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Supporting Capacity Development for Solid Waste Management in Developing Countries

— Towards Improving Solid Waste Management Capacity of Entire Society —

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This report is based on the discussion and findings of the study group on "Future Direction for Cooperation to Developing Countries in Solid Waste Sector," organized by the Japan International Cooperation Agency (JICA). The views expressed in the report are those of the members of the Study Committee and do not necessarily reflect the official views of JICA.

Throughout the report, Japanese personal names are transcribed in the order commonly used in Japan, i.e. family name first, followed by the personal name.

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Foreword

Human activities involve the generation of waste, and the waste stream-from generation to final disposal-continues to change along with the evolution of the economic, historical, cultural, environmental and other aspects of a society. Solid waste problems in developing countries range from inadequate waste collection systems to environmental pollution due to improper final disposal. There is also a direct relationship between solid waste problems and the problems of urban poverty. Therefore, it is impossible to find universal solutions to these waste problems.

Solid waste problems are not a new issue for developing countries or for developed countries to deal with. Yet there is an increasingly deterioration in the systematic adoption of waste management systems in the developing world since traditional systems of solid waste management (SWM) are no longer unable to cope with the increasing amounts of solid waste as a result of the rising levels in recent years of waste generation as developing countries experience economic growth and the introduction of mass consumption lifestyles from the developed countries.

Many developing countries continue to have high hopes of Japan regarding expertise and technology in this sector. Japan has a history of overcoming urban waste problems under government leadership and in cooperation with local communities during the period of high economic growth after the Second World War; such problems were so serious that the then Governor of Tokyo at the time declared a "War on Garbage."

It should be noted, however, that the present SWM issues facing Japan are different from those for developing countries. Attempts to introduce SWM techniques used in Japan to developing countries without an understanding of their societies and other conditions will not work effectively at best. They will eventually result in unfortunate consequences for both the developing countries and Japan. As a donor, Japan should first accurately assess the issues and needs of each developing country and then explore the optimal form of aid to the country or society. This approach is essential to ensure that the outcomes of aid are more effective and sustainable.

With this in mind, this study calls for support for capacity development initiatives taken by aid recipients as the linchpin of JICA's future assistance in the SWM sector. In other words, the primary objective of aid in this sector must be to support recipients in enhancing their SWM capacity for the entire society and in building sustainable SWM systems.

This capacity development approach is in line with the direction that JICA's technical cooperation is now attempting to take. Elements of capacity development for the recipients were actually already included in JICA's past assistance in the SWM sector in the form of, for example, collaboration in formulating development plans. It is worth noting, as a feature of this report, that a review of the past experience of JICA and SWM issues has pointed to the direction of capacity development.

Recent moves by JICA have created a better environment for the integrated approach of capacity development at home and abroad. In Japan, JICA reorganized itself when the agency attained the status of an independent administrative institution in October 2003. The new setup, featuring issue-based departments, has created the Global Environment Department, which has a clear responsibility for SWM affairs. This department is already exploring ways of improving coordination among aid schemes to bolster aid in the SWM sector. In the recipient countries, Japan has set up local ODA task forces involving JICA, JBIC and other Japanese agencies. These task forces are expected to improve coordination among these agencies.

I sincerely hope that this report will be widely used as a basic reference for the development and implementation of technical cooperation.

This study committee, consisting of outside experts, JICA staff and consultants, met many times to discuss issues with the participation and support of a number of resource persons. I would like to take this opportunity to express my sincere gratitude to those who contributed to this study and report.

April 2004
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Director General
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Contents

Executive Summary

1. Prior Conditions for Considering Issues and Aid in the Solid Waste Sector; Recent Aid Trends and their Implications-Lessons Learned and Future Directions for Aid; and Approaches to Capacity Development Support (Chapter 1)

It is not appropriate to assess the solid waste problems in a particular way since various aspects, such as the economic, cultural and historical background in any society, are reflected in the nature of the problems. These problems are becoming more and more serious because solid waste management (SWM) systems that have been formed in developing countries over the years can no longer cope with rapid urbanization, including population concentration in the cities, and changes in consumption patterns. As SWM is closely related to the state of the respective society, solid waste issues should be addressed on a case-by-case basis.

