Chapter 4 Directions for Capacity Development Support in Solid Waste Management

This chapter puts forward approaches to be adopted toward successful capacity development support for developing countries in the solid waste sector, drawing on specific issues and their characteristics identified in Chapter 2 and the lessons learned from case studies in Chapter 3. Specifically, Chapter 4 presents key considerations, identifies anew the components of the capacities required for SWM, and sets out the items for assessing them.

4-1 Key considerations for assistance in SWM

This chapter first focuses on three key considerations that should be continually kept in mind when providing development assistance in the solid waste management sector: (i) capacity development (CD) that emphasizes ownership by the recipients; (ii) appropriate technologies that accommodate constraints; and (iii) constraints on inputs and support.

4-1-1 Capacity development support that emphasizes ownership

Ensuring ownership by the recipient countries and their implementing agencies is the starting point for capacity development support.

In SWM, as well as in other sectors, the donor should do everything it can to achieve favorable outcomes while ensuring autonomy and sustainability on the part of the recipient. This requires strategic decisions regarding which component of the recipient's capacities should be addressed and which approach should be employed for each component. Such decisions should be based on an accurate assessment of a number of factors, including the overall capacity of the recipient country and the activities of governmental and non-governmental aid agencies.

It is therefore important that the donor should always apply a comprehensive frame of reference that covers each level of capacity, meaning individuals, organizations and institutions/society system, and that also respects the initiative and ownership of the recipient. In this sense, the idea of capacity development provides a comprehensive approach to technical assistance.

Chapter 3 reviews the experiences and lessons learned from cooperation projects in SWM in Manila, Vientiane, El Salvador, and Sri Lanka. In the context of capacity development, the experiences and lessons for each country have been summarized in a table in the form of success and progress versus problems and issues at the institutional/societal, organizational and individual (human resources) levels (Tables 3-3, 3-5, 3-7 and 3-11). These tables should be reinterpreted as examples of the successes and failures of aid approaches.

All these tables show that the higher the level, the more diversified the constraints and the deeper they are rooted in the society and culture. In other words, what can be achieved by inputs from external parties is more limited at the institutional/societal level than at the organizational level, and at the organizational level than at the individual level. This indicates that the higher the

1 Task Force on Aid Approaches, JICA (2004). UNDP defines the term "capacity" in the context of development as "the ability of individuals, organizations, institutions, and societies to individually and collectively perform functions, solve problems, and set and achieve objectives (problem-solving ability).” UNDP (1997)
level, the more essential it is to ensure endogenous effort by the recipient. Capacity development at the individual level, for example, is closely related to individuals’ mental inside, such as motivation and willingness. In principle, the way to develop the capacity of an organization or management is up to the members of the organization. All that any external parties can do is to provide advice. Even then, the appropriateness of the institutions and the social system of a given society can be judged only by the members of that society (the local residents, citizens, etc.). Without taking this into full consideration, the introduction of any "rational" and "appropriate" technology or system by external parties will not achieve the expected results. This is illustrated by the case study of Katmandu city (see Section 1-2), in which a variety of aid inputs failed to produce successful outcomes. In short, capacity development support should not be donor-driven; it must be addressed entirely through a strong sense of ownership and endogenous effort by the recipient countries.

4-1-2 Appropriate technologies that accommodate constraints

"Appropriate technologies" are technologies that build on the capacity of the recipient.

People in developed countries tend to be appalled at the status of SWM in developing countries, saying "Why can't they do such an easy job?" However, there are reasons for the current situation (which is inadequate in the eyes of people in developed countries). Ignorance of the background factors may invoke a backlash from the developing countries. It is necessary to first methodically observe and analyze the background factors in the developing country city concerned. Factors that constitute the background to the waste situation in developing country cities are identified and characterized in Chapter 2.

Developing countries have many technical and economic constraints. They also have different climatic conditions, natural features and social factors from those of developed countries. Japan should put these differences into perspective and ask itself such questions as, "What does the recipient country need most? Which sector (or component) needs assistance? What constitutes a breakthrough? Which approach is most needed?"

What is required of solid waste management (SWM) in developing countries? In most cases, their concept of SWM is completely different from that of Japan, where the means of controlling dioxins from waste incinerators or recycling materials for waste reduction are some of the main SWM issues. For example, waste planners in developing countries are making extensive efforts to collect wastes that are generated every day, to keep the streets clean, and to transport the collected wastes to designated landfills for disposal without causing littering on route. These are the basics of SWM in the eyes of people in the developed countries, but they are major issues or concerns for citizens in developing countries.

In fact, not all the wastes generated in developing country cities are collected due to a lack of collection vehicles or inadequate collection systems. As a result, the streets are not clean and cause fly infestations. In the suburbs, wastes are dumped haphazardly along roadsides and in open spaces. At designated landfills (disposal sites), if there are any, covering with soil is usually not practiced. Wastes in such places often combust spontaneously or are burned in the open by waste pickers to recover the copper and other recyclable metals in mixed waste.

As these examples indicate, the technical level of SWM that is required in developing countries is not necessarily high. The key requirement is to ensure that wastes are properly collected and disposed of at landfills in an environmentally-friendly manner within the constraints of limited financial resources. The
first step for donors therefore is to consider technologies that are appropriate on the ground (such technologies cover both the physical aspects, such as vehicles and other equipment, and the non-physical aspects, such as planning and management). The next step is to explore aid approaches based on such technologies. Appropriate technologies are often characterized as:

- Technically viable,
- Economically feasible,
- Culturally accepted, and
- Environmentally sound.

Technologies are not appropriate unless these four requirements are satisfied. In some cases, the locally available materials, equipment, labor force and skills are also considered to be additional requirements of appropriate technologies. Appropriate technologies can be summarized as "technologies that contribute to problem solving even to a limited extent within the constraints of the city or the country concerned."

