miyagi Prefecture, the preparation of regional information society had started under the sponsorship of Ministry of Posts and Telecommunications of Japanese Government at the end of 1996.

If talking about the summarized view of Ishinomaki Area as intensive urban functions zone in 2000, there will exist a center of regional information in this zone which will be connected with various organs; city hall, business establishments, schools, college & university and etc.

We are now suggesting the network of waste disposal & resources recycling to the affiliated Ishinomaki Purification Tank Association which is an organization of waste disposal as well as promotion of sewage works.

The following picture will be organizational network as well as functional network of the Association and regional information center of Ishinomaki Area.

Chart 3
Information Management System Network

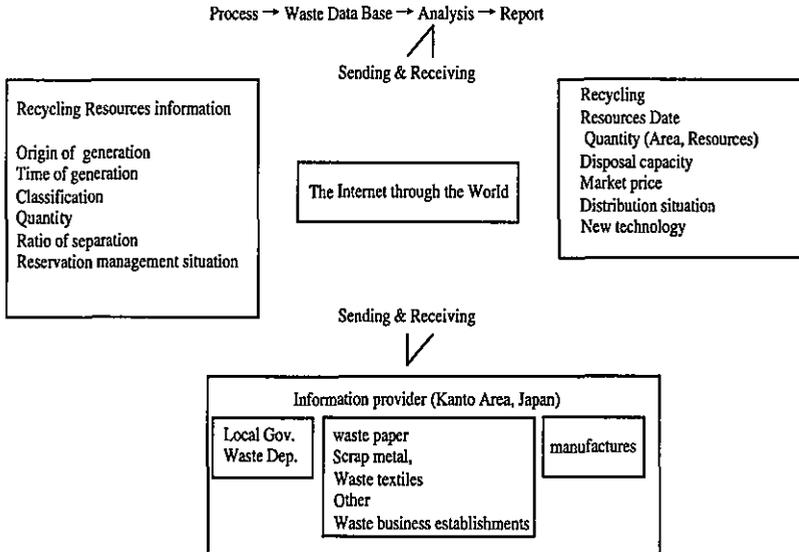


These information flow data base, quantities of general drainage, business drainage, general waste, business waste, disposal drainage and muddy waste would be able to be as information data base through PC network & Internet system.

Therefore, if we explain about domestic and overseas cities connecting with information network, the 21st Century will be the Age of urban affairs as well as the Age of information & communication. Especially, urban affairs problems will mean the direction towards recycling society which will include sustainable development under the consideration of environment development.

At the same time, it can be said that locality & globality will be applicable for both cities and communication network. Especially, urban resources recycling problems will become most important not only for future social-economic structure, but also for future precious informations and inevitable network.

Chart 4
Recycling Resources Information Network System Concept ICCF (Inter-City Communication Forum)



(2) Toward Urban Recycling Society under the Internet Age

The Ministry of Posts and Telecommunications of Japanese Government is now actively working to form policies to help building the info-communication infrastructure of the 21st Century, and achieve a society with full access to the exciting new opportunities the multimedia age will bring about.

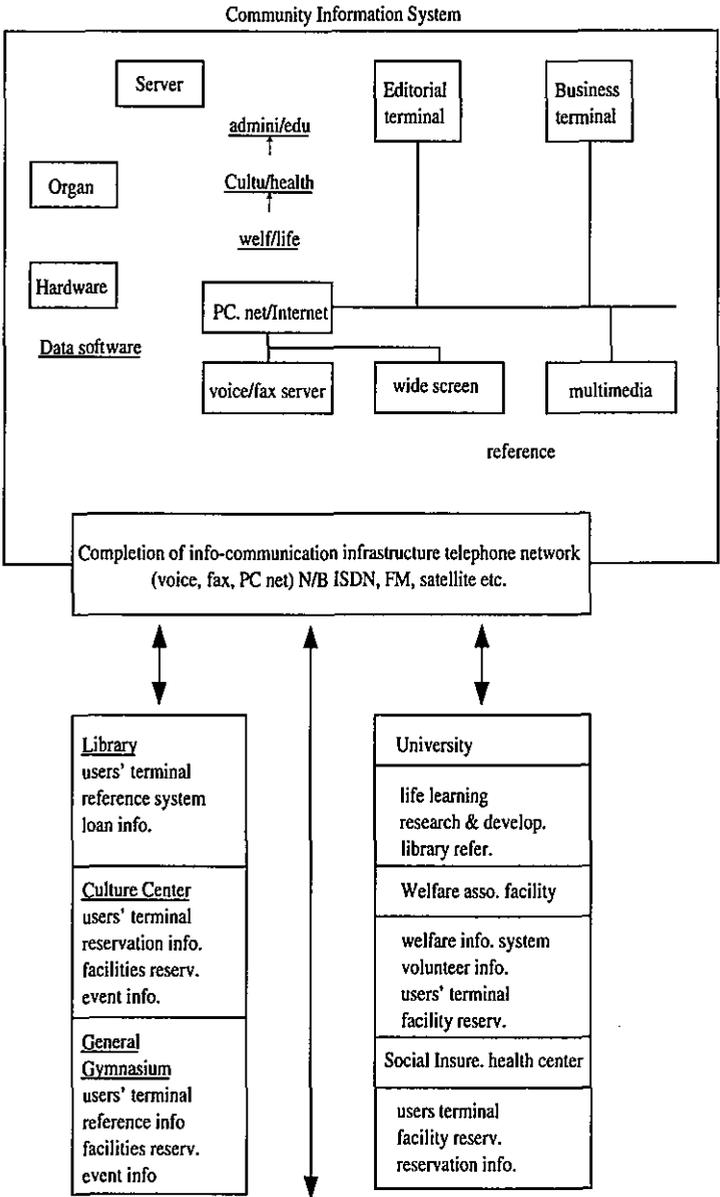
Especially, in near future, it is expected that by the Administrative Reform Act the promotion functions local autonomy government will be included into New Ministry of General Affairs as well as the info-communications functions. Therefore, the combination of advanced info-communication system and model city construction will create on one hand, future multimedia cities, and on the other hand, resources recycling cities.

