
Networks for Regional Sustainability: a Case Study Approach

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Abstract

Climate change is the biggest social challenge facing the globalised world. The aim of this paper is to investigate the requirements for governance structures in regional sustainability programmes against climate change.

The study is an explorative case study. It is based on a literature review and expert interviews. It also involves the participatory observation of working groups meetings, and a design thinking workshop.

In spite of their enormous importance, little is known about the institutional conditions of the regional governance of climate change projects in Germany.

For this reason, the research project focuses on the important aspect of networking and governance structures. Consequently, the investigation will contribute to answering the question of which institutional framework conditions can raise the likelihood of climate change projects having a sustainable effect.

The outcomes of the application

This research has not only practical implications for the single case. The exploration of the critical factors of success also offers other regions important food for thought in shaping their governance structures. In particular, the design thinking process and the business network in the District of Steinfurt offer valuable points of reference.

Keywords - Regional sustainability, Governance, Climate change, Design thinking, Social ecosystems

1 Introduction

The negative effects of the unchecked consumption of resources was described as early as in the Club of Rome's 1972 report "The Limits to Growth". The prophecy described in the report matches the climate change crisis facing us today.

Since the 1980s, the issue of climate change has increasingly been the subject of public discourse. In order to combat climate change, the sustainable use of resources is called for.

In the Brundtland Commission report, the term "sustainability" is transferred to socio-economic processes. The following line of action is stated in this report: "*Sustainable development is development that meets the needs of the present without compromising the*

ability of future generations to meet their own needs. (World Commission on Environment and Development 1987, p. 41).

For this reason, many cities, as well as regions, have made climate change one of their key political objectives. There are numerous party programmes, master plans, voluntary commitments, smart city initiatives, etc.

Most of the programmes target the following measures (Bierwirth and Schüle 2012):

- Climate-friendly mobility
- Switching to regenerative energies
- Food and consumption
- Waste prevention
- Landscape conservation
- Reduction of energy consumption, e.g. in the residential sector.

In the area of conflict between ecological, technical, economic and social requirements, many cities and regions are struggling to strike a suitable balance between conflicting interests (Auffhammer 2018; Kabisch et al. 2017; Batisha and Thomas 2015). In so doing, many experts argue that the energy transition is more a social than a technical challenge (Wittmayer and Loorbach 2016).

With most people, awareness of activities that harm the environment and the realisation that changes in behaviour are essential do not usually increase the likelihood that they will actually change their behaviour. The same applies to consumers, representatives of business, and politicians, just to name a few of the biggest stakeholder groups (Thaler and Sunstein 2008; Kahneman 2012; Pettman and Zabel 2005; Bang et al. 2000).

The core question is therefore: how can cities and regions stimulate and perpetuate sustainable behaviour? Global sustainability problems require a multiscale approach that can zoom in and out from the macro- to the meso- to the microlevel, and vice versa (Loorbach and Shiroyama 2016).

To enable cooperation between these different levels, it is essential to develop network and governance structures (Cadman et al. 2015; Davidson and Lockwood 2008; Loorbach and Shiroyama 2016; Orenstein and Shach-Pinsley 2017; Schmitter 2010; Sol et al. 2018). It is much easier to implement climate change projects at the city level than at the regional level (Dierwechter 2017; Ehnert et al. 2018; Frantzeskaki et al. 2017; Gatrell et al. 2016).

The particular challenge facing regions is that they can only lay down guidelines to their municipalities to a very limited extent. This means that a region's municipalities will usually pursue climate action initiatives on a voluntary basis.

Collaborative and participative modes of governing are advocated to address sustainable development problems that cross geographical and political boundaries and whose solution requires the coordination and integration of the activities of disparate sectors and actors, as well as the participation of all those affected. (Davidson and Lockwood 2008).

Brand/Warsewa (Stablo and Ruppert-Winkel 2017) developed key success factors for regional governance processes. According to the authors, it is fundamentally important to

gain the support of the highest administrative level and of charismatic leading figures (Ruppert-Winkel 2018; Orenstein and Shach-Pinsley 2017). It has also proven beneficial to ensure that projects are linked to concrete municipal problems, and that solutions can be expected. To achieve this, it is helpful for appealing lead projects, possibly involving local celebrities, to be effectively communicated to the public.

Ideally, an administrative unit acts as an organisational hub, which provides a service-oriented platform for cooperation, ensuring efficient process management, including controlling (Stablo and Ruppert-Winkel 2017).