As has been summarized in Chapter 1 (Section 1-1), constraints facing developing countries in the waste management sector are diverse. They include: human and technical factors; financial factors; institutional factors; economic factors; social factors, such as rapid urbanization and the expansion of slums; and natural and environmental factors, such as climatic conditions (dry, tropical, prone to flooding, etc.). The donor should have the expertise to identify the major constraints and the most pressing issues for the recipient.

**Capacity development is a gradual process in which contradictory aspects are often inevitable.**

Few developing countries can afford to divert sufficient financial resources to SWM. Donors cannot continue to permanently provide support for all aspects of SWM. After development assistance indicates an approximate course of action, provides technical guidance, and supplies some of the necessary equipment, it remains for the developing countries to help themselves. This is why capacity development is essential.

Within the bounds of such constraints, it is necessary to avoid targeting the best solution and instead opt for a better solution that may fail to meet the standards of developed countries, but will still improve the situation—an apparent compromise that donors have no choice but to accept.

In the case of the situation of a river running through an urban area of a developing country where heavy pollution by the leachate from a landfill, human excreta and sewage has occurred, such pollution may give rise to cholera and other water-borne infectious diseases. As part of its program to improve the urban environment, a donor may construct an advanced leachate treatment facility at the landfill, such as those commonly seen in developed countries. However, such a facility alone may not only fail to reduce river pollution, but may also impose leachate treatment costs (a few tens of US dollars per cubic meter in Japan) on the recipient country.

In contrast to Japan, where one of the main issues is how to completely eliminate groundwater pollution caused by landfill leachate, developing countries have yet to solve problems that Japan faced three decades ago, including the occurrence of fly infestations and the spontaneous combustion of wastes in landfills. It is not feasible to improve the situation to the level of developed countries all at once. Such an approach may be able to provide 'hardware' or 'software' resources to developing countries, but it cannot contribute to their capacity development. Capacity development is a gradual process; it is what developing countries achieve by themselves.

It is therefore necessary to devise a feasible plan that can improve the situation even slightly. Donors should set aside their own waste
management practices and provide assistance that accommodates local conditions, respects the views of the recipients and embraces appropriate technologies. The same amount of funding is likely to produce more effective outcomes if it is spent on, as for example in the case mentioned above, collection vehicles or truck scales to prevent overloaded vehicles from entering the sites, rather than on leachate treatment facilities. In any case, engineers and administrators in developing countries will eventually adopt the option of leachate prevention.

The concerns of people in developing countries with respect to SWM are not limited to keeping the streets clean. They also demand the regular and complete collection of wastes. Wastes left uncollected clog ditches and cause fly infestations that carry pathogens and mosquitoes that spread dengue fever, malaria and other communicable diseases. As discussed in Section 2-5, waste collection is one of the minimum requirements for maintaining public health.

To summarize, development aid in the waste management sector should ensure both proper waste collection and environmentally-friendly disposal at landfills based on an accurate assessment of the situation, especially problems with SWM, in developing countries. To this end, donors should provide technologies that cover both 'hardware' and 'software' aspects and support the capacity development of the recipients.

4-1-3 Constraints on inputs and support

Constraints concerning aid schemes on the part of donors can only be overcome by the donors themselves. The integration of projects into a program as well as reinforcement of the monitoring process are the clue to the solution.

Constraints for the donors have been classified into human and technical factors, organizational and institutional factors, economic factors and social factors in Section 1-1. These factors may stand in the way of effective aid approaches. Problems with human and technical factors and social factors are also associated with the issues mentioned in the above section on appropriate technologies. The following paragraphs focus on the main institutional and structural constraints on the part of the donors themselves.

One constraint is the difficulty of taking an integrated approach to aid projects for SWM when each donor or each of the organizations concerned within the donor agency has its own distinctive responsibilities and authority. Such an approach may, for example, integrate three different approaches—the provision of physical inputs, provision of 'software' inputs, and capacity development support—for integrated project formation. However, a combination of different approaches requires the application of different aid schemes, which in turn calls for coordination among the different organizations concerned.

Japan has been providing assistance in the solid waste sector through a range of aid schemes, including multilateral aid, loan aid, grant aid, technical cooperation (development studies and the dispatch of experts), training, and the dispatch of volunteers. All these schemes except for the first two are almost exclusively provided by JICA. There are favored approaches for each scheme. Depending on the conditions faced by the recipient, such approaches should be integrated and combined into an optimal approach.

In fact, JICA has succeeded in applying an integrated approach to a number of aid projects in the SWM sector. A series of aid schemes for the improvement of SWM in Vientiane, Laos is one such example. The integrated approach here encompassed a development study, training, grant aid, the dispatch of experts, and the dispatch of volunteers, in this sequence, thus contributing to a significant improvement in the SWM in the city. In addition, in the City of Manila, the Philippines, JICA achieved a measure of success in capacity development in a series of technical assistance
projects, including the dispatch of experts, training, a development study, the additional dispatch of experts and multilateral aid (with UNDP) in succession. JICA’s coordinated approach in El Salvador, involving a development study, the dispatch of experts, and training, has developed into a new technical cooperation project that encompasses regional cooperation. In Sri Lanka, JICA’s series of aid schemes—the dispatch of experts, a development study, and training—are aimed at developing a project designed to have wider ramifications.

Such moves to integrate aid approaches with the application of multiple aid schemes have been to date accidental rather than being planned from the beginning.

For the future, JICA needs to learn from these experiences and intentionally integrate projects into a program. This requires, among others, human resources and institutional arrangements to monitor aid projects in a sustained manner.

4-2 How to define "capacity" in SWM

4-2-1 Capacities at the individual level

SWM capacities at the individual level represent the knowledge and skills of the individuals who are engaged in solid waste management. More specifically, they represent the will, ability and sense of responsibility of these individuals to achieve their objectives by taking advantage of such knowledge and skills. The individuals referred to here include all the people engaged in SWM in the widest sense of the term, including not only individuals in the government institutions in charge of SWM, but also those in CBOs, NGOs, the private sector and the informal sector.

