



TRAINING MANUAL 3 FINANCE AND COST RECOVERY

MODULE 3-4: FINANCING MSWM SERVICES

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1





COURSE OBJECTIVES

- The objectives of the course are to familiarise participants with the:
 - Methods for calculating investment requirements
 - Different sources of investment funds and their implications for the recurrent funding requirement
 - Methods for calculating annual funding requirements
 - The sources of recurrent funds
 - The inter-relationships between investment funding arrangements and annual funding requirements.

2



Introduce the scope of the module: the focus is on financial and not economic issues.

Explain to delegates the importance of establishing recurrent funding requirements early in the project development stage and identifying what the sources of these funds are. There is often a single-minded focus on how investment funds are to be mobilised, with little attention given to how recurrent costs are to be met. This is vital for project sustainability. The recurrent funding requirement and its relationship to investment funding sources is explained later in the module.

There are a number of factors that commonly lead to the underestimation of the annual funding requirement – these include issues related to working capital (and poor fee collection rates) and to the income requirements set by IFIs as conditions of the loans. These aspects are also considered in the module.



OVERVIEW: FINANCING MSWM SERVICES

- ❑ The objectives of financial assessment
- ❑ Investment costs and the recurrent funding requirement
- ❑ Sources of investment funds
- ❑ The investment funding requirement
- ❑ The investment financing plan
- ❑ The annual funding requirement
- ❑ Sources of recurrent funds
- ❑ Accounting for debt and working capital
- ❑ The financial cash flow statement

3



The slide introduces the content of the module, and follows directly from the previous slide.



THE OBJECTIVES OF FINANCIAL ASSESSMENT

- To identify and optimise the mix of investment funds to be used by the development programme.
- To establish the annual revenue requirements.
- To establish the sources of recurrent funds.
- To assess the affordability of the development programme under the proposed funding arrangements

4



Explain the reasons for undertaking the financial assessment and the outcomes expected from it. This is part of the general introduction to the module leading into the more detailed analytical aspects covered by the module.

The overall objectives of the financial analysis are to:

- establish the total investment funding requirement
- identify and optimise the mix of investment funds used by the project,
- establish the annual revenue requirement,
- establish the sources of recurrent funds to be used by the project, and
- assess the affordability of the proposed funding arrangements to the municipality and to users.

There is a very close relationship between investment requirements and their funding and the annual revenue requirement. The implications of this relationship are stressed in the module.

THE FINANCIAL ASSESSMENT PROCESS

- Project all investment, operating and financing expenditures before, during and after the operating phase.
- Include any costs associated with the investment finance.
- Values should reflect the effects of inflation, and
- Reflect the actual funds needed to cover investment and recurrent costs in any one year

5

Gives an overview of the financial assessment process and, in particular, draws attention to the differences in undertaking the economic evaluation and the financial analysis.

Note that whereas the economic evaluation is concerned primarily with cash flows, the financial analysis is concerned both with expenditures (e.g., cash outlays for facility construction) and with non-cash costs (e.g. depreciation), depending on the specific purpose of the analysis being undertaken.

Note that the financial analysis is generally undertaken using projected values of the day (i.e. all expenditure items are adjusted for the projected inflation rates) whereas the economic evaluation is based on constant values relating to price levels at a particular point in time (normally the year in which the analysis is being undertaken).

The principal aims are to establish total investment requirements (according to the investment expenditure schedule over time), how the investments are to be financed, to establish recurrent funding requirements, taking into account investment financing implications, and to identify how revenue requirements are to be funded.

The financial assessment is usually carried out only for the project selected during the economic evaluation, although integrated economic and financial models can readily be used to consider project alternatives.



INVESTMENT COSTS AND THE ANNUAL FUNDING REQUIREMENT

- Two key aspects of strategy financing must be considered
 - How to finance capital investment expenditures, and
 - How to finance the recurrent costs incurred during operations
- The module focuses on these two aspects

6



The slide is a direct continuation of the previous one, again stressing the importance of giving full and proper consideration to what the annual funding requirements will be and how these are going to be funded.



