

# SUCCESS and SUSTAINABILITY INDICATORS

— a tool to assess primary collection schemes

**Case study: Khulna, Bangladesh**

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2000



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Figure 1: Map showing Khulna, Bangladesh

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## Acronyms

**NGO** Non-Governmental Organisation

**CBO** Community Based Organisation

**KCC** Khulna City Corporation

**Tk** Taka, currency of Bangladesh (1 US\$  $\approx$  Tk50 in 2000)

## **Glossary**

<b>Demountable containers</b>	Moveable containers used to collect waste
<b>Eid</b>	Islamic festival
<b>Sweepers</b>	Street cleaners employed by the municipality
<b>Ward</b>	Administrative section of the city
<b>Ward commissioner</b>	Elected representative of the Ward

## **Introduction**

A list of success and sustainability indicators for primary solid waste collection systems was prepared by the project team as part of the Knowledge and Research (KAR) research project, *Capacity Building for Primary Collection of Solid Waste*, funded by the UK Department for International Development (DFID). The indicators were prepared in an attempt to assist fieldworkers when undertaking impact assessments of primary solid waste collection schemes. Such assessments are frequently done from only one perspective and fail to take the views of all the major stakeholders into consideration. These indicators draw attention to the fact that the opinions of all stakeholders, including the urban poor, are relevant in assessing the success and sustainability of a project. They are developed around past studies of primary collection schemes based mainly in South Asia.

This booklet presents the indicators, their use and results from their field-testing. This field-testing was carried out in March 2000 in Khulna City, Bangladesh, in collaboration with the Water and Sanitation Programme (WSP), Dhaka, Bangladesh. The final section of the booklet draws lessons on further use of the indicators.



# 1.

## **Success and Sustainability Indicators for Primary Collection Schemes**

### **1.1 Primary solid waste collection schemes: An overview**

In urban areas, solid waste collection systems are normally provided by municipalities. In high-income developed countries, this usually entails the collection of waste from properties and its subsequent conveyance to a municipal disposal site. However, in most low-income countries, the door-to-door collection of waste is not provided, and it is normally the responsibility of the householder to convey their waste to a communal bin or transfer point provided in the locality. The municipality then collects the waste from these points and takes it to the final disposal site. However, the municipality is frequently under-staffed and under-financed, resulting in a poor service. Communal bins and transfer points are often too far away for the easy transfer of waste by householders. As a result, waste builds up in local areas, on streets and vacant plots presenting a hazard to the local residents. This is truer in low-income areas of cities than anywhere else. Primary solid waste collection schemes have been initiated in many low-income countries in response to this problem. These schemes are managed by NGOs, community groups, micro-contractors or local politicians. They provide the door-to-door collection of waste and its subsequent transportation to the local municipal bins. The service charges are usually made directly to the users of the service but sometimes supplemented by external funding. In most circumstances, the schemes develop as a result of a demand shown by the local residents and are paid for by the householders who receive the service.



## 1.2 Why do we need success and sustainability indicators?

When it comes to assessing the performance of primary solid waste collection schemes, there are very few tools available. One tool which can be developed is a list of indicators that will draw attention to the various aspects of each project which contribute in some way to the project's success or sustainability. This provides the fieldworker with a checklist against which to perform a detailed analysis of the project and provides a way of comparing the success and sustainability of different schemes.

The indicators are arranged in lists according to the group whose perspective is sought on each issue. If the indicators are considered from the perspective of one stakeholder only, they may disadvantage another group. It is important that the views of all major stakeholders in each scheme are considered carefully. This will also help each of the groups of major stakeholders to evaluate the present scheme and develop ways to improve it. The lists of indicators are presented in tables to reflect the different perspectives of the major stakeholders. Each table has the following three columns:

1. The indicator;
2. Its description; and,
3. How to measure the indicator.

It is important to realize that these indicators are country and area-specific, and priorities of certain indicators may be stronger in some places and at some times than others.

## 1.3 The indicators

### 1.3.1 The users' perspective

*How do the users judge the scheme?*

<b>Table 1. The users' perspective</b>		
<b>Indicator</b>	<b>Description</b>	<b>Means to</b>
<b>Area improvement</b>	Is the area cleaner than before the scheme was in place?	<ul style="list-style-type: none"> <li>■ Brief qu</li> <li>■ Numbe scheme</li> </ul>
<b>Convenience</b>	Is the scheme convenient to use, i.e. times of collection, placement of waste for collection?	<ul style="list-style-type: none"> <li>■ Brief qu</li> <li>■ Study o scheme</li> </ul>
<b>Affordability</b>	Is the scheme affordable to all? Does the service represent good value for money?	<ul style="list-style-type: none"> <li>■ Questio</li> <li>■ How ma on a re;</li> <li>■ Survey</li> </ul>
<b>Frequency and reliability</b>	Is the service of reasonable frequency and reliability?	<ul style="list-style-type: none"> <li>■ Brief su with fre</li> <li>■ Numbe service</li> <li>■ Survey from hc</li> </ul>
<b>Extra waste</b>	Is there a system available to take care of extra waste generated during festivals etc.? Is there a service to remove construction debris?	<ul style="list-style-type: none"> <li>■ Brief qu provider</li> <li>■ Check v</li> <li>■ Survey c area.</li> </ul>
<b>Increase in rental and land values</b>	Have the users experienced other effects of the scheme, e.g. an increase in rental and land values?	<ul style="list-style-type: none"> <li>■ Questio</li> <li>■ Check c landlorc</li> </ul>
<b>Complaints system</b>	Is there an efficient complaints procedure in place? What is the response system and are people prepared to complain if they feel it is necessary?	<ul style="list-style-type: none"> <li>■ Researc</li> <li>■ Ask use compla compla</li> </ul>

