



TRAINING MANUAL 3 FINANCE AND COST RECOVERY

MODULE 3-5: COVERING THE ANNUAL REVENUE REQUIREMENT

Prepared by the International Consortium
GTZ-ERM-GKW



COURSE OBJECTIVES

- ❑ The objective of the course is to introduce participants to ways to fund annual revenue requirements.
- ❑ It looks at the two main sources – government transfers and user charges – and identifies some of the advantages and disadvantages of each.
- ❑ Participants will learn about some of the prerequisites for a successful cost recovery strategy, and about the principles and approaches involved in constructing a viable cost recovery mechanism.
- ❑ The importance of having a clearly defined policy towards the commercial powers of the waste management agency is a key factor in achieving this.

2



Note that this module on cost recovery and charging policy continues directly from the previous module on financing the waste management strategy, and particular the discussion of the annual funding requirement.

Note also that there is no preferred way to finance recurrent costs. Ideally, those who benefit directly from the use of a service should pay for the service – the user (or polluter) pays principles.

However, waste management is a public service that cannot simply be described as a private good – there is a strong public element to it. For example, if a water user does not pay his water bill he can be disconnected. The main affect of doing this is on the user and his family. This is not the case with waste. If waste services are withheld, the action can affect the public in general, as the result of poor sanitary conditions.

It is not uncommon for the recurrent costs of waste services to be paid either by users, by the municipality or by some combination of the two.

Note, however, that regardless of how these costs are funded, a main objective must be to ensure that the waste management agency has sufficient funds to cover budgeted outlays. If part of its income stream is dependent on municipal transfers, then provisions must be in place to ensure that the funds are provided and that they can be used for the intended purpose (of which accumulation in a capital account to finance asset replacements might be one).



OVERVIEW: COVERING THE ANNUAL REVENUE REQUIREMENT

- Preconditions for effective recurrent cost financing
- Know your full costs and revenue requirements
- Are the services affordable?
- Financial policy
- Approaches to covering annual costs
- Key principles of cost recovery
- Approaches to cost recovery
- Example tariff calculations

3



This chart is self-explanatory – it sets out the structure of the module.



PRECONDITIONS FOR FINANCING ANNUAL COSTS

- ❑ Legal basis – the proposed measures must fall within the span of control of the municipality/WM agency.
- ❑ Financial policy and cost recovery objectives must be clearly defined and understood.
- ❑ Know your costs – establishing a sustainable financing policy depends on knowing the full costs of the WM service (and of its components) over time and how they are to be funded.
- ❑ Determine the extent to which these costs are to be covered by municipal transfers and which via a user charging scheme.
- ❑ A reliable and predictable funds transfer mechanism from the municipality (or central government) to the WM agency based on realistic budgets is essential.

4



Refer to the FCR Guidelines and Aids to Implementation which cover these preconditions in some detail.



PRECONDITIONS FOR FINANCING ANNUAL COSTS (2)

- The availability of reliable financial and operational information is key to formulating cost recovery policy and in making reliable projections of future revenue.
- Services must be affordable
- An established culture of paying for public services should exist
- Community participation and public awareness programmes are a key element in developing appropriate charging policy and charge levels.
- Willingness to pay surveys and affordability studies can make an important contribution to this process.

5



Again, refer to FCR Guidelines and Aids to Implementation.



KNOW YOUR FULL COSTS AND REVENUE REQUIREMENTS

- Know your full costs and revenue requirements: use reliable cost data in deciding on waste management services, annual revenue requirements and cost recovery policy objectives.
- Know your markets: use reliable data on product demand, quantities, quality standards and prices when deciding on commercial operations, such as waste to energy (WTE) schemes, composting and recycling.
- Know your sources of revenue: ensure that the funds budgeted to meet operational needs will be available.

6



Refer to FCR Guidelines and Aids to Implementation.



ARE THE SERVICES AFFORDABLE?

- Are the services affordable?
- Can users reasonably be expected to pay the charges?
- (Refer to the following chart giving indicative costs.)
- Can you cover your annual costs?
- What happens if costs are higher and revenues are lower than projected?
- Do the proposed services and their revenue requirements expose you to high levels of risk?

7



These questions relate to the intrinsic affordability of the services. Is their success based on overly optimistic forecasts of costs, revenues from sales of recovered materials, markets for compost, cost recovery from users. What happens if any of these factors fails to materialise – can the service still operate effectively or is it exposed to high levels of unplanned expenditures or revenue requirements?

