Towards Sustainable Communities

An analysis of permaculture initiatives in Scania, Sweden

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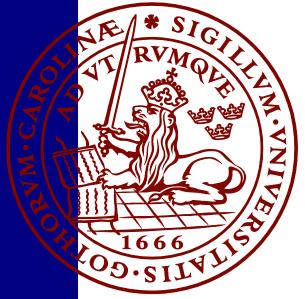
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Abstract

In current times of climate crisis, we need to transform our way of living to be more resilient and sustainable. Sustainable initiatives are important for this transformation and should be encouraged and supported by our politicians and leaders. Permaculture is one of the promising sustainability initiatives, which despite its potentials, are facing multiple barriers from the municipality to develop. This study investigates why these barriers exist and the potential to overcome them from a perspective of social learning theory. The data was collected through interviews of both permaculture initiatives and municipal representatives. The findings showed that an ill functioning communication and collaboration, conflicting perspectives, as well as an unbalanced coordination of actions are at the root of the barriers. To overcome the barriers, implementing some climate pilot rule which allows for exceptions in laws and regulation, improving communication and translation methods and increasing knowledge and possibilities of knowledge sharing, shows potential.

Keywords: permaculture, social learning, barriers, municipality, Scania, communication

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1. Introduction

The year 2020 we reached 1.2 degrees Celsius above the pre-industrial baseline and we are currently off track to stay at or below 1.5 degrees Celsius as called for in the Paris agreement (United Nations, 2021). Climate change together with extractive human activities have led us into mass extinction with 1 million of earth's species being threatened to extinction, with dreadful consequences to human livability at stake (United Nations, 2019). It is of great importance that we succeed in transitioning our societies and way of living to become sustainable, mitigating climate change and biodiversity loss while adapting to a changing world. A big part of this transition includes sustainable community development, which is included as goal eleven of the global sustainable development goals (United Nations, n.d.). Sustainable community development means to improve or advance communities to become environmentally, socially, and economically viable over the long term without negatively impacting the ability to support life now or in the future (Warren Flint, 2013). It includes development within energy, economics, agriculture, community building and all other industries within a given place which constitutes the community (ibid). Community planners and developers strive to achieve a balance between the environmental, social, and economic goal of sustainability, however, in reality this is a difficult task as many interests are conflicting and often only the narrow interests of bureaucracies and authorities get served (Campbell, 2007). There does not exist one way of sustainable community development as there exists no one type of community. Different towns, cities or neighborhoods have different needs and abilities and thereby need different forms of sustainable development (Warren Flint, 2013). For the development to be successful the whole community needs to be inclusive, participatory, and holistic (ibid). Allowing and supporting multiple pathways and initiatives towards sustainability is thereby an important part of sustainable community development.

Today many sustainability initiatives like that of the permaculture movement are, however, held back by bureaucratized institutions and political forces due to little flexibility toward alternatives (Massicotte & Kelly-Bisson, 2018). Permaculture is a promising initiative that should not be overlooked as it shows potential to improve community development practices through a bottom-up approach. Permaculture calls for a change of consciousness (Caraway, 2020) aiming to transform our communities and way of life through a "harmonious integration of landscape and people—providing their food, energy, shelter, and other material and non-material needs in a sustainable way." (Caraway, 2020, p.6). To succeed in this, permaculturists are now "calling for aggressive policy measures in support of permaculture" (Brawner, 2015, p.439).

This study aims to explore the institutional barriers to permaculture initiatives and how they can be addressed in Scania, Sweden by drawing on the empirical evidence from the case of Hässleholm. Hässleholm municipality could be considered an average municipality in Sweden in consideration to its environmental and climate efforts, which makes it an interesting case to study.

Through qualitative interviews with permaculture activists and municipal policymakers, I aim to address the following questions:

RQ 1: What are permaculture practices in Scania?
RQ 2: Which barriers exist to implement these practices?
RQ 3: Why do these barriers exist?
RQ 4: How can they be addressed by the permaculture initiatives and municipality?

The outline of this thesis is as follows. The first section provides a background of the current literature on permaculture and sustainable community development, highlighting the gaps within academia. Following section describes the method of the research, drawing on five interviews with permaculture representatives and municipal policymakers. Further the social learning theory is presented in the theory section which is used to gain a deeper understanding of the findings which is presented in the result section. The findings show existing alternative solutions implemented by permaculture initiatives in Scania and the barriers to these according to the initiatives themselves and the municipal policymakers. These barriers are further analyzed and discussed in the following section to draw insights to why they exist and how the initiatives and municipalities could address the barriers in order to support permaculture initiatives. Finally, the thesis ends with a conclusion.

