Cost-benefit analysis
A tool for finding cost-effective local water protection actions

Cost-efficient Protection of the Gulf of Finland

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Cost-efficiency of water protection?

A. Nutrient load reductions versus costs
B. Total benefits versus total costs
    - Key idea of the Cost-Benefit Analysis (CBA) method

Why Cost-Benefit Analysis (CBA)?

- CBA aims to measure cost-efficiency in perspective of the whole society
- CBA aims to take into account all relevant impacts of the entire time span of the project
  - Also those impacts lacking market values, e.g. environmental benefits (reduced eutrophication)
  - All impacts are measured in monetary terms
  - If the overall benefits exceed the overall costs, the project has potential to increase social welfare
- CBA is a tool developed to find support for decision-making, for example:
  - How much resources should be used on water protection projects instead of other projects within your organization?
  - Which of the alternative water protection projects should be chosen?
  - What can we learn about cost-efficiency of water protection projects already implemented?

The CITYWATER project

To implement and facilitate environmentally relevant and cost-beneficiary voluntary water protection measures in the Baltic cities and municipalities

To change working procedures in cities and municipalities by increasing environmental communication and knowledge

- Partners: City of Helsinki, City of Turku, Tallinn City, Tallinn University
- Budget: 1,16 M€, 50 % EU LIFE+ funding, Finnish Ministry of the Environment and partners
- Duration: 1/10/2012 – 30/9/2015

The Baltic Sea Challenge

THE BALTIC SEA CHALLENGE

– The Baltic Sea Challenge functions as a framework for actions (e.g. CBA) implemented within the CITYWATER project

– ”Action at the local level is the key”
  - The Baltic Sea Challenge is a network of local organizations for protecting local waters and the Baltic Sea – in their own field of action
  - Healthy waters = competitiveness and welfare

– Over 200 partners around the Baltic Sea: cities, companies, schools, NGO:s…

Cost-Benefit Analysis in CITYWATER

- What is the role of the water protection done by cities and municipalities for saving the Baltic Sea?
  - What is the impact on the state of the local waters or the state of the Baltic Sea?
  - Which and how large are the benefits gained?
  - Is it cost-effective?

Five case studies from Baltic Sea Challenge cities

Pori: Centralizing of waste water treatment

Turku: Buffer zones in rent fields

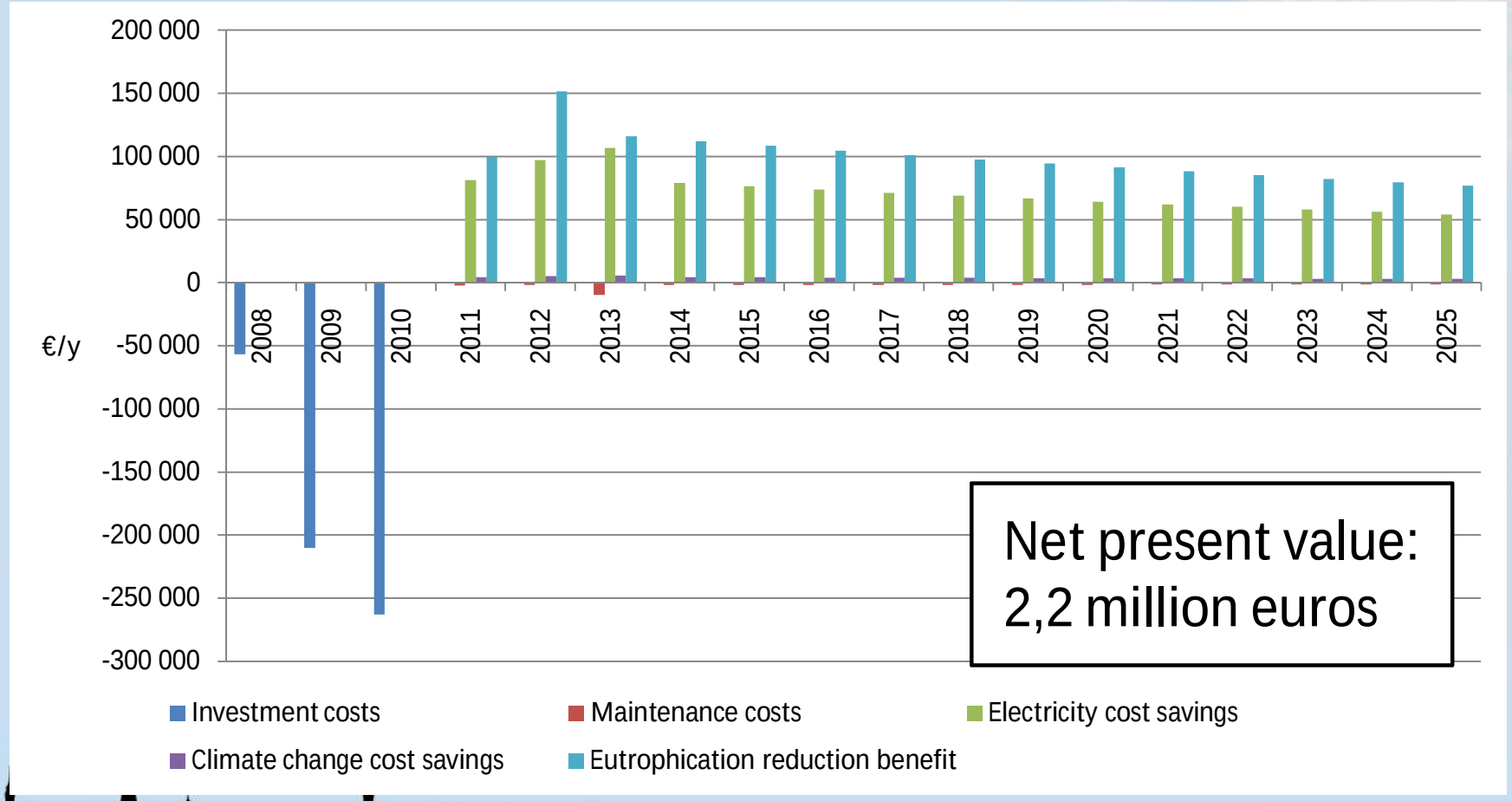
Liepaja: Aerator investment in WWTP

Source: Google Maps (modified)

