



OECD project: "Strengthening Financial Management Capacity of Local Level Actors in the Water Supply and Sanitation Sector"

## Multiyear Investment Planning (Block 2)

### Workshop for water companies and municipalities

26.III to 28.III 2008

Tbilisi, Georgia



Carried out by Kommunalkredit Public Consulting GmbH in association with SST-Consult

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## Overview of MIP (Multiyear Investment Planning)

- Introduction – Definitions and Principles
  - Definition of the MIP
  - Time horizon of the MIP
- MIP process step-by-step:
  - Budget revenues and current expenditures forecast
  - Definition of operating surplus
  - Investment ranking and selection
  - Loans and debt servicing
  - Presentation of cash flow and decision-making process
- Role of procedures in the MIP process.

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## Overview of the MIP

- What information about investments should be collected (example of forms to be used to collect information)
- Debt financing: loan repayment schedule, debt limits, debt service ratios
- Citizen participation in the process
- Discussion about the legal background and/or limitations of MYIP implementation in EECCA countries

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## Objective of the MIP process

- MIP introduces capital improvement **planning**
- **Multi-year** perspective as opposed to one-year planning
- Capital project selection is **objective**
- **Transparent** selection **criteria** for capital projects
- Tool for development **strategy** implementation
- Tool for **communication with citizens** about the most important strategic investments
- Tool for **communication with banks** and financing intuitions

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## Definition of the MIP

MIP (sometimes called Capital Investment Planning) shows:

- which investments the local government (LG) should implement in the next few (4-6) years and whether in each year of the plan it will have sufficient money for financing
- whether the LG will take out a loan for this purpose and whether it will be able to repay it
- which investments are beneficial to local society, which are less important, and which can be delayed for the future, and which are bad ideas that should be abandoned.

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## Definition of the MYIP

- **process of selecting strategic capital projects in medium-term perspective allowing for the achievement of the largest possible benefits (financial, social, environmental, others) as a result of their implementation, it includes the following:**
  - **multi-year financial plan:**
    - budget revenue forecast
    - required level of current expenditures along with the service and repayment of debt incurred
    - total funds intended for capital projects
    - amount of debt to be incurred
  - **clear selection criteria and capital project priorities**
- **list of capital projects to be implemented along with the material scope and sources of financing broken down by individual year.**

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## Definition of the MYIP

MYIP is not a wish list of investments without regard to the LG's financing capacity

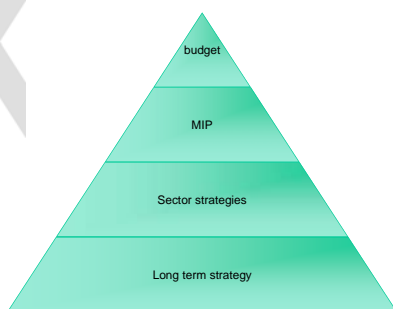
### What the MYIP is ?

Document for local society and local government and NOT for other institutions (e.g., regional and state authorities, banks, donor), although often this document can be useful in negotiations with these institutions

## Time horizon of the MIP

- Usually shorter than strategy
- Longer than election period
- Financial forecast to be comparable with loan(s) repayment period
- Time horizon depends on the stability of budget revenues and expenditures
- Often time horizon of the MIP is related to other strategic documents or financing institution requirements

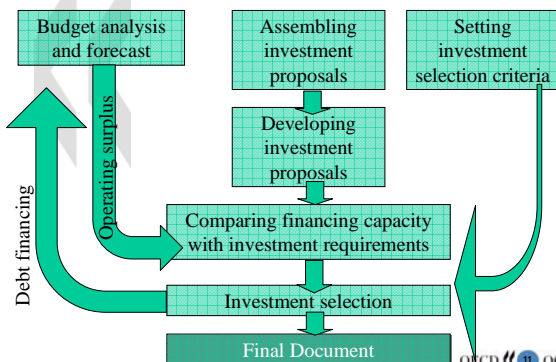
## Time horizon of the MIP



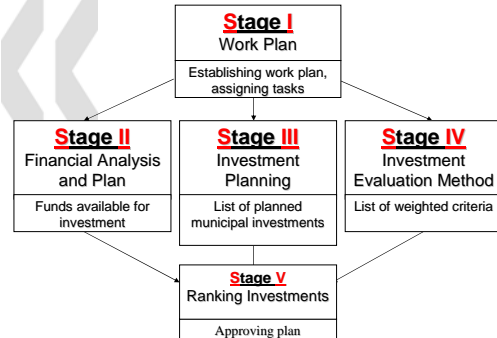
## MIP process step by step

- Budget revenues and current expenditures forecast
- Definition of operating surplus
- Investment ranking and selection
- Loans and debt servicing
- Presentation of cash flow and decision-making process
- Role of procedures in the MIP process