This conclusion is in accordance with the observation of donors that there are no cases in which the technologies of developed countries can be directly applied to developing countries. Donors should understand this fact first and then endeavor to answer the question: what are really appropriate inputs and applicable technologies? As waste problems are a mirror of the entire society, it is inappropriate to regard these problems as an issue for the waste sector alone. Donors need to conduct problem analysis in the context of the overall social structure and consider what kind of support can be provided to ensure that recipients exercise ownership and develop their own SWM capacity.

Donors have learned two major lessons from their experience. One is that cooperation with respect to the 'hardware' provision in the 1970s and early 1980s based on the input of equipment, facilities, installations, etc., has proved ineffective over the long term; aid effectiveness was unsustainable due to the inadequate administrative capacity of the recipients. The other is that the capacity and ownership of the recipients play a major role in achieving aid effectiveness in cooperation in the provision of 'software,' which has focused on planning, management, and operation and maintenance since the late 1980s. In recent years, donors tend to look at the overall picture of the capacity of the recipients and take integrated approaches designed to explore ways to help them to improve their overall waste management capacity. In other words, donors increasingly adopt a capacity development concept that emphasizes social aspects as well.

The concept of capacity development is aimed at helping developing countries with their endogenous and continuous process of improvement. This makes the concept quite different from donor-led or expert-led capacity-building approaches that are designed to promote the growth of the recipients by filling any void in their capacity with technology transfer and technical cooperation.

JICA is gradually shifting its direction with regard to cooperation towards improving the capacity of developing countries in terms of their problem-solving and management with the emphasis on ownership by the recipient countries. For example, JICA is increasing the number of pilot projects and is introducing "software" components along with equipment in its grant aid projects. Donors should place such approaches at the center of their assistance in SWM and take every opportunity to provide incentives and opportunities for the recipients.

2. Structuring of Issues in the Solid Waste Sector; Lessons Learned from Aid Projects and Programs (Chapters 2 and 3)

Chapter 2 begins by structuring the issues in the solid waste sector and identifying factors behind them (Section 2-1). The idea is to provide a general picture of common challenges for developing countries and a frame of reference for addressing them. The charts in this section can serve as a problem analysis tool-a tool that can be used to consider what policy or which direction to take in solving problems according to the SWM management capacity of the recipients. In such problem analysis, it is desirable for the recipients to become involved as the key actors and share the process of identifying SWM issues with the donors. The second to fourth sections of Chapter 2 discuss these issues in relation to such aspects as cities, organizations/institutions, and society. Section 2-5 sheds light on the issues in the context of environmental pollution. Section 2-6 structures issues around processes in the waste management flow (waste generation, collection, intermediate treatment, recycling, and final disposal).

Chapter 3 takes up actual cases of SWM support in the Philippines, Laos, El Salvador and Sri Lanka and draws lessons for future assistance. One of the common lessons thus learned is that multifaceted approaches to capacity development play a major role in sustaining aid effectiveness. Another lesson is the need for sustained support and follow-up.

3. Methodologies and Considerations for Applying the Capacity Development Concept to Assistance in SWM (Chapter 4)

Stressing the ownership and initiative of the recipients is the key to the success of aid approaches that involve the capacity development concept in the solid waste sector. Donors should primarily work together with the recipients to select aid inputs, after looking realistically at the actual situation in the developing countries and identifying obstacles and appropriate technologies for SWM. Regarding appropriate technology, technologies that are rational and appropriate for the donors are not always so for the recipients. Donors are, after all, external actors.

It should also be remembered that capacity development is a gradual process. It is impractical to raise the capacity of developing countries to the levels of developed countries all at once. In this regard, JICA needs to establish a sustainable monitoring framework with the appropriate mobilization of human and institutional resources to follow up on the capacity development process. This should be done in addition to taking integrated approaches with an optimal combination of various types of aid schemes that are designed to cope with diverse situations.

Before considering specific aid components, the following items should be assessed or defined: (i) the background of the recipients and the development assistance available to them; (ii) the recipients' concerns and needs; (iii) the wastes covered; and (iv) implementing agencies and counterparts. The next important step is to assess both the overall and SWM capacities of recipients and identify related issues.

