

# Step 12

## Plan finance

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*Now it is time to determine the tariff for the scheduled desludging service for households and other targeted buildings. Financial projections are made to ensure the proposed service tariffs will not create an unhealthy financial condition of scheduled desludging scheme. The municipality can set the tariff of scheduled desludging to be billed in monthly instalments by building owners, but there are other payment schemes to be considered.*

### 12.1 EACH HAS ITS OWN TARIFF

The basic tariff for scheduled desludging is usually presented as the rate imposed on households. Tariffs for other building classification are usually different. Commercial buildings generally have higher tariffs. They have larger septic tanks compared to those in households. Obviously, the desludging fleet must spend more energy and time to pump out and transport septage from those buildings. The use of more resources must be compensated by the imposition of a higher tariff to commercial buildings and public offices. If we have the base tariff for a household, we can determine the rate of other building classification by using the ratio of septic tank volume among different building classifications. The following formula can be used to determine the tariff:

$$BTC = BTH \times \frac{(STVC)}{(STVH)}$$

in which BTC = basic tariff for commercial buildings, BTH = basic tariff for households, STVC = septic tank volume in commercial buildings, and STVH = septic tank volume in households.

Information about the average volume of septic tanks for each customer classification can be obtained from the septic tank survey (see **Step 5: Assess the targets**). The following table illustrates the results of the calculation of the basic tariff for each customer classification, assuming we apply the fixed volume desludging mode.

Illustration of tariff calculation for each building classification.

| Classification | Average Septic Tank Volume (m <sup>3</sup> ) | Desludging Volume (m <sup>3</sup> ) | Tariff (USD/month) |
|----------------|--|-------------------------------------|--------------------|
| Households     | 2  | 1.5                                 | 0.9                |
| Commercial     | 8  | 6                                   | 3.6                |
| Public office  | 6  | 4                                   | 2.4                |
| Social         | 4  | 3                                   | 1.8                |

There are several things that may influence the determination of actual tariff of the scheduled desludging service, that is

- building size, which makes large buildings pay higher tariffs than small buildings,
- profit target, which applies in a service provider with status as regional company while those with status as municipal agency may not need to consider any profit in their tariff calculation,
- cross-subsidy policy, which makes commercial buildings pay higher to cover some of the operational expenditures in serving poor households or social buildings (Figure 12.1),
- tariff for other wastewater services, the scheduled desludging tariff should not be much different from the on-demand desludging tariffs to avoid opposition from public or private desludging companies.



**Figure 12.1** Commercial buildings are considered to have a higher economic value than households. It is common for a city to charge commercial buildings with a higher tariff than households, public offices and social buildings. This principle also applies among households of which luxurious houses are subject to higher tariff than simple houses. Or houses in elite areas that must pay higher tariff than those in common areas.

Finally, the political considerations of city government and legislators will affect the actual tariffs. Many city leaders do not want to impose the actual tariffs or even the cost-recovery tariffs on wastewater services on their people for political reasons. The following table shows the tariffs of scheduled desludging service in the city of Surakarta (Indonesia).

Scheduled desludging tariff in Surakarta (Indonesia).

| Classification   |                    | Tariff     |
|------------------|--------------------|------------|
| Households       | Very low income    | IDR 5000   |
|                  | Low income         | IDR 8000   |
|                  | Medium income      | IDR 8500   |
|                  | Luxury             | IDR 9000   |
| Commercial       | Small              | IDR 45 000 |
|                  | Large              | IDR 70 000 |
| Public buildings | Government offices | IDR 17 500 |
| Social           | Schools            | IDR 17 500 |

**Note:** 1 USD = IDR 14 000 (in December 2019).

Some cities consider eliminating tariffs for very low-income households. If this is done, the municipality must compensate it by raising the tariff for other groups. It is important at the end that all the tariffs on average still have cost recovery.

## 12.2 MANY PAYMENT OPTIONS

In the previous descriptions, scheduled desludging tariffs are calculated with the assumption that the payment will be made in monthly instalments (see **Step 3: Make the initial concept**). It might be convenient for building owners but paying in monthly installments can create difficulties for the service provider. Creating and sending monthly bills are troublesome. In addition, there is a high possibility that under a monthly installment option a service provider will have to pay a portion of the desludging costs in advance. A monthly installment option is more applicable in a scheduled desludging scheme that is managed by a water utility. They can combine the scheduled desludging bill with the monthly water bill that already has a regular delivery system. The following table shows several other options that should be considered as payment methods for scheduled desludging customers.

