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WAGENINGEN UR
For quality of life

Deltares
Enabling Delta Life

ORGANISING INTERACTIVE KNOWLEDGE DEVELOPMENT IN MULTIFUNCTIONAL COASTAL PROJECTS

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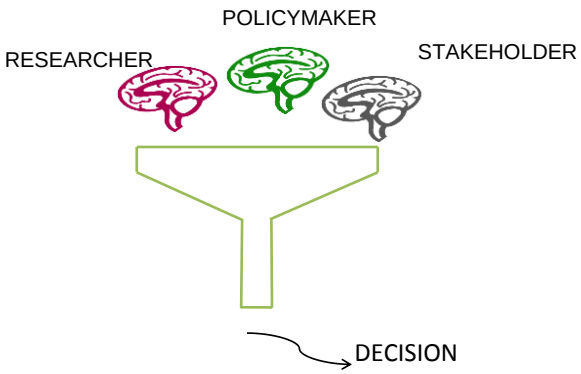
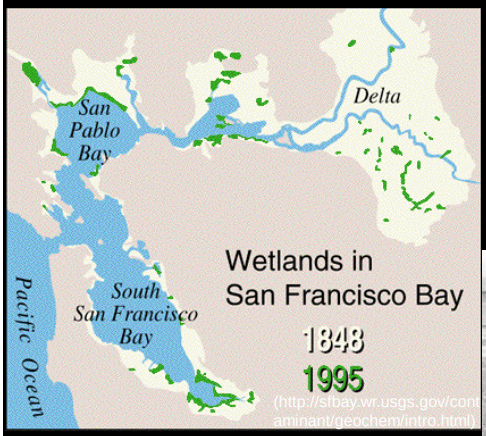
PART I: THE RELEVANCE OF INTERACTIVE KNOWLEDGE DEVELOPMENT IN SOCIETY



THE NEED FOR MORE SUSTAINABLE SOLUTIONS IN THE COASTAL ZONE



Population rose from 0.11 million in 1860 to 6.02 million in 1990.
(bayareacensus.ca.gov)

- Degrading natural environment
- Increasing human pressure
- Monofunctional engineering solutions

WHY INTERACTIVE KNOWLEDGE DEVELOPMENT FOR SUSTAINABLE COATAL SOLUTIONS?

- Seen as solution for dealing with complex interdependent problems.
- Actors hold different norms, values and criteria for knowledge production.
- A systematic understanding of interactive knowledge development is lacking in the project environment.

WHY SHOULD WE INCREASE OUR UNDERSTANDING OF INTERACTIVE KNOWLEDGE DEVELOPMENT?

Funding research..

National Science Foundation
WHERE DISCOVERIES BEGIN

Research programs..

KLIMZUG
Klimawandel in Regionen

Knowledge for Climate

Waddenacademie

Governmental organisations..

Rijkswaterstaat
Ministerie van Verkeer en Waterstaa

Planbureau voor de Leefomgeving

Deltacommissaris

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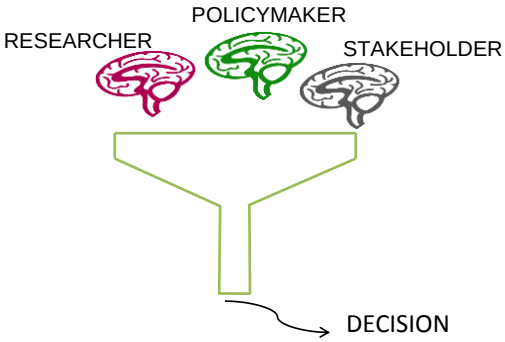
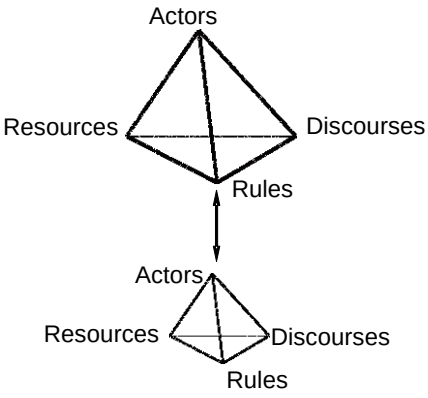
PART II: THE FUNCTIONING OF INTERACTIVE KNOWLEDGE DEVELOPMENT IN COASTAL PROJECTS



CONCEPTUAL FRAMEWORK TO ANALYSE PRACTICES OF INTERACTIVE KNOWLEDGE DEVELOPMENT

Project Arrangement
Executing the project

Knowledge Arrangement
Developing knowledge on
a particular solution in the project



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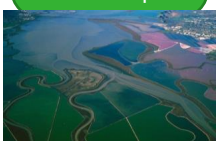
DATA COLLECTION IN THREE CASES

Case selection criteria

- Projects focus on coastal zone.
- Respond to problems on a regional scale.
- Diversity of actors participate in knowledge production for proposed solutions.

TEXEL
10 interviews
2 project meetings
2 field trips

SF BAY
19 interviews
6 project meetings
5 field trips



DELFZIJL
15 interviews
4 project meetings
2 field trips

DATA ANALYSIS

1) Conduct qualitative data analysis through template coding.