2. Background

Permaculture is defined by The Permaculture Research Institute as "harmonious integration of landscape and people—providing their food, energy, shelter, and other material and non-material needs in a sustainable way." (Caraway, 2020, p.6). Permaculture is used in different ways and can be divided into three imaginaries; practices, life philosophy & social movements (Roux-Rosier et al., 2018). The practice refers to the design of sustainable agroecosystems, buildings, and communities. Here the designer aims to investigate and understand all parts of the ecosystem in order to respectfully design the land use (ibid). Permaculture as a life philosophy instead refers to the spirituality and worldview as "humans and their creations and activities are part of the natural world." (Caraway, 2020, pp.6-7). Finally, permaculture is seen as a social movement that strives for social, intersectional, environmental justice (ibid). Permaculture initiatives usually include elements of all three imaginaries (Roux-Rosier et al., 2018), where groups of people design their communities and way of life with deep consideration to nature, sustainability, and social equity. Permaculture is grounded in three cornerstones: "care for the Earth, care for people, and shared resources through the recognition of limits to consumption" (Caraway, 2020, p.5).

Permaculture is a subject which has gained very little attention, both from academia and from policy makers (Massicotte & Kelly-Bisson, 2018 ; Brawner, 2015). One reason for this could be the fact that permaculture does not fall into one single discipline, but rather combines multiple sectors like agriculture, land use and forestry to name a few. This has made it both difficult to study and been

resisted by professional practitioners in the different sectors (Brawner, 2015; Veteto & Lockyer, 2008). Permaculture initiatives have also been confronted by socioeconomic and political forces which have had little flexibility to alternative modes of community development, production or social reproduction (Massicotte & Kelly-Bisson, 2018). Deeply bureaucratized state institutions for land access (ibid) and national development policies within energy and housing have also placed a lot of challenges to permaculture initiatives (May Kruger, 2015). Furthermore, different small scale permaculture businesses are in constant competition with large scale industrialized businesses like agribusinesses (Massicotte & Kelly-Bisson, 2018). These are some barriers found in the literature of permaculture, but in general there exists very little research on the benefits and challenges for permaculture initiatives (Didarali & Gambiza, 2019).

Permaculture is an interesting case for sustainable community development as it tackles all three parts of sustainable development: Ecological integrity, Social Equity, Economic security. Sustainable development cannot be achieved without dealing with all three of these areas as they are connected to each other (Warren Flint, 2013). Ecologic Integrity emphasizes the importance of understanding ecological systems and humans' impact and part in these. Development here is about preserving and supporting ecological systems and biodiversity. Social Equity is grounded on a fair share of resources and opportunities where equal access to such as jobs, education and natural resources exists for all through both time and space. Finally economic security connects to the other two areas through ensuring employment opportunities, technical advancements and policies which promote social equity and nature preservation (ibid). A big part of permaculture is the acknowledgment that humans are part of the ecosystem and have real impact on their environment. Permaculture tries to move away from environmental control to environmental stewardship, emphasizing the need to observe the natural ecosystem and interact with it in a way which mimics natural activities and ecosystem patterns (Brawner, 2015). This ecocentric view is one which sustainable community development puts great importance to as the ability to coexist with nature in a sustainable way requires us to see the complex, interactive and interconnected dynamics of nature and our own role in it (Warren Flint, 2013). The ecocentric view within permaculture also connects to the social equity area as it promotes the belief that all living and nonliving things have intrinsic value and worth. "In the same way that permaculture gardening optimizes relationships between all variables, values the marginal, and has 'no weeds', social permaculture provides a framework for inclusiveness, equity, and social justice that minimizes outliers" (Brawner, 2015, p.434). Further, social equity within sustainable development could be viewed as equal or fair distribution of resources (Campbell, 2007), which is one of the three cornerstones within permaculture. This cornerstone also offers a critique against the mass consumerism existing in today's society. Sustainable development acknowledges the problems which a lifestyle of consumerism and individualism bring. This type of lifestyle promotes values, actions and policies which focus on short term and quick benefits rather than long term, environmental and social well-being (Warren Flint, 2013). The permaculture movement wants to shift away from mass consumerism and our dependence on the global economy by replacing it with household and local economies (Ingram et al., 2014). Self-sufficiency and localized circularity of resources like renewable energy, zero waste production and water storage plays a central role within permaculture, which are all examples of actions contributing to economic security.

