

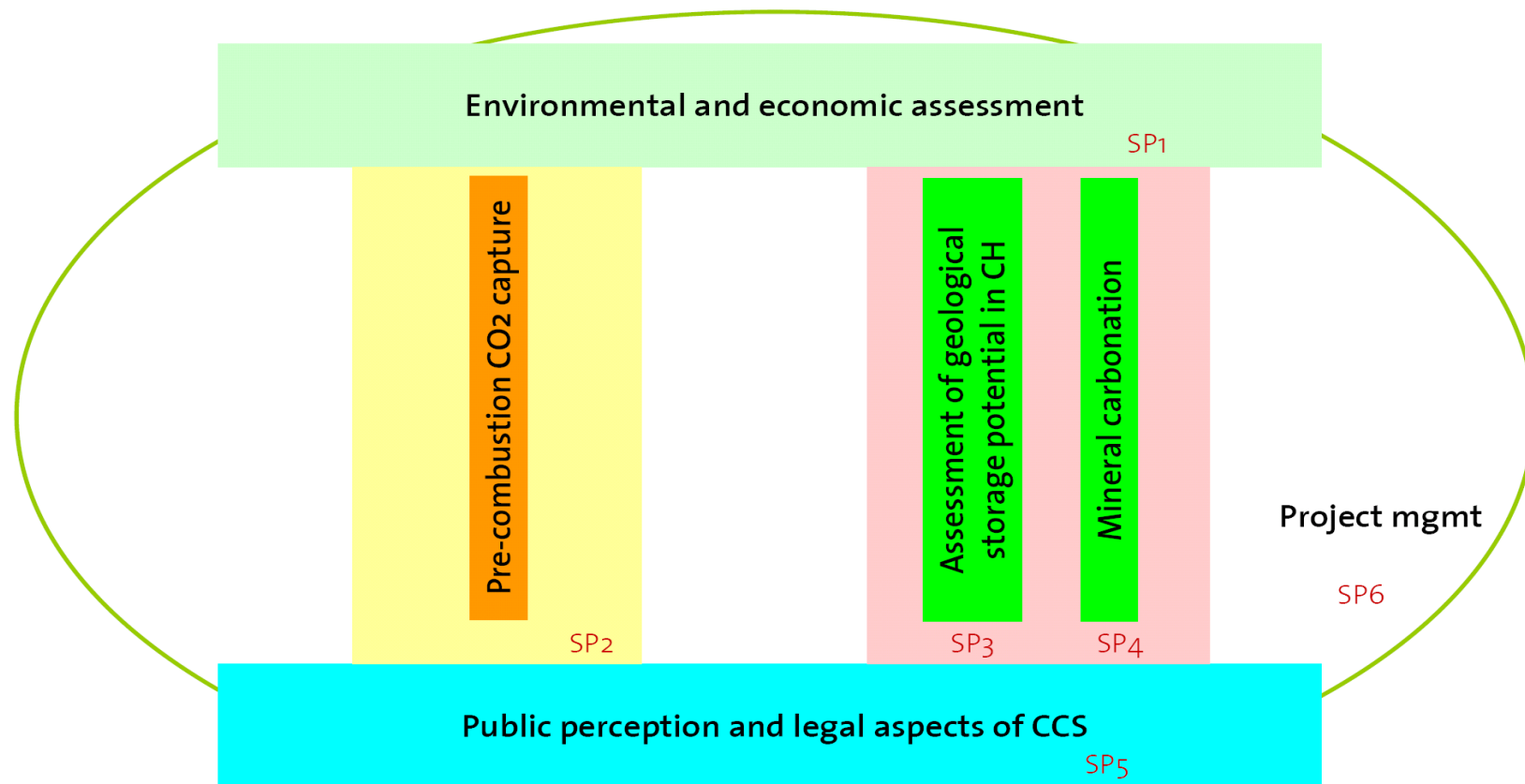
Public Acceptance of CCS

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Consumer Behavior



CARMA - Research on CCS in Switzerland



Funded by: Swiss Gouvernement, ETH Zurich, Alstom et al.