Those engaged in actual SWM services often have a low social status and inadequate education. In South Asia, some people often suffer from the caste system and are deprived of opportunities to receive even basic education. There is considerable room for improvement of the capacities of these people, or their knowledge and skills, on the ground. They should also be provided with opportunities for public health education in relation to their working environment.

In contrast, administrators in charge of the planning, operation and management of SWM services in developing countries have been given at least a basic education and are often highly educated with some even having studied in college abroad. Yet they sometimes lack on-the-ground knowledge or comprehensive knowledge concerning SWM. In some cases, their ethics may be called into question, not to mention their will and sense of responsibility as administrators.

Capacities at the individual level constitute a basis for-or element of-capacities at the organizational and institutional/societal levels, which are discussed below.

It is noteworthy that JICA’s traditional activities in technical cooperation in the form of technology transfer, training and hands-on practice are chiefly designed to improve the capacities of individuals.
4-2-2 Capacities at the organizational level

SWM capacities at the organizational level represent the physical, human and intellectual assets, leadership, organizational management frameworks and organizational cultures that are all required to achieve objectives set by the organizations involved in SWM.

SWM is implemented not by separate individuals, but by teams of individuals. Therefore, some kind of organization is essential for its implementation. An organization involved in SWM, be it a government institution or an NGO, must have a group of people who have the necessary skills, managerial ability and planning ability (capacities at the individual level), in other words, the required human resources. A mechanism is also needed to develop such human resources. Also required are physical assets, including the facilities, equipment, land, funds and capital necessary for such SWM components as waste collection, transportation, intermediate treatment and final disposal. The approach based on inputs of 'hardware' components, which has been discussed in Section 1-2, is little more than an approach whereby external donors provide or support these physical assets.

These physical assets also require intellectual capacity for their application, including expertise in SWM technologies and systems, and statistical information, including waste flow data, literature, manuals, and research data. The approach based on non-physical inputs, which has been discussed in Section 1-2, is an approach whereby external donors provide these 'software' assets or conduct studies in the recipient countries.

All these human, physical and intellectual assets require an organizational form, management and leadership for their effective use. Management and leadership concern not only the improvement of the capacities of leaders and managerial staff at the individual level, but also a shared sense of purpose and discipline on the part of the members of an organization.

Capacity development at the organizational level cannot be achieved by the sum of the efforts at individual-level capacity development of the organization's members alone. It is not worthwhile for institutional development in the narrow sense, or intellectual asset augmentation, to be aimed at capacity building at the organizational level.

4-2-3 Capacities at the institutional/societal level

SWM capacities at the institutional/societal level represent the environment, conditions, mechanisms, policies, institutions, regimes, and norms that are all required both to enable capacities to be demonstrated at the individual and organizational levels and to ensure that sustainable SWM systems work.

SWM calls for a relevant legal framework, that is, legislation that defines wastes and determines where the responsibility for waste management lies. Based on such legislation, regulations should be established regarding standards on the collection, treatment and disposal of wastes and the management of environmental loads, standards for waste generation, and wider environmental standards. These regulations should be accompanied by legal enforcement, including the authority to provide guidance and to punish offenders.

SWM also calls for wider environmental and urban management policies, specific political objectives and leadership to achieve these objectives. The society's economic system, including its economic scale or level of economic development, is an important prerequisite both for capacities at the level of the legal framework, standards and policies and capacities for the establishment of an actual SWM system. Such a prerequisite encompasses the social infrastructure, including the transport system concerning SWM. How this prerequisite characterizes solid waste problems is discussed in Section 2-2.
In addition to frameworks, policies and the economy, SWM capacities at the institutional/societal level may include informal institutions such as customs, taboos and norms concerning waste. Among social organizations involved in SWM are sweeper castes and social classes, CBOs, NGOs and other types of associations at the community level, and formal and informal recycling markets and industries.

Other capacities identified in the wider context of the entire social system concerning SWM include: environmental/waste education in schools and social education; systems (good governance) or partnerships to ensure that the opinions of local residents are taken into account; and ownership by the society as a whole in relation to SWM, especially public consensus, sentiment or willingness to work together to provide rational SWM services.

These SWM capacities at the three levels are summarized in Table 4-1.

### 4-3 Assessing the capacities of the recipient

Project formulation and goal setting constitute integral parts of any aid project, and they determine the success or failure of projects in the SWM as well as other sectors. Requests for

<table>
<thead>
<tr>
<th>Level</th>
<th>Definition of capacity</th>
<th>SWM capacities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individuals</td>
<td>The will and ability to set objectives and advance them using one's own knowledge and skills.</td>
<td>• Knowledge, linguistic competence, skills, expertise, wisdom, will and a sense of responsibility on the part of the individuals involved in SWM</td>
</tr>
<tr>
<td>Organizations</td>
<td>The decision-making processes and management systems, organizational culture, and frameworks required to achieve a specific objective.</td>
<td>• Human assets (human resources in the engineering, management, and planning sections in SWM, including the development of such resources)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Physical assets (facilities, equipment, land, funds and capital all required to provide SWM services)</td>
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<tr>
<td></td>
<td></td>
<td>• Intellectual assets (expertise in SWM systems; statistical information including waste flows; literature; manuals; and research data)</td>
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<tr>
<td></td>
<td></td>
<td>• An organization form, management, leadership and ownership that can put these assets to good use</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• A shared awareness within organizations</td>
</tr>
<tr>
<td>Institutions/society systems</td>
<td>The environment and conditions necessary for demonstrating capabilities at the individual or organizational level, and the decision-making processes, and systems and frameworks necessary for the formulation and implementation of policies and strategies that are over and above any individual organization.</td>
<td>• Formal legal framework (laws, decrees and ordinances that describe the definition of wastes and clarify where the responsibility for waste management lies)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Formal regulations and standards (standards on the management, treatment and disposal of wastes; standards on waste generation rates; environmental standards; and legal force)</td>
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<tr>
<td></td>
<td></td>
<td>• Policies and politics (articulated SWM policies, policy objectives and politics at central and local government levels)</td>
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<tr>
<td></td>
<td></td>
<td>• Social infrastructure for SWM services</td>
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<tr>
<td></td>
<td></td>
<td>• Informal institutions (customs, historical institutions, taboos and norms concerning waste)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Social hierarchy involved in SWM (waste pickers, certain castes, etc.)</td>
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<tr>
<td></td>
<td></td>
<td>• Social organizations involved in SWM (CBOs, NGOs and other types of associations)</td>
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<tr>
<td></td>
<td></td>
<td>• Formal and informal recycling markets and industries</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Environmental/waste education</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Systems (good governance) or partnership designed to ensure the reflection of the voices of local residents and communities in decision making; partnership between stakeholders concerning SWM</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Social ownership for the implementation of SWM (public sentiments, consensus or willingness to work together)</td>
</tr>
</tbody>
</table>