Permaculture communities has contributed to sustainable community development in multiple cases by implementing solutions like "roof water collection, water filtration systems attached to the house, rooftop gardens, solar dryers and solar panels, and the use of specific hanging plants (such as grape vines) to provide heat relief for rooms and rooftops" (Caraway, 2020). The communities have built buildings with locally produced "earth-friendly" material which are near net-zero in carbon emission (Ingram et al., 2014). Multiple examples show permaculturists actively trying to draw dawn and sequester carbon (Spangler et al., 2021), create beneficial conditions for humans, animals, vegetation, and microorganisms to thrive (Chakroun & Droz, 2020) and implement practices like sustainable forestry or nature and wilderness preservations (Ingram et al., 2014). Permaculture design courses together with the cornerstones and principles guide communities which want to improve sustainability through a bottom-up approach.

However, sustainable development visions like the one permaculture is advocating are criticized for being "fuzzy utopian visions" with too much faith in the regional "spatial fix" (Campbell, 2007). Still, there are benefits with visualizing sustainable regions within the global context of flows. Rescaling communities and the economy to ecological boundaries creates greater environmental awareness and thereby encourages sustainability. It is also more likely to achieve improvements in sustainability through accumulated local and industry-specific advances rather than one single holistic leap (ibid). Furthermore, a bottom-up approach through local-based, participatory, grassroot initiatives holds much potential for gaining political support from governmental leaders to develop sustainable communities. Encouraging alternative sustainability initiatives shows promise in promoting self-sufficiency and wide-spread change as business as usual gets challenged (Warren Flint, 2013).

Existing barriers for the permaculture initiatives have in previous research been in many ways related to the relationship and understanding between the initiatives and the state or municipality which they exist within, as mentioned above. Improving social learning has potential to function as a way to increase understanding for permaculture initiatives, allowing for a change in attitude towards the initiatives or to increase chances of collaboration between these and the municipality. Investigating the barriers through the lens of social learning would allow a deeper understanding of why the barriers exist and how these could be targeted by improving social learning and in doing so improve the chances for these types of initiatives to upscale.

3. Social learning theory

The theory of social learning is an approach which has gained much attention in research as it has proven necessary to solve societal problems and support system transformation and thereby has an important role in sustainable development (Muro & Jeffrey, 2008 ; Scholz et al, 2013). Social learning has been conceptualized and analyzed through multiple different perspectives, including single loop, double loop and triple loop learning, learning organization and communities of practice among others (Scholz et al, 2013), leading to multiple definitions of the concept (Reed et al., 2010). This study will use the theory of social learning as it is defined by Reed et al.: "a change in understanding that goes beyond the individual to become situated within wider social units or communities of practice through social interactions between actors within social networks" (2010, p.1) .

Communities of practice refers to the container of the competences that make up the social learning system. This could include a workplace, a family, a group of friends or any other community where competence is defined (Wenger, 2000). Wenger further develops the understanding of social learning theory from the perspective of communities of practice and how one could analyze social learning by looking into different forms of belonging and boundaries within and between communities of practice.

We participate in social learning systems through different forms of belonging, *Engagement*, *Imagination* and *Alignment.* How we engage with each other, and the world gives insight into how we belong through engagement. Belonging through imagination instead focuses on how we view the community, the world, our place in it and ourselves. Belonging through alignment means to assure that our local activities are in line with other processes by for example coordinating perspectives, interpretations, and actions (ibid). Understanding these different forms of belonging can help to analyze which area of the social learning system needs more work (ibid).

Furthermore, Wenger introduces Boundaries as a part of the social learning systems. Boundaries are not a negative construction but rather something that binds the community and connects different communities, as well as offers learning opportunities. Boundaries can, however, be sources of difficulties such as separation, misunderstandings, and disconnection if for instance divisions are created. However, they also offer unusual learning, places where different perspectives can meet, and new opportunities arise. It is common that radical new insights arise at the boundaries between different communities (ibid). To maximize learning at boundaries, experience and competence should be in close tension. This requires that individuals or communities have shared interests, open engagement and common ground, suspension of judgment and translation methods. Boundary processes help to bridge community practices (ibid).

By viewing the permaculture initiatives and the municipalities as different communities of practice, this study will investigate the existing barriers for permaculture initiatives through analyzing the social learning between these communities of practice. The different forms of belonging help to investigate differences and similarities between the communities of practice, how this affects the barriers and how working on the social learning system could help to overcome these. The boundary processes will as

well navigate the quality of social learning and which areas would need improvement in order to allow for learning and overcome the barriers.