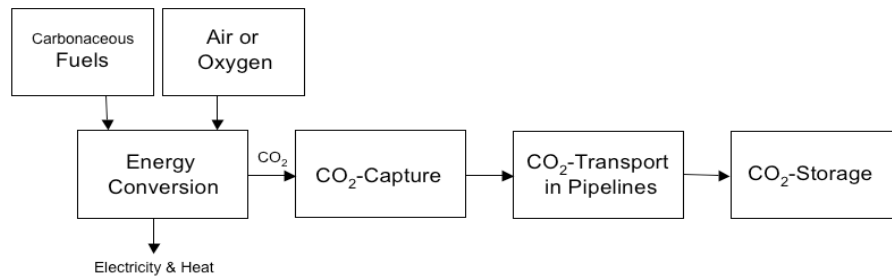
Experiential System

1. Holistic
 2. Affective: pleasure-pain oriented
 3. Associationistic connections
 4. Behavior mediated by “vibes” from past experiences
 5. Encodes reality in concrete images, metaphors, and narratives
 6. More rapid processing: oriented toward immediate action
 7. Self-evidently valid: “experiencing is believing”
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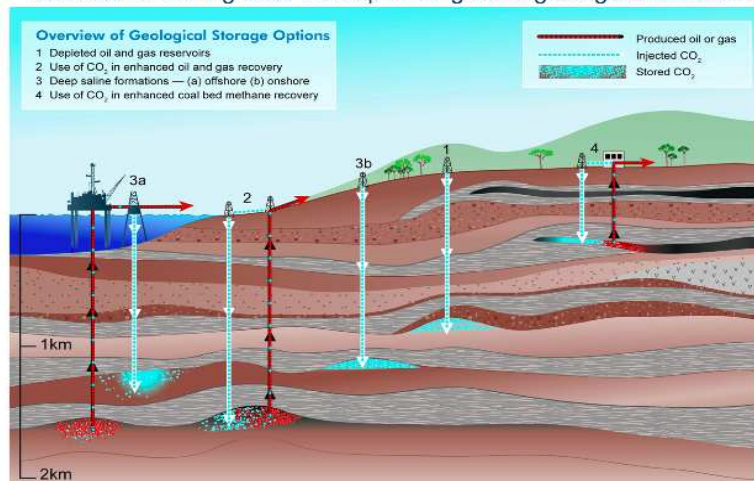
Analytic System

1. Analytic
 2. Logical: reason oriented (what is sensible)
 3. Logical connections
 4. Behavior mediated by conscious appraisal of events
 5. Encodes reality in abstract symbols, words, and numbers
 6. Slower processing: oriented toward delayed action
 7. Requires justification via logic and evidence
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Interview Design



Methods for storing CO₂ in deep underground geological formations



(IPCC, 2005)

- “Neutral information”
- No information about risks or benefits
- No information on the nature of CO₂
- Open-ended questioning
- Stimulating respondents to tap their beliefs
- “Can you explain this in detail?”



Technical Concepts		<i>n</i>
Over- pressurized reservoir	"The area could burst like a balloon if pressure is too high. The ground could collapse and earthquakes could be	10
Diffuse harm to ecosystems	"It's a very young research area causing a huge interference and maybe damages to nature will be recognized too late"	9
Gas is rising (Leakage)	"Leakage is possible, one day it must come up, it's a gas, it's lighter"	9
Earthquakes	"This is like drilling into wood, suddenly a piece can break off. This was shown in Basel"	7
Atomic waste associations	"This reminds me of the atomic waste problem but I think it's not that bad"	5
Characteristics of CO ₂	"If this was done under my village I would be angry because it could make the air worse. It's smelly, affecting the quality of life in general, like living in a city"	3
Impact on microorganisms	"Spiders and other microorganisms that live down there could be poisoned by CO ₂ "	3
Groundwater impact	"Groundwater might get sour, but this is no big deal they are checking it and they will clean it"	2
Gene technology associations	"Carbon dioxide could change the DNA of organisms and this will cause a vicious circle" (Wallquist, Visschers & Siegrist, 2009)	2