Source: Compiled by YOSHIDA Mitsuo

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2 Capacities here are defined in reference to *ibid.*
aid from the government or agencies of the recipient are often vague to a greater or lesser extent, although these encompass a desire to solve the waste problems that they are facing. This points to the need for the donor to become involved in project formulation. To this end, the donor needs to examine the background to the problems, identify the concerns and needs of the recipient, and evaluate the ability of the recipient to solve these problems. Information needed in this project formulation phase should satisfy the three requirements discussed in the following paragraphs. Of note, this is also the process of primary assessment of the recipient's capacities for SWM.

4-3-1 Information required for considering the components of aid for SWM

The information essential for considering aid in the solid waste sector comprises the three W's. In other words, the donor must answer the following three questions:

(1) What area does the background information cover?
(2) What is the "waste problem" in question?
(3) Who generates the wastes and who manages them?

(1) What area does the background information cover?

The background information essential for any SWM project should cover the clearly defined extent of a city (or region) and include its natural conditions, geographical scale, population, economic capacity, demographic trends and economic development trends. As has already been discussed in Section 2-2, the scale, economic conditions and other factors of a city are reflected in its waste problems. Figure 2-4 and Section 2-2-3 show typical waste problems for each of the four types of city: "large and poor," "large and middle-income," "small and middle-income," and "small and low-income." Waste problems vary according to the type of city, and so do aid approaches.

The background information should also include the trends in other donor activities in the SWM sector to avoid unnecessary duplication. If another donor is planning or already implementing a relevant project for the same recipient, it is necessary to determine the scope and the objectives of the project and then hold prior consultations with that donor for possible segregation, coordination or even partnership.

The background to this is that the more urgent the problem facing the recipient country, the more donors the country turns to for aid. Yet the recipient country is generally reluctant to tell a donor that it is requesting aid from other donors. Moreover, different agencies of the recipient government may make different requests for assistance with their own motives in mind, but the central government may fail to ensure appropriate coordination among these different, sometimes overlapping, requests.

(2) What is the "waste problem" in question?

When a donor formulates an aid project for SWM based on a request from a recipient, the donor needs to describe what the recipient recognizes as its waste problems and what it wants the donor to do. This process is equivalent to setting the goals to be attained by the project.

Waste problems take many forms in actual settings. They may include the degradation of the urban environment, especially unsanitary streets, caused by the failure to collect wastes regularly and effectively, and environmental pollution around open dumps. The donor should list these problems and make a primary analysis of them, preferably working with the agency that made the request for aid. The next step for the donor is to determine which problem the requesting agency has the most interest in and what aspect of the problem the agency gives high priority to. Then the donor should make a proposal on what it can
do within its scheme for technical assistance.

It is said that “it is not the consciousness of men that determines their existence, but their social existence that determines their consciousness.” Likewise, the scope of authority of the requesting agency or the person in charge determines the focus of the agency. Also, different stakeholders have different aspects that they focus on. The donor should take these factors in account and apply, as necessary, a participatory planning technique\(^3\) that involves problem analysis based on stakeholder analysis.

**(3) Who generates the wastes and who manages them?**

The third requirement is to examine who generates the wastes and who manages them.

As discussed in detail in Chapter 2, waste comes in many forms, which are handled differently in different countries and cities. Yet waste can be largely divided into two types: industrial waste, which is generated by business activity; and non-industrial waste or general waste, which includes residential waste\(^4\).

The former (industrial waste) must essentially be managed by either of two means: recycling, or self-disposal by the establishments (businesses, etc.) that generate the waste based on

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\(^3\) FASID (2004)

\(^4\) See, for example, Nomura and Sakumoto (1997), Chapter 2 (comparison of legislation on general waste in Malaysia, Taiwan, South Korea and Japan).
Supporting Capacity Development in Solid Waste Management in Developing Countries

the Polluter Pays Principle (PPP). Since industrial waste is rather homogeneous in composition and the rate of generation is generally stable, this makes it technically feasible to implement materials cycling based on recycling and reuse. Industrial wastes are often under the jurisdiction of a government office separate from the one that is in charge of general wastes. Consequently, industrial wastes are handled quite differently from general wastes. These factors point to the need to determine whether the waste to be addressed consists of industrial or general wastes in the first place.

Wastes can also be classified into hazardous and non-hazardous wastes. If the waste to be addressed is designated as hazardous waste, special attention should be paid to the managerial and technical improvement of generation sources and treatment methods. The components of technical assistance should be modified accordingly (see Section 2-5). In the case of industrial hazardous waste, donors should examine how relevant legislation defines such wastes and which party is responsible for the management of such wastes in the first place. In addition, it is necessary to clarify who should actually manage it and who should pay for such management.