## MIP process step by step



## MIP process - organization of work



## Budget revenues and current expenditures forecast

- Revenue forecast
  - Revenues are planned based on last years' revenues, taking into account macroeconomic tendencies (increase of GDP, increase of salaries), local tendencies (population growth), improvements in revenue collection, introducing new taxes and known changes in legislation
- Current expenditure forecast
  - Current expenditure are forecasted based on last years' expenditures, taking into account macroeconomic tendencies (increase of GDP, increase of salaries), local tendencies (population growth), predicted changes in the scope and quality of services provided by municipality, introducing new tasks to local governments

## Operating surplus

- Operating surplus is the difference between forecasted revenues (excluding capital revenues, such as grants for capital investments) and current (mandatory) expenditures
- Operating surplus tells us what amount city may spend for capital investments from own sources and for debt service
- Its the most important indicator for banks and rating agencies when testing creditworthiness of the city

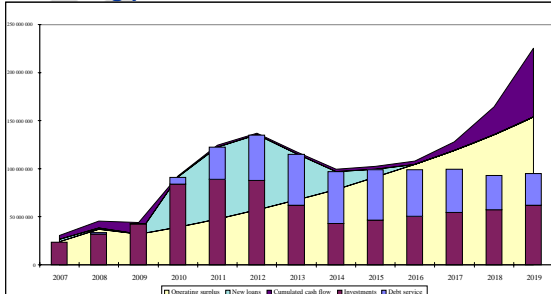
## Why investment ranking and selection?

- Local government capital investment needs are always much higher then financing sources they may provide
- Ranking seeks to reduce subjective motivations for project selection – replacing political (short-term) considerations with objective criteria
- Ranking „locks-in“ investment choices that may extend beyond political terms of office – gives incentive for longer-term thinking
- Should mix economic (e.g., operating costs) and non-economic criteria (e.g., percent of population served)

## Loans and debt servicing

- In MIP we may design not only debt financing (loans, municipal bonds) of capital investments but also observe the influence of future debt repayment (principal repayments and interest) on decreasing operating surplus to be spent for future investments
- Calculation of debt indicators and debt limits could be a part of MIP process

## Presentation of cash flow and decision-making process



## The role of procedures in the MIP process

- Procedures (e.g., budget preparation instructions) may make the process easier, as each key player (city department) knows their responsibilities and deadlines in the process
- Procedures should detail WHO and WHAT KIND of data should be prepared and should set deadlines
- Procedures may contain forms to be used in the process
- MIP procedure is like a recipe for baking the MIP

## The role of procedures in the MIP process - example

- MIP for the city is prepared for 5-year time horizon
- Assumptions for budget forecast (by January 31st); assumptions are distributed among departments (by January 31st)
  - Person responsible: head of Budget Department
- Revenue forecast (by February 28th)
  - Person responsible: head of Budget Department
- Departments (x, y, z,...) prepare current expenditure forecast (by February 28th)
  - Person responsible: head of each department
- Verification of forecast and calculation of operating surplus estimate for next 5 years
  - Person responsible: head of Budget Department

## The role of procedures in the MIP process - example

- Long list of investments (by March 31st) prepared using existing database. City Departments may also prepare requests (using the investment form) and deliver to the Public Works department by February 28
  - Person responsible: head of Public Works department
- Initial list of investment project selection methodology and criteria
  - Person responsible: head of Public Works department
- Review of the project selection methodology and criteria, final version of the project selection methodology (by March 31)
  - Person responsible: Mayor and the executive board
- Citizen participation, collecting investment proposals (by March 31):
  - Person responsible: head of Public Works Department

## The role of procedures in the MIP process - example

- Final long list of investments contains additional investments from citizen participation process (by April 30)
  - Person responsible: head of Public Works department
- Initial investment project selection (by May 31)
  - Person responsible: head of Public Works department
- Final investment project selection and proposal for financing of major investment tasks
  - Person responsible: Mayor and the board
- Final MIP document (by June 30)
  - Person responsible: Mayor
- City council passes Resolution and MIP becomes enforceable under local law
- Attachments:
  - Revenues and expenditures forecasting forms, Investment forms, investment project selection form

## What information about investments should be collected

- For MIP process at least the following information about each investment proposal should be collected:
  - Project name
  - Project objective
  - Project location
  - Project scope
  - Investment costs for project preparation (documentation), land acquisition and construction
  - Investment costs schedule
  - Sources of project financing
  - Expected project results (qualitative and quantitative)

## Investment form – case study

City of Lezajsk, Poland

**Investment symbol and number:** RGM-1/05/2000

**Department:** Economic Development

**Name of investment:** Construction of sports hall at the vocational school complex in Lezajsk

### INVESTMENT DESCRIPTION

Sports hall at vocational school complex of 13 270 m<sup>3</sup> and total usable surface area of 2 237 m<sup>2</sup>. Capacity 277 seats. Planned completion by the end of June 2006.

