



TRANSENS

TRANSDISZIPLINÄRE FORSCHUNG ZUR ENTSORGUNG
HOCHRADIOAKTIVER ABFÄLLE IN DEUTSCHLAND

Perceptions of surface facilities of a potential disposal site and the role of place attachment

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Outline

- role of place attachment in the perception of infrastructure planning and implementation
- research design
- exemplary empirical findings I: Different place attachments
- exemplary empirical findings II: Different perceptions of a potential disposal site
- conclusion

Role of place attachment in the perception of infrastructure planning and implementation I

- infrastructures are designed to be long-lasting and have impact on (cf. Abassiharofteh et al. 2022; Isidoro Losada 2021):
 - landscapes (i.e., surface facilities of disposal site, transportation, excavation)
 - socio-economic practices (i.e., creation or loss of jobs, recreation)
- place = physical environment surrounding a site
- place attachment = value people attach to a place and the factors that influence it (Mbah/Kuppler i.a.); it is formed by memories, wishes, emotions, and personal relations (cf. Kienast et al. 2018; Scannel/Gifford 2010; van Veelen/Hagget 2017)
 - individual and collective 'place attachments' (cf. Altman/Low 1992)
 - include socio-emotional bindings to material objects of a place (cf. Brown et al. 2015)

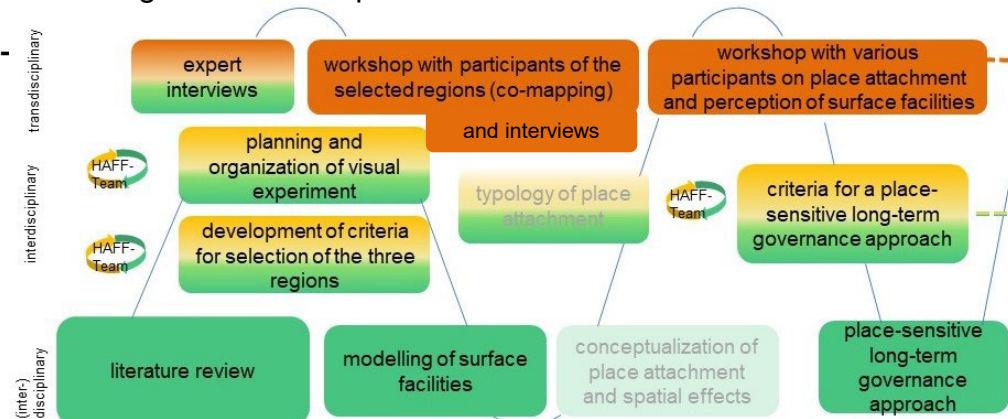
Role of place attachment in the perception of infrastructure planning and implementation III

- personal significance of a place shapes the extent to which people feel threatened (cf. Manzo/Devine-Wright 2014; Devine-Wright/Batel 2017)
- mining experiences shape place attachment (cf. Llewellyn et al. 2017)
- individuals with a powerful place attachment react more to spatial change – both positively and negatively (cf. Carrus et al. 2014; Lewicka 2011)
- place attachment seems to be more pronounced, when governance is perceived as inadequate (Clarke et al. 2018)
- dissent as well as political conflicts can arise due to different perceptions, expectations, and opportunities for participation, which can escalate into massive disputes (Gailing/Leibenath 2017)

Research design I

- aim: analysis of effects of place attachment in spatial transformations to further develop a place-sensitive long-term governance approach
 - method:
 - analysis of place attachment in three regions in Germany
 - perception of possible spatial transformations by surface facilities of a disposal site
- interviews, workshops, visualization

Fig. 1: Research process



Source: Own depiction.

