

Public Perception Workshop

CATO/PORT OF ROTTERDAM – CCUS DEVELOPMENTS IN
THE NORTH SEA REGION MEETING, 26 JUNE 2019

DR. EMMA TER MORS (LEIDEN UNIVERSITY), DR. KEVIN
BROECKS (ECN.TNO) & DR. CHRISTINE BOOMSMA (LEIDEN
UNIVERSITY)

Program



INTRODUCTION
(DR. EMMA TER MORS)



INTERACTIVE TASK & DISCUSSION
(DR. KEVIN BROECKS,
DR. CHRISTINE BOOMSMA)



WRAP-UP
(DR. CHRISTINE BOOMSMA)

Introduction

DR. EMMA TER MORS

(LEIDEN UNIVERSITY;
EMORS@FSW.LEIDENUNIV.NL)



Public opposition towards projects



The importance of public perception of CCUS

Social license to operate = key for the successful and timely implementation of CCUS and other climate mitigation technologies

Social science research can help to reduce **non-technical risk** for CCUS implementation, e.g. by providing insights in narratives, arguments and visuals used in the **media**, relevant **stakeholders** and their perceptions, and determinants of **public** opinion – this will help in making site selection decisions and developing effective public engagement strategies

Social Science Research 2004-2015



Social Science Research 2017-2020



ALIGN ←
ALIGNED

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COMMUNITY
STAKEHOLDERS
CHARACTERISATION
PUBLIC VOICE
WHAT PERCEPTION
ENGAGEMENT
PARTICIPATION
ACCEPTANCE
TRUST
MORALITY
EMOTIONS
WHEN
WHY
COMMUNICATION
ARGUMENTS
AWARENESS
STAKEHOLDER
ENGAGEMENT
RISKS
MEDIA
FAIRNESS
BENEFITS
EQUITY
KNOWLEDGE
HISTORY
SITWHO
COSTS

Some lessons learned

- Assume low knowledge levels among the general public
- Knowledge (transfer) isn't everything
- Lukewarm attitudes towards CCUS (at best)
- There's a lot to learn from successful (non-)CCUS projects
- Important to distinguish between general & local public

Assume low knowledge levels among the general public



Public awareness of CCS

- Low awareness in Australia, USA, Japan, Canada, UK, Sweden, France, Germany, the Netherlands:

Between 4% and 29.9% can give some kind of answer as to what CCS is.

(Ashworth et al, 2006, 2009; de Best-Waldhober et al, 2006, 2008; Ha Duong et al, 2009; Itaoka et al, 2008; Reiner et al, 2006; Sharp et al, 2006)

- Dutch representative samples in 2004, 2005, 2007, 2008: Hardly any increase in awareness over time
- Dutch representative sample in 2009: "Do you know of CO₂ capture and storage (CCS)?"
 - 50% never heard of
 - 45% a bit
 - 5% claims to know quite a bit

www.co2-cato.nl



Results – Knowledge CO₂

Most people indicate they know about CO₂ (88.6%)

Some characteristics of CO₂ are well known:

- Influences climate (83%)
- Some concentrations are hazardous (75%)
- Is a greenhouse gas (73%)
- Is a natural occurring gas (61%)

However, also uncertainties about CO₂:

- Unsure if it is harmful in contact with skin (31%)
- Unsure if it makes a liveable climate possible (30%)
- Unsure if it is explosive (24%)

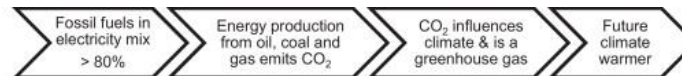
Generally still lots of midpoint scale answers



Results 2010 - 2011

- CCS awareness increases, knowledge does not
- Large majority (>60%) is unaware of CCS plans and decisions in their country
- Neutral attitude towards CCS (unchanged)
- Overestimate use of renewables
- Underestimate use of fossil fuels
- Uncertainty about CO₂ sources, characteristics, effects
- Little understanding of role of CO₂ in climate change
- Agree climate is changing, but unrelated to attitude CCS
- Uncertainty about goals & consequences of CCS