### LOCATION

Lezajsk, M.C.Skłodowska Street

## Investment form – case study

### PROJECT SCOPE

As above

### ESTIMATED INVESTMENT COSTS

Current cost estimate – 5.4 million PLN (about 1.4 million EUR)

### EXPECTED RESULTS AFTER INVESTMENT COMPLETION

Development of sports and recreation in the city; capacity to organise sporting and cultural events

Name of person preparing investment form: Jerzy Mroczkowski

## Investment form – case study

### PROJECT IMPLEMENTATION SCHEDULE

Cost elements	2005	2006	2007	2008	2009	2010	Total in years of the plan
Purchase and preparation of site							
Pre-investment documentation							
Construction and installation works	3,652,000	1,748,000					5,400,000
Purchases of equipment and machines							
Other							
<b>Total costs</b>	<b>3,652,000</b>	<b>1,748,000</b>					<b>5,400,000</b>

## Investment form – case study

### SOURCE OF FINANCING

	2005	2006	2007	2008	2009	2010	Total in years of plan
<b>Own sources – LG budget</b>	450,000	20,000					470,000
<b>Preferential loan</b>							
<b>Commercial loan</b>							
<b>Grants from central budget (Superintendent of Education, district budget)</b>	1,887,200	1,592,800					3,480,000
<b>Non-budgetary grants (Parents' Council)</b>	250,000						250,000
<b>Grants from local funds</b>							
<b>Others (Office of Physical Fitness and Sport)</b>	1,064,800	135,200					1,200,000
<b>Total</b>	<b>3,652,000</b>	<b>1,748,000</b>					<b>5,400,000</b>

## Investment form – case study

### IMPACT OF INVESTMENT ON BUDGET

Calculation of annual revenues:		
Source of revenues	Calculation	Revenue
Fees for organising events	250 PLN x 100	25 000 PLN
Individual hiring of hall	25 PLN/h x 500h	12 500 PLN
<b>Total revenues</b>		<b>37 500 PLN</b>
Calculation of annual costs:		
Cost position	Calculation	Cost
Heating		150 000 PLN
Employment		200 000 PLN
<b>Total cost</b>		<b>350 000 PLN</b>
<b>Financial result (revenues – costs)</b>		<b>-312 500 PLN</b>

## Debt financing

- Why incur debt?
  - Makes it possible to implement important investments more quickly and gain benefits from implementation sooner (social, financial, etc.)
  - Municipal infrastructure typically has a long project lifespan, thus it is better than expenditures are spread out over time
  - Infrastructure built today will be used by next generation – thus, it is not just that only the current generation pay for this infrastructure
- Why NOT incur debt?
  - Costs of debt (commission, interest) mean that loans are always most expensive than current financing and consequently loan financing always results in building a bit less (over the long run)
  - In a few years the city will be paying debt and will have less funds for other investments

## Citizens in participation the process - surveys

- Use of surveys:
  - Survey a group of residents but reach them using questionnaires through local councils (sub-municipalities), neighbourhoods, economic chambers, NGOs – serve as intermediaries in delivering questionnaires, explain purpose of completing surveys and collect completed questionnaires;
  - Pupils and students (indirectly reach parents);
  - Information in local newspaper, can be printed in specified place;
  - Information in local television, radio;
  - Using a website or possibility of sending by e-mail (need to secure against abuse).

## Citizens in participation the process – flaws and merits of surveying

- Merits:
  - Collecting proposals from large group of residents;
- Flaws:
  - Proposals are often not concrete and difficult to process,
  - Proposals require lots of work,
  - Some proposals, or parts of proposals, must be rejected if they do not meet the requirements of the MIP process (e.g. Investments that cannot be implemented by local government);
  - Most often a „representative sample“ of citizens is not surveyed but just a random, preferred group of people due to the method of distributing questionnaires



## ADVANTAGES of MIP implementation

- Decreased influence of the current political issues on the capital improvement process in the city, in particular the capital project selection process
- Possibility of better concentration and faster implementation of capital projects
- Reduced practice of formulating overstated needs by departments / municipal companies
- Tool for communication with the local community
- Facilitates access to those external sources of finance that require a MIP (almost all significant ones require some form of investment plan)



## ADVANTAGES of MIP implementation

- Banks and rating agencies look at creditworthiness to ensure that the local government is a reliable partner and will be able to repay its loan. Even with EU grants, co-financing is necessary and city must know how much it can finance.



## Link between MIP and FPTWU

- Most water and wastewater companies in EECCA countries do not have sufficient financial resources to implement investments by themselves, even if tariffs are calculated correctly (in this case time is needed for company to accumulate financial resources)
- Water supply and wastewater collection is a local government task; therefore, local governments provide at least part of the funds for investment (and repay loans) in this sector. In PPP cases, often the local government continues to own the assets and provide investment funds
- Therefore, water and sewer companies must try to ensure that local governments have a proper MIP process, so that investments in the sector are included



## Discussion about legal background and/or limitations of MIP implementation in EECCA

- What is the planning period?
- How stable are revenues and expenditures – can a good forecast be prepared?
- Can the MIP document be passed by resolution and what legal force will it have in preparing annual budgets?