If all types of waste are handled together without a clear definition of each type or clear assignment of responsibility, assistance for technical improvement can provide nothing more than temporary remedies, no matter how substantial the resources that are applied to such assistance. Ultimately, without institutional improvements, it is impossible to establish a sustainable SWM system. This is an issue associated with capacity assessment at the institutional/societal level, to be discussed below.

General waste, on the other hand, is usually managed by local government institutions. A major issue for assistance to deal with general waste is whether the waste management department of the competent local government institution is well developed and integrated in the

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**Box 4.2 Disparities between the Requesting and Implementing Agencies**

Aid requests to donors do not always come from the actual implementing agencies. In other words, such requests for assistance are sometimes far removed from the needs of those working on the ground.

There are three major reasons for this. Firstly, the SWM administrator is so distant from frontline workers that the requests the administrator puts together do not necessarily reflect the on-the-ground needs. Secondly, such requests are often put on hold due to frequent personnel changes among administrators or equivalent high-ranking officials. Thirdly, the division of responsibilities is unclear between the upper and lower SWM organizations, and therefore the chain of command is not clearly defined.

The disparities between the requesting and the implementing agencies are exemplified by an aid request in connection with JICA’s master plan study for SWM in a regional city in a South Asian country. The request was made by the provincial government that administers municipalities, including the concerned city, through the central government to the Japanese Government. The provincial government did not carry out enough consultations with the municipal government that actually provides the SWM services in the city in the process of summarizing the requests. In fact, the implementing agency-the waste management department of the municipal government—was not informed of the request partly because the administrator who had made the request was replaced. JICA did not know this state of affairs until it conducted a field survey.

As this example illustrates, it is extremely important to gather information directly from the implementing agencies or counterparts in the strict sense of the term.

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recipient country. For example, India, Bangladesh and other former British colonies have often inherited age-old arrangements that were put in place when waste management was not an issue. Under these arrangements, the collection, transportation and disposal of wastes are under separate jurisdictions of different government institutions with a core of their own specialized engineers. These institutions have different budgets and are under different forms of management. Consequently, it is extremely difficult to secure coordination among them. As a result, assistance to the separate components often fails to bring about effective solid waste management, whatever the level of aid resources that are mobilized.

Inadequate SWM organizations constitute a major factor in the failure of project formulation. This is an issue primarily associated with capacity development at the organizational level. Yet donors may have to address the institutional aspects, which include recommendation for the reorganization of the SWM framework.

4-3-2 Items for capacity assessment

There are four items that should be identified first: (i) background conditions; (ii) needs and issues; (iii) the type of waste to be addressed; and (iv) implementing agencies and counterparts. The next step (capacity assessment) is to assess the SWM capacities of the recipient and identify related issues at the three levels discussed in the previous section (see Table 4-1). In other words, it is necessary to identify which capacities are inadequate and therefore should be developed for a given solid waste problem. Through this process, project objectives reveal themselves. In fact, capacity assessment can be considered as the process of planning the details of technical assistance projects and implementing them.

Possible items for capacity assessment are listed below. See Appendix 2 (1) for a example of checklist for capacity development, which is useful for determining aid components. The items in this checklist provide valuable directions for assessing the capacities of the recipient at the social, organizational and individual levels.

Box 4.3 Capacity Development at the Individual Level Is Hard to Define

As an example of the failure of an approach to aid based on non-physical inputs, Section 1-2 has presented a project that a bilateral donor implemented over a period of 13 years between 1980 and 1993 in the Nepalese capital city of Katmandu [Thapa (1998)]. The SWM system in Katmandu ceased to function properly right after the donor withdrew from the city and the project was terminated in 1993. This indicated that the input of 'hardware' or 'software' resources was ineffective without ownership on the part of the recipient.

Although the original goal of the project was not attained, individuals were trained through technical guidance and training as part of the project, and their capacities were improved. In fact, these individuals played a leading role in formulating a Master Plan and other activities as counterparts in JICA’s technical cooperation project in the solid waste sector—the development study that was launched in 2003.

As discussed below, collaboration is the key to the capacity development approach, and collaboration requires, as a precondition, a certain level of development of human resources on the part of the recipient. In this sense, the 13-year project, which was generally considered a failure, greatly contributed to capacity development at the individual level, thus laying the groundwork for successive project.

MURATA Takuya
YOSHIDA Mitsuo
(i) Capacity assessment at the individual level

- What is the level of knowledge, skills and techniques of the individuals in the SWM implementing agency?
- In what language can individuals communicate?
- Are they literate? (Is technical assistance possible in terms of the language(s) the donor uses?)
- What is the level of experience, willingness and sense of responsibility of the individuals?

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Box 4.4 A "Community-Based" Approach for Vientiane

An international donor took a community-based approach when it implemented a program for solid waste management in Vientiane, Laos (see the case study in Section 3-2 for SWM in the capital city). The program was designed to reduce waste through the more efficient recovery of recyclable materials from the waste stream. To this end, the program had a number of components: (i) establishing a collection point for recyclables in each community; (ii) educating the residents about the importance of recycling; (iii) holding workshops on the segregation of recyclables; (iv) pooling the revenues from selling the recovered recyclables in community organizations that also served as a bank and using the revenues for community activities and community revitalization projects. The program tried to promote an initiative similar to recyclables recovery campaigns undertaken by residents' associations in urban areas in Japan and other countries.

This program was deemed a failure. It did not work at all in one of the targeted districts. The recyclables collection point in this district looked like a vacant lot. The concrete building that looked nicer than the homes in the neighborhood, was surrounded by a fence and was locked (see Photo 4-1). This is because residents in Vientiane had already been practicing recyclables recovery on their own initiative before the program was launched. They sold recyclables to scrap dealers (junk yards) and the gains from these sales were part of their personal income. It could be logically concluded that the residents would not give up this voluntary and profitable practice and instead support a "community-based" program.

