

# Handling of Dredged Material in the Netherlands

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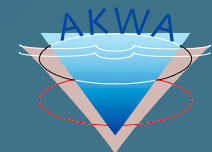
Civil Engineering Division

Dutch Ministry of Transport, Public Works and  
Water Management



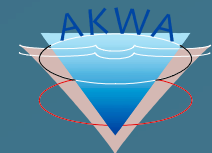
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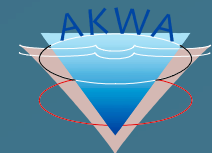
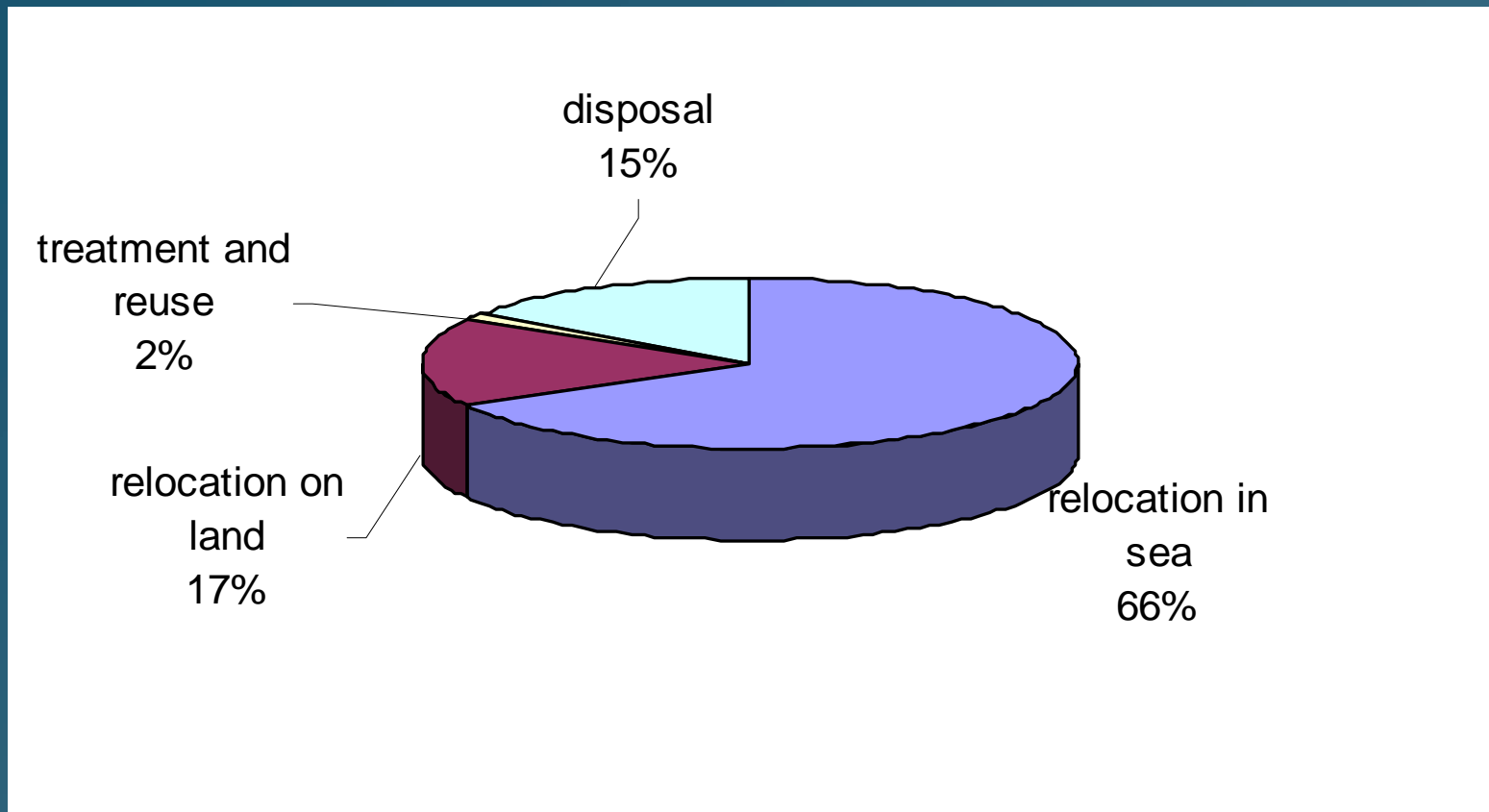