## Questions and Discussion



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## Investment Projects Appraisal, Ranking and Selection

(Block 2)

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## OVERVIEW

- Financial and economic analysis techniques
- Cost Benefit analysis
- Cost Effectiveness Analysis
- Multi-criteria analysis
- Advantages and disadvantages of each method

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## Investment projects appraisal, ranking and selection – economic analysis

Introduction to various approaches to investment appraisal when public funds are involved:

- Cost Benefit Analysis (CBA) - total project benefits exceed total project costs
- Cost-effectiveness analysis (CEA) - select the cheapest approach to addressing a given issue; assume all options produce the same benefit
- Multi-criteria analysis
- Advantages and Disadvantages of Simplified Approach

Note: in all of the above, an analysis is necessary to ensure that the project is financially sustainable

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## Net Present Value (NPV)

- Effective method, relies on Discounted Cash Flow techniques
- Steps to proceed:
  1. Find the PV of each cash flow, discounted at cost of capital (k)
  2. Sum the discounted cash flows = project's NPV
  3. If **NPV > 0** accept the project  
**NPV < 0** reject the project  
if two projects, accept the one with higher NPV

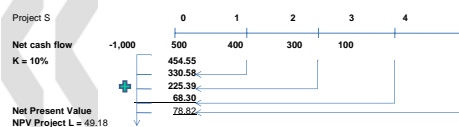
$$NPV = CF_0 + \frac{CF_1}{(1+k)^1} + \frac{CF_2}{(1+k)^2} + \dots + \frac{CF_n}{(1+k)^n} = \sum_{t=0}^n \frac{CF_t}{(1+k)^t}$$

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## Net Present Value



- > If **NPV = 0** – the project's cash flow covers the investment and provide the required rate of return
- > If **NPV > 0** – the project generates excess cash

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## Internal Rate of Return (IRR)

- IRR – discount rate that equates the PV of project expected cash inflows to the PV of the project's costs
- PV (Inflows) = PV (Investment costs)

> IRR forces the NPV to equal to zero

$$CF_0 + \frac{CF_1}{(1+IRR)^1} + \frac{CF_2}{(1+IRR)^2} + \dots + \frac{CF_n}{(1+IRR)^n} = 0$$

$$NPV = \sum_{t=0}^n \frac{CF_t}{(1+IRR)^t} = 0$$

> Example: for project S, IRR = 14.5%; for project L, IRR = 11.8%

> If the cost of capital = 10%

> Accept the both projects (IRRs and IRR > 10%)

> IRRs has a higher rank

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## The Choice of (Social) Discount Rate

Annual Net Benefits and Net Present Values for Alternative projects			
Year	Project A	Project B	Project C
0	-70 000	-70 000	-70 000
1	15 000	50 000	0
2	20 000	10 000	0
3	20 000	10 000	0
4	20 000	10 000	0
5	20 000	10 000	100 000
<b>NPV(2%)</b>	<b>18 987</b>	<b>16 030</b>	<b>20 170</b>
<b>NPV(10%)</b>	<b>1 155</b>	<b>3 883</b>	<b>-7 189</b>

## Investment projects appraisal, ranking and selection – financial and economic analysis

The general goal of financial and economic analysis of investment projects is to assess the sustainability of project effects to ensure that:

- project provides sufficient incentives for the investor (cost recovery, etc.)
- sufficient funds are available to maintain project operations
- least cost means of providing the project benefits is used
- distribution of project benefits and costs is consistent with project objectives

## Cost-Benefit Analysis (CBA)

- CBA - effort to identify and quantify the benefits and cost associated with project implementation.
- CBA – also an attempt to identify and quantify costs and benefits that accrue both to the investor institution as well as to the society as a whole.
- Includes effects that are external to the investor's decision on whether to proceed with project implementation

## Social Benefits - water investment

- Improvement of living conditions involving drinking water quality, elimination of cesspools as well as operational improvement of the water treatment system, health benefits due to a decrease in the communicable diseases, savings on purchases of bottled water and water filters
- Increased value of land zoned for future investment due to provision of a more reliable water supply structure
- Improvement in tourist and recreational attractiveness of some areas or communities as well as quality and sanitation of rivers

## Social Benefits - water investment

- Elimination of the need to transport drinking water and fecal matter by vehicle
- Directing pollution through a sewer system to a wastewater treatment plant and not directly to the environment
- Intrinsic benefits to the environment

## Social Costs - water investment

- Increase in costs of water delivery and wastewater collection;
- Loss of land needed for the pumping station and water treatment plant;
- Temporary burden to residents during construction of large objects and underground infrastructure

## Plus and minus of CBA

- solid approach for considering costs and benefits that are typically external to the investor's decision process.
- powerful tool to assist in making more informed decisions.
- used by European Commission for project appraisal in candidate countries in CEE.
- Valuation of benefits from capital investment is difficult and ambiguous.