SOURCES OF INVESTMENT FUNDS

- ❑ Internal reserves of the municipal waste management agency
- ❑ Central and municipal government transfers
- ❑ Domestic or international commercial loans
- ❑ International funding agency loans
- ❑ International funding agency grants
- ❑ Private sector finance

7



Further information on sources of investment finance can be found in the guidance notes, their associated aids to implementation, and other in materials referred to in those documents. See also Module 3-1.



FEATURES OF DIFFERENT INVESTMENT SOURCES

- Technical assistance and grants can help to mobilise other investment sources (such as loans).
- Loans impose a strict financial discipline on the borrower.
- Grants provide clear benefits when funding basic waste management investments (collection, transport and landfill)
- But the absence of a repayment discipline can lead to inappropriate strategy choices (e.g., overly optimistic assumptions about compost plants).

8



This slide reviews the roles played by different investment funding sources, and how funds from one source can help mobilise funds from another.

Use the example of grants to show how these can act as a catalyst to attract loan funds and for introducing affordable cost recovery tariffs.

Note that there can be problems associated with using grant funds. Their availability can lead to the selection of projects that are inappropriate technically, that have recurrent operation and maintenance costs that are unaffordable, and which can lead to a dependency culture being established.

Nevertheless, they are valuable if it can be shown that they help establish projects that will become increasingly affordable over time as national and household incomes grow. They also have an important role to play in financing components that are fundamental to all waste management components, such as waste collection, transport, transfer and landfill.

Similar problems can be associated with fund-led projects, where a project is designed specifically to meet the terms and conditions of a particular funding source. This can result in the selection of quite inappropriate technologies and strategies based on them..

Make the point that projects should ideally be selected in terms of their intrinsic economic qualities first and that only then should potential financing sources be considered. 'Financial engineering' can be used at this stage to maximise the financial benefits to the strategy from using different investment funding sources.



THE INVESTMENT FUNDING REQUIREMENT

- The total investment required before any financing costs
- Total investment required after any financing costs
- The total investment requirement is lower if grant funds rather than loan funds are used.
- This has implications for the annual financing requirement.

9



This slide relates to the calculation of the total investment requirement. Capital expenditures will already have been assessed during the economic evaluation stage.

At this stage it is necessary to use the data from the economic evaluation, adjust it as necessary to account for any changes in cost estimates since the evaluation was completed, and convert it from constant to variable values in accordance with national inflation forecasts. This will give an estimate of the total amount of investment funds needed over the implementation period. They thus represent the projected cash outlays over the implementation period.

The total investment requirement is used to establish the combination of investment funds that will be used to finance these expenditures. Grant funds will not affect the total investment requirement whereas loan funds do.

This depends on the lending policy of the IFI – it may sometimes waive interest payments during the implementation period but it will commonly ask for interest over this period to be capitalised as part of the total investment cost. That is, interest over this period will form part of the total loan to be serviced during the operating period.



THE INVESTMENT FINANCING PLAN

- ❑ Summarises total investment requirements over time (accounting for inflation and any capitalised finance costs).
- ❑ Usually refers to investment expenditures over an initial 1-4 year implementation period.
- ❑ Matches investment requirements with funding sources.
- ❑ Includes indicative debt service schedules (loan repayments and interest payments over the loan period).
- ❑ Feeds into projected operational cash flows and calculations of the recurrent revenue requirement.

10



The mix of investment funds is usually designed to minimise future debt servicing requirements. Using this mix of investment funds the minimum annual revenue requirement can be estimated. This, in turn, enables analysis to be focused on the financing policy (including cost recovery) through which the recurrent revenue requirement is to be funded. This has direct implications for issues of user charges and affordability.

Using grant funds in the financing mix reduces the amount of funds needed each year to meet essential financial outlays as well as to meet the lending conditions of the providers of debt.

For example, IFI's typically demand that annual revenues generated by a project (either through user-charges or government transfers) are sufficient to cover all cash outlays (including debt service obligations and any investments) by a factor ranging from 1.3 to 1.5. This is the debt-coverage ratio (referred to again later in the module). Maximising the share of grants in the financing mix reduces the annual debt service obligation and thereby reduces the minimum revenue requirement.

