# Task 4.3

## Title

Socio-economic-political drivers

## Projects (presented on the following pages)

Developing dynamic context analysis procedures for DGE projects
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Organizational ethnography›s contribution to the governance of a geothermal program: the Geneva example
*Alternative: Task 4.1*
F. Ruef, O. Ejderyan

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# Developing dynamic context analysis procedures for DGE projects

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## What is context?

Social acceptance plays an important role in the development of deep geothermal energy (DGE) in Switzerland. The literature on DGE stresses that large-scale deployment does not exclusively depend on technological innovation. It is crucial to take into account the context when planning DGE projects (Duijn, et al., 2013; Trutnevyte and Ejderyan 2017; Trutnevyte and Wiemer 2017).

This notion of context is commonly used in social science (Van Dijk 2008) to refer to the differences between situations in which social actors are engaged. Context is generally defined by two main dimensions:

1) Context is the setting or the environment in which an action takes place. As such it can be treated as a series of background variables that influence an action;
2) Context is what enables actors to give a meaning to a situation. As such it is an interpretative resource for the actors to make sense of a situation they are engaged in.

## Tools and procedures for context analysis in DGE

The goal of this study is to identify relevant elements to take into account in the design of context analysis guidelines for DGE projects. Such guidelines will provide procedures to conduct a context analysis and respective operational tools derived from social science methods to collect information.

We conducted a review of context analysis guidelines for infrastructure development in the sectors of energy, planning, development aid, transport, and hydraulic engineering to identify how practitioners categorize elements of context. We specifically focused on existing guidelines for DGE and carbon capture and storage (CSS) to see which elements of context are addressed and how (see table below).


Petroleum museum in Pechelbronn, Northern Alsace. The historical context of oil extraction played an important role for the acceptance of nearby DGE plants of Soultz-sous Forêt and Rittershoffen (photo: O. Ejderyan, 2017)

All of the reviewed guidelines aim to address social aspects besides technical and environmental ones. Many of them distinguish different parts or elements of context such as stakeholder identification, public opinion or risk perception.

The reviewed guidelines identify general principles such as including stakeholders or the public and define what is in their view the best timing for addressing social aspects. Very few guidelines propose concrete tools and procedures to effectively analyse all the elements of context they have identified, with exception of Wade & Greenberg 2011 for CCS.

All guidelines address the context as a setting and consider the elements of context to be variables influencing the project. Only Duijn et al. 2013 mention the interpretative capacity of actors, but they do not propose tools for DGE developers to address it.

| Elements of context | | Brunstig et al. 2011 | Creara Energy Experts 2014 | Duijn et al. 2013 | James et al. 2013 | Trutnevyte, Wiemer 2017 | Wade, Greenberg 2011 |
|---|---|---|---|---|---|---|---|
| **Spatial** | Space | x | | x | | | |
| | Environment | x | | x | x | | x |
| **Actors** | Stakeholders | x | | x | x | x | x |
| | Population/ general public | x | | | | x | x |
| **Historical** | Local history | x | | x | | | |
| | Past projects | x | | | | x | |
| **Institutional** | Legal | x | x | x | x | | |
| | Formal political processes | x | x | | | | |
| **Socio-political** | Social capital | x | | x | | x | x |
| | Socio-demographic | x | x | x | x | x | |
| | Discourse/perception | x | | x | | | |
| **Economic** | Economic | x | x | x | x | | x |
| **Project related** | Distribution of benefits/risks | x | | x | | x | |
| | Technology | | | x | x | | |
| | Organisational | x | | | | | |

Elements of context cited in guidelines for context analysis for DGE and CCS projects

## Discussion

Context analysis is essential for DGE as it informs siting processes and public engagement. As such it can have an impact on social acceptance The results of the review indicate that context analysis guidelines for practice address the context as a set of variables influencing the project. In such a view, the context is something static. This explains why many guidelines recommend to conduct a context analysis prior to planning or in early phases. Thus in DGE, context analysis is used in the siting phase to select locations or to set up of a strategy to foster project acceptance.

However, static context analyses do not account for the changes that occur once a project altering its context. An initially “good” social context can suddenly become hostile to a DGE project depending on how this project is interpreted. Research in social science have underlined the importance of the interpretative dimension of context both theoretically and in practice (Van Dijk, 2008). This dimension of the context of DGE requires further research in order to develop dynamic context analysis tools and procedures.