## CBA – case of wastewater project

- City of 30 thousand residents
- Project objectives: reduce pollution by – BOD5 – 83%, COD – 46%, TSS – 65%, Ntot – 78%, Ptot – 52%
- Increase from 24 756 to 29 735 (about 5 000 persons) in the number of residents served by sewer system and sewer services for 7 327 residents of nearby communities
- Increase in capacity of WWTP from 5300 m3/d to 6 247 m3/d
- Increase from 25 581 to 29 735 (about 4 000 persons) in the number of persons served by mains water system

## Scope of investment

	Item	Number
A. WASTEWATER TREATMENT PLANT		
1	Modernisation of WWTP in City X (change in technology, increasing capacity)	1
B. SEWER SYSTEM		
1	Gravity sewers	34.5 km
2	Pressure sewers	44.6 km
3	Pumping stations	23 pcs.
C. WATER MAINS SYSTEM		
1	Water intakes (modernisation – 9, expansion – 1)	10 pcs.
2	Water treatment stations (modernisation – 9, construction – 1)	10 pcs.
3	Water mains (construction of new segments and replacement)	64.5 km

## Forecast of water and sewerage prices

Year	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Gross tariff (with VAT) for water and sewer together	5,93	6,45	8,08	8,73	10,33	11,53	11,50	11,44	11,63	11,81
Gross unit price for water	2,60	2,85	3,39	3,66	4,24	4,75	4,87	4,93	5,06	5,17
Gross unit price for sewerage	3,33	3,60	4,69	5,07	6,09	6,78	6,63	6,51	6,57	6,64
Share of tariff for water and sewer services in disposable household income	3,23%	3,33%	3,82%	3,93%	4,46%	4,78%	4,56%	4,34%	4,23%	4,12%

PLN/m3

1 EUR ≈ 3.7 PLN

## Financial results of investment

- Financial net present value of investment (NPV) -46 708 460 PLN (about -12 million EUR)
- Financial net present value of investment (NPV) taking into account grant -5 394 198 (about -1.3 million EUR)

## Social effects – environmental benefits

Status	Pollution indicator	Wastewater treated and put into the environment (kg/d)	Untreated wastewater put into the environment (kg/d)	Total load of wastewater put into the environment
Without investment implementation	BOD5	58,7	664,9	721,6
	COD	199,8	1 477,6	1 677,4
	TSS	59,4	701,9	761,2
After investment completion [2015]	BOD5	76,5	-	76,5
	CODT	269,4	-	269,4
	TSS	80,0	-	80,0
Environmental effect	BOD5			645,2
	COD			1 408,0
	TSS			681,2

## Social effects – environmental benefits

- Avoided pollution was multiplied by environmental use charges – a proxy estimate of the harmfulness to the environment of each type of pollutant
  - BOD5: 3.51 PLN/kg
  - COD: 1.40 PLN/kg
  - TSS: 0.44 PLN/kg

1 EUR = ~3.7 PLN

## Results of CBA

- ENPV 1 946 838 thousand PLN (about 0.5 million EUR) at a discount rate of 8%
- ERR of 8.70%
- Many social effects that were not possible to quantify:
  - Reduction in differences in development disparities between regions
  - Safeguarding of protected areas and land that are valuable for their natural environment
  - Economic development / new businesses

## Cost effectiveness analysis (CEA)

- Cheaper and simpler to apply than CBA since there is no need to determine external costs and benefits
- Generates a clear result that can be tested
- Project development and appraisal are faster (no need for complex study)
- Leads to unambiguous conclusions
- Requires less investor and evaluator know-how

## CEA and Unit Costs

- Unit costs are misleading - not only investment costs are important, but also operating costs of investment
- Time value of money is important - investment costs, operating costs, revenues all need to be discounted
- Answer: modify CEA to reduce the impact of these shortcomings – introduce Dynamic Generation Cost (DGC)
  - dynamic indicator of cost-effectiveness

## Dynamic Generation Cost Analysis (DGC)

- The sum of investment and operating costs are discounted over the project period
- This sum is divided by the discounted (environmental) effect

## Dynamic generation cost analysis (DGC)

- Example - discounted investment and operating costs of a small wastewater treatment plant over 20 years equal 10 million EUR
- If over the project period 5 million m<sup>3</sup> of wastewater are treated (discounted), we know that the DGC of wastewater treatment is 2 EUR/m<sup>3</sup>



## Dynamic generation cost

$$DGC = p_{EE} = \frac{\sum_{t=0}^{t=n} \frac{KI_t + KE_t}{(1+i)^t}}{\sum_{t=0}^{t=n} \frac{EE_t}{(1+i)^t}}$$

- $KI_t$  – investment costs incurred in a given year;
- $KE_t$  – operating costs incurred in a given year;
- $i$  – discount rate;
- $t$  – year, assume value from 0 to  $n$ , where 0 is the year in which the first costs are incurred. On the other hand,  $n$  is the final year of installation operations.



