

Teknologier til kystsikring i en dansk kontekst

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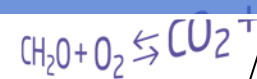
Comprehensive review **state of the art** of coastal protection technologies in a **Danish context** and **internationally**

2

Development of a **multi-criteria framework**

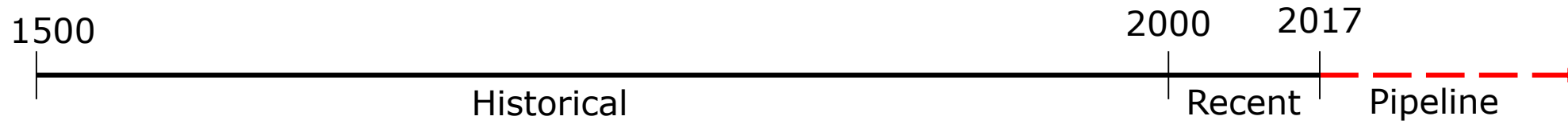
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Qualitative evaluation of specific cases



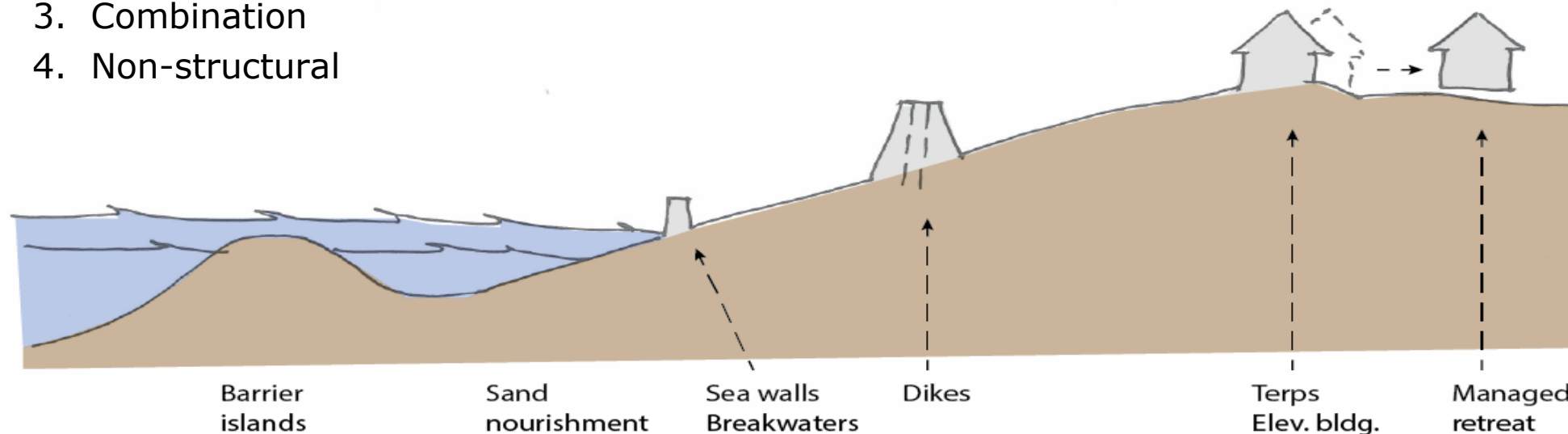
Methodology: state of the art review

- Temporal classification:



- Type of technologies:

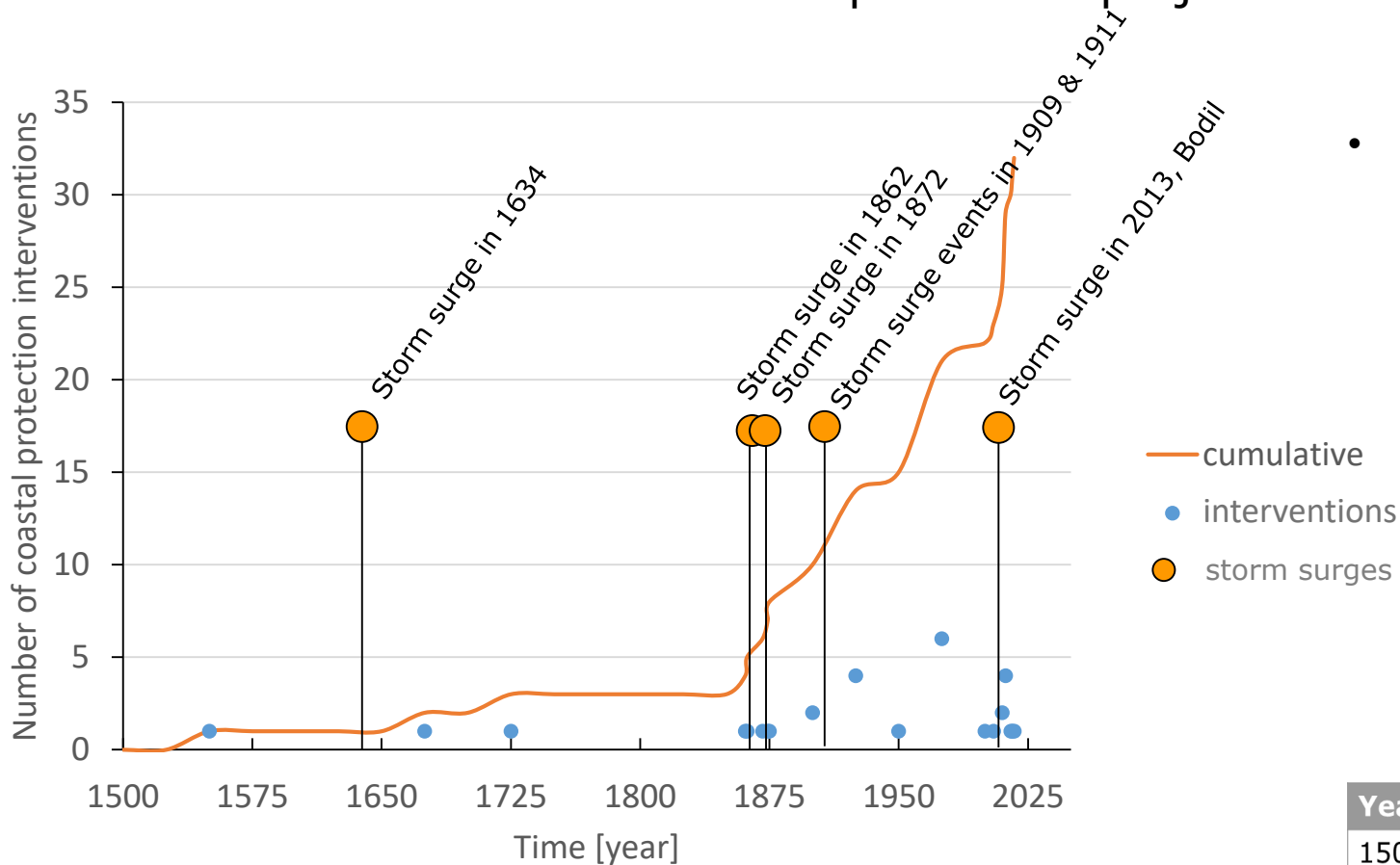
1. Hard solutions
2. Soft solutions
3. Combination
4. Non-structural