## SUCCESS AND SUSTAINABILITY INDICATORS

### 1.3.2 The municipality's perspective

*How does the municipality judge the scheme?*

<b>Table 2. The municipality's perspective</b>		
<b>Indicator</b>	<b>Description</b>	<b>Means to</b>
<b>Area improvement</b>	Is the area cleaner than before the scheme was in place?	<ul style="list-style-type: none"> <li>■ Brief qu</li> <li>■ Numbe scheme</li> </ul>
<b>Municipal support</b>	How much support does the municipality have to give the scheme? Do the results represent good value from these inputs?	<ul style="list-style-type: none"> <li>■ Questio nature</li> </ul>
<b>Impact on municipal services</b>	Are municipal workers diverted from their proper jobs? Does the scheme take pressure off the municipal services? Has the scheme assisted the municipality to increase its capacity in solid waste activities?	<ul style="list-style-type: none"> <li>■ Survey in their</li> <li>■ Survey stage (I this ser more w</li> <li>■ Survey taken p scheme</li> <li>■ Questio capacit</li> </ul>
<b>Staff satisfaction</b>	Are municipal staff satisfied with the scheme?	<ul style="list-style-type: none"> <li>■ Questio satisfac</li> <li>■ Monitor municip</li> </ul>
<b>Complaints</b>	Has the scheme resulted in a reduction in the number of complaints received by the municipality regarding waste collection?	<ul style="list-style-type: none"> <li>■ Survey compla</li> </ul>

### 1.3.3 The NGO's perspective

*How does the NGO judge the scheme?*

In this case, considering NGO who is involved in promoting primary solid waste collection schemes, may include supplying equipment, micro-credit etc.

<b>Table 3. The NGO's perspective</b>		
<b>Indicator</b>	<b>Description</b>	<b>Means to</b>
<b>Replicability</b>	Does the scheme provide a replicable model for further projects?	<ul style="list-style-type: none"> <li>■ Brief qu replicat</li> <li>■ Survey , the sch</li> </ul>
<b>Sustainability</b>	Will the scheme be sustained once all assistance from the NGO is withdrawn?	<ul style="list-style-type: none"> <li>■ Survey ,</li> <li>■ Survey , Can the</li> <li>■ Survey , present</li> </ul>
<b>Area improvement</b>	Is the area cleaner than before the scheme was in place?	<ul style="list-style-type: none"> <li>■ Brief qu</li> <li>■ Number scheme</li> </ul>
<b>Fulfillment of specific aims</b>	Has the scheme fulfilled other aims, for example, creation of livelihoods, improvement in health etc.?	<ul style="list-style-type: none"> <li>■ Questio scheme</li> <li>■ Surveys aims.</li> </ul>

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### 1.3.4 The CBO's perspective

#### *How does the CBO judge the scheme?*

In this case, considering a CBO who acts as initiator to the inception of primary collection scheme.

<b>Table 4. The CBO's perspective</b>		
<b>Indicator</b>	<b>Description</b>	<b>Means to</b>
<b>User satisfaction</b>	Are the users satisfied with the scheme?	<ul style="list-style-type: none"> <li>■ Survey compla</li> </ul>
<b>Area improvement</b>	Is the area cleaner than before the scheme was in place?	<ul style="list-style-type: none"> <li>■ Brief qu</li> <li>■ Numbe scheme</li> </ul>
<b>Sustainability</b>	Will the scheme be sustained?	<ul style="list-style-type: none"> <li>■ Survey</li> <li>■ Survey</li> <li>Can the</li> </ul>
<b>Recognition</b>	Do the users recognize that the scheme is in place due to the efforts of the CBO?	<ul style="list-style-type: none"> <li>■ Questio the CBO success</li> </ul>

### 1.3.5 The local politician's perspective

#### *How do the local politicians judge the scheme?*

<b>Table 5. The local politician's perspective</b>		
<b>Indicator</b>	<b>Description</b>	<b>Means to</b>
<b>Area improvement</b>	Is the area cleaner than before the scheme was in place?	<ul style="list-style-type: none"> <li>■ Brief qu</li> <li>■ Numbe scheme</li> </ul>
<b>Replicability</b>	Does the scheme provide a replicable model for further projects?	<ul style="list-style-type: none"> <li>■ Brief qu replicat</li> <li>■ Survey the sch</li> </ul>
<b>Recognition</b>	Do the users recognize that the scheme is in place due to the efforts of the local politicians?	<ul style="list-style-type: none"> <li>■ Questio the loca the suc</li> <li>■ Questio has inci politicia</li> </ul>

### 1.3.6 The small contractor's perspective

#### *How do the small contractors judge the scheme?*

In this case, considering small contractors who use their entrepreneurial initiative to undertake to provide a primary collection scheme.