Research design II – Workshop on place attachment and perceptions of surface facilities

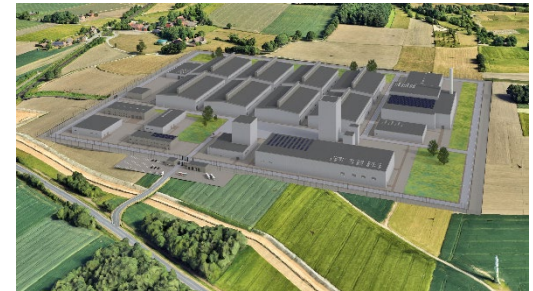
Structure of the workshop:

- in person (in Kassel)
- 38 participants: students of the University of Kassel, participants of the selected regions, members of the accompanying groups of TRANSENS
- questionnaire on place attachment and
- visualized models of surface facilities as well as a
- questionnaire on perceptions of surface facilities and
- group discussions on perceptions, requirements and design options

Research design III – Impression of visualized models of surface facilities



- three different landscape types
- variation of facility façades
- one video with a drive through the disposal site and explanation, the others as a round view from outside the facility

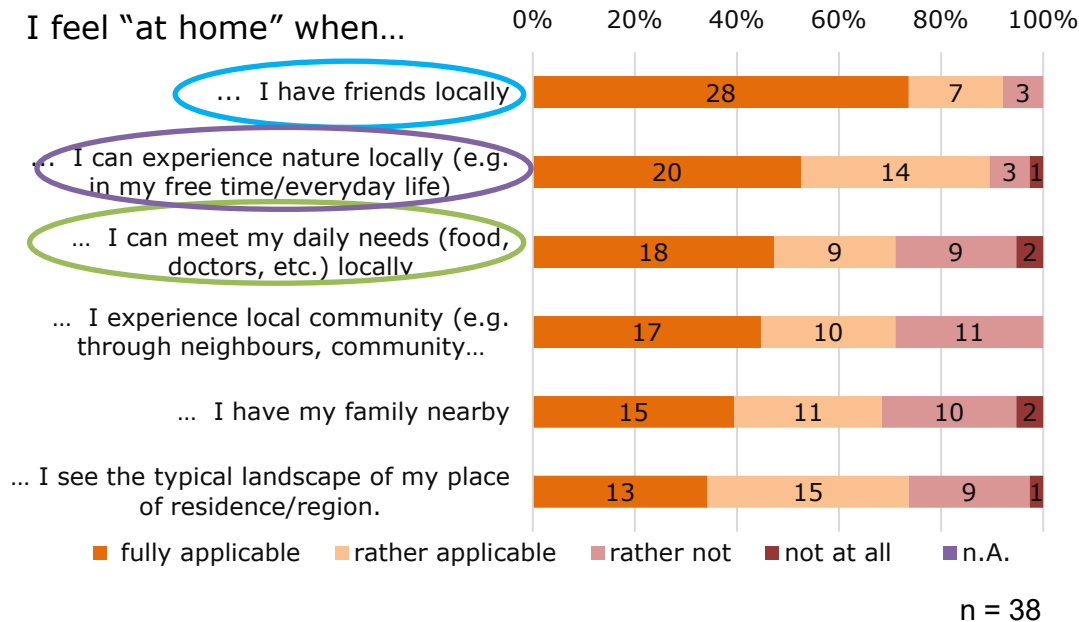


Research design IV – Model of Mihaylov/Perkins

Factors of place attachment	Examples of aspects or expressions of factors
Place-based social interactions	Working place, living place, shopping, recreation, etc.
Place definition	Definition as home with reference to landscape characteristics
Environmental disruption	Transformations in terms of infrastructure or socio-economy (structural change)
Place dependence	Dwelling/population density, green spaces, accessibility, etc., so aspects which refer to the quality of place in comparison to others
Place identity	Norms and traditions going back to e.g., religious affiliation, cultural traditions, language dialects, etc.
Collective efficacy	Participation in associations, clubs or NGOs
Place bonding	Family networks, friends
Sense of community	Traditional or modern structures of social cohesion in terms of specific needs to help each other