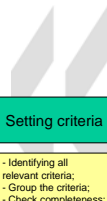
## Dynamic generation cost – case study

- City wants to implement three water investment projects and has sources to finance only one. Our task is to select the best one:
  - Investment costs are 2 060 thous. EUR (60 thous. in the year 0), operating costs are 50 thous. EUR since year 1, water delivered is 20 thous. m<sup>3</sup> in year 1, 25 thous. in year 2, and 50 thous. in and after year 3)
  - Investment costs are 2 000 thous. EUR (1 million in the year 0), operating costs are 25 thous. EUR in year 1 and 30 thous. EUR since year 2, water delivered is 10 thous. m<sup>3</sup> in year 1, 23 thous. in year 2, and 30 thous. beginning in year 3)
  - Investment costs are 3 million EUR (in the year 0), operating costs are 25 thous. EUR in year 1 and 30 thous. EUR since year 2, water delivered is 60 thous. m<sup>3</sup> since in year 1, but decreases to 40 thous. M<sup>3</sup> beginning in year 8)

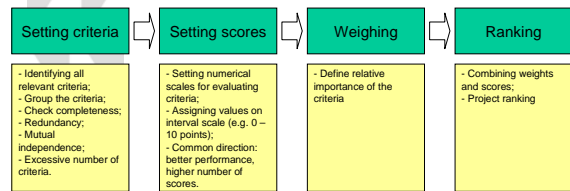


## Multi-criteria analysis

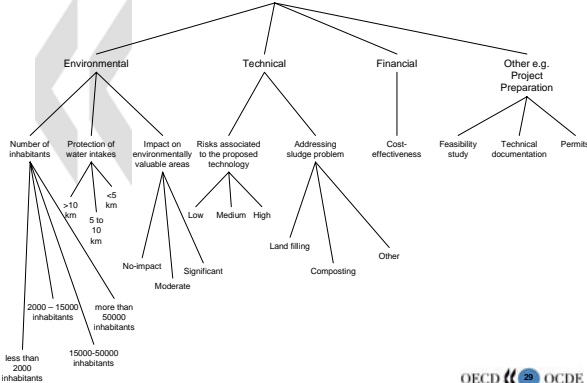
- Investment evaluation using this method involves the development of a finite number of criteria against which all investment proposals should be measured.
- The criteria themselves may vary in their detail, ranging from simple questions (yes or no) to more detailed and graded criteria depending on the degree to which the criteria is met (such as the extent to which some desired effect has been obtained).



## Multi-criteria analysis - Scoring Weighing Ranking Procedure

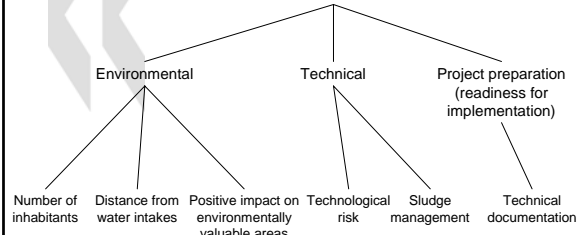


## Scoring criteria



## Example – Wastewater Treatment Project


### SCORING CRITERIA



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## Multi-criteria analysis


No.	Description	Weight for group	Weight for criterion
<b>1</b>	<b>Group 1</b>	<b>30</b>	
3.1	Legal-formal documentation		10
3.2	Local public acceptance		10
3.3	Confirmation of financing		10
3.4	Links to other investments		10
3.5	Degree of progress on investment		15
3.6	Engagement of „soft“ financing		15
3.7	Investment impact		15
3.9	Economic analysis		15
<b>2</b>	<b>Group 2</b>	<b>20</b>	
2.1	Criterion 1		50
2.2	Criterion 2		50
<b>3</b>	<b>Group 3</b>	<b>50</b>	
3.1	Criterion 3		100

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## Multi-criteria analysis – Sample city

No.	Name of criterion	Weight
1	Implementation of strategic objectives listed in „Development Strategy for City X“	15
2	Investment at advanced stage	15
3	Possibility of obtaining extra-budgetary grant	10
4	Investment generates budget revenues	10
5	Positive impact on natural environment	10
6	Investment impact	10
7	Compliance with single-year priorities	5
8	Possibility of obtaining preferential loan	5
9	Link to other investments	5
10	Positive evaluation of local society	5
11	Formal and legal documentation	5
12	Investment can be divided into stages	5
<b>TOTAL</b>		<b>100</b>

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## Examples of the Scoring, Weighing and Ranking of ERDF Investments In Poland

Criterion	Weight	Max. Score	Reference to the application form	Scores awarded	Justification
I. Project impact on implementing EU environmental directives	3	12	D6/SW		
II. Project complementarity with other projects in particular with ERDF financed projects or Cohesion Fund projects	1	4	D7/SW		
III. Project sustainability and institutional preparation (ensuring financial and institutional sustainability)	2	8	D10/SW		
IV. Cost-effectiveness	4	16	SW		

[1] a) National Programme for Municipal Wastewater Treatment:  
From 10 000 to 20 000 Population equivalent (P.E.) – 4 points,  
From 5 000 to 10 000 P.E. – 3 points,  
From 2 000 to 5 000 P.E. – 2 points,  
Under 2 000 P.E. – 1 point,  
b) Waste management plans:  
From 10 000 to 20 000 inhabitants – 4 points,  
From 5 000 to 10 000 inhabitants – 3 points,  
From 2 000 to 5 000 inhabitants – 2 points,  
Under 2 000 inhabitants – 1 point,  
c) Air protection investments within the areas covered by Air Protection Programmes – 4 points  
d) Renewable Energy Source capacity:  
- Over 10 MW – 4 points,  
- From 5 to 10 MW – 3 points,  
- From 1 to 5 MW – 2 points,  
- Under 1 MW – 1 point.