Problems such as these are real, and occur all too frequently. Subject all proposals to very careful scrutiny, ask the question: what if? If the question cannot be answered, pause and think again.

Keep strategies simple – don't be too ambitious by aiming to introduce new and complex systems at the one time. Develop an integrated strategy progressively over time – do the things that are essential first – defer until later those aspects that are desirable but not essential.



SWM Costs in Low and Middle Income Countries

	Low-income country	Middle-income country
Average income (Indicative, \$/capita/year)	US\$350	US\$1,950
Solid waste quantity (tonne/capita/year)	0,2	0,3
Collection costs (per tonne)	\$15-30	\$30-70
- Capital	40%	30%
- Labour	15%	40%
- O&M	45%	30%
Disposal costs	\$1-3	\$3-10
- Capital	55%	50%
- Labour	10%	20%
- O&M	35%	30%
Transfer system costs	\$3-5	\$5-15
- Capital	65%	50%
- Labour	10%	25%
- O&M	25%	25%
Total costs	\$19-38	\$39-95
Annual cost per capita	\$3.8-7.6	\$11.7-28.5
Annual cost as a % of average per capita income	1.1%-2.2%	0.6%-1.5%

8



These questions relate to the intrinsic affordability of the services. Is their success based on overly optimistic forecasts of costs, revenues from sales of recovered materials, markets for compost, cost recovery from users. What happens if any of these factors fails to materialise – can the service still operate effectively or is it exposed to high levels of unplanned expenditures or revenue requirements?

Problems such as these are real, and occur all too frequently. Subject all proposals to very careful scrutiny, ask the question: what if? If the question cannot be answered, pause and think again.

Keep strategies simple – don't be too ambitious by aiming to introduce new and complex systems at the one time. Develop an integrated strategy progressively over time – do the things that are essential first – defer until later those aspects that are desirable but not essential.



FINANCIAL POLICY (1)

- The full investment, O&M and overhead costs incurred in providing WM services must be financed, one way or another.
- Traditionally:
 - The municipality finances investment and overhead expenditures from its general sources of funds (this can include servicing any debt), and
 - The WM agency finances direct O&M expenditures out of municipal transfers or fees paid directly by users
 - It is unusual for systematic investment planning to be undertaken.

9



If the full service costs are not funded then the service will deteriorate and become increasingly inefficient. Unfortunately, this is the situation found in many parts of the world.

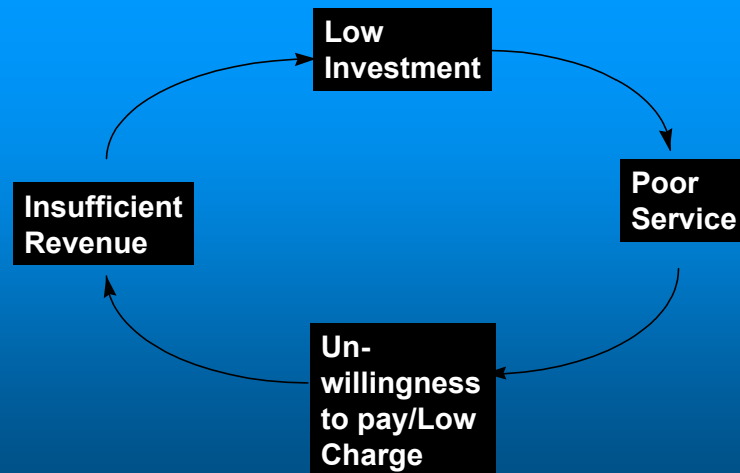
A major reason for this is that municipalities do not treat waste management as a self-contained function, but subsume it within wider municipal activities and budget lines. Its full costs are therefore not known and no-one can be held accountable for service performance and costs. Services deteriorate because the waste management agency has neither the funds nor the financial powers needed to operate the services on a fully sustainable basis.

As a result, provision is rarely made to accumulate (or provide) the funds needed to replace assets at the end of their useful lives (when it becomes uneconomic to continue using them) and vehicles are kept in service beyond their useful life, resulting in high maintenance costs. A failure to budget for spare parts is a common cause of failure of collection services and waste management facilities.

Recognition of the need to cover full service costs (as described in module 3-4) constitutes a major step towards extending financial responsibility (and accountability) to the waste management agency. Under such circumstances cost recovery policy would be formulated in the light of knowledge about the full costs of service provision. This does not necessarily mean that all costs would be recovered from users – a significant proportion may continue to be provided by the municipality itself – but the major shift is recognition by the municipality of the FULL costs.