State of the art review: Results in a Danish Context



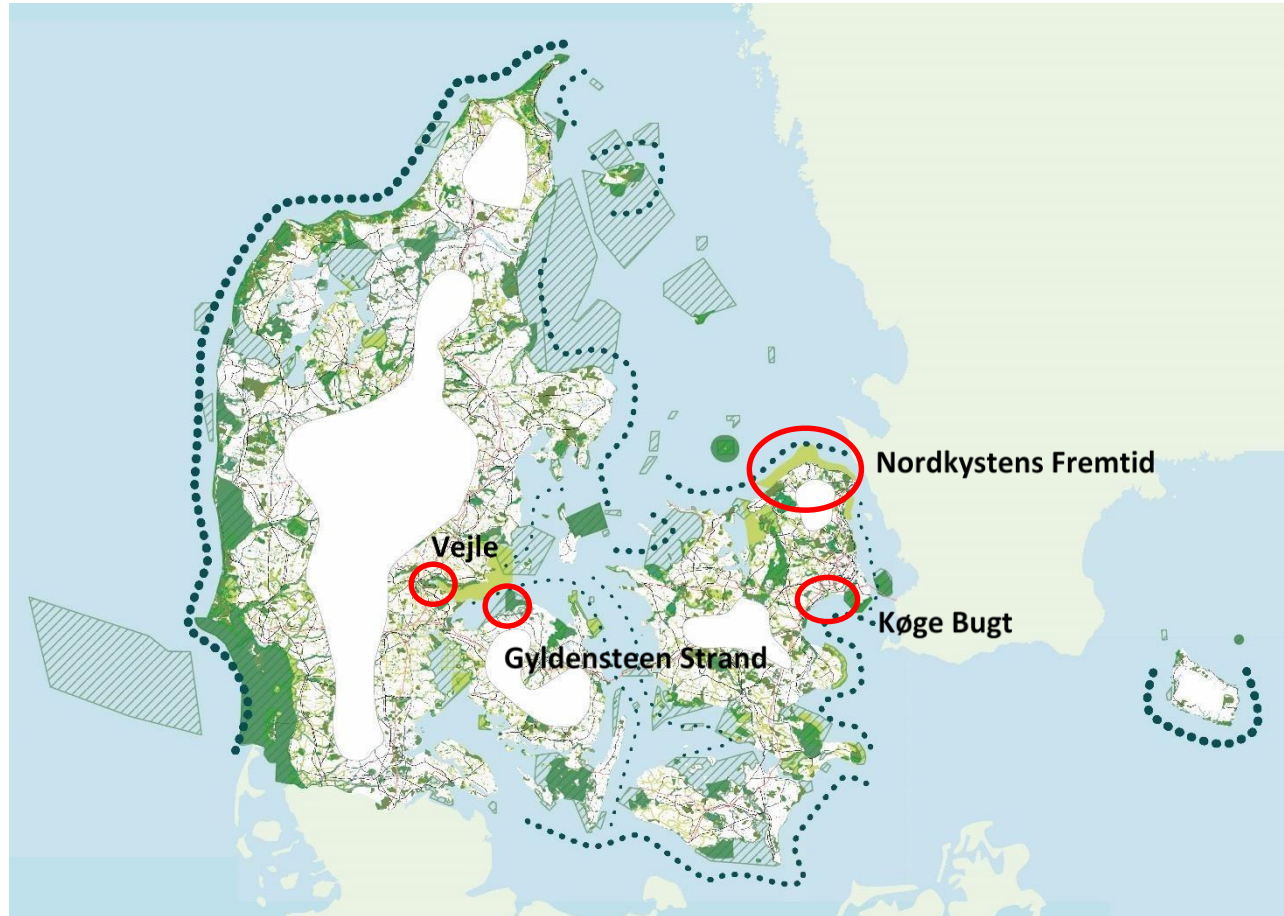
- 32 historical and recent coastal protection projects reviewed from 1500 to 2017



- Protection projects were built after huge storm surge events
 - Dominance of **hard technical solutions** against storm surge: dikes, barriers and gates (24 out 32 interventions)
 - **Breakwaters, rock walls, sand nourishment** as main protection options against coastal erosion
 - Recent projects tends to use hard solutions in a multifunctional way

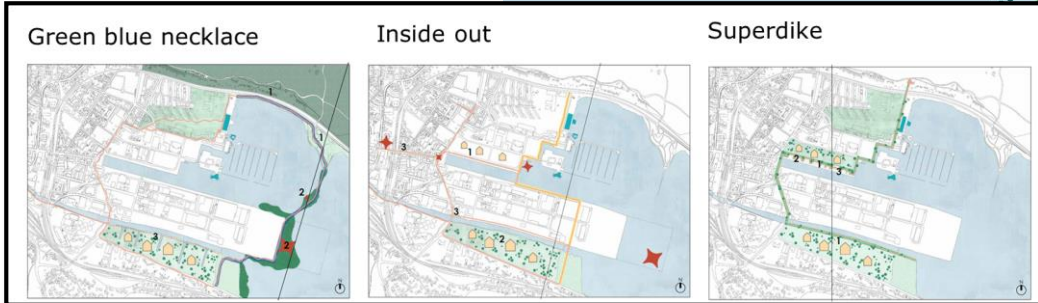
Year	Region	N° of projects
1500 to 1700	Jutland	3
1700 to 1900	Jutland, Funen and Lolland	6
1900 onwards	Jutland, Funen, Lolland and Zealand	23