2) Develop analyses of project and knowledge arrangements.

3) Derive causal mechanisms that reveal how a set of causes contribute to outcomes of interactive knowledge development.

4) From single case studies to cross-case analysis.

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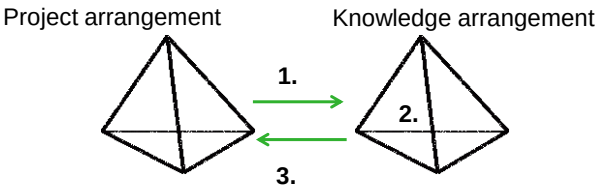
KEY RESULTS: 11 CAUSAL MECHANIMS SPECIFY HOW INTERACTIVE KNOWLEDGE DEVELPOMENT FUNCTIONS



1. Sharing responsibilities at the project level support interaction rules for interactive knowledge development.
2. Actors are excluded during one or more activities of interactive knowledge development.
3. Feasibility of solutions improves through interactive knowledge development.

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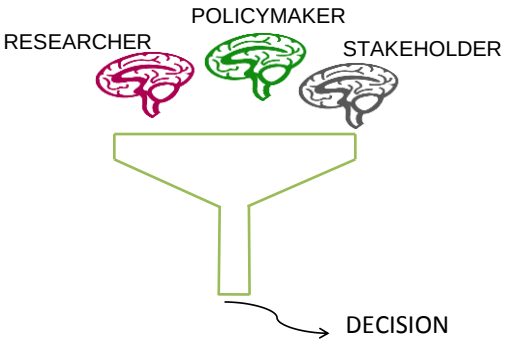
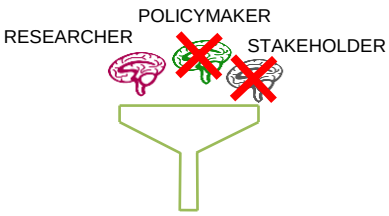
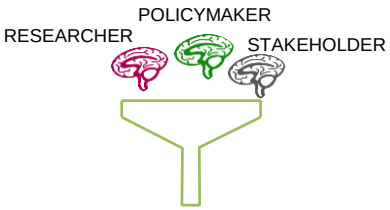
PART III: ORGANISING INTERACTIVE KNOWLEDGE DEVELOPMENT



ORGANISING INTERACTIVE KNOWLEDGE DEVELOPMENT

Raise awareness: 'basic research' is different from interactive knowledge development for sustainable coastal development. Benefits of interactive knowledge development (increased societal support and feasibility) do not come automatically.





RECOMMENDATIONS TO REACH THE BENEFITS OF INTERACTIVE KNOWLEDGE DEVELOPMENT (1/3)

Create a setting that stimulates consensus seeking in knowledge production:

- Project partners share responsibilities for project outcomes instead of having one organisation responsible for implementation.
- Explore criticism and concerns of participating actors instead of referring to the authority or autonomy of researchers and their results.

RECOMMENDATIONS TO REACH THE BENEFITS OF INTERACTIVE KNOWLEDGE DEVELOPMENT (2/3)

Interactive knowledge development requires additional measures that 'basic' research does not need:

- A process facilitator.
- Easy comprehensible knowledge.

RECOMMENDATIONS TO REACH THE BENEFITS OF INTERACTIVE KNOWLEDGE DEVELOPMENT (3/3)

Reserve time and money for interactive knowledge development to account for:

- Extra meetings and discussions, methods for easy comprehensible knowledge and follow-up research.

OVERVIEW OF PRESENTATION

- Interactive knowledge development represents a valuable approach to develop more sustainable solutions for the coastal zone.
- My PhD research resulted in eleven generic mechanisms that specify how interactive knowledge development functions in coastal projects.
- Since the benefits of interactive knowledge development do not come automatically I provide recommendations to organise it:
  - Explore criticism and concerns of participating actors.
  - Take specific measures.
  - Reserve time and money.

Type of causal mechanism	Description
From project arrangement to knowledge arrangement: mechanisms that affect interactive knowledge development. **project arrangement** → **knowledge arrangement**	Project partners are pressed to involve other actors in knowledge production.
	Project resources structure interactive knowledge development resulting in a narrowed scope for interactive knowledge development.
	Project-level actor relationships affect the actor that is the main knowledge producer.
	Sharing responsibilities at the project level supports interaction rules for interactive knowledge development.
Within knowledge arrangement: mechanisms that explain, or provide more detail on, interactive knowledge development. **knowledge arrangement**	Actors hold different perspectives, which results in differing contributions during the process of interactive knowledge development.
	Easily understood knowledge supports contributions by non-experts.
	Professional facilitation smoothes the process of interactive knowledge development.
	Actors are excluded during one or more interactive knowledge development activities.
From knowledge arrangement to project arrangement: mechanisms that specify the consequences of interactive knowledge development. **knowledge arrangement** → **project arrangement**	Support for solutions broadens through interactive knowledge development.
	Feasibility of solutions improves through interactive knowledge development.
	Interactive knowledge development consumes more time than expected.