Exemplary empirical findings I: Different place attachments

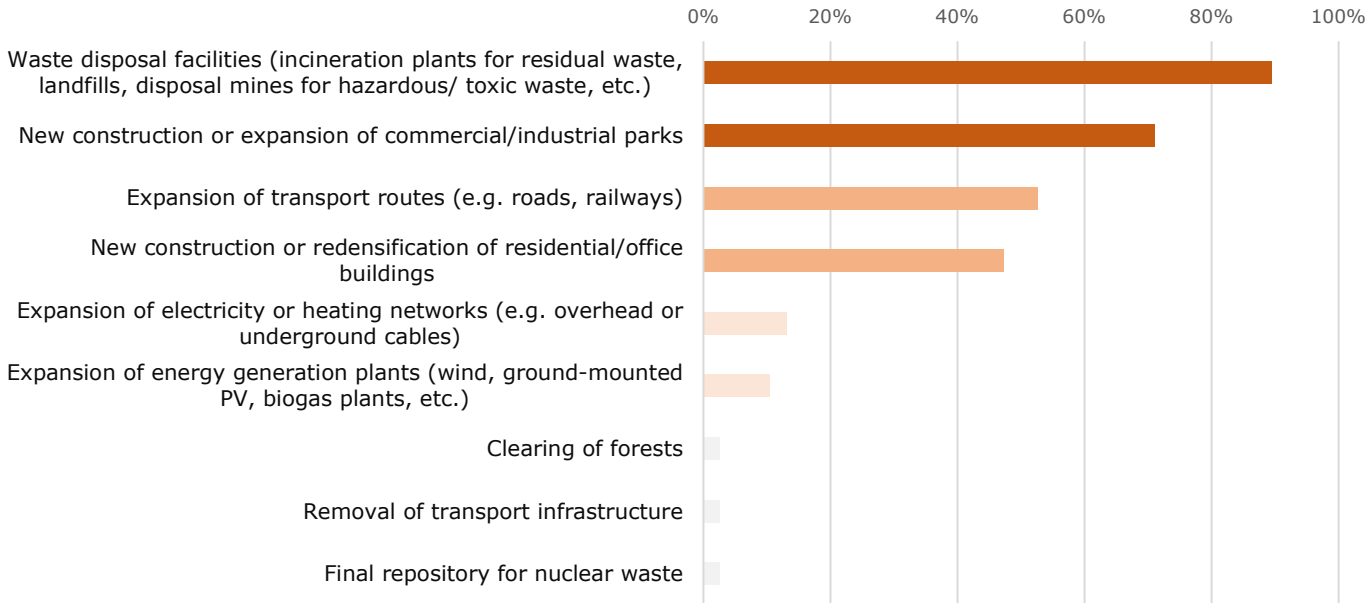
To what extent do the following aspects shape the personal attachment to your place/region?



- factors of place attachment like **place bonding**, **place dependence** and **social interactions** are important
- landscape and nature are defined as functional space via it's potential for recreation and not as an unalterable entity

Exemplary empirical findings I: Different place attachments

What changes would you find most disruptive?



n = 38

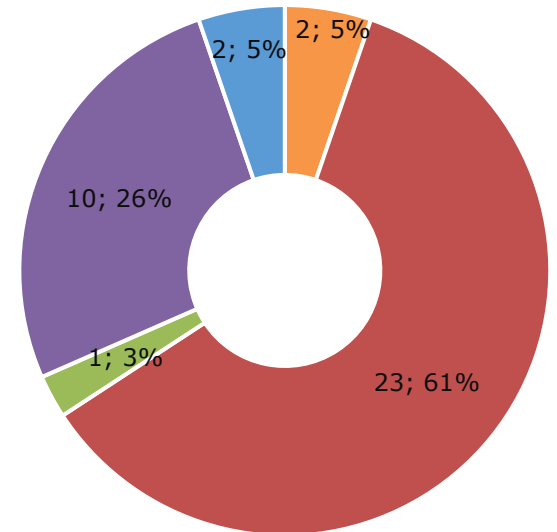
- in terms of place attachment, it's not so much about preserving a 'typical' landscape per se, but about the functions and qualities of the environment
- crucial factors are the risks communicatively and cognitively associated with a measure and the intensity and purpose of the intervention

Exemplary empirical findings II: Different perceptions of a potential disposal site

Which of the presented visualized models did you find most appealing?