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Knows step 1
23%

Knows step 2
41%

Knows step 1 and 2

13%

Knows step 3
64%

Knows step 1, 2 and 3

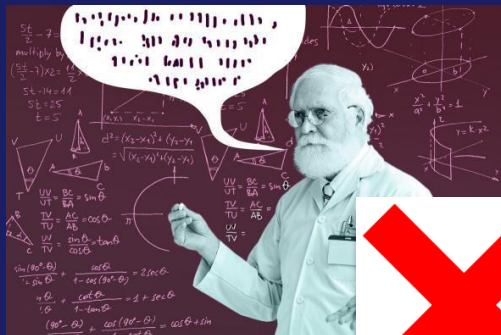
10%

Believes step 4
66%

Knows all 4 steps

7%

Knowledge
(transfer) isn't
everything



Deficit model

Public acceptance depends
many factors—knowledge is
only one of them



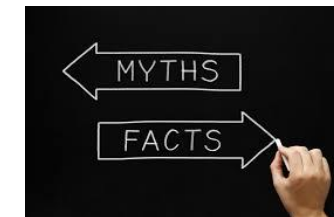
So many stakeholders, so
many (conflicting) messages



Message source & content
matter



Correction of misconceptions
can result in more but also
less favorable opinion towards
CCUS: Debunking is tricky—
hire experts!



Lukewarm attitudes (at best)

Attitudes towards CCS

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Overall informed evaluations options

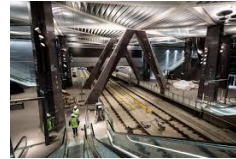
OPTIONS:	Grade (1-10)
Efficiency	7.33
Efficiency + <use	5.84
Wind at sea	7.15
Biomass to fuel	7.41
Coal/ gas to electricity + CCS	5.34
Gas to hydrogen + CCS	5.92
Nuclear plants	5.29

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Attitudes towards industrial CCUS, clusters, offshore storage, pipelines, utilisation? →

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There's a lot to learn from successful (non-) CCUS projects

Important to distinguish
between general & local
public

POLICY → PROJECTS

Interactive task & discussion

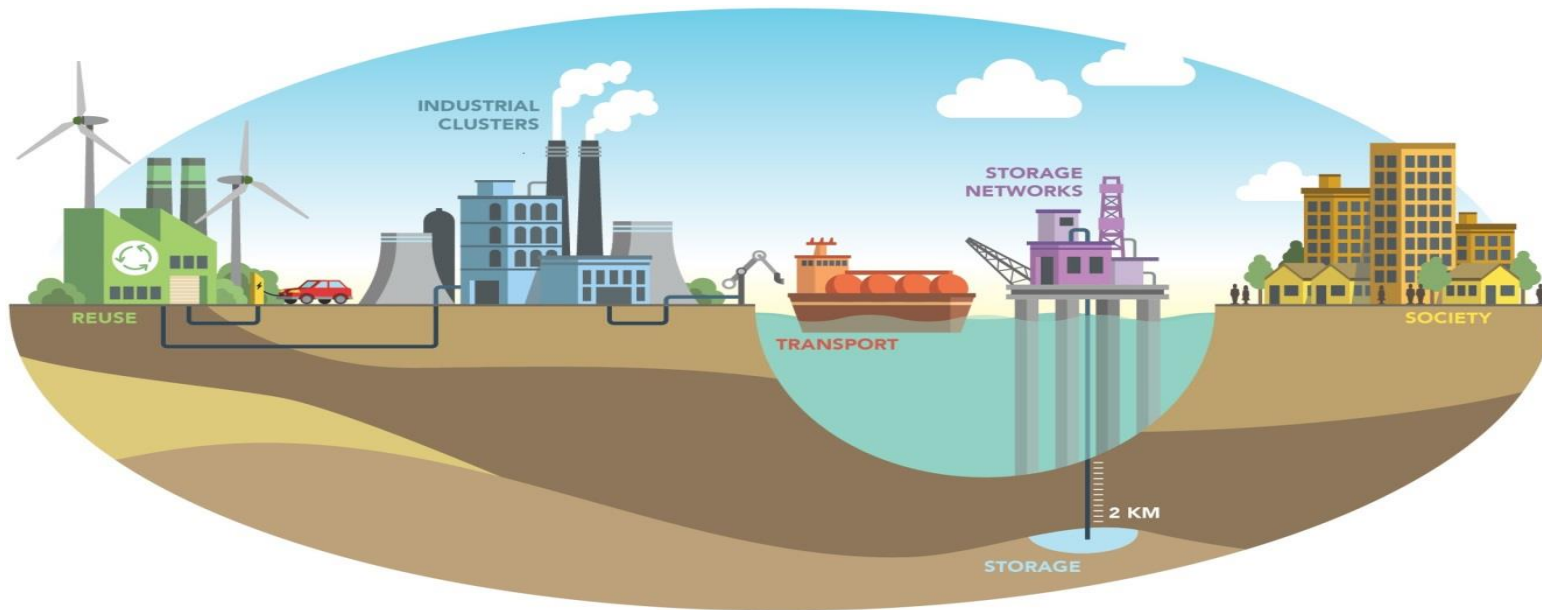
DR. KEVIN BROECKS (ECN.TNO,
KEVIN.BROECKS@TNO.NL) & DR.
CHRISTINE BOOMSMA (LEIDEN
UNIVERSITY;
C.BOOMSMA@LEIDENUNIV.NL)