The investment financing plan sets out information related specifically to project investment requirements, adjusted for inflation and, if appropriate, for loan interest capitalised during the development period. It shows:

- the sources and amounts of the various capital funds to be used,
- the investment profile showing investment expenditures over time,
- the loan disbursement profile,
- applications of investment funds from other sources (e.g., bilateral grants, municipal contributions)
- the debt service schedule.



OUTLINE: THE ANNUAL FUNDING REQUIREMENT

- Sources of recurrent funds
- The recurrent costs to be financed
- Loan service obligations
- Working capital
- The financial cash flow plan (sources and uses of funds statement)

11



This slide introduces the main topics to be covered in the remainder of the module, all related to the annual revenue requirement, how it can be financed and some of the important issues to be considered at this time. In particular, obligations imposed by the lenders of debt and realistic projections of the amounts of fees to be collected from users must be recognised.

With particular reference to the latter point, the amounts of fees collected depends on the level of the charges themselves and, importantly, on the extent to which users pay these charges. A common cause of project failure is the inability to attract the income stream projected at the feasibility study stage – this is because of overly optimistic assumptions about the number of households billed and their willingness to pay the new charges.

Realistic projections about the level of this projected shortfall must be made at the outset and measures put in place to fund it. Options are guaranteed transfers from the municipal government and higher average charges (the implication being that those who do pay subsidise those who don't).



SOURCES OF RECURRENT FUNDS

- Transfers from national, regional or municipal consolidated revenue.
- Direct receipts from charges paid by service users.
- These aspects are addressed in the training course on covering recurrent costs.

12



This slide introduces the principal methods for financing the recurrent costs of waste management: transfers from the municipal government or from user charges.

The different approaches to cost recovery and establishing fee levels are addressed in the cost recovery module.

It is worth noting at this point that there is no 'right' or 'wrong' way to finance annual revenue requirements – both user charges, government transfers, and combinations of the two are used throughout the world.

The point to be made, though, is that, whatever method is chosen, there is a mechanism for ensuring that the projected funds are available to the WM operator in line with binding government commitments and policy.



THE EXTENT OF RECURRENT COSTS TO BE FINANCED

- Recurrent costs are the costs incurred in operating the MSWM services that are to be covered by the recurrent funding requirement.
- The level of costs to be covered depends on the commercial status of the WM agency.
- Higher levels of commercial responsibility are reflected in a higher proportion of full costs being covered by the agency.
- NB: Costs not recovered by the service provider **MUST** be funded somehow. If not, the service will fail.

13

TRAINING MANUAL 3 – MODULE 3-4



The actual financing policy adopted will depend largely on the degree of autonomy enjoyed by the WM agency over its financial affairs. A key point stressed throughout the FCR modules is the need for WM agencies to be given greater levels of financial autonomy (i.e. to operate increasingly on a commercial basis) for waste management services to be properly managed on a cost-effective and sustainable basis.

The extent to which this is the case will dictate the annual revenue requirement (e.g., if the waste management agency is to be responsible for asset replacement over time, then it will need to have the powers to cover depreciation allowances and to set depreciation funds aside in a separate account for future application).

The commercial status and structure of the service provider therefore has a significant bearing on the recurrent costs to be funded.

Typical structures are:

- A municipal waste management department
- A wholly-owned municipal enterprise
- An autonomous enterprise operating under municipal contract

Examples of the levels of recurrent costs to be covered under different funding regimes are listed in the following slide.

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EXAMPLES OF RECURRENT COSTS TO BE COVERED

- Direct operation and maintenance (O&M) costs
- Direct O&M costs plus indirect (overhead) costs
- Direct O&M costs, overheads plus loan interest payments
- Direct O&M costs, overheads plus debt service obligations
- Direct O&M costs, overheads plus interest, depreciation and provision for long-term liabilities
- Direct O&M costs, overheads, depreciation plus a return on investment, and provision for long-term liabilities

14



The chart indicates progressive increases in the financial autonomy of the waste management agency. At the simplest level, it may be required to cover its direct annual operating and maintenance costs. Under this regime all capital costs and overheads are covered indirectly by the municipality – usually as part of its general budget line items (e.g., expenditures on office staff, vehicle purchases). This indicates the lowest level of financial autonomy. At the other extreme, the waste management agency operates on fully commercial lines, responsible for generating the incomes needed (possibly including guaranteed transfers from the municipality) to cover all the costs (including a return on capital employed to reflect the opportunity cost of money).