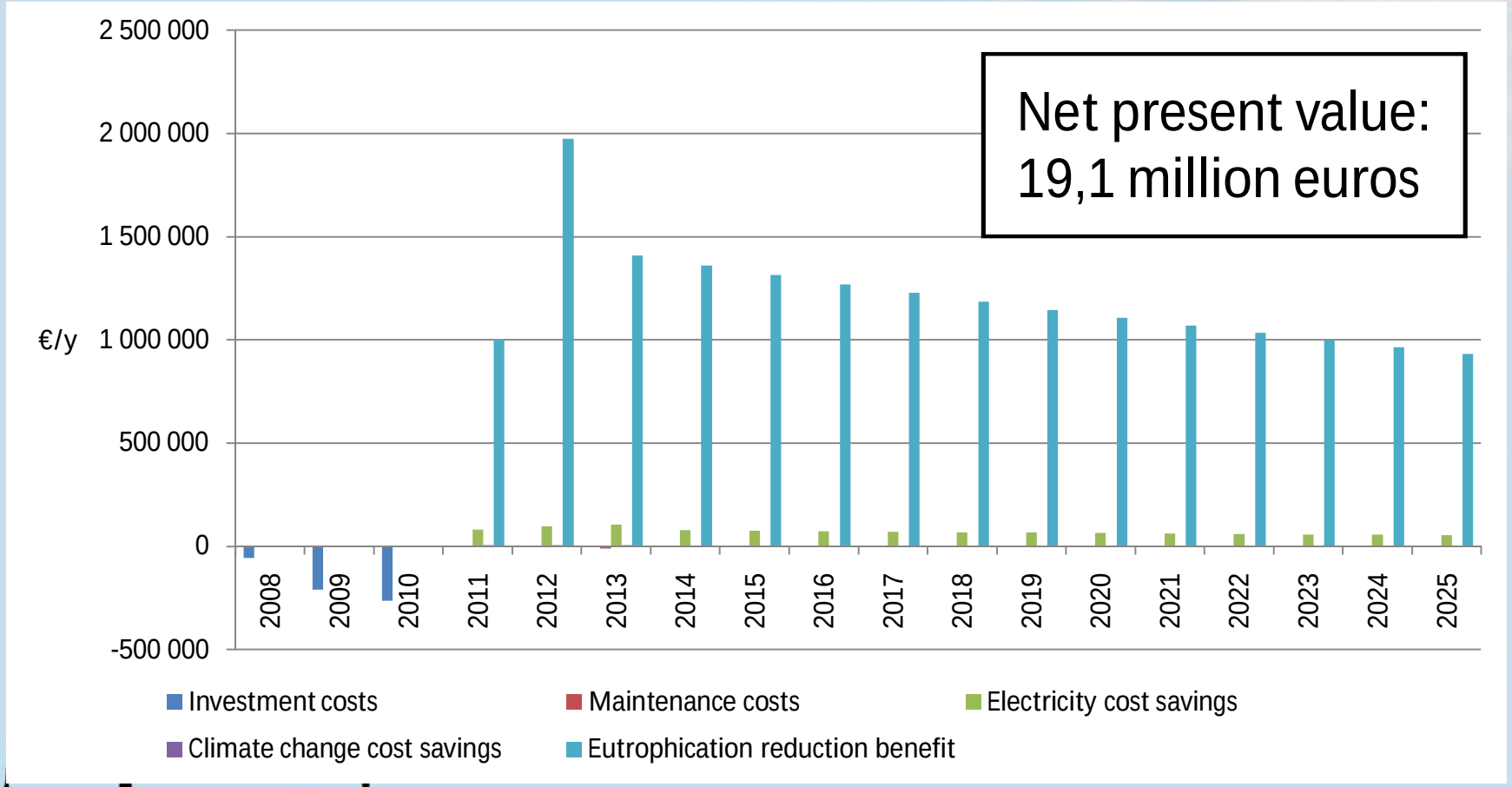
Lahti: Storm water wetlands

Helsinki: Reception of waste water from ships

Case Liepaja WWTP: Annual costs and benefits in present values in BSAP scenario



Case Liepaja WWTP: Annual costs and benefits in present values in BASELINE scenario



Key results from the CITYWATER CBA

1. Single water protection actions implemented by local actors can bring significant nutrient load reductions

2. In addition to nutrient reductions, water protection can provide various other benefits

3. When the ecological state of the Baltic Sea is poor, single water protection actions are very valuable

4. Water protection can be implemented in a cost-effective way to increase social welfare

How to find cost-effective measures...

- Perform a Cost-Benefit Analysis
  - Environmental benefits are included in monetary terms
  - Time perspective
  - Allows comparison of different alternatives

- Apply Cost-Benefit Thinking: What costs and benefits are relevant? How much they count? Short-term vs. long-term impacts?

- Join the Baltic Sea Challenge network to share ideas, knowledge, experience and best practices of cost-effective measures

Further information

CBA report will be published in autumn 2014 in www.citywater.fi

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