ALIGN-CCUS

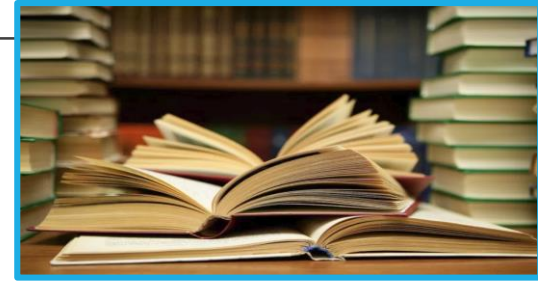
Sept 2017 - Sept 2020

- Unites science and industry in a shared goal of transforming six European industrial regions into economically robust, low-carbon centres by 2025: Teesside and Grangemouth (UK); Rotterdam (NL); North Rhine-Westphalia (DE); Grenland (NO); and Oltenia (RO)



- ➔ International partnership of >30 research institutes and industrial companies working on six specific but interlinking areas of research into CC(U)S.

WP6 Implementing CCUS in Society

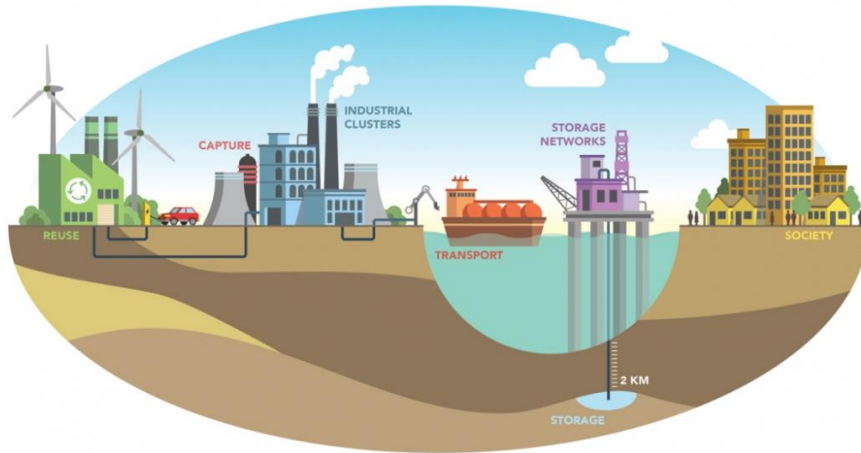


6.1. Assessing informed public opinion about industrial CCUS

6.2. A fair distribution of perceived costs and benefits: designing effective community engagement & compensation strategies

6.3. Changing the conversation about CCUS in Europe

Scenario



1. Sizeable town (75.000 inhabitants).
2. Most people work in fisheries and tourism.
3. Industry is relatively new to the area, supplies a small number of jobs.
4. Many inhabitants are entrepreneurial-minded and there is a strong community-sense.
5. Little experience with large-scale infrastructure projects in community.