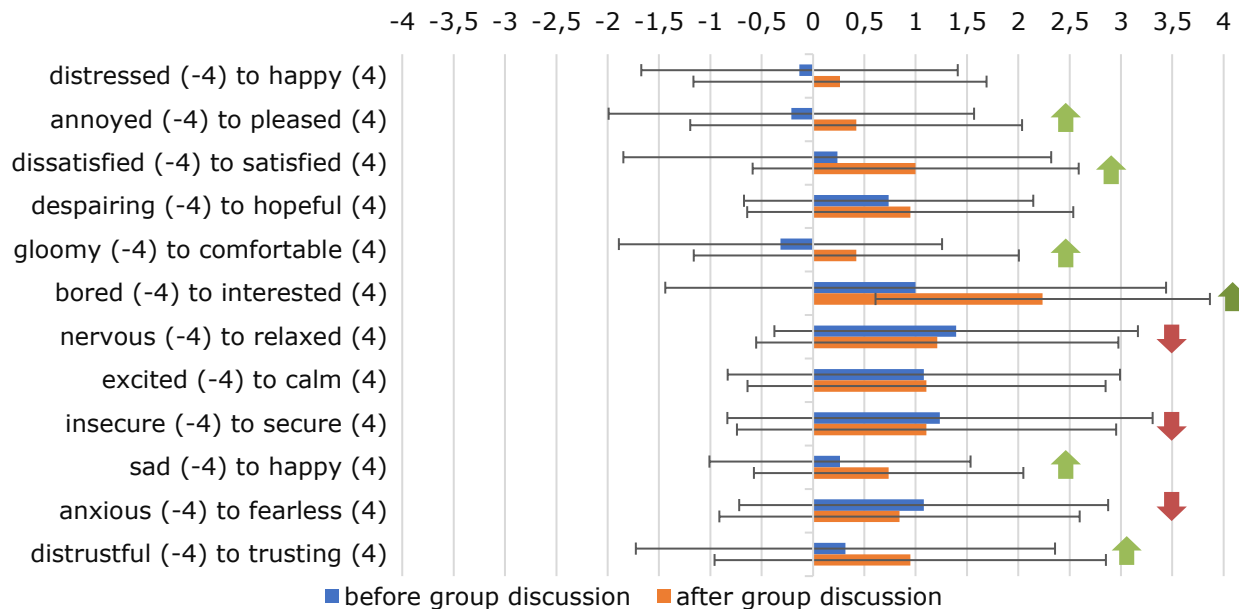
- the model with sound (1) (urban - industrial area)
- the model (2) (rural - forest landscape - light)
- the model (3) (rural - forest landscape - dark)
- the model (4) (rural - agricultural landscape - light)
- the model (5) (rural - agricultural landscape - dark)



n = 38

Exemplary empirical findings II: Different perceptions of a potential disposal site

Sentiment regarding the surface facilities:



Interpretation (after discussion):

- 1. less dispersion of answers:** adjustment to moderate positions (discursively formed collective understanding)
- 2. positive development:** interest, satisfaction and comfort in dealing with the issue has increased
- 3. negative development:** respondents feel slightly more nervous, insecure and anxious
- 4. possible factors:** high complexity, discussion of safety aspects, gained knowledge of processes and scientific approaches, gained trust in process, developed a collective understanding

Conclusion I

- place attachment is more or less strong among the workshop participants
- landscape is of high importance for the majority, but more in a functional way (for recreation etc.)
- facilities for waste disposal are perceived as particularly disturbing → linked with safety issues (fears) and intergenerational justice
- excursion: the analysis of the interviews we conducted suggests that place attachment may be strongly associated either
 - with social factors of place attachment if experiences with transformation exist,
 - or with landscape factors of place attachment if landscape conservation (e.g., viticulture) in conjunction with cultural practices are of importance (e.g., wineries, restaurants)

Conclusion II

- perception of surface facilities is influenced by aesthetics and understanding of the repository as part of the energy transition
- no fear of negative image change by repository; but a repository is not understood as a chance for regional development
- visualization is perceived as helpful and discussion about the topic influenced perception positively

“It is necessary to give people a chance to make the repository part of their place.” (Mbah/Kuppler i.a.)

→ there is a need for a place-sensitive long-term governance approach

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