# Introduction

- Frequent dredging necessary in delta area
- Reasons for dredging
  - Shipping
  - Water discharge
  - Environment
- Large amounts of DM 25-30 Mm<sup>3</sup>/yr
  - Mainly from maintenance dredging mainport Rotterdam



# Present destinations

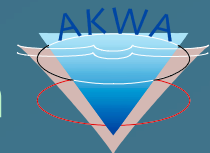


# Problems with destinations for DM

- Relocation at sea (90%): environmental restraints
- Relocation on land (30%): lack of space and acceptance
- Treatment: expensive, small scale, no market for products
- New CDF's : Nimby

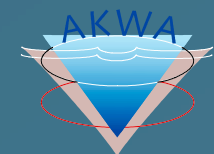
Destinations for DM become more scarce and more expensive

Largest problem DM from fresh waters especially in urban areas

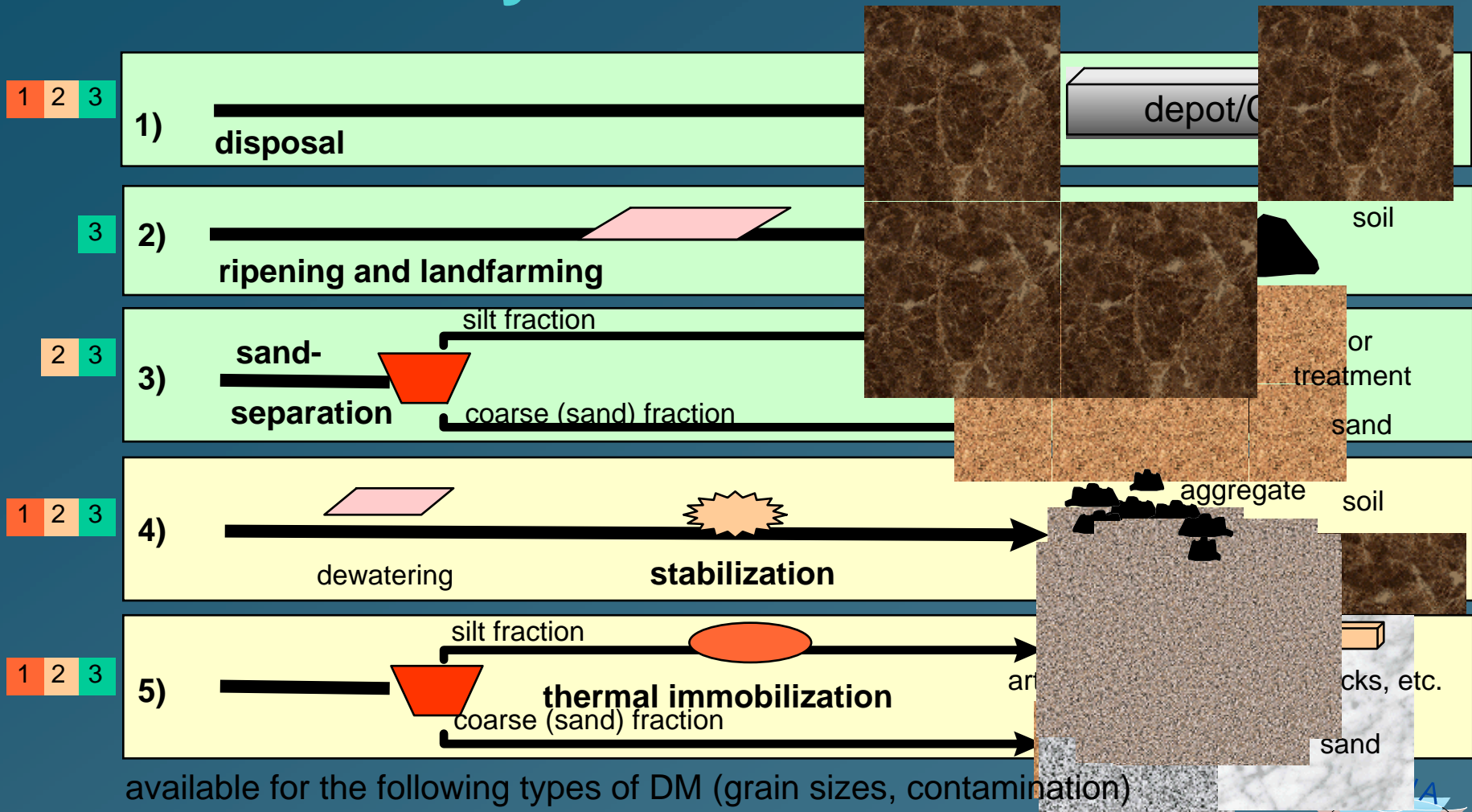