The only activity that produced positive results was the holding of seminars on the differences between recyclable and non-recyclable materials. These seminars were attended by many residents and were highly evaluated by the communities.

This donor apparently tried to introduce community participation in the SWM system by taking advantage of the historical rural communities that remained in urbanized areas of Vientiane until today. Constructed collection points did not work, and the program could not make expected achievement. This is probably because the donor placed too much emphasis on the principle of the community-based approach and failed to properly assess the capacities at the societal system level, and the functions of the traditional communities and market in particular, before launching the program.

YOSHIDA Mitsuo

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Photo 4-1 A recyclables collection point built with aid from a donor

Left: Exterior appearance of the building
Middle: Interior appearance
Right: A junk shop in the same district. Residents and collectors bring in recyclables on pushcarts.
(ii) Capacity assessment at the organizational level

- What proportion of the physical assets—collection and treatment facilities, collection vehicles, landfill equipment, landfill sites, and funds to operate and maintain these—are assigned to the implementing agency? [Capacities in terms of physical aspects]
- Are intellectual assets available? Intellectual assets include skills and management expertise in operating and maintaining the SWM system, and research and statistical data on the qualities and quantities of wastes, waste flows, etc. [Capacities in terms of the non-physical aspects] Does the implementing agency have an accumulation of manuals and documentation on the findings of solid waste studies? Are they accessible?
- What level of human resources does the implementing agency have to ensure the capacities that cover the physical and non-physical aspects mentioned above? In other words, does each component of SWM have sufficient personnel? Is there a mechanism to train these human resources in a sustainable manner?
- Is the organization structured so that these human, physical and intellectual assets are fully utilized? Is the division of responsibility clearly defined? What is the level of management and leadership in the implementing agency?
- Do the members of the organization share an awareness of the waste situation? Do they share the goal of improving SWM?

(iii) Capacity assessment at the institutional /societal level

- Is there a formal legal framework governing waste (including laws, decrees and ordinances that define wastes and articulate where the responsibility for waste management lies)? Is waste legally defined? Is it clearly divided into general and industrial wastes? Is the responsibility for the management of each type of waste legally defined?
- Does legislation define official standards regarding the management, treatment and disposal of wastes, standards on waste generation, and broader environmental standards? Are standards on the disposal of hazardous wastes clearly defined? Does the legislation provide for a mechanism to enforce the standards and are legal measures applied to deal with offenders?
- Are SWM policies and policy objectives articulated at the central and local government levels? Is SWM integrated into a national strategy (e.g. a national five-year plan)? Can the politicians, government or regime implement such a strategy?
- What is the level of development of the basic social infrastructure for SWM services, including road networks, communication networks and sewerage systems?
- What kind of informal institutions exist in the recipient communities concerning SWM (customs, historical institutions, taboos and norms concerning waste)? How do they function in actual SWM?
- Are there social classes specifically involved in SWM (waste pickers, certain castes, etc.)? What role do they play in actual SWM?
- Are there social organizations involved in SWM (including CBOs such as neighborhood associations, NGOs voluntarily formed by citizens, industry associations, and academic societies)? What interests do they have and what role do they play in actual SWM?
- Are there formal or informal recycling markets and industries? How large or small are they? What items do they handle? What role do they play in actual SWM?
- Is environmental education provided to raise public awareness about waste? In what form is it provided; school education, social education or information campaigns? Are there campaigns for citizens with the aim of reducing waste or cleaning the districts and streets?
• Does the recipient have any systems that are designed to ensure that the opinions of local residents and communities are reflected in politics or government? Are there partnerships between the government, citizens, and private sector organizations such as businesses? Does the recipient have any record of community-based SWM? Does it make efforts to build a consensus with residents concerning waste issues (e.g. landfill siting)?

• Is there social ownership of the implementation of SWM? In other words, are the public willing to work together to solve solid waste problems? Do the mass media take up solid waste issues? Does the society as a whole call for improvements in SWM?

4-3-3 Examples of the application of capacity assessment

In order to implement capacity assessment, it is necessary to prepare a "capacity assessment checklist" specifically for the country, region or city and the sector to be addressed, while referring to the check items for capacity development discussed in Section 4-2. This is closely associated with the four prerequisites discussed in Subsection 4-3-1: (i) background conditions; (ii) needs and issues; (iii) the type of waste to be addressed; and (iv) implementing agency and counterparts.

(1) Capacity assessment in practice

Capacity assessment is usually started by implementation of following two activities. Activity 1 is to implement a survey based on the existing material, including reports and other literature, as well as statements on the achievements of the recipient. In addition, Activity 2, involves carrying out a survey by means of questionnaires, interviews, and consultations with the counterpart agencies in the recipient country, is implemented. To date, these two activities have been taken as part of preliminary surveys, ex-ante evaluation surveys or others, rather than independently. This makes it all the more necessary to standardize the questionnaires to be used in Activity 2. Such a need is highlighted especially in an initial baseline survey. For example, the concept describing capacities at the three levels was employed in short-term project formulation surveys done by JICA overseas office in francophonic countries in Africa. In this case, the survey was solely based on interviews and on-site inspections since they can stay in a city only one day on average due to time constraints. In terms of assessing the overall capacity of the recipient, the concept of capacity assessment at the three levels provides a guideline for these surveys and valuable information for considering what should be done after the surveys.

These surveys, however, have limitations in terms of assessing the motivation and ownership of the recipient, since they primarily use document-based communication tools. To overcome such limitations, it is necessary to make an overall assessment through addition of an Activity 3 and, in some cases, Activity 4 and/or Activity 5. Activity 3 is to conduct capabilities evaluation based on presentations as well as question and answer sessions in seminars. Activity 4 is to implement an examination. Activity 5 is to implement pre-phase technical cooperation (by short-term experts and/or volunteers). Activities 3, 4 and 5 take relatively longer period than activities 1 and 2. Therefore, to make an overall capacity assessment, it is effective to implement pre-phase technical cooperation activities, such as the dispatch of experts.