<b>Table 6. The small contractor's perspective</b>		
<i>Indicator</i>	<i>Description</i>	<i>Means to</i>
<b>Sustainability</b>	Will the scheme be sustained?	<ul style="list-style-type: none"> <li>■ Survey</li> <li>■ Survey</li> <li>Can the</li> </ul>
<b>Sustainable livelihood</b>	Has the scheme resulted in the creation of a sustainable livelihood for the small contractor?	<ul style="list-style-type: none"> <li>■ Measur</li> <li>to befor</li> </ul>
<b>User satisfaction</b>	Are the users satisfied with the scheme?	<ul style="list-style-type: none"> <li>■ Survey</li> <li>compla</li> </ul>
<b>Recognition</b>	Do the users recognize that the system is in place due to the efforts of the small contractors?	<ul style="list-style-type: none"> <li>■ Questio</li> <li>that the</li> <li>role in t</li> </ul>

### 1.3.7 The sweeper's perspective

#### *How do the sweepers judge the scheme?*

In this case, considering municipally employed sweepers who also undertake primary collection as part of a supplementary scheme.

<b>Table 7. The sweeper's perspective</b>		
<i>Indicator</i>	<i>Description</i>	<i>Means to</i>
<b>Increased income</b>	Has the scheme resulted in an increased income for the sweeper?	<ul style="list-style-type: none"> <li>■ Assess</li> <li>the ince</li> </ul>
<b>Recognition</b>	Do the users of the scheme realize that is in place due to the efforts of the sweepers? Has this increased their respect for sweepers?	<ul style="list-style-type: none"> <li>■ Questio</li> <li>the sch</li> <li>sweepe</li> <li>opinion</li> </ul>
<b>Problems with the municipality</b>	Has participation in the scheme resulted in problems between the sweeper and the municipality?	<ul style="list-style-type: none"> <li>■ Questio</li> <li>supervis</li> </ul>

## 1.4 Repetition of indicators

Some indicators are important from more than one perspective. For example, an increase in the cleanliness of the area is not only important to the local residents (users) but also the municipality, the NGO, the local elected representative etc. When this occurs, it is important that they are included in more than one table in order that it is remembered that the particular factor is an issue for each of the stakeholders.

## 1.5 Guidelines for use of these indicators

These indicators have been prepared for use by fieldworkers when assessing primary collection schemes. It is intended that they be used as a checklist during the formulation of assessment activities. The final choice of methods and other details are left to the fieldworkers who must choose it on the basis of local knowledge. In some cases, it may be appropriate to develop questionnaires or interviews with the various stakeholders. In this case, they can be developed around the indicator list. In other circumstances, it may be possible to formulate focus group meetings or conduct work surveys. In each case, it is intended that the indicators can provide guidance on the main issues that must be addressed.

There are also many issues that should be considered in any research project.

- **Size of sample group.** The groups used to gather information must be of a representative size to the total population involved in the scheme. It may be aimed to find out the views of a sample group, which constitute 5% of the total population, but the group should not consist of less than 30 people.
- **Selection of sample group.** The sample group should be representative of the population and be gathered from a cross section of socio-economic groups present in the area. The indicators help to ensure that each main group of stakeholders is considered but each group will have many sub-sections. For example, the users may be from both high-income areas and low-income areas. It is important to think about how the individual participants are chosen. For example, in many cases, the easiest way to find willing participants is with the help of the organization who runs the primary collection scheme. However, the people chosen will, most likely, be previously known to the organization and hence be more likely to know about and support the scheme.
- **The research method used.** There are many different methods that can be used to gather information such as independent interviews, group discussion, focus groups, work surveys etc. The method used should be selected carefully by the fieldworker depending on the local situation, the time and resources available etc. Although questionnaires/interviews have been suggested as the 'means to measure' for many of these indicators, they do not always yield the most accurate results. Often, more meaningful data can be gathered

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by group discussion, focus groups etc. In each case, special consideration must be given to the wording of questions etc. The ‘description’ of each indicator is not intended to be a question for use in interview but merely an aid for the reader.

- **Qualitative information.** The above information must be triangulated by qualitative surveys, open-ended discussions, observations etc., in order to crosscheck the findings and reach definite conclusions.



## Khulna City



Source: CIA, 2000

## 2.

### Case Study: Khulna City

Khulna City is situated in Khulna District, in the southwestern area of Bangladesh in the Ganges delta. It is the third largest city in Bangladesh, with an estimated population of 1.2 million (2000) and a population growth rate of 5% per year. It is a river port and the trade and processing centre for the products of the Sundarbans, a swampy, forested coastal region. Agricultural products are processed, especially rice, oilseed and cotton. There are also industries in wood processing and shipbuilding.

The city occupies an area of approximately 267sq km. The city core is about a quarter of the total city area and is densely populated. It has mostly multi-storied residential and commercial buildings. The rest of the city is a mixture of urban and peri-urban areas. There are several low-income areas and slums throughout the city.



## 2.1 Solid waste management in Khulna

As with many major cities in developing countries, Khulna is experiencing huge problems in dealing with the solid waste generated in the city every day. A fast growing population, coupled with an increase in industrial activities and uncontrolled urbanization, has led to rapidly increasing quantities of waste being generated. Using an estimated generation rate of 0.2kg/household/day it can be calculated that approximately 240 tons of solid waste is generated in Khulna City everyday (Murtaza and Rahman, 2000). However, only 60 (Chowdhury, 2000) to 120 tons (Monsoor, 2000) of the generated waste is collected daily by KCC and reaches the municipal disposal site. Therefore, between 120 and 180 tons of waste remains uncollected every day (estimate between  $\frac{1}{2}$  and  $\frac{1}{3}$ ). Some of this is recycled by the informal recycling industries that exist in the area. The remaining uncollected waste is often dumped in an uncontrolled manner throughout the city, clogging drains, blocking roads and occupying vacant plots of land. This not only causes problems of flooding and increased traffic congestion but also presents a health risk to the local communities.



