Sustainable port development profitable?

Assessing the value of sustainable development in ports: a case study

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What is sustainable port development?

- Sustainable development for the Port of Amsterdam (Smart port)
  - growth without harming quality of water, soil and air
  - efficient land use
  - creating more jobs
  - more (sufficient) incomes for the port
  - citizens of Amsterdam become even more proud and appreciative of their port area.




- Question: How to develop the port based on sustainable growth?

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How to develop a sustainable port development strategy?

- Sustainable port development is balancing:
  - environmental impact
  - employment / economy
  - financial revenues
  - support of / co-operation with third parties

- Socio-economic cost benefit analysis (CBA) can support decision making by:
  - making the discussion objective: overview of all arguments
  - comparing arguments on equal terms (€)
  - optimising investments (direct link with positive effects)

- Result: sustainable port development strategy based on co-operation with partners (business, environment, community)

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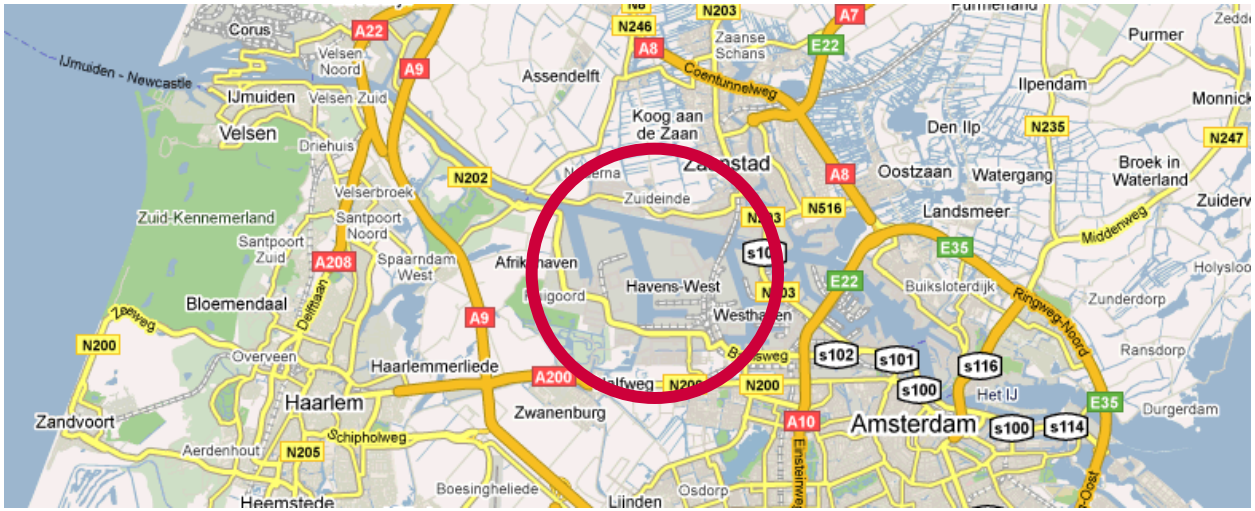
Case study: Port of Amsterdam, Westpoort area

- Unique co-operation between Port of Amsterdam and environmental parties:
  - Milieufederatie Noord-Holland
  - Milieucentrum Amsterdam
  - Kontakt Milieubeheer Zaanstreek
  - Stichting Noordzeekanaalgebied Sterk, Schoon en Slim (initiative)



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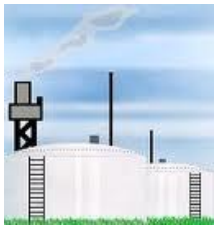
Case study: Port of Amsterdam, Westpoort area

Method: comparing two distinct growth strategies for the port

– growth in current activities (food, traditional energy) combined with new activities (bio-energy, containers, distribution)



– growth in more sustainable activities (bio-energy, hydrogen, recycling, cradle-to-cradle) & keeping strategic reserve (temporary nature development)

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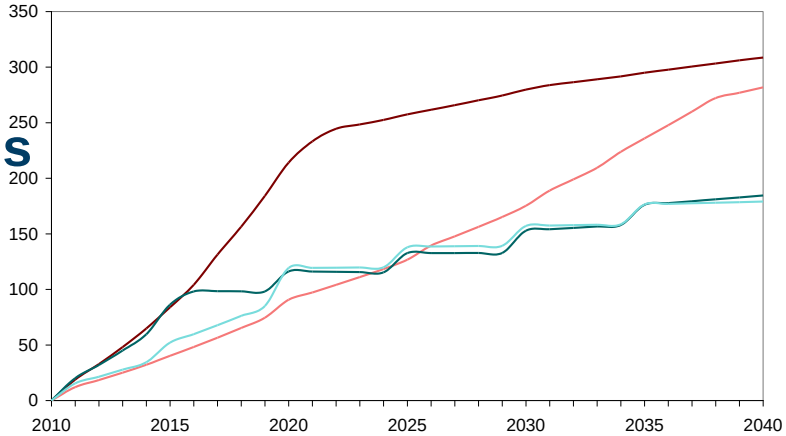
How did we value all effects?



Socio-economic cost-benefit analysis

1. Describe the expected developments for each alternative

2. Determine all (future) effects of the alternatives for Amsterdam area:
   - costs (investment, exploitation, maintenance)
   - financial benefits (leases, port dues, etc.)
   - effects on environment & safety (emissions, noise, etc.)
   - effects on port users (shippers) & economy (consumers)

3. Translate effects in value (€) using index numbers

4. Sum all effects

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How did we value environmental impacts?

Example for bio-energy production:

- Costs: development & exploitation of site, quays, infrastructure

- Benefits:
  - Leases, port dues
  - Effect on CO_2 reduction (compared to traditional energy production)
  - Effects on local emissions (CO_2, SO_2, NOx, PM10, CH_4)
  - Effects on employment (jobs, etc)
  - Effect on other transport flows (congestion)

- Value of emissions (accepted standards):
  - e.g. CO_2 €20 / ton (2010) – €70 / ton (2040)

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Why is CBA a good instrument for strategic choices?

- Advantages:
  - creates overview and structures arguments
  - objective weighing of effects (vs. MCA)
  - effects can be added
  - relation between effects and necessary investment is clear
- Challenges: quantify all effects, assumptions, etc.
- Effect: CBA
  - helps to translate vision into effects
  - helps objective discussion between different parties
  - helps optimising investments

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Is sustainable port development economically wise?

- Both strategies: benefits for society higher than the costs
- Important positive effects on environment, especially for bio-energy and hydrogen production
- Conclusion: good potential for more sustainable activities in the Port of Amsterdam
- When the ‘market’ is ready for alternative energy the Port of Amsterdam can facilitate these activities profitably (financially & socially)
- Recommendations:
  Market study & knowledge development on bio-energy & hydrogen production

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