In this chapter, the capacity of the recipients is analyzed in terms of its characteristics at three different levels: (i) individuals (knowledge and skills of individuals engaged in waste management services); (ii) organizations (physical, human and intellectual assets, leadership, organizational management frameworks, and organizational cultures that are all needed for organizations involved in waste management to achieve their objectives); and (iii) institutions and societies (the environment, conditions and mechanisms that are all required to ensure that waste management systems work; policies,

institutions, frameworks, customs and norms). Essential check items required to assess capacities at these three levels are also provided. These analyzing and checking processes identify the problems and what kind of capacities should be improved-in other words, the specific objectives of an aid project.

4. Future Directions for JICA's Technical Cooperation (Chapter 5)

As discussed earlier, in order to implement capacity development support in development assistance, respect for ownership by the recipients is an important element to consider for the future of the waste management sector. Techniques and considerations for practicing aid approaches centering on capacity development support on the ground are identified for both the project preparation/formation and implementation phases. In addition, priority issues to be addressed to effect a shift in direction for development assistance are defined as: (i) emphasis on community-based waste management; (ii) development of the capacity to allocate resources as a short-term solution; (iii) sustained aid delivery; (iv) development of a grand design for aid; (v) recognition of social relationships among different stakeholders and the promotion of their involvement; and (vi) a focus on waste collection and landfill operations where inputs and resources are limited.

Recommendations on how to direct JICA operations toward capacity development support are summarized as: (i) knowledge accumulation; and (ii) directions for the improvement of each aid scheme.

Capacity development support in SWM constitutes a key concept in exploring future directions for technical cooperation. In retrospect, some attributes of this concept can be found in JICA's past operations and experiences. However, these attributes are derived from the trial-and-error processes of individual projects; these processes have yet to give rise to the establishment of this concept.

Two major challenges have to be addressed. One is to establish practical methodologies for capacity development support by accumulating experience and drawing lessons from such experience, in addition to the original goal of improving the outcomes of each project. The other is to build up the human and other resources to provide such support.

Introduction Supporting Capacity Development for Solid Waste Sector in Developing Countries: Background, Methods and Objectives of the Study

1. Background to the Study

Developing countries have a range of solid waste problems, including: inadequate waste collection systems, open dumping and other forms of improper final disposal and the resulting environmental pollution, scavenging at landfill sites by waste pickers, and illegal dumping. These problems are being aggravated by growing waste generation rates associated with economic growth, increases in consumption levels, and the transition to mass consumption lifestyles in developing countries. There is concern that these problems, if left unaddressed, will become a serious challenge for generations to come. This concern has been shared by the international community since the 1990s. Agenda 21, a global action plan for sustainable development adopted at the UN Conference on Environment Development in Rio de Janeiro (the Earth Summit) in 1992, called for the environmentally sound management of solid wastes, among other priority issues.

Japan has already launched a series of initiatives to tackle solid waste issues. At the Special Session of the UN General Assembly (UNGASS) held in 1997 to review and appraise the implementation of Agenda 21, Japan announced the Initiative for Sustainable Development towards the 21st Century (ISD). ISD set out the philosophy and an action program for Japan's development assistance in the environmental sector. In 2002, Japan announced its Environmental Conservation Initiative for Sustainable Development (EcoISD), which built on ISD and was designed to provide more efficient and effective aid in this sector. EcoISD emphasized "waste management" as part of its focus on one of Japan's fields of expertise in which it has extensive experience-pollution control and improvement of the living environment in urban areas. The third Japan-Pacific Islands Forum (PIF) Summit Meeting in May 2003 issued the Okinawa Initiative: the Regional Development Strategy and Joint Action Plan for a More Prosperous and Safer Pacific. Among other priorities, this initiative called on Japan to support the development of a regional strategy for solid waste management (SWM) and provide technical assistance in the SWM sector. This clearly shows that Japan is expected to play a more positive role in development aid in relation to SWM.

Based on these initiatives, JICA has been employing a range of aid schemes-including development studies, the dispatch of experts, technical cooperation projects, and technical training of overseas participants-to meet numerous requirements for assistance in the solid waste sector. The problem is that JICA has been selecting these aid modalities on a case-by-case basis. In other words, JICA has not necessarily been taking a comprehensive approach to the SWM sector.