Khulna City Corporation is responsible for the operation and maintenance of municipal services including solid waste management. The City Corporation is headed by an elected Mayor and operates through 41 elected Ward Commissioners, one for each of the 31 Wards and an additional 10 women Ward Commissioners. It is made up of eight functional departments (e.g. administration, engineering and conservancy). The conservancy department is responsible for solid waste management, street sweeping, public latrines and urinals, cleaning of drains, etc. The solid waste management services comprise of the collection of waste from approximately 1,200 masonry bins, constructed by the City Corporation, located on roadsides throughout the city. Households are expected to dispose of their waste in the masonry bins. The waste is then transported to its final disposal site (approximately 8km from the city) by the City Corporation's trucks.

The City Corporation has recently acquired 10 demountable containers which are placed in prime collection points throughout the city.

According to the City Corporation, the problem of solid waste management is too extensive for them to manage. The conservancy tax (4% of holding tax) is not even sufficient to fund the level of service currently provided. For example, in 1998, funding from the tax was only Taka 2.7 million (1 US\$  $\approx$  Taka 50), whereas the total expenditure by the conservancy department in that year was Taka 17.8 million. Thus, the City Corporation has to depend heavily on grants from the central government.

As a result of the poor service provided by the KCC, many NGOs, CBOs and private organizations have developed solid waste management projects. These projects have developed in order to assist the KCC in its waste management tasks. The main service provided by these groups is primary collection of waste.

## **2.2 The solid waste management project**

The main objective of this project was to improve the solid waste management systems operating in the area, in order that a cleaner, more hygienic environment be developed. A vital aspect of the project was to increase community awareness and participation. The main activity of the project is the primary collection of solid waste from project areas. The project was financed by the Swiss Agency for Development and Co-operation (SDC), with technical and management support from the Water and Sanitation Programme (WSP). Prodiplan, a Bangladesh-based NGO, currently operating in seven cities throughout the country, were selected to implement a three-year pilot project in solid waste management. This has led to a great reduction in the amount of waste that lines the streets. At present, these activities are still operated and managed by Prodiplan, however, local communities are currently being prepared to take over these activities when Prodiplan withdraws its support at the end of the three-year project period in December 2000.

The primary collection services currently operate in six wards serving 22 communities (or collection blocks), each of between 400 and 500 households, every day of the year (in total approximately 71,500 beneficiaries). The waste is collected from the households and disposed at a secondary disposal or transfer point. From here, the waste is collected by the KCC and taken to the final disposal point.

Prodiplan have also been involved in community motivation and awareness raising activities, such as poster printing and billboard installation and training. Throughout the project period, various other problems have developed or become apparent to Prodiplan. Where possible, steps have been made to attempt to solve these problems, often on a pilot project basis. For example, the development of improved waste transfer stations and an improvement in clinical waste management systems.

## **2.3 Communities studied**

The particular community studied in this research was Maulivipara community in Ward 27. The community is a diverse mixture of both high- and low-income areas, slums positioned in between up-market properties. It was, therefore, possible to get the views of both high- and low-income households within the same community.

## **2.4 Methods used in fieldwork**

Fieldwork was carried out with the help of Monir Chowdhury, the Prodipan Project Coordinator. He gave a good overview of the project activities by various visits and also assisted in more specific research tasks. He helped to select participants and organize the interviews with help from the local community organizers. He also acted as an interpreter throughout.

Interviews were carried out in a traditional manner with participants answering questions. These questions also acted as the basis for further discussion where appropriate. In most cases, interviews were carried out with each participant individually. However, it was felt that when interviewing the drivers and collectors, it would be desirable to interview both drivers and then both collectors simultaneously. This was done both due to time constraints and in the hope that some discussion may be prompted. It was also thought that the boys who were collectors might feel intimidated if they had to do the interviews individually.

Information was also gathered in a group discussion at the monthly meeting of Prodipan Community Organizers. This discussion mainly focused on problems that they had encountered in their communities but also touched on complaints that they had received.

## **2.5 Outcomes of fieldwork**

The interviews and discussions were carried out both for the purpose of improving documentation of the Prodipan schemes and the assessment of these indicators.

### **2.5.1 The users' perspective**

Interviews were carried out with users of the Prodipan primary collection scheme. Key informants were chosen, one from a high-income community and one from a low-income community. If more time were available, it would be advisable to interview a greater selection of users from a wider variety of socio-economic groups.