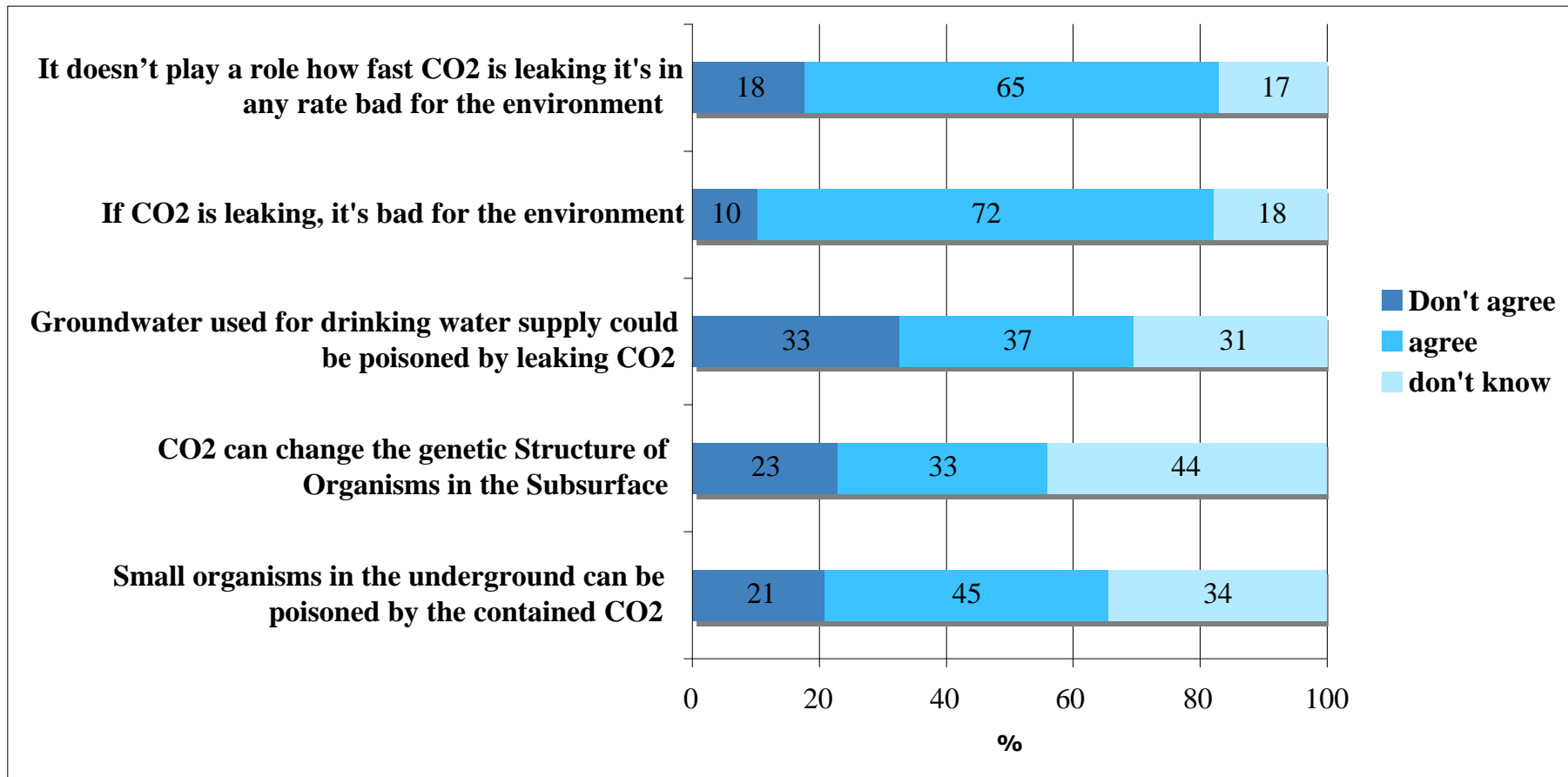
Socio-economical Concepts		<i>n</i>
Renewables	"It's a legitimate help to mitigate climate change, but one needs to take care, that renewables are not slowed down in their development"	10
Sustainability	"It's like fighting the symptoms but not curing the underlying disease. There is a principle mistake in this solution"	9
Rebound effect	"This is offering the wrong incentives, because people will think the problem is solved"	8
NIMBY effect	"The US should do it, they have the biggest emissions"	4