# Ripening fields and sedimentation basins near CDF Slufter



# Technically feasible treatment chains

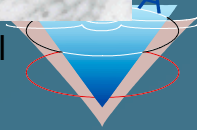


available for the following types of DM (grain sizes, contamination)

1 fine, cocktail

2 (moderately) sandy, cocktail

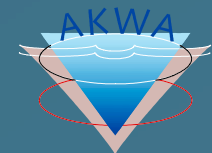
3 (moderately) sandy, PAK/oil





# Techniques

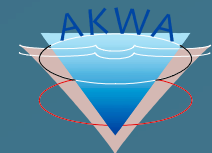
- Simple techniques
  - Sandseparation/ripening/landfarming/bioremediation/  
chemical immobilisation or stabilisation
    - restricted use depending on qualities CDM,  
standards for building materials and market
- Advanced techniques: thermal immobilisation
  - after pretreatment also for heavily contaminated  
DM

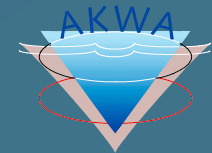
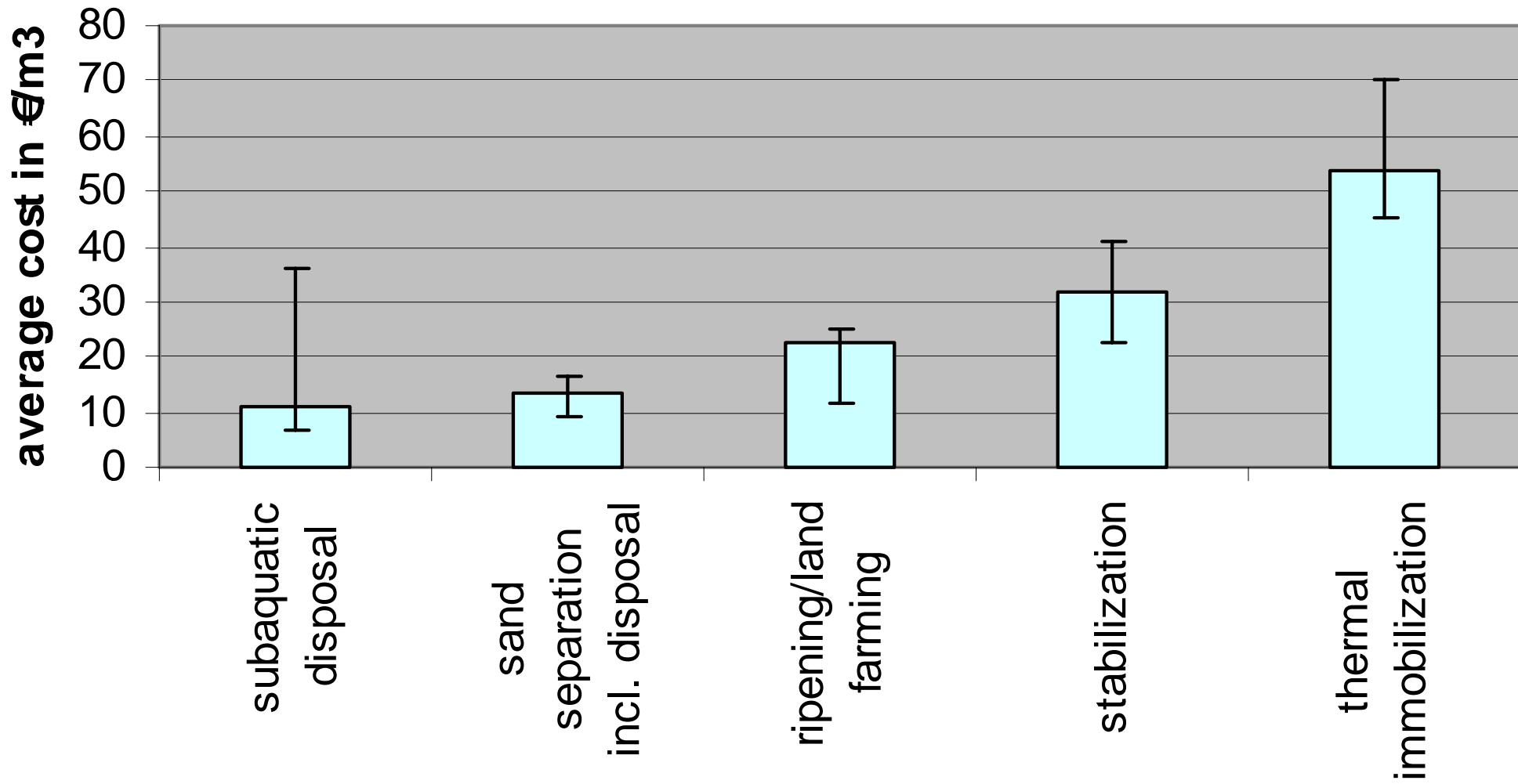