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### 2.5.1.1 *The high-income users' perspective*

<b>Table 8. The high-income users' perspective</b>		
<b>Indicator</b>	<b>Description</b>	<b>Outcome</b>
<b>Area improvement</b>	Is the area cleaner than before the scheme was in place?	Yes, the area is cleaner than before the scheme was in place.
<b>Convenience</b>	Is the scheme convenient to use, i.e. times of collection, placement of waste for collection?	Yes, the scheme is convenient to use, i.e. times of collection, placement of waste for collection.
<b>Affordability</b>	Is the scheme affordable to all? Does the service represent good value for money?	Yes, the scheme is affordable to all as the charges are reasonable and represent good value for money.
<b>Frequency and reliability</b>	Is the service of reasonable frequency and reliability?	Yes, waste collection is provided regularly and reliably.
<b>Extra waste</b>	Is there a system available to take care of extra waste generated during festivals etc.?	Normally no, but there is a system in place to collect extra waste during festivals etc.
<b>Increase in rental and land values</b>	Have the users experienced other effects of the scheme, e.g. an increase in rental and land values?	She said that there is an increase in rental and land values due to the scheme.
<b>Complaints system</b>	Is there an efficient complaints procedure in place? What is the response system and are people prepared to complain if they feel it is necessary?	Yes, there is a complaints procedure in place and people are prepared to complain if they feel it is necessary.

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### 2.5.1.2 The low-income users' perspective

<b>Table 9. The low-income users' perspective</b>		
<b>Indicator</b>	<b>Description</b>	<b>Outcome</b>
<b>Area improvement</b>	Is the area cleaner than before the scheme was in place?	Yes, the area was started cleaner than before because the waste goes out of the area.
<b>Convenience</b>	Is the scheme convenient to use, i.e. times of collection, placement of waste for collection?	Yes, the scheme is particularly convenient for the placement of the waste. Even if the waste is not taken away, the waste is still there.
<b>Affordability</b>	Is the scheme affordable to all? Does the service represent good value for money?	The scheme is affordable to all. The monthly fee is a small amount of money and means that the service is available to all.
<b>Frequency and reliability</b>	Is the service of reasonable frequency and reliability?	Yes, waste is collected regularly and 12.31 times a year.
<b>Extra waste</b>	Is there a system available to take care of extra waste generated during festivals etc.?	Yes, the community is aware of the fact that there is extra waste during festivals etc. and they are prepared to deal with it.
<b>Increase in rental and land values</b>	Have the users experienced other effects of the scheme, e.g. an increase in rental and land values?	No awareness of an increase in rental and land values.
<b>Complaints system</b>	Is there an efficient complaints procedure in place? What is the response system and are people prepared to complain if they feel it is necessary?	Yes, there is a complaints procedure in place. There are many people who have a lot of complaints. The Organizer is prepared to deal with them.

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**2.5.2 The municipality’s perspective**

An interview was carried out with Fazl Abu Monsoor, Chief Executive Officer (CEO) of Khulna City Corporation (KCC).

<b>Table 10. The municipality’s perspective</b>		
<b>Indicator</b>	<b>Description</b>	<b>Outcome</b>
<b>Area improvement</b>	Is the area cleaner than before the scheme was in place?	Yes. Prior everywhere don’t dur now able
<b>Municipal support</b>	How much support does the municipality give the scheme? Do the results represent good value from these inputs?	The munic them offic areas and effectively and Prodi KCC have to have pi willing to i KCC will p
<b>Impact on municipal services</b>	How are municipal services affected?	Has not a were not i still not in made eas place, but However, job has be KCC has e capacity k more staf demounte
<b>Staff satisfaction</b>	Are the municipal staff satisfied with the scheme?	Initially, th they thou, jobs. Now they are p The CEO s improvem him — he clinical us

## SUCCESS AND SUSTAINABILITY INDICATORS

### 2.5.3 The NGO's perspective

An interview was carried out with Monir Alam Chowdhury, the Project Co-ordinator of the Municipal Solid Waste Management Project for Prodipan. Some of the indicators were also discussed during field visits.

<b>Table 11. The NGO's perspective</b>		
<b>Indicator</b>	<b>Description</b>	<b>Outcome</b>
<b>Replicability</b>	Does the scheme provide a replicable model for further projects?	Yes, Prodip is economically viable as a pilot project. It has been replicated in other areas (the manager's perspective).
<b>Sustainability</b>	Will the scheme be sustained once all assistance from the NGO is withdrawn?	He feels that the support from the primary collection scheme is financially sustainable. Prodipans will have the resources to maintain the scheme.
<b>Area improvement</b>	Is the area cleaner than before the scheme was in place?	Yes, the area is cleaner than before the scheme was in place.
<b>Fulfillment of specific aims</b>	Has the scheme fulfilled other aims, for example, creation of livelihoods, improvement in health etc.?	Aims were fulfilled. Waste management was improved where the scheme was implemented. The program was implemented in a sustainable manner. If these aims were not fulfilled, they will happen.

### 2.5.4 The local elected representative's perspective

During the time spent in Khulna, the local elected representative (Ward Commissioner) was not available for comment. However, discussions with both Prodipan and the local communities suggest that the Ward Commissioner supported the primary collection schemes wholeheartedly. The low-income users suggested that the scheme would be sustainable because the Ward Commissioner would not let the scheme fold.

## 2.5.5 The worker’s perspective

Whilst carrying out the research in Khulna, it became apparent that one important group of people was not explicitly included in the Success and Sustainability Indicators, even though they could have a large impact on the schemes. This group was the workers who actually carry out the primary collection. The reason that this group was not initially included was due to the fact that the indicators intend to be suitable for all systems of organizations of primary collection schemes. In cases where primary collection was operated by an NGO, it was perceived that the workers’ views would be included in the views of the NGO. However, it became apparent in the case study area, that in fact the NGO and the workers formed two very distinct and different groups. It was highly likely that their views would differ considerably. The workers could have a large impact on the success and sustainability of such a scheme, as, in the end, it is these people that give the service. If they do not think it worthwhile or do not think that they are paid enough, they may not carry out their work effectively and hence the scheme may fail.