Analysis of 4 cases

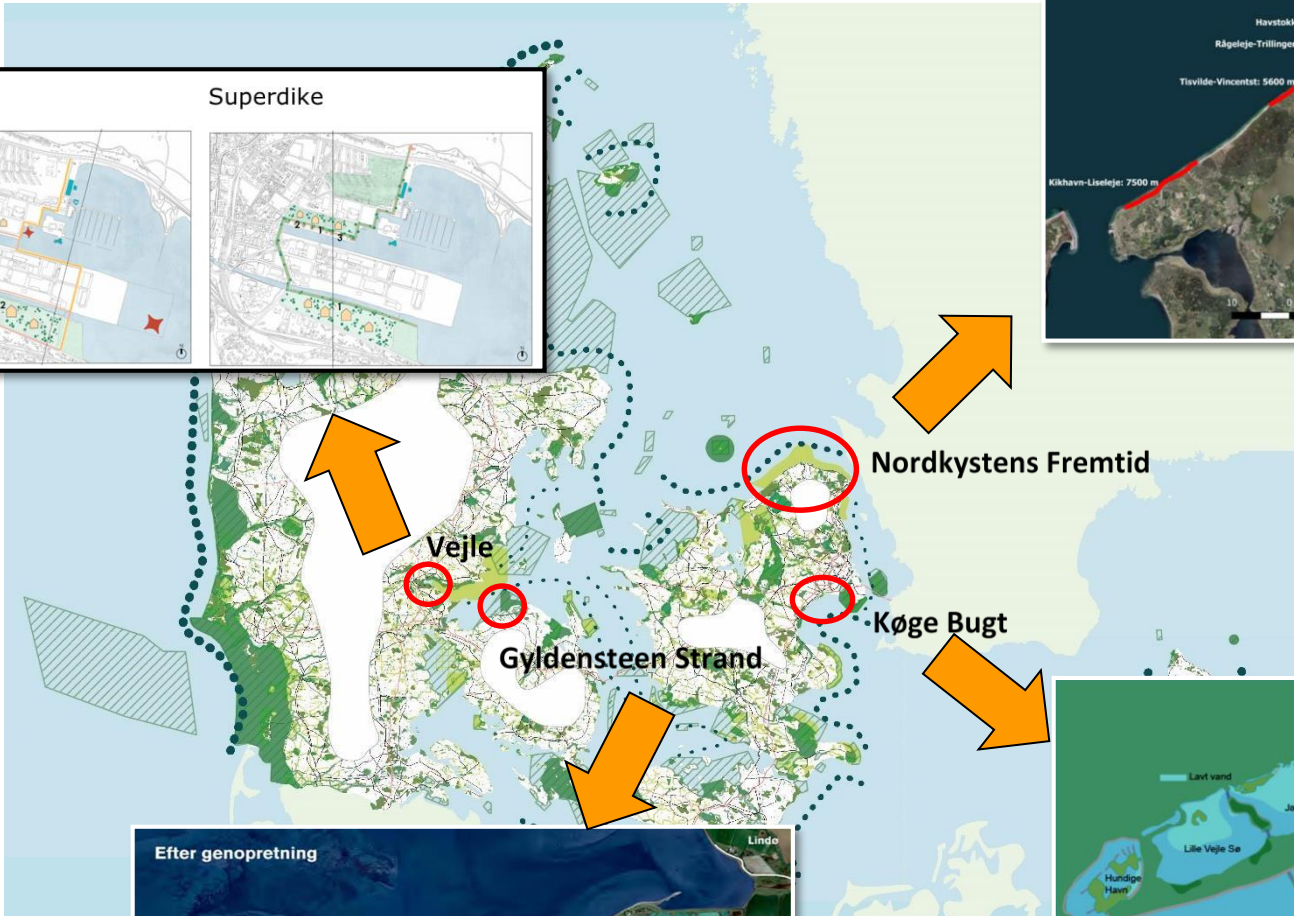


	Urban	Rural
Municipal level	Vejle	Gyldensteen Strand
Regional level	Køge Bugt Strandpark	Nordkystens Fremtid

Analysis of 4 cases



More holistic approach:
Multi-criteria analysis!



Nordkystens Fremtid

Køge Bugt

Municipal
Regional



Rural
Gyldensteen Strand
Nordkystens Fremtid

Main conclusions

- Overexploitation of hard measures: dikes, sluices, flood walls
- Recent technologies: tend to focus on multi-funcional systems
- Planning of future coastal protection technologies: same technologies as in the past (flood walls, dikes) but with transition to multi-funcional systems (e.g. Vejle)
- Introduce a more holistic framework in the planning and analysis of coastal protection