Another viable option is to introduce the concept of capacity development using PCM workshops (Figure 4-1). In this option,

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5 Kawanabe (2005)

6 The preparatory study on technical cooperation in monitoring pollutants derived from industrial waste in Kazakhstan provides a good example. In this study, JICA asked the implementing agency in Kazakhstan to analyze reference materials on which analytical data is already available. Then JICA examined their data against the accredited values to assess their capacity concerning their analytical skills. JICA (2005a)
facilitators or workshop advisors may organize discussions while taking capacity in SWM into full consideration (Photo 4-2, a workshop in Dhaka).

Capacity assessment is not a novel concept for JICA. As discussed earlier, capacity assessment has been more or less carried out in project formulation surveys, preparatory studies for development studies, and ex-ante evaluation of technical cooperation projects. The problem is that it has been conducted on a case-by-case basis, making capacity assessment incomprehensible at times and diverse in terms of quality. In this sense, capacity assessment checklists provide a standardization tool. Such an attempt to standardize capacity assessment has, to a certain extent, the effect of avoiding subjective judgments and standardizing the processes of project formulation, monitoring and evaluation, which have traditionally been diverse in quality.

Figure 4-1 Introduction of a viewpoint on Capacity Assessment in a PCM workshop

PCM workshop is a capacity assessment process itself. The concept of capacity assessment offers a more comprehensive frame of reference to PCM workshops. PCM workshops, in turn, ensure ownership on the part of the recipient, which should be respected in capacity development. In short, they are mutually supportive.

Source: Compiled by YOSHIDA Mitsuo

Photo 4-2 Capacity Assessment through Participatory Workshops

Participatory workshops provide a quite effective means for capacity assessment. Participants can conduct a stakeholder analysis and problem analysis to form a common understanding of the capacity level of the recipients. These are photos of a workshop JICA conducted in Dhaka for the implementing agency as part of its development study. One of the participants is holding up cards on which the individual's concerns have been written, so that the problems and issues can be identified and analyzed. Members of the study team from JICA served as facilitators and commentators at this workshop.
(2) Application of capacity assessment tables (score tables)

Capacity assessment tables (score tables) designed to provide quantitative indicators may impart a viable option for capacity assessment. Such tables facilitate the screening and priority-setting processes at the project formulation phase. Capacity assessment tables (score tables) have so far been prepared in the Regional project formulation survey in the Oceania Region\(^7\) and the preparatory study on the integrated management of urban solid waste in Santo Domingo National District (development study, Dominican Republic)\(^8\). Excerpts from these tables are shown in Table 4-2 and Table 4-3.

Capacity assessment tables (score tables) are characterized by the systematic and incremental arrangement of rated criteria. Assessment items and rated criteria vary widely according to the state of the country, region or city and the sector to be addressed. Such tables can take many forms. For example, Table 4-2 shows a capacity assessment table for the collection and transportation aspect of solid waste management (SWM) with five assessment items: "storage and discharge of the waste," "separate collection/recovery," "populations and areas covered by public services," "waste collection frequencies," and "collection vehicle operation plans." For each item, four stages of development are established, and assessment is made as to which stage the current state of affairs represents\(^9\). For the item "separate collection/recovery," for example, the four stages are described as:

(i) No separate collection/recovery is being implemented.

(ii) Some types of recyclables are collected/recovered separately, but irregularly.

(iii) A system to separately collect recyclables such as aluminum cans and organic wastes is in place.

(iv) A system of segregated collection to separately collect/recover recyclables, hazardous wastes and bulky wastes is in place.

The stages (i)-(iv) correspond to the scores 1-4: the higher the score, the higher the stage of development in SWM. An attempt has been made to assess the stage the targeted region is in (Table 4-2). Assessment criteria are rather qualitative, although some of them are quantitative, as in the criteria for the item "populations and areas covered by public services" in Table 4-2.

In this way, the total score for the five items provides a numerical measure for the overall capacity of the aid recipient with respect to "collection and transportation."

Such capacity assessment tables (score tables) are expected to be used in three ways. Firstly, they may be used as a tool for the processes of "regional project formulation," "(local) project formulation" and "project appraisal" (screening the candidate projects and evaluating their relative priority). In other words, the lower the score, the higher the priority when it comes to the screening of requested projects in the SWM sector. The second type of use is related to the design aspect of aid projects. Capacity assessment tables may be used as a tool for determining the focus and goals of such projects. Thirdly, capacity assessment tables may provide indicators that are useful for monitoring the progress in capacity development that has been made by a given technical cooperation project. For example, assessment tables make it easier to set specific goals - how much the project should improve the score with regard to the capacity with regard to "collection and transportation." They also serve as a tool to assess the impact of the project.

Hence, using capacity assessment tables

\(^7\) Amano (2004)

\(^8\) JICA (2005b)

\(^9\) This is similar to the concept of the four levels (Levels 1, 2, 3, 4) towards sanitary landfill discussed in Subsection 2-6-5 (Table 2-17). In this concept, assessment is made with reference to the pre-determined stages of technical development towards sanitary landfill.
(score tables) and thus promoting a quantitative rating system in capacity assessment can be useful for the planning, implementation, monitoring and evaluation of a project. However, applications of capacity assessment tables in capacity assessment process are still developing stage, and there are three major issues to be addressed.

The first issue is associated with the nature of capacity assessment tables - they are inevitably oriented toward a certain direction of development. Their application without adequate understanding on the part of the recipient may undermine the very principle that capacity development support is based on the ownership and initiative of the recipient. In other words, capacity assessment tables might even provide a tool for compulsion of value judgment by external parties. Undoubtedly, the assessment items are selected precisely as those capacities necessary to operate SWM systems effectively and efficiently. Therefore capacity assessment tables may provide a certain level of universality when it comes to rather technical items (skills, intellectual assets, physical assets at the level of individuals and organizations). Yet careful attention must be paid to capacity assessment at the level of institutions/social systems in this respect (Table 4-3).