Options of scheduled desludging tariff payment.

| Factor | Payment Options |  |
|--------|-----------------|--|
| Time   | 1. Prepaid      | Customers begin paying without waiting for services to be obtained |
|        | 2. Post paid    | Customers begin paying after obtaining service                     |

(Continued)

Options of scheduled desludging tariff payment (*Continued*).

| Factor    | Payment Options         |   |
|-----------|-------------------------|---|
| Method    | 1. Combined             | Customers pay scheduled desludging bill that are incorporated in the bill of other service, such as water supply, electricity, or garbage services. |
|           | 2. Single               | Customers pay scheduled desludging bill, without being combined with the bill of other service.   |
| Frequency | 1. Instalments/ gradual | Customers pay scheduled desludging bill in instalments, either monthly, quarterly, six-monthly or annually  |
|           | 2. All at once          | Customers pay scheduled desludging bill at once.  |

We can apply several payment options in one scheduled desludging system. Payment option for one customer classification may differ from other classifications. A one-time payment option can be applied to public offices, considering that the payment will be made by using municipality budget. Installment payment option that is billed in a joint bill with water supply service is appropriate to be applied for households. Monthly installments are more appropriate for low-income households. Meanwhile for middle–upper households, particularly in a single billing method, the payment at once will be more suitable.

Scheduled desludging payment can be made in cash (cash) or non-cash. In addition to regular payment points of the service provider, cash payments should involve payment agents in the service zones. Non-cash payment, or e-payment, is a way of making transactions or paying for services through an electronic medium. Popularity of e-payment systems have improved over the past few decades due to the increasing spread of internet-based banking and shopping. Non-cash payment avoids direct cash transactions between fleet crew members and building owners ([Figure 12.2](#)).

### 12.3 AVOID FINANCIAL LOSS

We need to carry out financial projections to ensure the proposed tariff rates will be sufficient to cover all scheduled desludging operating costs. To the extent possible, these tariffs can even provide substantial profits for the city and the service provider. We make financial projections based on some values used in



**Figure 12.2** Payments through ATMs have been made for various purposes, including payment for electricity services and drinking water. Its application for scheduled desludging is very possible, especially in big cities.

the scheduled desludging operation design (see **Step 6: Design operations**). If the financial projections show financial loss, then we can change some operating parameters and simulate the operation design again. However, it should be noted that profits may not come in the initial implementation years.

Scheduled desludging financial analysis is conducted with a set of assumptions as follows:

- Investment in infrastructure is borne by the government and other parties, so that the service provider is not charged with capital costs.
- Septic tank desludging operations are fully outsourced to private fleets.
- Tariff are fixed for an operating cycle (@ 3 years).
- Billing efficiency will not reach 100%.

The revenue comes only from desludging bill payments, after considering the level of billing efficiency. Financial projections are conducted for several scheduled desludging operating cycles. The following table shows the conclusion of the financial projection.

Financial projection of the scheduled desludging operation in Surakarta (Indonesia).

| Item                         | Unit                 | Cycle 1 | Cycle 2 | Cycle 3 |
|------------------------------|----------------------|---------|---------|---------|
| Operating revenue            | IDR million/year     | 7.825   | 11.508  | 16.751  |
| Operating expenses           | IDR million/year     | 6.772   | 8.598   | 10.960  |
| Profit before tax            | IDR million/year     | 1.053   | 2.911   | 5.791   |
| Note:                        |                      |         |         |         |
| • Number of customers        | Households           | 61.745  | 69.149  | 79.534  |
| • Septage volume to desludge | m <sup>3</sup> / day | 129     | 151     | 174     |
| • Frequency of desludging    | Per day              | 69      | 79      | 89      |
| • Desludging truck           | Unit                 | 12      | 12      | 13      |
| • Treatment facilities       | Unit                 | 3       | 3       | 3       |

Note: 1 USD = IDR 14 000 (in December 2019).

**Annex H** contains examples of financial calculation spreadsheets.