### 2.5.5.1 The drivers’ perspective

Interviews were carried out with two drivers. Outlined below is a summary of the outcomes of both of their answers.

<b>Table 12. The drivers’ perspective</b>		
<b>Indicator</b>	<b>Description</b>	<b>Outcome</b>
<b>Job satisfaction</b>	Are they satisfied with the job? Would they like to continue to do it?	Yes, they like to carry out the work as it is worthwhile and good for them.
<b>Remuneration</b>	Are they satisfied with the payment that they receive?	They are satisfied with the payment they receive; it is more than they received in their previous job.
<b>Problems</b>	What problems do they face in their job?	They have no major problems. Occasionally, there is a complaint at the start of the collection period.
<b>Perks</b>	What extra perks do they receive?	They both receive a small amount of extra income. They have to work long hours.
<b>Sustainability</b>	Do they feel that the scheme is sustainable in the long-term?	—

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### 2.5.5.2 *The collectors' perspective*

The interviews with collectors were also carried out simultaneously with two different collectors.

<b>Table 13. The collectors' perspective</b>		
<b>Indicator</b>	<b>Description</b>	<b>Outcome</b>
<b>Job satisfaction</b>	Are they satisfied with the job? Would they like to continue to do it?	They are s to continu
<b>Remuneration</b>	Are they satisfied with the payment that they receive?	Yes, they they get.
<b>Problems</b>	What problems do they face in their job?	They face Occasion which pec complaint
<b>Perks</b>	What extra perks do they receive?	They rece allow ther Prodipan from sellir
<b>Sustainability</b>	Do they feel that the scheme is sustainable in the long-term?	—

## 3.

### Conclusions

#### 3.1 An assessment of the success and sustainability indicators

The results obtained from this study seem to show that the ‘Success and Sustainability’ indicators are reasonably useful in assessing a primary collection scheme. The information was mainly quick and easy to collect through interviews and the information gained was relevant to the specific indicator to be assessed.

There is only one indicator whose usefulness has been brought into question by this study, that of the indirect benefits of the scheme, such as a rise in land prices and a reduction in health problems. In this case, it was found that many members of the community lacked a clear understanding of links between the primary collection scheme and the indirect benefits. Where an awareness of the links between these benefits and the collection schemes does not exist, such benefits will have little influence on the success or sustainability of the scheme from the community perspective. However, they may be used as an indicator by which the NGO or municipality judge the scheme. For example, the municipality may find that the scheme has led to fewer illnesses amongst the communities and hence a reduction in workdays lost due to illness (and hence be of economic benefit to the city).

This study has also led to suggestions of how to improve the indicators by including a few extra features. The main adjustment that has been recommended is the inclusion of an extra section for the views of the workers employed in the scheme. (The reason for this is outlined in the ‘Outcomes’ section of this document.)

The study has drawn attention to a further aspect of primary collection schemes that may affect their success and sustainability. This is particularly relevant to schemes that are initially run by NGOs with the intention that, after some time, support from the initiator is withdrawn and they are taken over by the local community. In this case, it is important that a well-defined withdrawal plan has been developed before the scheme is started. One should look carefully at any of the aspects of the scheme that may not be sustainable if run solely by the communities, and examine any strategies to prepare the community to manage such projects. In the case study scheme, it is noted that Prodipan included members of the

community in the running of the primary collection service by initiating Environmental Development Committees. However, one should also be aware of other factors that may not be sustainable when run by the communities. For example, Prodiapan have provided their workers with many perks, such as uniforms, refreshments and schooling. These perks represent extra cost to the local communities and hence the need to collect a higher service charge. If these perks are simply withdrawn with the withdrawal of support from the NGO, the workers may become disenchanted with the scheme. If the communities attempt to continue to provide the workers with these benefits, they may have more difficulty becoming financially sustainable or there may be opposition from the members of the community. In order to be able to assess the usefulness of this as an indicator more fully, further research needs to be done.

### **3.2 Limitations of this study / Suggestions for further study**

There are several limitations of this study that should be considered when assessing the validity of the results. These are outlined below:

- This scheme seems to be running very well, so it is difficult to make an assessment as to how crucial each indicator is to the success and sustainability of the project. In order to investigate this, it would be necessary to spend some time investigating schemes that have failed or are failing and assess them using the indicators. It may be discovered that the reason for failure is not included as an indicator. It would also be necessary to investigate several successful schemes to find out whether any of the outcomes of the indicators give surprising results. It may be the case that a scheme is sustainable, even though several of the indicators seem to point to a failing scheme.
- Due to time limitations, this study only uses interviews with the major stakeholders to assess the indicators. In order for a more extensive assessment of these indicators, it is important to also assess the other methods suggested, such as surveys. Further study should be made into the ease and applicability of these methods of measuring the indicators.
- This study only involved the use of one case study. In order to get a fuller picture of the use and applicability of these indicators, it is necessary to study a wide variety of primary collection schemes, for example, one run by a micro-enterprise, one run by a community-based organization etc. It is only through the use of these indicators in more varied circumstances that more problems will be highlighted and improvements can be made.
- Due to a lack of time and local knowledge, the interviews carried out in this study were arranged by the NGO who run the scheme. This may have resulted in a biased sample due to the fact that these community members were known by the NGO and so may have had a higher awareness of the scheme than an average member of the community.