This rarely happens in practice. As such, waste management agency budgets are strictly defined by the municipality, often to cover labour and maintenance costs only (of which labour is commonly by far the major component). Budgeting in advance for investment in replacement equipment is rarely done. It follows that cost recovery policy – if there is one – tends to be directed towards recovering operating and maintenance costs only from users. This normally constitutes only a small percentage of the full costs of service provision (often less than 50%). The balance of costs is unbudgeted. Such services tend to be very inefficient, incurring very high maintenance costs and high plant downtimes. Management is frequently demoralised. The two approaches are simply summarised in the following slides.

Current Financial Situation: Vicious Circle



10

If the full service costs are not funded then the service will deteriorate and become increasingly inefficient. Unfortunately, this is the situation found in many parts of the world.

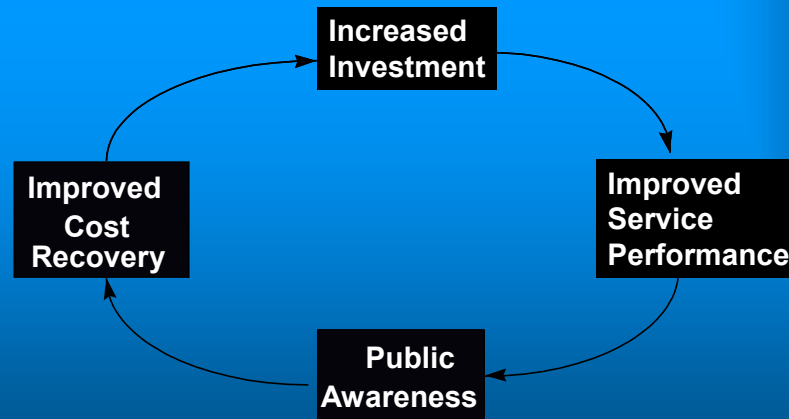
A major reason for this is that municipalities do not treat waste management as a self-contained function, but subsume it within wider municipal activities and budget lines. Its full costs are therefore not known and no-one can be held accountable for service performance and costs. Services deteriorate because the waste management agency has neither the funds nor the financial powers needed to operate the services on a fully sustainable basis.

As a result, provision is rarely made to accumulate (or provide) the funds needed to replace assets at the end of their useful lives (when it becomes uneconomic to continue using them) and vehicles are kept in service beyond their useful life, resulting in high maintenance costs. A failure to budget for spare parts is a common cause of failure of collection services and waste management facilities.

Recognition of the need to cover full service costs (as described in module 3-4) constitutes a major step towards extending financial responsibility (and accountability) to the waste management agency. Under such circumstances cost recovery policy would be formulated in the light of knowledge about the full costs of service provision. This does not necessarily mean that all costs would be recovered from users – a significant proportion may continue to be provided by the municipality itself – but the major shift is recognition by the municipality of the FULL costs.

This rarely happens in practice. As such, waste management agency budgets are strictly defined by the municipality, often to cover labour and maintenance costs only (of which labour is commonly by far the major component). Budgeting in advance for investment in replacement equipment is rarely done. It follows that cost recovery policy – if there is one – tends to be directed towards recovering operating and maintenance costs only from users. This normally constitutes only a small percentage of the full costs of service provision (often less than 50%). The balance of costs is unbudgeted. Such services tend to be very inefficient, incurring very high maintenance costs and high plant downtimes. Management is frequently demoralised. The two approaches are simply summarised in the following slides.

Desired Financial Situation: Virtuous Circle



11

TRAINING MANUAL 3 – MODULE 3-5



If the full service costs are not funded then the service will deteriorate and become increasingly inefficient. Unfortunately, this is the situation found in many parts of the world.

A major reason for this is that municipalities do not treat waste management as a self-contained function, but subsume it within wider municipal activities and budget lines. Its full costs are therefore not known and no-one can be held accountable for service performance and costs. Services deteriorate because the waste management agency has neither the funds nor the financial powers needed to operate the services on a fully sustainable basis.

As a result, provision is rarely made to accumulate (or provide) the funds needed to replace assets at the end of their useful lives (when it becomes uneconomic to continue using them) and vehicles are kept in service beyond their useful life, resulting in high maintenance costs. A failure to budget for spare parts is a common cause of failure of collection services and waste management facilities.