2 The case study

In a bid to explore the specific conditions for successful regional sustainability programmes, a local authority, which can be regarded as a regional alliance, was selected as the case study. The district of Steinfurt in North Rhine-Westphalia, a predominantly rural district in northwest Germany with a population of 434,000, has 24 towns/cities and municipalities¹.

The Agenda 21 process was launched in the district of Steinfurt in 1999. As early as ten years ago, the *Kreistag* (district council) decided unanimously to adopt the goal of becoming energy self-sufficient by the year 2050 in the context of a climate change project. As a result, the implementation of the concept enjoyed official political legitimacy and was established at the highest level.

As one out of nineteen local authorities, Steinfurt was chosen by the Federal Ministry for the Environment to prove whether it is possible to reduce greenhouse gas emissions by ninety-five percent by 2050 and to cut in half final energy consumption².

To achieve the institutional anchoring of this goal, the Agenda 21 Office was transformed into the Office for Climate Protection and Sustainability in 2013. It has since become a nationally respected player in climate (Stablo and Ruppert-Winkel 2017).

The tasks of the Office for Climate Protection and Sustainability include³:

- Climate protection and climate change
- Development of renewable energies and energy efficiency
- Reinforcement of regional added value, regional marketing
- Development of rural areas
- Promotion of citizen responsibility.

In the District of Steinfurt, the goal of becoming energy self-sufficient is operationalised as follows: by 2050, all the energy required in the district is to be produced carbon-free and consumed locally, whilst reducing energy consumption by half.

¹ District of Steinfurt https://www.kreis-steinfurt.de/kv_steinfurt/Kreisportrait/St%C3%A4dte%20&%20Gemeinden/, 10 January 2019

² District of Steinfurt, Office for Climate Protection and Sustainability, https://www.kreis-steinfurt.de/kv_steinfurt/Kreisverwaltung/%C3%84mter/Amt%20f%C3%BCr%20Klimaschutz%20und%20Nachhaltigkeit/, 10 January 2019.

³ District of Steinfurt, Office for Climate Protection and Sustainability, https://www.kreis-steinfurt.de/kv_steinfurt/Kreisverwaltung/Ämter/Amt%20für%20Klimaschutz%20und%20Nachhaltigkeit/, accessed on 3 April 2019

In this way, the money spent on heat, fuel and electricity should remain in the region and create a “regional added value”.

On the way to becoming a climate-neutral district, the innovative capacity of the regional economy is to be improved at the same time, reinforcing the structural change. The climate change mitigation targets serve the further purpose of creating a distinct profile for the district, aspiring to set an example for “ethically responsible social life”.

The 100% Climate Protection Master Plan¹ represents an important conceptual foundation. This master plan, drawn up in 2013, was the result of cooperative teamwork between the Office for Climate Protection and Sustainability, climate change stakeholders from local authorities and regional utility companies, experts from Münster University of Applied Sciences, and external climate experts.

The climate change policy objectives were elaborated upon in the master plan:

- Induce change by launching exemplary climate change projects that are visible and tangible to the local population, and turn the experience gained from model projects into application-oriented principles.
- Gradually improve networking and the targeted management of all climate change stakeholders and projects in the district, and organise structures to enable stakeholders to learn from each other.
- Strengthen the options for action and the initiative of civil society in the district by providing appropriate input, and enable companies, associations and citizens to achieve their own goals and implement their own projects relating to climate change and sustainability.

3 Governance structures in the District of Steinfurt

Seeking to achieve these climate change goals, structures and networks have evolved comprising bodies such as work groups, round tables, committees and associations. Most of the coordination is undertaken by the Office for Climate Protection and Sustainability.

Due to its lack of authority over regional networks, when it came to climate issues, the District of Steinfurt immediately recognised the importance of participation, and was quick to involve local authorities, citizens and companies in the region’s energy transition.

3.1 Community wind farms

A higher-than-average number of wind turbines have been installed in the District of Steinfurt over the last 20 years. Whereas in other regions, the development of wind farms met with strong resistance from citizens and residents, the District of Steinfurt attached importance to early grassroots participation. Public participation explicitly includes citizens’ investment in the turbines, enabling them to benefit financially from renewable energies.

¹ The 100% Climate Protection Master Plan, https://www.kreis-steinfurt.de/kv_steinfurt/Kreisverwaltung/%C3%84mter/Amt%20f%C3%BCr%20Klimaschutz%20und%20Nachhaltigkeit/energieland2050%20e.V./Service/Informationsmaterial/Masterplanbericht_Langfassung%20.pdf, accessed on 8 April 2019

After intensive networking, the Office set up a Wind Energy Service Station, specifically for the purpose of mediating in case of conflict.