### **3.3 Overall conclusions**

This study has sought to field-test the success and sustainability indicators for primary solid waste collection systems, as prepared by the project team as part of the Knowledge and Research (KAR) project, *Capacity Building for Primary Collection of Solid Waste*. It has been found that these indicators are a valuable resource for those planning research involved in this research field. They provide a useful checklist for the fieldworker but, in each case, full consideration must be given into the methods chosen to gather information.

This research has led to small changes in the indicator list and a revised list can be found in Appendix 1. This list of indicators is not thought to be comprehensive for all projects and it is envisaged that adjustments will continue to be made as the list is used. Use on further, more diverse projects is likely to result in the addition of more indicators and possibly the subtraction of others.

Whilst undertaking this study, it became apparent that it would be appropriate to publish a list of guidelines for use of these indicators. These guidelines have been developed and can be found in Section 1.4.

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## Appendix 1.

### The Revised Success and Sustainability Indicators

#### The users' perspective

*How do the users judge the scheme?*

<b>Table 14. The users' perspective</b>		
<b>Indicator</b>	<b>Description</b>	<b>Means to</b>
<b>Area improvement</b>	Is the area cleaner than before the scheme was in place?	<ul style="list-style-type: none"> <li>■ Brief qu</li> <li>■ Numbe scheme</li> </ul>
<b>Convenience</b>	Is the scheme convenient to use, i.e. times of collection, placement of waste for collection?	<ul style="list-style-type: none"> <li>■ Brief qu</li> <li>■ Study o scheme</li> </ul>
<b>Affordability</b>	Is the scheme affordable to all? Does the service represent good value for money?	<ul style="list-style-type: none"> <li>■ Questio</li> <li>■ How ma on a re;</li> <li>■ Survey</li> </ul>
<b>Frequency and reliability</b>	Is the service of reasonable frequency and reliability?	<ul style="list-style-type: none"> <li>■ Brief su with fre</li> <li>■ Numbe service</li> <li>■ Survey from hc</li> </ul>
<b>Extra waste</b>	Is there a system available to take care of extra waste generated during festivals etc.? Is there a service to remove construction debris?	<ul style="list-style-type: none"> <li>■ Brief qu provider</li> <li>■ Check v</li> <li>■ Survey c area.</li> </ul>
<b>Complaints system</b>	Is there an efficient complaints procedure in place? What is the response system and are people prepared to complain if they feel it is necessary?	<ul style="list-style-type: none"> <li>■ Researc</li> <li>■ Ask use compla</li> </ul>
<b>Sustainability</b>	Is the scheme sustainable?	<ul style="list-style-type: none"> <li>■ Survey</li> <li>■ Survey Can the</li> </ul>

## SUCCESS AND SUSTAINABILITY INDICATORS

### The municipality's perspective

*How does the municipality judge the scheme?*

<b>Table 15. The municipality's perspective</b>		
<b>Indicator</b>	<b>Description</b>	<b>Means to</b>
<b>Area improvement</b>	Is the area cleaner than before the scheme was in place?	<ul style="list-style-type: none"> <li>■ Brief qu</li> <li>■ Numbe scheme</li> </ul>
<b>Municipal support</b>	How much support does the municipality have to give the scheme? Do the results represent good value from these inputs?	<ul style="list-style-type: none"> <li>■ Questio nature</li> </ul>
<b>Impact on municipal services</b>	Are municipal workers diverted from their proper jobs? Does the scheme take pressure off the municipal services? Has the scheme assisted the municipality to increase its capacity in solid waste activities?	<ul style="list-style-type: none"> <li>■ Survey in their</li> <li>■ Survey stage (I this ser more w</li> <li>■ Survey taken p scheme</li> <li>■ Questio capacit</li> </ul>
<b>Staff satisfaction</b>	Are municipal staff satisfied with the scheme?	<ul style="list-style-type: none"> <li>■ Questio satisfac</li> <li>■ Monitor municip</li> </ul>
<b>Complaints</b>	Has the scheme resulted in a reduction in the number of complaints received by the municipality regarding waste collection?	<ul style="list-style-type: none"> <li>■ Survey compla</li> </ul>

## The NGO's perspective

### *How does the NGO judge the scheme?*

In this case, considering NGO who is involved in promoting primary solid waste collection schemes, may include supplying equipment, micro-credit etc.

**Table 16. The NGO's perspective**

<b>Indicator</b>	<b>Description</b>	<b>Means to</b>
<b>Replicability</b>	Does the scheme provide a replicable model for further projects?	<ul style="list-style-type: none"> <li>■ Brief qu</li> <li>■ replicat</li> <li>■ Survey</li> <li>■ the sch</li> </ul>
<b>Sustainability</b>	Will the scheme be sustained once all assistance from the NGO is withdrawn ? Is there a well-defined withdrawal plan?	<ul style="list-style-type: none"> <li>■ Survey</li> <li>■ Survey</li> <li>■ Can the</li> <li>■ Survey</li> <li>■ present</li> <li>■ Investig</li> </ul>
<b>Area improvement</b>	Is the area cleaner than before the scheme was in place?	<ul style="list-style-type: none"> <li>■ Brief qu</li> <li>■ Numbe</li> <li>■ scheme</li> </ul>
<b>Fulfillment of specific aims</b>	Has the scheme fulfilled other aims, for example, creation of livelihoods, improvement in health etc.?	<ul style="list-style-type: none"> <li>■ Questio</li> <li>■ scheme</li> <li>■ Surveys</li> <li>■ aims.</li> </ul>

## SUCCESS AND SUSTAINABILITY INDICATORS

### The CBO's perspective

#### *How does the CBO judge the scheme?*

In this case, considering a CBO who acts as initiator to the inception of primary collection scheme.