Recognition of the need to cover full service costs (as described in module 3-4) constitutes a major step towards extending financial responsibility (and accountability) to the waste management agency. Under such circumstances cost recovery policy would be formulated in the light of knowledge about the full costs of service provision. This does not necessarily mean that all costs would be recovered from users – a significant proportion may continue to be provided by the municipality itself – but the major shift is recognition by the municipality of the FULL costs.

This rarely happens in practice. As such, waste management agency budgets are strictly defined by the municipality, often to cover labour and maintenance costs only (of which labour is commonly by far the major component). Budgeting in advance for investment in replacement equipment is rarely done. It follows that cost recovery policy – if there is one – tends to be directed towards recovering operating and maintenance costs only from users. This normally constitutes only a small percentage of the full costs of service provision (often less than 50%). The balance of costs is unbudgeted. Such services tend to be very inefficient, incurring very high maintenance costs and high plant downtimes. Management is frequently demoralised. The two approaches are simply summarised in the following slides.



FINANCIAL POLICY (2)

- Financial policy can range from the WM agency having responsibility for funding direct O&M expenditures only (with overheads, interest and capital costs being the responsibility of the municipality).
- To it operating under a full cost covering policy, responsible for funding all costs, including all overheads, depreciation provisions and debt interest payments.

12



At one end of the spectrum the agency functions as a municipal department, with very limited financial autonomy and commercial freedom.

At the other end it operates on a properly commercial basis, responsible for its sources and applications of funds (although this still does not preclude part of its income stream being derived from guaranteed government transfers).

The extent to which costs such as depreciation and loan interest payments are treated as part of the recurrent costs to be funded by the WM agency depends on the financial powers and policy of the municipality and the financial policy of the WM agency.

In fully commercialised operations, depreciation provisions are set aside in a separate account (or fund) and used to repay loans and/or to finance the replacement of assets or unexpected costs. This reflects an increasing level of commercial freedom, transparency of financial dealings, accountability and reporting.



APPROACHES TO COVERING ANNUAL COSTS

- Municipal waste services can be funded as a combination of municipal (or central) transfers and charges collected from users.
- Industry/institutions should largely be required to pay the full costs of their waste management services as this is a cost of doing business.
- Households can be considered differently: a base charge coupled with pre-determined contributions from the municipality is one possible arrangement.

13



This reflects earlier comments about waste management having the characteristics of both a private and a public good.

Enterprises should, however, pay the full costs of services provided and should not be subsidised. If government sees a need to subsidise its enterprises than it should do this through explicit policy mechanisms and not indirectly through its utility charging policy.



SOME COST RECOVERY PRINCIPLES

- Desirable characteristics of a user charge:
 - Fairness – one class of users should not be required to subsidise another
 - Socially just – protection of poorer members of society
 - Administratively simple fee collection mechanism
 - Low administrative costs
 - High charge recovery ratio
 - Reflects the user (polluter) pays principle
 - Enforced – sanctions imposed against those who don't pay

14



Note that this ideal combination of factors is rarely found in practice.

The most desirable qualities of a charging mechanism are that it should be simple to implement and that it should lead to a high charge collection ratio.

Systems already used in the region, where waste management charges are linked to electricity supply, tend to be of this kind. A case can also be made for cross-subsidies between users on social grounds, particularly between richer and poorer members of society. This again is an element of the differentiated charge system currently being used in Egypt (an example is given later in the module).

On the other hand, the charge system used in Jordan, where fees are also linked to electricity bills, is based on a single flat rate fee for household users to ensure administrative simplicity (and claims that the system is unfair).



TYPES OF COST RECOVERY MECHANISMS

- A separate 'waste management fee' added to a municipal property or other local government tax
- WM charge added to an existing communal services bill
- Direct billing by the municipality or WM agency
- Linking the charge to another utility, such as water or electricity supply
- Direct billing of user by a private sector operator
- Pre-paid coupons or bags
- Direct quantity-based billing at the point of collection

15



Further discussion of these approaches can be found in the FCR Guidelines and Aids to Implementation.



OTHER FUNDING CONSIDERATIONS

- ❑ Charge collection ratios – these can be low, especially in the early years following introduction.
- ❑ Realistic assumptions about the extent of this shortfall must either be:
 - ❑ factored into the charge itself, or
 - ❑ factored into committed municipal contributions
- ❑ Charge administration costs can be high.
- ❑ These factors can significantly affect the annual revenue requirement and how it is financed.