LOAN SERVICE OBLIGATIONS

- The mix of investment finance is usually designed to minimise debt service requirements.
- Loan repayment schedules depend on the specific terms and conditions of the loan.
- IFIs (e.g, the World Bank) can offer better terms than fully commercial institutions.
- Examples are longer repayment periods, grace periods on principal repayments and lower interest rates.

15





DEBT COVERAGE RATIO (DCR)

- DCR is a measure of financial viability.
- It indicates the ability of an enterprise to cover annual debt service (interest, principal repayment plus commitment fees).
- It is a key indicator of an enterprise's capacity to meet loan conditions.

16



DCR is calculated by dividing free cash flow by debt service.

Free cash flow is defined as EBDIT minus tax paid, minus capital expenditure.

EBDIT is earnings before depreciation, interest and tax.

IFIs will normally expect to see a DCR of 1.3 to 1.5.

This provides a cushion against expenditures being higher or revenues lower than projected.

Maximising the share of grants in the financing mix reduces debt service obligations, thereby reducing the annual revenue requirement (including debt coverage obligations).



WORKING CAPITAL REQUIREMENTS

- ❑ Working capital requirements are very important but often overlooked.
- ❑ Delays between billing and receipt of payments, poor revenue collection ratios and bad debts can seriously affect financial viability.
- ❑ Realistic provision for these items has to be made in advance in the form of working capital provisions.
- ❑ This, in turn, will affect tariff levels and/or the level of municipal transfers needed to cover the annual revenue requirement (and debt coverage ratios).

17



Working capital requirements are very important, but often overlooked. Poor revenue collection ratios and bad debts can seriously affect project revenues and financial viability. Realistic provisions for these items have to be made in the cash flow projections. These, in turn, will influence the level of tariffs or the extent of government transfers are required.

Aspects to be considered in calculating working capital requirements are:

The affects of accounts receivable (amounts owed to the business) and accounts payable (amounts owed by the business) on cash flow.

Projected tariff collection ratios over time (what proportion of fees can realistically be collected).

Provisions for poor and bad debts.

Ways of financing working capital requirements can include arranging special working capital loans, or having initial revenue requirements guaranteed in advance by the municipality. This can often be a loan condition.

Under a fully autonomous financing policy, low collection ratios/bad debts must ultimately be covered via tariffs or guaranteed municipal transfers.

This is addressed in the training course on cost recovery policy.

THE FINANCIAL CASH FLOW STATEMENT (SOURCES AND USES OF FUNDS)

- Sets out all cash inflows and outflows
- Is used to assess the overall cash position of the operating agency under the proposed financing arrangements.
- Shows the sources and uses of funds – where funds come from and how they are spent or allocated.
- Calculates debt coverage ratios.
- Is used to assess the investment financing mix, the annual revenue requirement and financial viability.

18

TRAINING MANUAL 3 – MODULE 3-4



The financial cash flow shows the sources and uses of funds for the project – where funds come from and how they are spent. This key working document is used to calculate the minimum annual expenditure and revenue requirements for different combinations of debt and grants. Debt coverage ratios are also calculated.

The financial cash flow statement contains the main outputs of the financial analysis. These are used in deciding on the investment financing mix, the annual revenue requirement and financial viability.

Note that this is an iterative process: changes in the investment financing mix (shown in the investment financing plan) are reflected in the financial cash flow. Similarly, constraints on recurrent financing sources (either from users or as municipal government transfers) will affect the sustainable financing mix.

For example,

- Changes in the investment financing mix (shown in the investment financing plan) are reflected in the financial cash flow (in both sources and applications of funds).
- Constraints on recurrent funding sources (from either users or municipal transfers) will affect the sustainable financing mix.
- This, in turn, holds implications for the affordability (and therefore viability) of the proposed strategy.

Use charts and tables to illustrate these concepts. These should show how changes in the financing mix can significantly affect key items in the financial cash flow, including the annual revenue requirement, tariff levels or municipal transfers, affordability, the free cash flow requirement and debt coverage ratios. Changes in tariff collection ratios (optimistic – pessimistic) can also significantly affect financial viability. These aspects are covered in more detail in the remainder of the presentation.