3.2 Participation portal

Climate change projects run by the district and participating local authorities can be presented and discussed on a GIS-based participation portal. Online maps enable users to view where and when certain projects or events are being planned, and how they can get involved¹.

3.3 Company network

On the corporate side, an alliance of more than sixty companies from the region evolved, known as the company network². Thematically, the network focuses on developing renewable energies and on increasing energy efficiency, covering the areas of electricity, heat and mobility. In the process, the company network seeks to involve as many actors as possible along the various value chains.

3.4 The “energieland2050” association

In the context of network management, particular importance is placed on the energieland2050 association, founded by the District of Steinfurt in 2017.

This network consists of representatives from the political sector, industry, academia, municipal utilities, civil society and the 24 cities and municipalities belonging to the district. Considerable importance is attached to public participation³.

The “energieland2050” association is directed at three main target groups:

- Municipalities
- Companies
- Citizens/consumers.

The company network finances half of the association, which now has nine employees. This public-private partnership is another cornerstone of the district’s governance strategy.

All 24 local authorities belonging to the district are supported by the “energieland2050” association by undertaking activities such as:

- Preparing joint campaigns
- Collecting data and undertaking potentials studies
- Fundraising
- Linking and qualifying municipal climate officers.

The district’s service-oriented networking activities also enable smaller local authorities to undertake local climate change projects, increasing the measures’ leverage.

¹ Participation portal of energieland2050, <https://energieland2050-dialog.de/>, accessed on 3 April 2019

² District of Steinfurt Company Network, https://www.kreis-steinfurt.de/kv_steinfurt/Kreisverwaltung/Ämter/Amt%20für%20Klimaschutz%20und%20Nachhaltigkeit/energieland2050%20e.V./Für%20Unternehmen/Unternehmernetzwerk/, accessed on 3 April 2019

³ <https://energieland2050-dialog.de/>, accessed 10 January 2019

A qualified advisory service is being established for companies and citizens under the name “energieland2050 consultants”. Freelance energy consultants who meet predefined quality criteria are permitted to use the trademarked name “energieland2050 Consultant”. The aim of introducing the “energieland2050” consulting brand is for the district to boost the role and profile of the region’s diverse consulting expertise for the region¹. Besides developing networks and implementing specific climate change projects, considerable importance is attached to public relations.

In order to motivate a region’s stakeholders to participate in governance processes, their interests and expectations of benefit need to be analysed in detail. Team spirit and coherent action can also be built by recognisable and identity-shaping communication that exerts an internal and an external effect. This is usually achieved with the use of an umbrella brand. The lack of official authority means that people must be motivated by symbolically communicating a common vision, and projects seeking to realise this vision.

There is a consensus that the better network partners’ needs have been analysed, the more likely it is that their behaviour can be influenced. In this context, the design thinking method offers new potential insights. Inspired by lifestyle research, this method focuses on developing representatives of certain target groups, referred to as personae, in an attempt to explore and extrapolate their behaviour.

3.5 Design thinking

As the term “design” suggests, design thinking was originally an innovation method for designing technical devices and user interfaces. However, large software companies such as Google, Apple and SAP are increasingly establishing design thinking as a method for systematically approaching complex problems from all walks of life. As such, the method takes the content and scope of the classic term “design” much further (Grots and Creuznacher 2016; Reinecke 2016; Plattner et al. 2018).

3.6 Principles

Unlike with technology-based methods of innovation, attention is centred on the user in this case (human-centred approach). The user’s needs and behaviour are the starting point and point of reference for the entire process (Schallmo 2017).

Another important characteristic is work in multidisciplinary teams. Unlike with many methods that foster creativity, which often occur within an unstructured process, design thinking pursues clearly defined process levels, sometimes involving strict time management. One important characteristic of the method is its use of iterative loops, i.e. the multiple repetition of stages to achieve a solution step by step (Plattner et al. 2011).

The work process involves several methods commonly used in innovation and creativity management, with the difference being that emphasis is placed on visualisation techniques (Poguntke 2016).

¹ [energieland2050 consultants_https://www.kreissteinfurt.de/kv_steinfurt/Kreisverwaltung/Aemter/Amt%20fuer%20Klimaschutz%20und%20Nachhaltigkeit/energieland2050%20e.V./Themen%20und%20Projekte/energieland2050%20Berater/](https://www.kreissteinfurt.de/kv_steinfurt/Kreisverwaltung/Aemter/Amt%20fuer%20Klimaschutz%20und%20Nachhaltigkeit/energieland2050%20e.V./Themen%20und%20Projekte/energieland2050%20Berater/), accessed on 3 April 2019

3.7 Process stages

The number of stages varies depending on the model; the six-stage process model based on Hasso Plattner Institute's School of Design Thinking is in widespread use.