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# Organizational ethnography's contribution to the governance of a geothermal program: the Geneva example

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## Research Context

In the context of geothermal energy, social science studies make a valuable contribution to public engagement procedures for siting, planning and risk governance. As there is no uniform perception of geothermal technology across a territory, it is important to take into account multiple scales, actors and contexts in order to gain an insight of the **local characteristics** of each site (Majer et al. 2012; Trutnevyte & Ejderyan, 2017).

Drilling site in Meyrin, GE (July 2017, by OE)

This study takes place in the context of the Geneva program for geothermal energy, **GEothermie 2020**, which is funded by the public utilities *SIG* and the canton of Geneva. The program launched in 2014 started with an extensive prospection and exploration campaign that has now already led to the selection of first sites for concrete heat projects.

## Research goals and methods

The goal of this research is to analyse how GEothermie 2020 can contribute to embed geothermal energy in the cantonal territory. This implies finding ways to relate geothermal energy to the local social reality. For this purpose we will:

- Identify contextual factors affecting decision-making and develop reflexive procedures to monitor and address them.
- Understand the effects of participation not only on the stakeholders and the public, but also on decision makers.
- Analyse public values in energy transition contexts and show how their identification can contribute to embed DGE in a regional context.

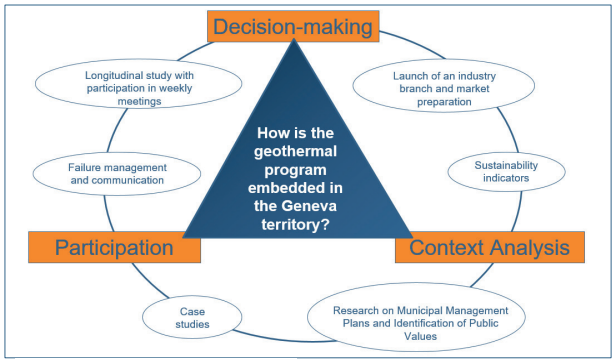
Public information event on Plainpalais in Geneva (October 2016, by OE)

As a highly transdisciplinary research, our study intends to **create "knowledge that is solution-oriented, socially robust, and transferable to both scientific and societal practice"** (Lang, et al. 2012). Tasks directly linked to project needs are conveyed to the researcher by the practitioners and are part of the research model and data at the same time. Thus, participating in this transdisciplinary project means that knowledge is **co-produced by research and practice** in close collaboration of different actors.

**Organizational Ethnography – what does it mean for this study?**
Organizational Ethnography was chosen as research method in order to follow the program on a regular basis and thus being responsive to changing priorities and upcoming topics. As an ethnographic method it is enable to take into account the context of the object of study.

We mobilize a range of Organizational ethnography's methods within three research axes that contribute to reach our research goal:

- **Decision-making:** Decision-making within the GEothermie 2020 program is studied by means of participant observation of weekly management meetings, as well as attendance of public events
- **Participation:** We intend to identify the effect participation has on participants on one side and on decision makers and their strategies on the other. We use participant observation of participatory processes and public events as well as interviews with stakeholders and representatives of the program.
- **Context Analysis:** We analyse documents and conduct focus groups to identify public values from which we can develop indicators for context analysis.




Research Framework with main axes and topics of interest

## First challenges identified (since project start in May 2017):

First observations and document analysis enabled us to identify the following challenges for embedding DGE in Geneva:

*Program vs. Project:*
GEothermie2020 proposes a **global** planning approach at the regional level rather than one single project. As such, it offers opportunities but as well new challenges in terms of governance, communication, and inclusion of stakeholders.

*Participation at multiple scales:*
Participation implies communication and interaction with a broad range of stakeholders and the public. Ethnographic methods applied simultaneously in the Cantonal administration and on selected sites will provide crucial information on how to develop such **multi-scale participative procedures.**

*Coordinating actors:*
Establishing a complete value-chain of DGE introduces new actors to the field of energy in Geneva. The research will contribute to respond to challenges linked to **coordination of actors** and formalize exchange among actors them.

*Developing new tools and procedures for governance*
Building a new branch from scratch asks for the consideration of a number of new procedures, frameworks and regulations. The research contributes to the elaboration of **governance tools** as part of the transdisciplinary process.

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