# Simple techniques



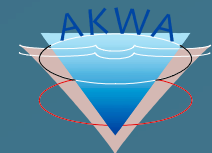
# Thermal immobilisation





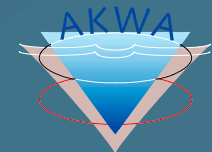
# Problem analysis of treatment

- Treatment up to now very limited and small-scale
  - higher costs of treatment compared with disposal
  - no guaranteed or continuous supply for treatment to justify the high investments
  - lack of market for products as secondary raw materials
  - limitations for beneficial use due to standards for the products



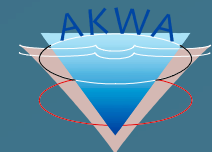
# R&D on treatment and disposal

- Conclusion for Dutch policy 1998:
  - Only sand separation is feasible
  - Confined disposal is an environmental sound solution: several large CDF's were planned



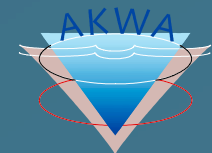
# Developments

- Public resistance against new CDF's (NIMBY)
- Private sector: Lobby for treatment
- Political pressure to carry out a pilot project on large scale treatment
- National survey of feasible techniques and costs by AKWA in close co-operation with the private sector



# Outcome of national survey

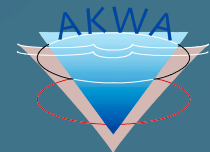
- Treatment is in general more expensive than disposal
- More treatment should not be at the expense of dredging
- More treatment means that more budget is needed
- Highest efficiency with 'simple treatment' in combination with disposal
- If thermal immobilization is introduced then for hot spots
- Treatment of all DM is too expensive; disposal remains necessary