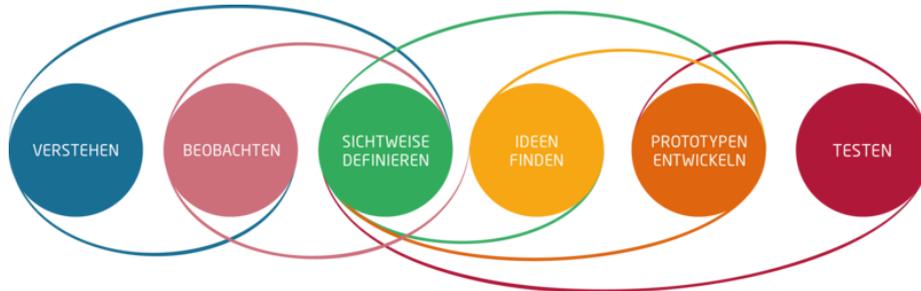


Figure 1. The design thinking stage model, Hasso Plattner Institute

At the first stage (“Verstehen”: “Understand”), the phenomenon to be addressed is described in detail. This description defines the framework for formulating a common understanding of the issue at hand. Another important goal at this stage is team building (Plattner et al. 2011).

At the second stage (“Beobachten”: “Observe”), teams view the matter under consideration from the perspective of the relevant user or person concerned. This stage involves “creating” what is referred to as a persona, who acts as a kind of representative for a certain target group. It is important to describe each persona in as much detail as possible: name, age, family situation, level of education, profession, interests, values and hobbies. Less tangible emotional aspects such as the persona’s dreams, unmet needs and problems are also described and visualised.

This approach enables players to “delve” emotionally into the individual’s lifeworld, seeing things from his or her perspective. The insights gained enable products and services to be created in such a way that best meets customers’ needs.

At the third stage (“Sichtweise definieren”: Define point of view”), the insights gained are gathered, structured and condensed to form a specific issue.

The fourth stage (“Ideen finden”: “Ideate”) involves the actual creative process. Participants switch from the “problem domain to the solution domain”, using various creativity techniques to generate as many ideas as possible.

The aim of subsequent prototyping (“Prototyp”: “Prototype”) is to visualise and materialise the idea, with the purpose of making it clearer and emotionally more comprehensible. Prototyping can be performed in very different ways: using drawings, Lego objects, card models or role play, to name a few.

At the last stage (“Test”), the prototype is tested to see whether it suits the relevant customer/user; it can then be adapted as required.

Principles of this method have already been used in urban planning for some time under the term “urban design thinking”, which involves the user-centred design of areas and districts (cf. for example (Dovey 2016; van Eijck et al. 2017). The City of Mannheim,

for instance, uses urban design thinking in its “Migrants4Cities” project to stimulate urban innovation by highly qualified migrants in a bid to achieve sustainable urban development.

3.8 Design thinking in the District of Steinfurt

As many studies have shown (cf. as representatives for many others: (Deffner et al. 2012; Ernst et al. 2016; Bang et al. 2000; Institut für Sozial-Ökologische Forschung 2010; Pettman and Zabel 2005), stakeholders from the Office for Climate Protection and Sustainability also assumed that the issue of climate change is too abstract for many people, bearing little relation to their personal daily lives.

For this reason, differentiated target group analyses are an essential prerequisite to identifying who is receptive to certain offers and solutions, and which problems they face. The Office for Climate Protection and Sustainability therefore decided to implement a design thinking process in 2015.

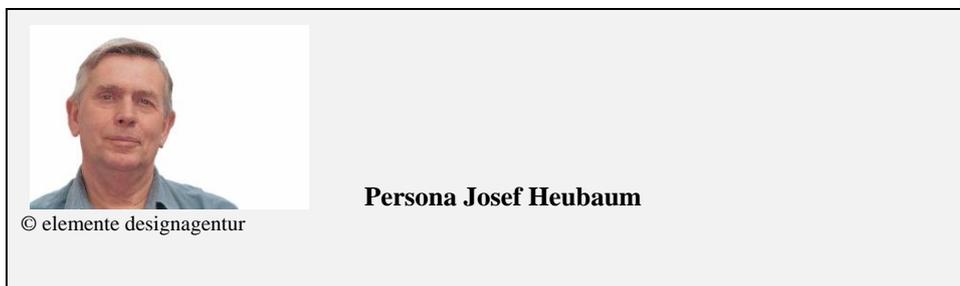
The situation analysis at the start of the process revealed that “energieland2050” was indeed known to experts as a vision of the future, but not to individuals in the region, apart from the closest network partners. Most were unaware of the added value that may be generated by participating in the project.