1. Capture at local industries.
2. Storage in offshore gas field.
3. Transport via pipeline (partially onshore, close to community).
4. Project is in early stage.



Interactive task

1. Work together in small groups (4-6 persons), preferably people from different organizations.
2. You are in charge of managing contact with local stakeholders (“omgevingsmanagers”).
3. How can you engage the community with the proposed CCS project effectively?
4. You will receive **9 cards** with engagement measures.
5. Because time and funds are limited, you can **pick 4** of these measures to use.

Questions to discuss in groups

To help in selecting the four measures, use the following questions:

- Are there any important measures missing? (if so, add)
- Which aims are these measures trying to achieve?
- Are all measures aimed at the same stakeholders?
- Why would certain measures not be effective or helpful in this case?

Wrap-up

DR. CHRISTINE BOOMSMA
(LEIDEN UNIVERSITY)



Discussion points

1. When is stakeholder engagement effective?
2. Which types of stakeholder engagement are most effective?
3. Is engagement for offshore projects different from onshore projects?
4. What kind of policies are needed for stakeholder engagement, if any?



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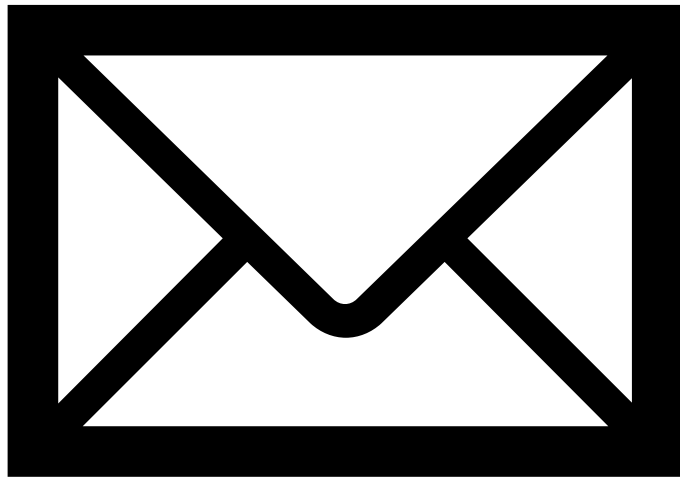
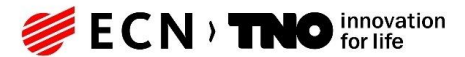
Thank you for listening and participating!