Given all these background factors, this study committee has been assigned two major tasks. One is to identify and structure all SWM issues facing developing countries with reference to recent trends in this sector. The other is to explore the future directions and approaches for Japan's development assistance in the SWM

sector. It should be noted that this study generally focuses on municipal solid waste, which should be addressed as an issue that is of the highest priority. Hazardous wastes and medical wastes are considered here only in relation to municipal solid waste. Radioactive waste is beyond the scope of this study.

2. The Message of the Report

Two principles underlie this report. The first principle is the introduction of the concept of capacity development in development assistance in the SWM sector. The report focuses on how to define the concept of capacity development in the context of SWM and on how to deliver better aid, including ways to put the concept into practice and considerations to be adopted in the delivery of aid.

To date, donors have tried a variety of aid approaches in this sector. Yet these approaches can largely be divided into those based on physical inputs, such as waste collection vehicles and heavy machinery for landfill operations, and those based on non-physical inputs, including technology transfer and master plan development.

These traditional approaches had one thing in common-the idea that because developing countries lack sufficient skills and ability, this lack could be overcome though the input of expertise (knowledge and skills) and equipment from external donors (particularly "teaching" by experts to their counterparts in aid projects). Consequently, there has been insufficient attention paid to ownership by the aid recipients, in other words, the development of the capacity of local government institutions and residents who are the direct stakeholders in SWM.

Despite some successful cases, there is no denying the fact that these approaches have often brought about outcomes that have turned out to be "pie in the sky" solutions that produced "a graveyard of provided equipment," or to have deepened the dependency of the recipients on aid.

The members of the study committee shared serious concerns about these "stern realities of aid." The questions for the committee were: how to overcome these negative aspects and how to better contribute to capacity development.

The committee tried to answer these questions by setting a new direction: a shift towards assistance in SWM based on the concept of capacity development. The report concluded that it is important to arrange aid inputs so as to enhance the overall capacity of the recipients based on a comprehensive assessment of capacities[1] at three levels: individuals, organizations, and institutions/societies, while ensuring ownership by the recipients.

The second principle is an emphasis on social aspects. Although urban SWM services are generally delivered by municipalities, the efficiency and performance of service delivery is significantly reduced unless communities play an active part in SWM. Without drawing on past examples of local opposition to the proposed siting of landfills, it is nevertheless clear that consideration for communities and agreement with them are now essential elements of the delivery of waste services. It can even be argued that solid waste problems are social phenomena closely related to urban and economic problems (especially poverty).

In this report, special emphasis is placed on the relationship between waste and the society and economy. Chapter 2 stresses the need for social considerations. Chapter 3 tries to identify lessons and issues from case studies of community-based projects and programs.

These two principles are not a product of theoretical discussions. They have been derived from almost two decades of JICA's direct experience in the solid waste management sector, that is, a history of cooperation between JICA-numerous experts, consultants, volunteers and other personnel in the public and private sectors-and their counterparts in the developing countries.

[1] For the definition of capacity and the concept of capacity development, see Appendix 1, Glossary, and Sections 1-2-2, 4-1, and 4-2.

The members of this study committee would be more than happy if the reader perceives signs of this history between the lines.

3. Organization of the Report

The organization of this report is illustrated in Figure 0-1. As this figure shows, the report is made up of five chapters.

Chapter 1 first reviews and characterizes both the issues surrounding solid waste problems in developing countries and the constraints on aid delivery as background information. Then this chapter looks at recent trends in bilateral and international donors and aid agencies in Japan. Special emphasis is placed on international aid trends, especially efforts since the 1990s to apply the capacity development concept to the SWM sector.