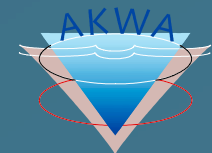
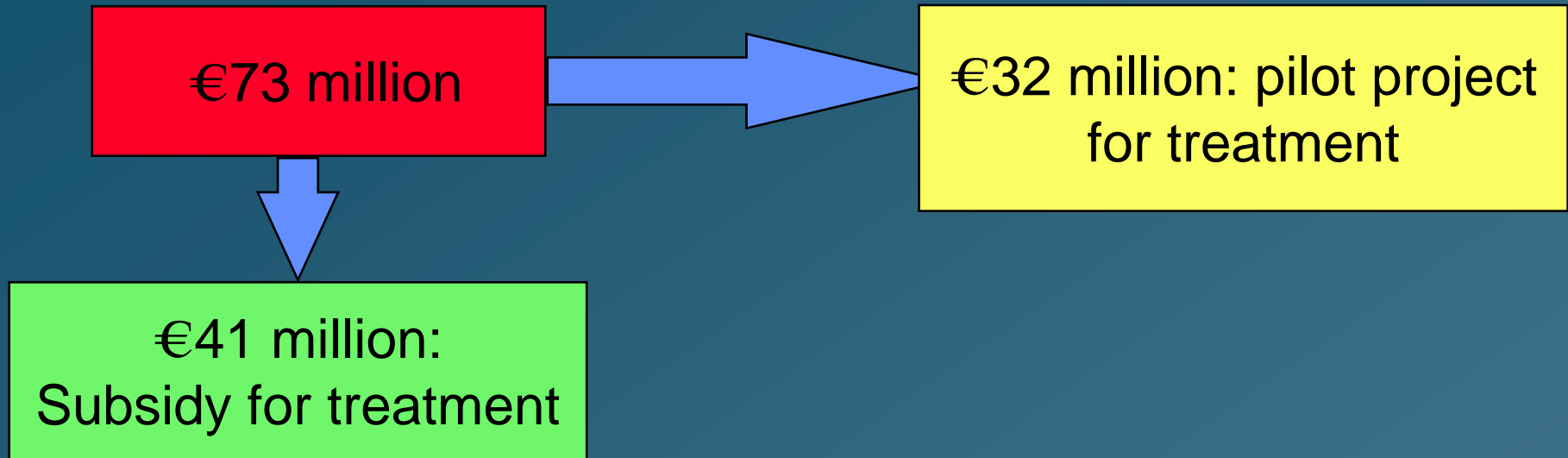


# Political decisions

- Dutch policy is aimed at more treatment based on
  - less disposal
  - production of building materials
- More budget for treatment of CDM during test period of 4 years
- Confined disposal (and CDF's) remain necessary (in combination with treatment)
- Ultimate goal is a structural reversal to more treatment if the test period is succesful