16



These factors are important. It is quite common for revenue projections to be based on quite unrealistic expectations of payment levels, especially in the early years after implementation. The experience to date in Jordan and Egypt with electricity-linked charges suggests that charge collection rates have so far been very good. The earlier system used in Jordan, however, led to extremely low levels of collection, and the accumulation of a very high level of bad debts by the WM agency.

It would be prudent of financial planners to adopt conservative estimates of the probable fee payment rates in the early years, and to have standby facilities in place to cover any shortfalls. Ideally, these should be provided by the municipality. If high levels of underpayment persist in the longer term, then this would suggest a need to modify the system. If not, users who pay may be required to pay higher charges to subsidise those who don't.



EXAMPLE OF CHARGE CALCULATIONS

- The example continues the analysis introduced in Training Course TM3-2 on costs.
- It uses the 'Income and Expense Statement' for private operations as the basis for the analysis.
- The Statement is reproduced below for convenience.

17





Income and Expense Statement for Private Operation

	Pro-forma income and Expenses Statement: Private Operator/Shareholder Funded						
<i>Income</i>	1	2	4	5	7	9	10
Indirect charges	223,274	230,765	270,065	284,107	330,299	359,196	401,343
Transfers	300,000	312,000	337,459	350,958	379,596	410,571	426,994
Required tariff	1,322,190	1,349,518	1,530,379	1,649,099	1,859,973	2,049,507	2,254,354
Total Income	1,845,464	1,892,283	2,137,903	2,284,164	2,569,868	2,819,274	3,082,691
<i>Expenses</i>							
Labour	245,307	255,119	306,597	318,060	379,367	410,324	465,531
Administration	49,061	51,024	61,319	63,772	75,873	82,065	93,106
Fuel & maintenance	876,096	911,140	1,094,986	1,138,787	1,354,883	1,465,442	1,662,610
Depreciation	225,000	225,000	225,000	254,247	254,247	287,145	287,145
Total Expenses	1,395,464	1,442,283	1,687,903	1,775,666	2,061,370	2,244,975	2,508,392
<i>Net Income (20%)</i>	450,000	450,000	450,000	508,498	508,498	574,299	574,299
<i>Shareholders equity</i>	2,250,000	2,250,000	2,250,000	2,542,465	2,542,465	2,871,448	2,871,448

18



DETERMINE THE AMOUNT OF REVENUE TO BE RAISED FROM FEES

- What are your existing sources of revenue?
- (e.g., indirect charges, government transfers)
- What are the costs of administering the charging system?
- What percentage of fees will remain unpaid (uncollectables)?

19





ESTABLISHING GROSS BILLING REQUIREMENTS

Number of households	27,000
Electricity company fee	3%
Uncollectable bills	10%
<i>Total annual revenue required</i>	1,845,464
Indirect charges	223,274
Government transfer	300,000
<i>Total existing revenues</i>	523,274
<i>Net tariff collections required</i>	1,322,191
Fees and uncollectables	197,569
<i>Gross tariff billings required</i>	1,519,760
Average monthly tariff required	4.7

20





EXAMPLE TARIFF SCHEDULE

Category (kWh)	Number of users	Calculated Amounts		
		Burden Distribution	Monthly Tariff	Annual revenue
1 – 50	7,019	10%	1.80	151,976
51 – 200	12,221	30%	3.11	455,928
210 – 350	5,133	27%	6.66	410,335
351 – 650	1,877	17%	11.47	258,959
651 – 1000	373	5%	16.98	75,988
> 1000	375	11%	37.11	161,174
	27,000	100%		1,519,760

21



Conclusions (1)

- ❑ There is no 'correct' method of cost recovery – aim to adopt an approach that builds on existing structures, and that is compatible with local culture and customs.
- ❑ Establish cost recovery policy within a clearly defined financial policy framework for waste management.
- ❑ Ensure that the proposed measures fall within your existing span of control.
- ❑ Consider introducing new cost recovery measures progressively over time, funding the shortfall in funds out of other municipal sources.

22

Conclusions (2)

- These conclusions
 - can have implications for the scope and timing of improved waste management services, and
 - can significantly affect the annual revenue requirement and how it is financed.
- Improve financial planning and management capacity:
 - improve the financial skills base,
 - improve budgeting and accounting procedures, and
 - establish effective management information systems.

23