<b>Table 17. The CBO's perspective</b>		
<b>Indicator</b>	<b>Description</b>	<b>Means to</b>
<b>User satisfaction</b>	Are the users satisfied with the scheme?	<ul style="list-style-type: none"> <li>■ Survey compla</li> </ul>
<b>Area improvement</b>	Is the area cleaner than before the scheme was in place?	<ul style="list-style-type: none"> <li>■ Brief qu</li> <li>■ Numbe scheme</li> </ul>
<b>Sustainability</b>	Will the scheme be sustained?	<ul style="list-style-type: none"> <li>■ Survey</li> <li>■ Survey Can the</li> </ul>
<b>Recognition</b>	Do the users recognize that the scheme is in place due to the efforts of the CBO?	<ul style="list-style-type: none"> <li>■ Questio the CBO success</li> </ul>

### The local politician's perspective

#### *How do the local politicians judge the scheme?*

<b>Table 18. The local politician's perspective</b>		
<b>Indicator</b>	<b>Description</b>	<b>Means to</b>
<b>Area improvement</b>	Is the area cleaner than before the scheme was in place?	<ul style="list-style-type: none"> <li>■ Brief qu</li> <li>■ Numbe scheme</li> </ul>
<b>Replicability</b>	Does the scheme provide a replicable model for further projects?	<ul style="list-style-type: none"> <li>■ Brief qu replicat</li> <li>■ Survey the sch</li> </ul>
<b>Recognition</b>	Do the users recognize that the scheme is in place due to the efforts of the local politicians?	<ul style="list-style-type: none"> <li>■ Questio the loca the suc</li> <li>■ Questio has inci politicia</li> </ul>

## The worker's perspective

*How do the workers perceive the scheme?*

**Table 19. The worker's perspective**

<i>Indicator</i>	<i>Description</i>	<i>Means to</i>
<b>Job satisfaction</b>	Are they satisfied with the job? Would they like to continue to do it?	<ul style="list-style-type: none"> <li>■ Questionnaire</li> <li>■ Records</li> </ul>
<b>Remuneration</b>	Are they satisfied with the payment that they receive?	<ul style="list-style-type: none"> <li>■ Questionnaire</li> </ul>
<b>Problems</b>	What problems do they face in their job?	<ul style="list-style-type: none"> <li>■ Questionnaire</li> <li>■ Survey</li> <li>■ Encountered</li> </ul>
<b>Perks</b>	What extra perks do they receive?	<ul style="list-style-type: none"> <li>■ Questionnaire</li> <li>■ Survey</li> </ul>
<b>Sustainability</b>	Do they feel that the scheme is sustainable in the long-term?	<ul style="list-style-type: none"> <li>■ Questionnaire</li> </ul>



## The small contractor's perspective

### *How do the small contractors judge the scheme?*

In this case, considering small contractors who use their entrepreneurial initiative to undertake to provide a primary collection scheme.

<b>Table 20. The small contractor's perspective</b>		
<b>Indicator</b>	<b>Description</b>	<b>Means to</b>
<b>Sustainability</b>	Will the scheme be sustained?	<ul style="list-style-type: none"> <li>■ Survey 1</li> <li>■ Survey 1</li> <li>Can the</li> </ul>
<b>Sustainable livelihood</b>	Has the scheme resulted in the creation of a sustainable livelihood for the small contractor?	<ul style="list-style-type: none"> <li>■ Measur</li> <li>to befor</li> </ul>
<b>User satisfaction</b>	Does the small contractor receive lots of complaints from the users of the service?	<ul style="list-style-type: none"> <li>■ Survey 1</li> <li>compla</li> </ul>
<b>Recognition</b>	Do the users recognize that the system is in place due to the efforts of the small contractors?	<ul style="list-style-type: none"> <li>■ Questio</li> <li>that the</li> <li>role in t</li> </ul>

## The sweeper's perspective

### *How do the sweepers judge the scheme?*

In this case, considering municipally employed sweepers who also undertake primary collection as part of a supplementary scheme.

<b>Table 21. The sweeper's perspective</b>		
<b>Indicator</b>	<b>Description</b>	<b>Means to</b>
<b>Increased income</b>	Has the scheme resulted in an increased income for the sweeper?	<ul style="list-style-type: none"> <li>■ Assess</li> <li>the ince</li> </ul>
<b>Recognition</b>	Do the users of the scheme realize that is in place due to the efforts of the sweepers? Has this increased their respect for sweepers?	<ul style="list-style-type: none"> <li>■ Questio</li> <li>that the</li> <li>of swee</li> <li>their op</li> </ul>
<b>Problems with the municipality</b>	Has participation in the scheme resulted in problems between the sweeper and the municipality?	<ul style="list-style-type: none"> <li>■ Questio</li> <li>supervi:</li> </ul>