THE FINANCIAL CASH FLOW STATEMENT (2)

- The financial cash flow statement brings together:
 - all projected sources of funds, including investment funds (debt, grants and retained earnings) and recurrent funds (government transfers and user-charges); and
 - all applications of funds, including capital expenditures, and the recurrent funding requirement (operating expenditures and debt service).
- It can also include provisions for depreciation and long-term liabilities, such as facility closure costs. This depends on financial policy and commercial status of the agency.

19



The financial cash flow statement is a dynamic tool that is used to assess the affect of making changes to key operational assumptions. For example, changes in the financing mix can significantly affect:

- the annual revenue requirement,
- tariff levels or municipal transfer requirements,
- Individual and municipal affordability,
- free cash flow and debt coverage ratios.

Also, changes in tariff collection ratios can significantly affect financial viability:

- The financial cash flow statement can help identify the minimum municipal subsidy needed to cover adverse (yet realistic) outcomes revealed in a sensitivity analysis.
- The municipality or operating enterprise may need to make provision for such contingency funding in advance of getting loan approval (i.e. it may be a condition of the loan).



Financial Sensitivity Analysis

Subject all key assumptions to critical sensitivity analysis.

How much flexibility is there before the proposed developments become financially non-viable?

20



This is effectively a continuation of the previous discussion on financial outputs and can continue directly from it. Sensitivity analysis is intended to demonstrate the affects that changing key parameters can have upon financial viability and the financing mix.

This is a very important, as project failure can often be attributed to project sponsors making assumptions about project parameters that are too optimistic. The aim is to stress how sensitive project outcomes can be to relatively small changes in project assumptions.

Optimistic assumptions are often made about future national income growth, the extent that this is reflected in household incomes, and tariff collection ratios (there are high levels of non- or under-payment of tariffs in many countries). Changes to any of these factors can strongly influence project outcomes, the financing mix, tariff levels and affordability.

Changes in physical attributes, such as capital and operating costs, waste volumes, separate collection schemes, materials recovery rates, prices for recycled materials and compost quality, can all have significant implications for strategy viability (or for the viability of individual components of a strategy).

This is a key part of the financial analysis and the results of the sensitivity should be given equal weight in the decision making process.

Affordability

- National affordability
- Municipal affordability
- Affordability to the population
- Average incomes
- Income distribution

21

The concept of national affordability has been explained earlier. This is the capacity of the economy as a whole to allocate resources to the proposed investment. It is based on the full economic costs of the strategy to society. The use of a country's limited resources in this way has to be compared with the alternative of using them elsewhere (opportunity cost). Yardsticks are available to assess whether a service is affordable or not (normally measured as a percentage of average per capita income typically spent on the services). This should help guide the decision on whether or not the proposed investment is appropriate to a country's conditions. This is normally assessed before the effects of different financing arrangements are considered.

Municipal affordability relates specifically to the ability of a municipal government to raise and service any debt needed to finance the strategy. This will be governed by the borrowing constraints imposed on municipalities by the central authorities and also on the portfolio of loans already held by the municipality.

Affordability to the population relates to the tariffs proposed to recover some (or all) of the costs associated with providing the service. This takes into account specific socio-economic conditions in the municipality, and particularly average household disposable income. From this the proportion of average household income needed to pay the tariffs can be estimated and its affordability assessed.

Income distribution is a vital issue to be considered here. Affordability must also be considered in terms of the distribution of incomes around the average. It is frequently the case that far more than 50% of households survive on incomes below the average. Information on income distribution and the incidence of poverty is needed to assess the impact on the more disadvantaged in society. On the basis of this analysis decisions must be made about the appropriateness of the strategy, the proposed tariff structures and about the forms of social policies needed to protect those unable to pay.



Summary

- Ensure that investment cost estimates are based on realistic assumptions.
- Ensure that the effects of investment finance are properly reflected in the analysis.
- Ensure that the annual funding requirement is based on realistic assumptions about future costs, revenues and debt service obligations.
- Use the financial cash flow statement to assess the affects changes to key parameters have on project viability.
- Always err on the side of caution.

22