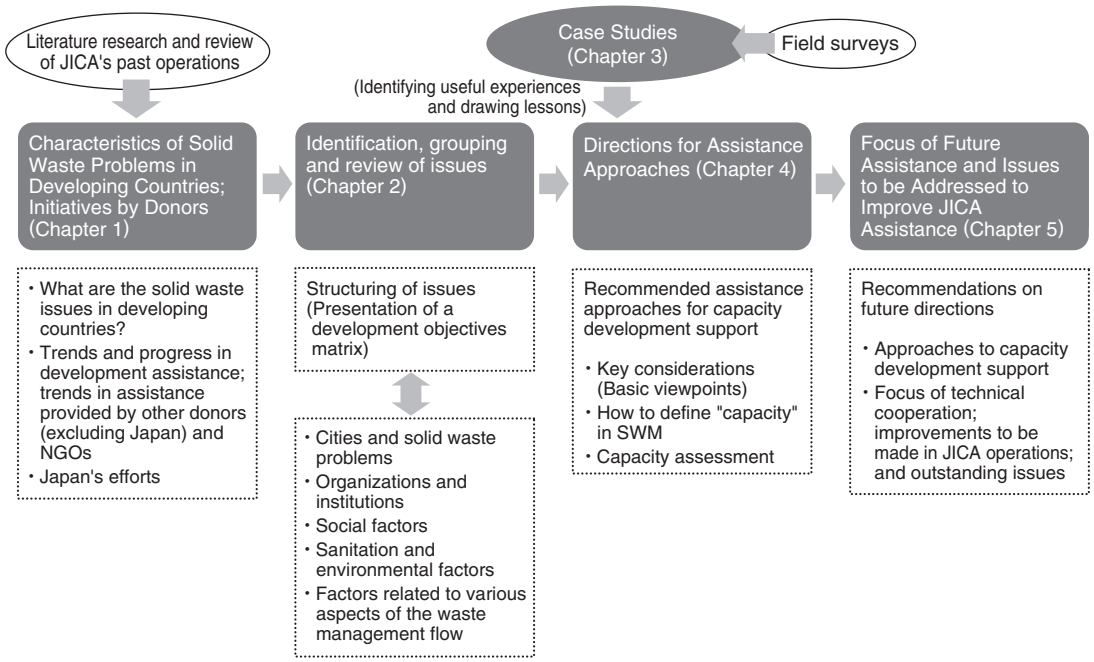
Chapter 2 reviews and structures the issues facing SWM in developing countries in the form of a menu. Then each issue on the menu is analyzed and characterized. This menu can be used as a tool for problem analysis, project formulation and evaluation. In other words, the purpose of this chapter is to provide a frame of reference for SWM issues in developing countries.

Chapter 3 provides case studies of JICA's projects and programs in the SWM sector. Efforts to address some of the issues structured in Chapter 2 are introduced in these case studies. This chapter also tries to identify success factors and constraints and to draw lessons for the implementation of aid projects.

Chapter 4 puts forward approaches to be adopted for aid related to SWM in the context of capacity development support, drawing on discussions in Chapters 2 and 3. Key considerations for the implementation of these approaches are also identified.

In conclusion, Chapter 5 reviews methodologies to apply the concept of capacity development support to aid for SWM. Priority issues are also identified. This chapter also puts forward recommendations for improving JICA's operations and addressing outstanding issues.

Figure 0-1 Organization of the Report



4. Methodology of the Study

For this study, JICA set up a group entitled the "Study Committee on the Directions for Development Assistance in the Solid Waste Sector," which was largely made up of a board comprising third-party experts and a task force consisting of JICA staff. The committee met a total of six times between October 2003 and July 2004.

The Second Research and Development Division of IFIC-JICA[2] served as the secretariat and took charge of overall management, including the holding of committee meetings and the compilation of this report. The board, resource persons and the secretariat made presentations on key issues and the whole committee discussed them. The committee also conducted follow-up surveys in the Philippines and Laos to draw lessons from JICA's past projects. The findings of these surveys were incorporated in the case studies. In September 2004, the committee held an open meeting to introduce the past discussions and the contents of this report and to exchange views. Based on the comments from panelists and the floor, the committee reviewed the contents of this report.

This report has put together recommendations on future directions for aid in the SWM sector based on the findings of these surveys and the discussions in the committee. A list of committee members and authors by section is given below.

5. List of Committee Members

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[2] Renamed "Aid Effectiveness Team, Research Group" as part of the restructuring of JICA in April 2004.

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* Organizational affiliation and position for each member are as of August 2004. If a member withdraws from the Committee because of reasons such as personnel change, indicated affiliation and position are at the last time he/she had been participated to the committee.

6. List of Authors

The list of authors of this study is listed below. The draft is written based on the discussions of the Committee meetings, a field survey, and literature reviewing. The draft articles are elaborated and summarized by each authors and Committee secretariat.

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Population sizes of cities and waste problems	KONDO Sei, OTSUKI Noriko
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Consensus-building, securing of landfill sites	NAGAISHI Masafumi, YOSHIDA Mitsuo
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