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## Examples of the Scoring, Weighing and Ranking of ERDF Investments In Poland

Criterion	Weight	Max. score	Reference to the application form	Scores awarded	Justification
V. Correctness of the indicators presented	1	4	E2/SW		
VI. Technical viability	1	4	SW		
VII. Complex projects carried out by more than one local government units	2	8	D6/D9		
Maximum number of scores		56			


Name of the expert evaluating \_\_\_\_\_  
Date \_\_\_\_\_  
Signature \_\_\_\_\_

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## Advantages and disadvantages of each method of project appraisal


- CBA: very complex and costly but may be used to compare wide-range of investment tasks
- CEA: easier to use but may be used to compare investments with coherent effects (one sector only)
- Multi-criteria analysis: the easiest to use, but results can be the most ambiguous

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## Application of Appraisal Methods

	Large-scale projects	Small-scale projects	Policies/programmes
Cost-Benefit Analysis	X		X
Multi-criteria-analysis/Scoring Weighing Ranking	X	X	X
Financial analysis	X	X	
Cost-effectiveness analysis	X	X	

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## Questions and Discussion



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## Multiyear Investment Planning Case study from CEE country

(Block 2)

Workshop for water companies and municipalities

26.III to 28.III 2008  
Tbilisi, Georgia



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## Case study on MIP process

- City in Poland: population 50 thousand; between two large agglomerations Krakow and Katowice
- Budget in 2004: about 20 million EUR
- In 2004, when MIP was done, the city had debt of about 6 million EUR
- City had high operating costs (low operating surplus); financing of investments had to include loans and grants
- MIP prepared for the years 2004-2008

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## MIP process

- Work begun in April 2004 with workshops
- Entire process included workshops on: 8 April 2004, 1 June 2004, 6 October 2004, and 26 October 2004. On 18 November 2004, the MYIP was presented at the session of the Economic Development Commission of the City Council
- At the beginning of the process, the mayor issued an executive order on formation of a working group to prepare the MIP and to establish investment selection criteria and determine work schedule (procedure)
- The following worked on the MIP in parallel:
  - Treasurer – revenue and expenditures forecast (2 months)
  - Team developed investment selection criteria using the multi-criteria analysis method (2 months)
  - Organised meetings with citizens and collected data about investments – this process lasted until October
  - MIP was passed by the City Council on 22 March 2005

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## Revenues and expenditures forecast

- In forecasting expenditures – needed to take into account drop in number of pupils in schools (demographic trough).
  - Education grant is calculated on the number of pupils,
  - Costs of maintaining schools dropped only a little bit (expenditures increasing faster than revenues)
- Developed revenues and expenditures forecast and calculated operating surplus. Also calculated maximum capacity to incur new loans

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## Determining maximum capacity to incur debt

Category	2006	2007	2008	2009	2010	2011
Total instalments of new loans	18 414	6 404	7 128	0	0	0
Total payment of instalments	0	1 841	2 482	3 195	3 195	3 195
Total interest	645	1 449	1 771	1 822	1 598	1 375
Status at end of year	18 414	22 977	27 624	24 429	21 234	18 039

Category	2006	2007	2008	2009	2010	2011
Total payments (all loans)	5 328	6 785	7 553	8 122	4 793	4 569
Total debt at end of year	38 914	40 477	42 124	35 929	21 234	18 039
Ratio of debt / revenues	55,0%	55,0%	55,0%	45,1%	25,6%	20,8%
Ratio of debt service / revenues	7,8%	9,5%	10,1%	10,4%	6,1%	5,6%

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## Selecting evaluation criteria

- Team proposed 14 criteria (each member could make proposals)
- Survey form prepared and each member of Team ranked the most important criteria
- Next, each Team member compared criteria between themselves

	Criteria 1	Criteria 2	Criteria 3	Criteria 4	Criteria 5	Criteria 6	Criteria 7	Criteria 8	Criteria 9	Criteria 10	Avc	Weight
Criteria 1	1											
Criteria 2		1										
Criteria 3			1									
Criteria 4				1								
Criteria 5					1							
Criteria 6						1						
Criteria 7							1					
Criteria 8								1				
Criteria 9									1			
Criteria 10										1		

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## Selection of evaluation criteria

- Criteria were compared – evaluating their importance on a scale from -5...0...5
- Next, geometric mean was calculated and based thereon each criterion was weighted
- Next, average weight of all questionnaires was calculated
- During later meeting it was determined that some of the criteria overlap and they were then combined (summing all earlier weights)

## Evaluation criteria

Criterion	Weight
1. Compliance with EU objectives or objectives of other funds – so that investment has a chance to obtain financing	30
2. Economic development and new jobs	18
3. Extent of investment preparation	18
4. Project beneficiaries	9
5. Impact on the natural environment (specialist evaluation from 0 – 10)	8
6. Citizen participation	12
7. Investment generates budget revenues	5