(Wallquist, Visschers & Siegrist, 2009)

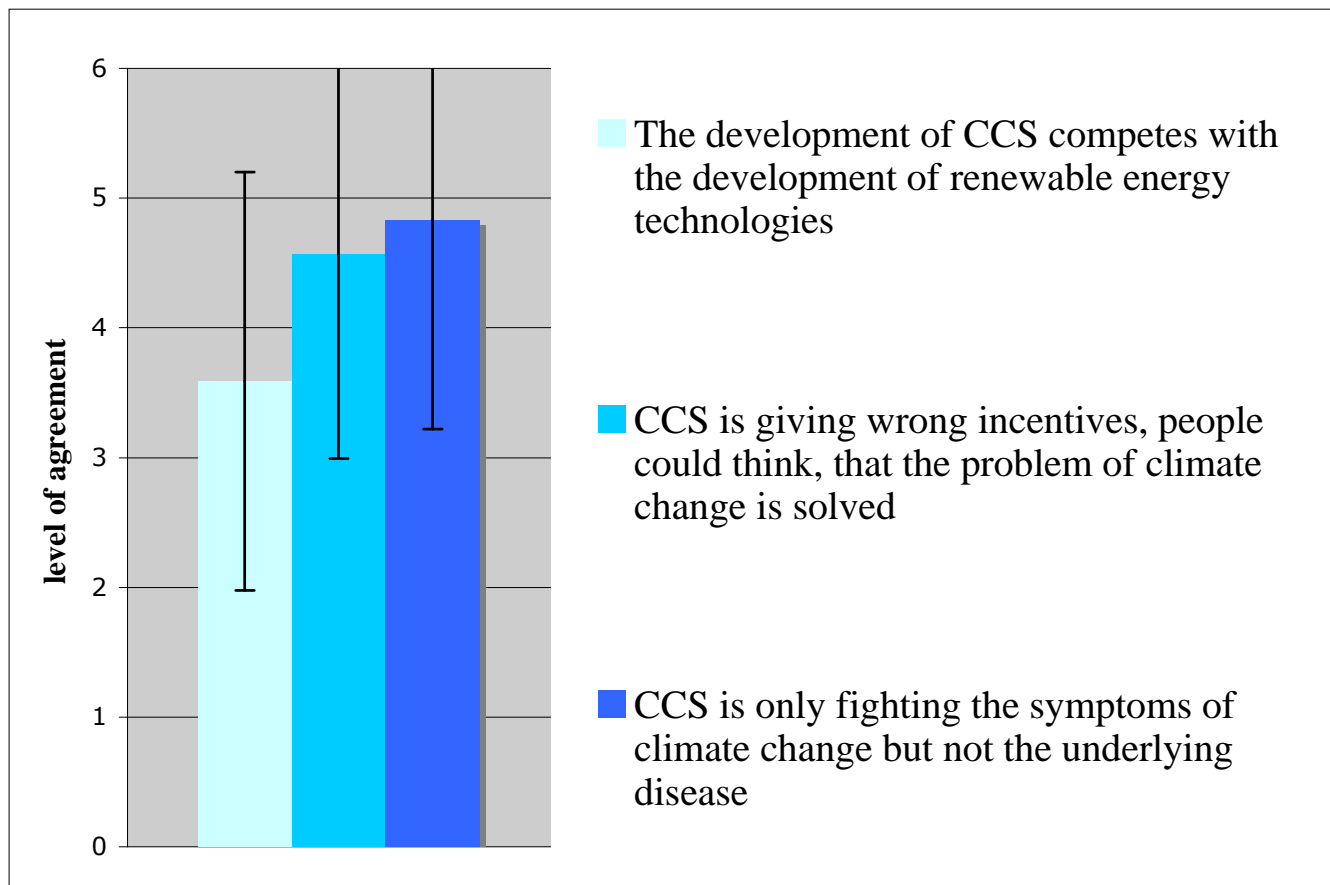
Respondents

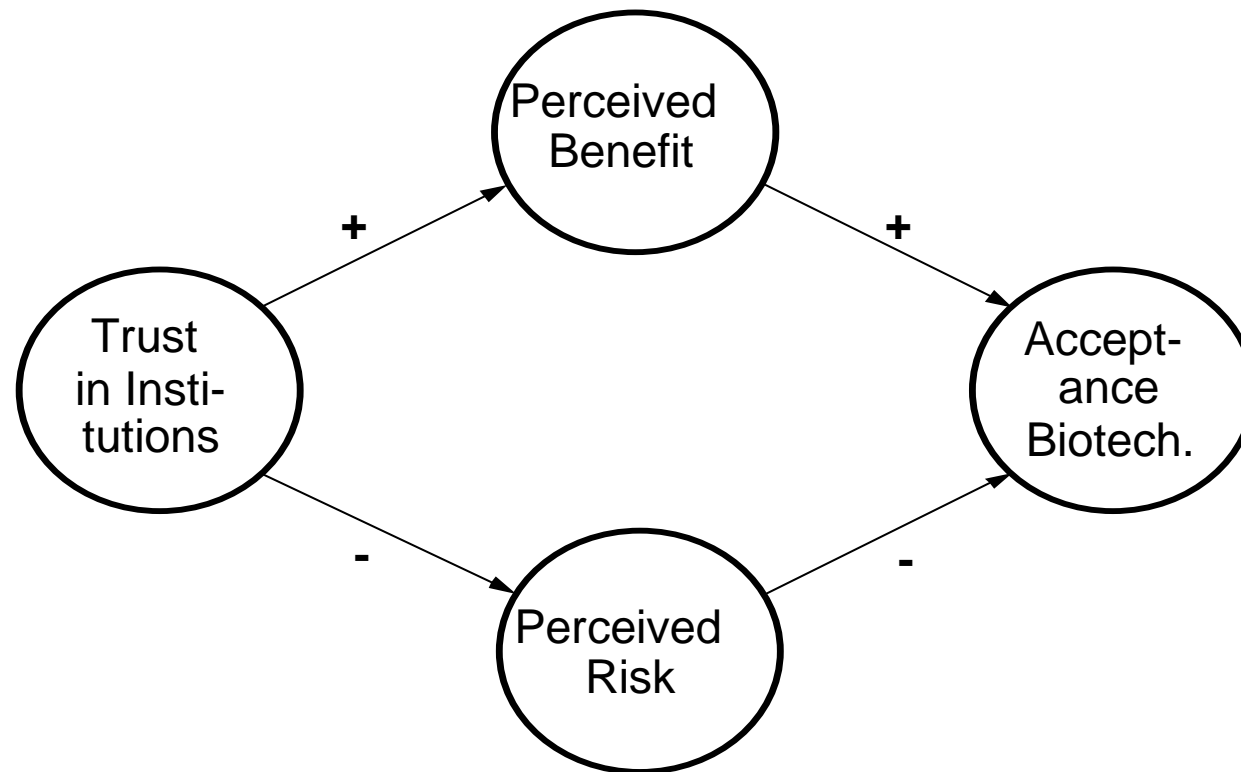
- Representative sample of the German-speaking Swiss population (N= 2000)
- 654 completed questionnaires (response rate 33%)
- 36% of respondents have heard about CCS before

Concepts: Impact



Concepts: Socio-economics





Conclusion

- Lay people have misconceptions about CO₂
- Risk and benefit conceptions are influenced by these misconceptions
- Communication efforts are needed in order to reduce such misconceptions
- Lay people are concerned that CCS may hinder sustainable development
- Trust will be an important factor influencing acceptance of CCS
- Future research is needed to address the following questions
 - How can misconceptions be corrected?
 - How can we improve trust and confidence in the CCS industry?
 - How can people, who are most concerned about climate change, be converted into supporters of CCS?