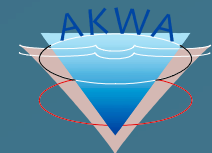


# Extra budget

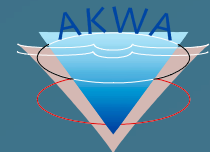
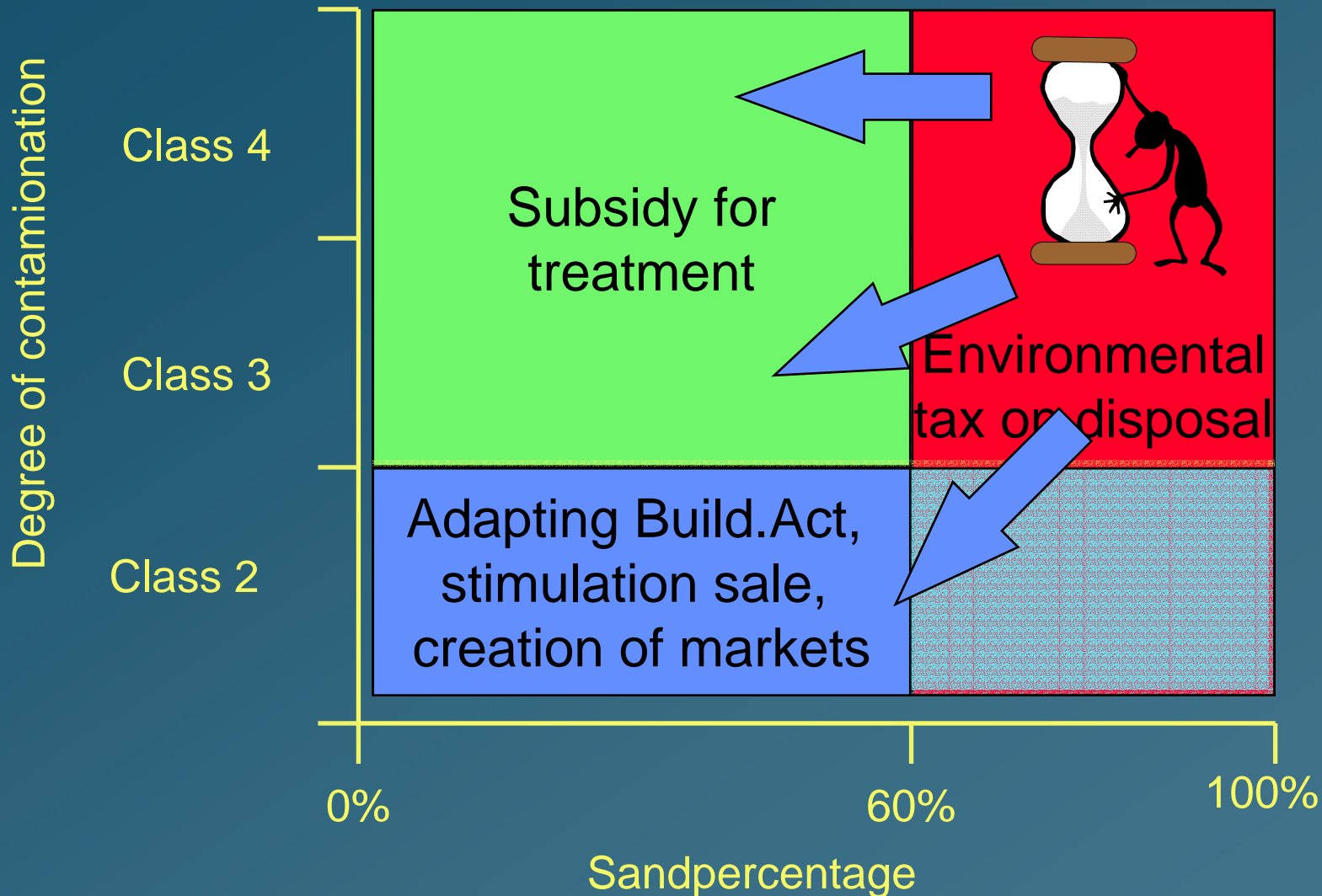


# Policy instruments to stimulate treatment

- Subsidy for treatment of CDM
- Environmental tax on the disposal of “treatable” DM (at the moment DM >60% sand)
- Creation of markets for products from treatment
  - adaptation of legislation on building materials
  - application of products in governmental projects

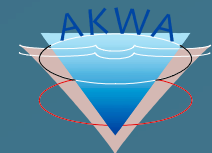


# Interrelation policy instruments



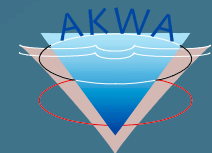
# Conclusions for the Netherlands

- Treatment of CDM is a political goal in order to reduce disposal and produce building materials
- Dutch policy measures are taken to promote treatment during a test period of 4 years
- It is now up to the private sector to take the opportunities and demonstrate that treatment is feasible
- Future decisions depend on the results of the test period



# General conclusions

- Source control is a needed to reach a sediment quality in the future, which does not pose a risk to aquatic systems or upland use.
- In the meantime, treatment and confined disposal remain necessary
- Investment in source control upstream is often more economical than treatment downstream
- If the higher costs for treatment are not compensated this may lead to less dredging
- Confined disposal will remain a necessary option



# General recommendations

- An adequate legal framework for the handling of sediments is needed (basis EWFD)
- If treatment is the political goal consider
  - (temporary) financial impulse
  - increase of budgets for dredging to compensate for the higher costs of treatment
  - create markets for products of treatment
  - adaptation of legislation for beneficial use