## Collecting investment proposals

- June – September 2004, using forms developed for this purpose
- Public Project Department completed investment forms
- Starting on 1 July, forms were sent to Chairs of Neighbourhood Councils, who then organised public meetings
- Idea of conducting citizen survey was ultimately not implemented
- Investment proposals collected from residents often contained flaws: not concrete, no estimate of investment outlays, sometimes not possible for local government to implement because proposed task not a LG competency

## Information collected on investments (sample investment card)

- Task Number: 1
- Task Name: Sewer system for areas of X, Y, and Z and district of A in City A under the project "Supply of water (transport and storage) together with construction of municipal sewerage and expansion of WWTP for Cities A, B and C" – co-financing from the Cohesion Fund.
- Task Score (points): 804 points
- Total investment outlays: 47 857 thousand PLN
- Assumed level of financing from own sources and loans 22.9%
- Note:
  - Own sources of financing include:
    - Municipal Budget, of which:
      - Municipal Fund for Environmental Protection and Water Management
      - Loan from National Fund for Environmental Protection and Water Management (NFEP)

## Information collected on investments (sample investment card)

Source financing	Year						TOTAL
	2004	2005	2006	2007	2008	Next years	
1 Own funds, of which: - budget municipality /from municipal fund for environmental protection/ - loan from National Fund for Environmental Protection and Water Management	-	2301 1327	3761 2226	2451 2192	2478 2215	-	10 991 7 960
2 Co-financing from Cohesion Fund	-	4769	8102	7976	8059	-	28 906
3 Other sources	-	-	-	-	-	-	-
TOTAL	-	8397	14089	12619	12752	-	47 857

## Case study on MIP process

- 48 important investments (for each an investment form was completed) were written into MIP
- In addition, collected data on 65 other investments – not included in MIP due to lack of sufficient funds
- Prepared combined schedule of planned investments, year by year

## Table with ranked investments

r.	Investment	pts.	Total outlays (thousand PLN)						
			Total	2004	2005	2006	2007	2008	next
1	Sewer system in areas X, Y, Z and district A in Chrzanow	804,7	47 857		8 397	14 089	12 619	12 752	
2	North bypass of city from „Balinski” interchange to „Byczynski” interchange along national road no. 79 – Stage I	560,8	10 991		2 301	3 761	2 451	2 478	
3	West bypass of city – from „Byczynski” interchange along regional road no. 933	554,1	1 200			500	700		
4	Modernisation of traffic signal on intersection of Oswiecim Street (road no. 933) from Slowacki Street to Partyzantow Street in Chrzanow	503,5	150	40	110				
5	Construction of pedestrian sidewalk on Oswiecim Street in Chrzanow	476,2	1 530				1 530		

## Questions and Discussion



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## Multiyear Investment Planning

### MIP software

(Block 2)

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## MIP - Software for the development of Multi-year Investment Plans

- Multi-year financial plan – estimating the level of own sources available for investment financing
- Creating an investment ranking based on user-established priorities
- List of planned investment projects (for selection)
- Schedule for financing outlays, planned external financing sources, potential loans, impact of investment implementation on future budgets

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## MIP - Software for the development of Multi-year Investment Plans

- List of criteria – enables the development of a ranking list
- Macro-economic parameters - inflation, economic growth – required for preparation of multi-year financial plan, useful for projections and simulations (calculating real outlays in the event that investment start and completion dates are modified)

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## List of investments

- List of all planned investment projects – parameter addition, removal, correction for each project

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## Investment data

- Basic parameters – project code, name and description; information on project benefits and alternative solutions
- Investments may be grouped:
  - Option group – different variants of the same investment may be planned (financing, investment duration, etc.)
  - Phasing group – project may be divided into stages or phases
- Initial planned date for investment implementation (may be changed over the course of the simulation)

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## Project schedule and sources of financing

- Entering a schedule of total outlays on investment by year
- Planned own sources and external sources of financing
- Draft credit plan

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## Budget impact

- Revenues realised after investment project completion: user charges, local taxes, reduction of fines, reduction in operating costs of modernised equipment, etc.
- Investment operating costs: personnel costs (salaries) and material costs (energy, fuel, operating materials, repairs)
- Costs of ceasing investment implementation may also be considered (fines for environmental degradation, repairs costs of old, not modernised equipment, risk of environmental catastrophe, etc.)



## Selection criteria

- Entering information essential to the creation of an investment ranking based on a list of criteria.



## Loans

- List of all loans/credits that can be obtained
- Entering a schedule for transfer of instalments and for loan repayment
- Payment schedules may be automatically calculated based on entered parameters (interest rate, payment period, etc.)



## Scenarios

- Purpose of simulation: creating an investment list of the highest possible priority, such that these investments may be completed using available, planned and potential sources of finance
- Scenarios: variants of simulations conducted by varying input parameters: weight of priorities, various options for investment projects depending on obtaining of certain grants, subsidies and loans



## Simulation

- Setting weights of each criteria
- Designing variants for multi-option investment projects
- Developing ranking of investment projects
- Observing budget projections, as influenced by approved investment projects, date for their implementation and approved credit
- Controlling course of simulation using a form or on a graph



## Financial cash flow

- Numerical presentation – in tabular form
- Graphical presentation – figures