Finally, I would like to talk with the Tokyo Eco-Partnership Conference which was held from May 26 (Tues.) to May 29 (Fri.) in Tokyo International Forum. The purpose of this Conference was to appeal the necessity of recycling society with sustainable development as well as with environment consideration.

Among water cycle, ecological system, resources energy cycling and urban transportation as environmental matter etc. especially, waste management problem was a most distinguished spotlight.

Besides, with the cooperation of local governments and universities, the Telecommunications Advancement Organization of Japan (TAO) is using the results of research and development gleaned in the fields of communication and broadcast thus far, and is also promoting the 〈multimedia pilot town〉 concept in regions that enthusiastically wish to act as flagships for Japan, which will then develop multimedia models for the creation of advanced information communication society.

Chart 5
 Concept of Ishinomaki Community Information System Functions of Information Center





City Hall	Chamber of Commerce	Civic, life learn. center
admini. info. system event info. info reference <div style="border: 1px solid black; padding: 2px; width: fit-content; margin: 5px 0;">Branch</div> facility reserv. <div style="border: 1px solid black; padding: 2px; width: fit-content; margin: 5px 0;">users' terminal</div>	info. system small business info. sightseeing info. <div style="border: 1px solid black; padding: 2px; width: fit-content; margin: 5px 0;">users' terminal</div> learning refer	life learning system culture info human resources info <div style="border: 1px solid black; padding: 2px; width: fit-content; margin: 5px 0;">users' terminal</div> info. reference <div style="border: 1px solid black; padding: 2px; width: fit-content; margin: 5px 0;">Branch</div> facility reserv. <div style="border: 1px solid black; padding: 2px; width: fit-content; margin: 5px 0;">users' terminal</div>
San Fan Museum	Shopping St./Station	Home
event providing <div style="border: 1px solid black; padding: 2px; width: fit-content; margin: 5px 0;">users' terminal</div> <div style="border: 1px solid black; padding: 2px; width: fit-content; margin: 5px 0;">internet</div> <div style="border: 1px solid black; padding: 2px; width: fit-content; margin: 5px 0;">Schools</div> <div style="border: 1px solid black; padding: 2px; width: fit-content; margin: 5px 0;">users' terminal</div> info reference	<div style="border: 1px solid black; padding: 2px; width: fit-content; margin: 5px 0;">tel/fax</div> voice guidance <div style="border: 1px solid black; padding: 2px; width: fit-content; margin: 5px 0;">users' terminal</div> info. reference	<div style="border: 1px solid black; padding: 2px; width: fit-content; margin: 5px 0;">tel/fax/FM</div> voice guidance <div style="border: 1px solid black; padding: 2px; width: fit-content; margin: 5px 0;">PC net/internet</div> e-mail/info. refer

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インターネット時代の都市資源リサイクル

一瀬智司

〈要 旨〉

本稿は、去る10月25日から29日までマカオで行われたEROPA(Eastern Regional Organization of Public Administration)の会議で報告したものであるが、ちなみにEROPAの本部は、マニラにあり、日本の窓口は自治省自治大学校になっており、地方自治体に関するアジア太平洋の研究交流団体になっているとあってよい。

そしてその内容は、平成9年度から3か年の計画で文部省の科学研究費をえて「地域資源リサイクルの国際流動と情報通信の活用」の共同研究を行っており、その研究成果のサマリーを英訳したものである。その内容に入る前に、共同研究の構成メンバーについて述べておくと、筆者の他、寄本勝美（早稲田大学政治経済学部教授・前学部長・廃棄物行政）、田中勝（公衆衛生院廃棄物工学部長）、和田尚久（福井県立大学経済学部長助教授・国内の資源リサイクル）、田中厚彦（東洋学園大学教授・アジアの資源リサイクル）、西村光平（石巻専修大学経営学部助教授・リサイクル資源に対する情報通信の結合）、小松崎清介（東京情報大学教授・リサイクル資源のための情報通信ネットワークの活用）、となっている。

本稿では、平成9年度の研究成果を中心にとくに東京都清掃局のwaste managementにつき、廃棄物の減少と資源リサイクルの必要性を紹介するとともに、資源リサイクルのための情報通信システムの活用の試みを取り上げることとし、その事例として筆者が参加した石巻圏域（一市九町）の動向について解説し、その将来方向につき示唆したものである。

なお本共同研究は、（社）国際都市コミュニケーションセンター(ICCF)（郵政省と東京都・自治省の事実上の共管）の支援を得て行われている

が、今日ならびに21世紀に高度情報通信社会になる事が确实視されている折から、インターネット時代の地域経営を取り上げており、しかも循環型社会を廃棄物・資源リサイクルを含めて地球環境に配慮した持続的発展を主張しつつあるものである。