To gain a better understanding of the target groups, six design thinking workshops were held with different target groups¹.

The following six personae were selected and addressed:

- Climate officer / municipality
- Entrepreneur / energy industry
- Entrepreneur / craft industry
- Citizen / young person
- Citizen / woman with children
- Citizen / senior citizen 60+

One persona is presented as an example below. The persona Josef Heubaum was created in one design thinking workshop to represent the target group of craft industry entrepreneurs.



¹ The author participated in two of these workshops as an observer.

Characteristics:

Josef Heubaum is a 55-year-old craft entrepreneur. He is married, with three children. The master carpenter runs his own business and has 15 employees.

The following values are important to him in life:

- Tradition
- Thrift
- Home region
- Family
- Quality.

His work-related problems include:

- A latent fear of losing his livelihood, despite having full order books
- Fear of big competitors (IKEA, Finke etc.)
- Uncertainty caused by continuous change processes.

In his company, Josef Heubaum places great importance on quality. All the same, he is not a committed environmental activist.

The following goal was formulated: to persuade him to seek support from an energieland2050 Consultant in making his company more environmentally friendly.

This could include the following measures:

- Having a photovoltaic system installed on the roof
- Purchasing vehicles with emissions in mind
- Purchasing/supplying regionally.

The following communication goal was formulated: to persuade him to be an “energieland2050 ambassador” so that he would share his experience within his networks and spread his knowledge.

In order to achieve these goals, the participants first looked at what had so far prevented him from participating in the “energieland2050” network.

The following reasons were elaborated during the workshops:

- A lack of time (it is not his core business)
- No legal obligation to behave green
- A lack of personnel
- A general feeling of scepticism towards the public sector (Office for Climate Protection and Sustainability)
- A lack of cost pressure
- The previous appeal was not direct enough
- A lack of information.

Building on this analysis, the workshop participants thought about the ideas and messages that could be used to reach the persona Josef Heubaum:

- “As a craftsman, you are part of the energy transition, and can earn money from it.”
- “From the region for the region.”
- “So that your grandchildren can have a good life here, too.”
- “Give something back to your home region”

It was also considered important to establish access to the networks and multipliers of the target group. If the associations and institutions to which Josef Heubaum belongs were involved in the project, this could increase his trust and confidence in the project. The company network would be the ideal connecting factor.

Similar analyses were conducted along the stages of the design thinking process for the other five personae, and ideas were developed. These ideas formed the basis for fleshing out concrete measures and developing an umbrella brand concept.

4 Conclusion

The success factors for regional governance projects mentioned at the beginning of the paper are applicable in essential respects to the District of Steinfurt. The early resolution by the *Kreistag* (2010) gave the work of the Office for Climate Protection and Sustainability political legitimacy, and established it at the highest level.

The Office for Climate Protection and Sustainability acts as a coordinating office that helps network partners to achieve their own goals and reach their target groups, increasing the measures' leverage. In addition, impetus is continuously provided to support the partners' self-organisation and to transform loose networks into permanent entities, as was the case with the launch of the "energieland2050" association as a public private partnership.

According to the initiators¹ and the participants², the design thinking method was classed as appropriate for developing target group-oriented activities and an umbrella term concept.

Many of the projects build on local projects, and are designed to be participatory from the very beginning. As a result, they theoretically encourage the involvement of a wide range of actors. However, citizens are still largely unaware of the "energieland2050" brand. One reason for this is the difficulty in communicating measures to a predominantly rural administrative district³.

Communication about the umbrella brand declined substantially after the funding ended, meaning that there was no longer sufficient accompanying communication about the initiative. This is particularly due to the fact that the local authorities make no or little use of the umbrella brand in their communication activities.

An important research issue for the future is to determine whether the structures that have now been created (energieland2050, company network, etc.) suffice in order to ensure the work of the climate projects in the long term, or whether the Office for Climate Protection and Sustainability will need to continue providing support.

The actual question of whether local citizens' behaviour has changed due to the activities outlined would have to be evaluated in the context of an extensive empirical analysis, which has yet to be undertaken.

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¹ Interview with an employee of the Office for Climate Protection and Sustainability (2016).

² Interview with the external process facilitator (2015).

³ Interview with an employee of the Office for Climate Protection and Sustainability (2017).

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