The second issue is the relevance of the rated criteria, in other words, how should the four stages of development be defined. This issue is not so much of a problem when it comes to items that can be expressed quantitatively (for example, the item of "populations and areas covered by public services" in Table 4-2) since they can be assessed objectively. In the case of items that have to be expressed qualitatively (the other items in Table 4-2), any criteria should determine specific and clear phenomena, objective facts, and indicators that call for ownership on the part of the recipient as far as possible. The fact remains, however, that rational description is not always possible for all the capacities\(^\text{10}\). Ratings should be weighted so as to correspond to the stages of development, while striking a balance between the assessment items. As far as qualitative criteria are concerned, however, the basis for such weighting may be unsubstantial.

The third issue is that the further the objectivity of capacity assessment is pursued through such a quantitative rating system, the more likely the risk of undermining the very principle that capacity development support should be based on ownership and initiative on the part of the recipient.

As it stands, the capacity assessment approach with the use of capacity assessment tables (score tables) has both advantages and limitations. Such tables can provide a useful tool when the donor and the recipient work together to define the rated criteria and carry out the assessment based on shared information. In other words, it is essential to have a mutual understanding between the donor and recipient regarding the assessment table and the value of capacity assessment itself. In this sense, it is both difficult and dangerous for a short-term study team from JICA to apply this approach and make an overall assessment. This approach should preferably be adopted as part of pre-phase technical cooperation activities by dispatched experts who stay in the recipient country long enough to be able to work closely with their counterparts.

\(^{10}\)A viable approach may be to define each criteria based on what kind of technical cooperation is necessary or effective, corresponding to the four phases in the schematic diagram of the step-wise evolution of technical cooperation (Figure 5-1) in the following chapter.
### Table 4-2 Example of a Capacity Assessment Table (Score Table) (1)

**Assessment target:** Capacities at the organizational level

1. **Collection and transportation**

<table>
<thead>
<tr>
<th>Assessment items</th>
<th>Assessment criteria</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Storage and discharge of waste</strong></td>
<td>□ No rules on storage and discharge. No rules on storage containers. Litter on the streets.</td>
<td>2</td>
</tr>
<tr>
<td><strong>Separate discharge/recovery</strong></td>
<td>□ No separate collection/recovery is being implemented.</td>
<td>3</td>
</tr>
<tr>
<td><strong>Populations and areas covered by public services</strong></td>
<td>□ Collection and transportation services are limited to some parts of the city. Collection services cover 10% or less of the population.</td>
<td>2</td>
</tr>
<tr>
<td><strong>Waste collection frequency</strong></td>
<td>□ Irregular. Once a month or less.</td>
<td>3</td>
</tr>
<tr>
<td><strong>Collection vehicle operation plans</strong></td>
<td>□ The collection vehicle operation plan is determined by the collection workers. The routes and hours are subject to change for their benefit.</td>
<td>1</td>
</tr>
</tbody>
</table>

The table is an excerpt from the complete assessment table that has been prepared on an experimental basis in the preparatory study for the Integrated Management of Urban Solid Waste in Santo Domingo National District. Capacities with regard to the "collection and transportation" of waste are reviewed in terms of five items. There are four rated criteria for each item. The state of affairs is assessed against these criteria and the total score is calculated.

**Source:** JICA (2005b)
### Table 4-3  Example of a Capacity Assessment Table (Score Table) (2)

**Assessment target:** capacities at the level of institutions and societal systems

1. Social aspects

<table>
<thead>
<tr>
<th>Assessment items</th>
<th>Assessment criteria</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Social norms</strong></td>
<td>□ The traditional decision-making process outweighs the administrative system.</td>
<td>☑ The traditional decision-making process and the administrative system coexist, but the former has a greater influence on the latter.</td>
</tr>
</tbody>
</table>

| Recycling markets | □ No recycling markets. No systems for collection and export. | □ Fragile recycling markets. Some types of recyclables are recovered for domestic consumption or irregular export. | ☑ A system to recover recyclables is in place. Recyclables are regularly exported to developed countries. Small-scale recycling markets have been established. | □ Recycling markets have been established in the country. Recyclables are traded with other countries on a permanent basis. | 3 |

| Environmental education and information campaigns | □ No environmental education. | ☑ Informal environmental education. Small-scale campaigns are mounted irregularly. | □ Environmental education is integrated into school education. Campaigns are mounted regularly. | □ Environmental education is well established in the schools and communities. Nationwide campaigns are mounted regularly. | 2 |

| NGO involvement | □ Few NGOs are involved. | □ NGO involvement is limited in terms of sector and area. | ☑ NGOs are active in two or more sectors or areas in communication with the local government. | □ NGOs are active in many sectors and areas. Their inputs are reflected in government policies. | 3 |

| Public participation | ☑ Public awareness about waste issues and the environment is quite low. | □ Limited public participation. Some communities stage campaigns for waste separation or street cleanup. | ☑ The public is proactively involved with a high level of awareness concerning waste issues. | □ The public and the local government work together. The inputs of the public are reflected in the policies of the local government. | 1 |

**Total** |  |  |  |  | 11 |

This table is an excerpt from the full assessment table that has been prepared on an experimental basis in the preparatory study for the Integrated Management of Urban Solid Waste in Santo Domingo National District. As with Table 4-2, capacities at the level of institutions and social systems are reviewed in terms of five items. There are four rated criteria for each item. The state of affairs is assessed against these criteria and the total score is calculated. Compared with the item “collection and transportation,” the criteria for “capacities at institutions and societal systems” are extremely difficult to define and involve subjectivity, since they concern values and thus allow for a greater diversity of interpretations.

Source: JICA (2005b)