Thank you

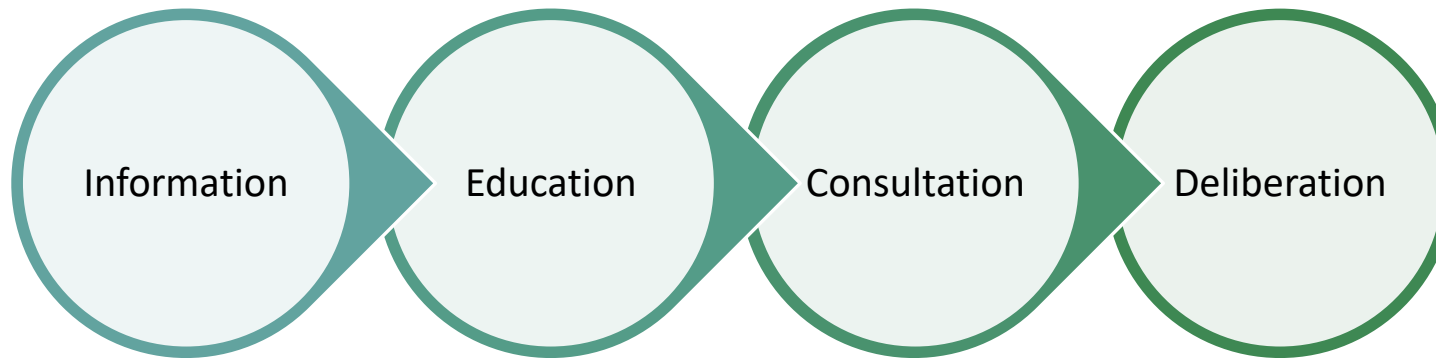
emors@fsw.leidenuniv.nl

kevin.broecks@tno.nl

c.boomsma@fsw.leidenuniv.nl



Engaging communities with CC(U)S



Measures differ in level of public involvement and aim: debunk misunderstandings, built support (prevent opposition), learn from/understand the public

The effect of providing information (“if we give them the right information they will accept the right thing” is limited) → need for participation

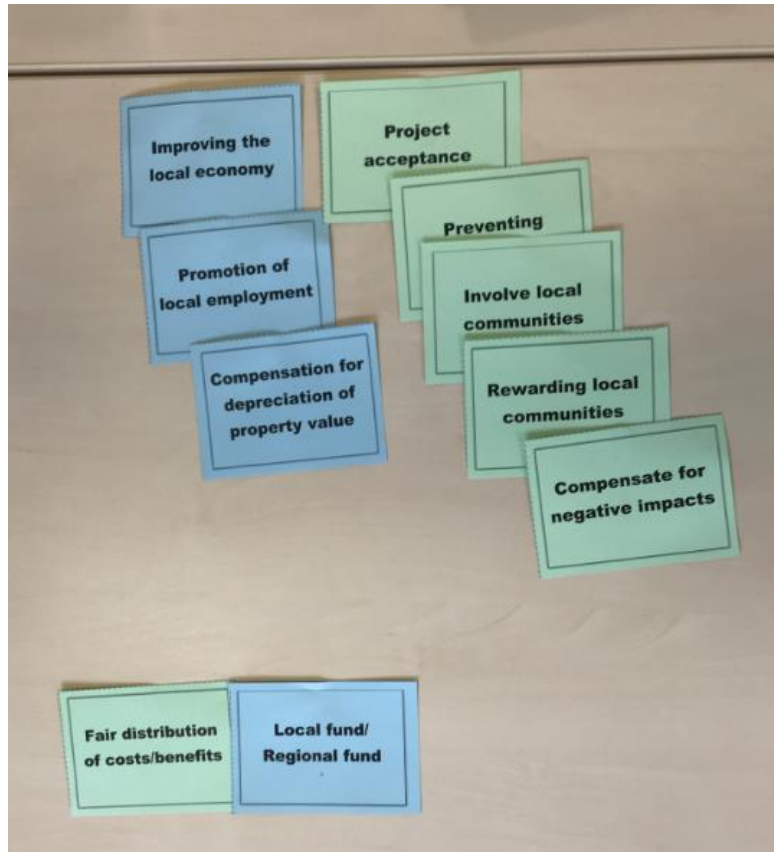
Compensation

- Sum of money for individual households, local fund, compensation for property value loss of houses, creation of new local jobs, improvement of local amenities/infrastructure → All different types of community compensation

*Host community compensation are a form of equity adjustment aimed at **correcting imbalances between (inter)national benefits and local burdens** associated with the siting of new or expanded facilities*

- Public perceptions/opposition: a common perception is that the costs and benefits are not distributed in a fair way

ALIGN-CCUS Interviews



- 35 interviews with community engagement managers in NL, UK and RO.
- CC(U)S context, along with other energy/ infrastructure projects

What are the experiences with community compensation measures?

Do different forms of community compensation have different goals?

What are perceptions of community compensation among different stakeholders?

What is the impact of laws and regulations on community engagement and compensation?

Compensation in the CC(U)S context: Lessons learned so far



Acknowledgements

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