4. Method

4.1 Research design

This research will take on an explorative approach, aiming to understand how sustainable initiatives like permaculture could be better supported and enabled by policymakers through the use of a single case study. There is a common misunderstanding that the concrete, context-dependent insights generated from case studies are less valuable than general, theoretical knowledge (Flyvbjerg, 2006). In fact, insights from this case is valuable in and of itself as it provides directions which could be applied in Hässleholm to improve sustainable community development. Furthermore, the insights from the case can be used by other municipalities which share similar policies and institutional traits as Hässleholm, as well as for the permaculture initiatives in order to get a better view of possibilities to overcome the existing barriers. The concrete, practical dimension of a case study allows for a deeper understanding of the issue (ibid).

4.1.1 The case of Hässleholm and Scania

The case study investigates different permaculture initiatives within Scania and will focus on the municipality of Hässleholm to integrate the municipal side of the problem. As an average sized municipality in Sweden, both considering population and land size (SCB, 2021), Hässleholm has committed to several efforts in lowering carbon emissions (Klimatkommunerna, n.d.), but is still not placed in the forefront of the climate work compared to other Swedish municipalities like Lund, Gothenburg, Stockholm or Umeå (Viable cities, 2021). Hässleholm municipality has thorough plans on how to sustainably develop the municipality with consideration to the global sustainable development goals but lack specific directions on how to support or encourage civil initiatives within sustainability in their public documents or website (Municipal Council, 2022).

4.2 Data collection

To get an overview and better understanding of the problem, I started the research by doing a literature review of permaculture and sustainable community development within Hässleholm municipality. This gave base to formulate the four research questions and find which theory would be suitable to analyze the data. To answer the research questions, I then collected data through qualitative interviews of both representatives of permaculture initiatives within Scania and municipal policymakers in Hässleholm, see list of respondents in table 1 below. I started with the interviews of permaculture representatives to get an understanding of the first and second research question, which common permaculture practices exist in Scania and which barriers are the permaculture initiatives facing. Further, these interviews together with the interview of Hässleholm municipality generated the data needed to answer question three and

four as well, why these barriers exist and what potential solutions exist to overcome them. All interviews except one were conducted online via zoom and took approximately 60 minutes to complete. Interview 3 was conducted at the permaculture site of the respondents.

Table 1 - Interview respondents (created by author)

Interview 1	Permaculture initiative	Tyringe	2 representatives
Interview 2	Permaculture initiative	Vånga	1 representative
Interview 3	Permaculture initiative	Höör	2 representatives
Interview 4	Municipal policymaker	Environment and Urban Planning Board in Hässleholm municipality	1 representative
Interview 5	Permaculture initiative	Tyringe	2 representatives

The respondent of municipal policymaker was chosen based on their responsibilities within the municipality. I chose to interview policymakers that had the closest connection to sustainability, community development and potential collaboration with the permaculture initiatives. The selection of permaculture initiatives respondents was based on a snowball sampling method as I got in contact with one permaculture initiative within Scania who then recommended me to contact several other initiatives and so on. One of the initiatives, I have some personal connections to as I am myself active within and part of the initiative. This has led to some challenges in keeping the data collection and analysis objective and there lies some personal interest in wanting the barriers for permaculture initiatives to be discussed and dealt with. On the other hand, my own participation within the initiative has led to a better understanding of the problem from the initiative's perspective.

The interview questions were formed through the theory of social learning and with the attempt to gather all data needed to answer all research questions. The questions were altered throughout the different interviews as new insights occurred and research questions were updated. The interviews were recorded with the permission of the respondents and later transcribed by the author. The interviews were conducted in Swedish, and the answers presented in the result section are translated by the author. All respondents are kept anonymous, and all data was collected and treated according to the guidelines for ethical research as demonstrated by Swedish Research Council's (2017).

4.3 Data analysis

The data is analyzed using the theory of social learning in order to gain an understanding of the nature of the barriers and why they exist, as well as to understand what would be required for the municipalities and permaculture initiatives to overcome the barriers. The data is broken down and organized in different themes to get an overview of the results and answer the different research questions.

5. Results and Analysis

5.1 Common permaculture practices in Scania (RQ1)

All three permaculture initiatives shared similar traits and practices for sustainable living in their communities. They operate at different scales and have reached different phases of their development, but all placed great importance to the permaculture principles and design methods.

Tyringe:
The permaculture initiative in Tyringe is a newly started initiative consisting of a group of people living together in a collective plus some collaborators. They are in the current process of creating a permaculture design for the land they have and live on and strive to transition into a sustainable lifestyle which has a positive impact on the environment and climate. Their aim is to create a small self-sufficient community where people can enjoy living in harmony with nature and each other, where possibilities for recreation and small scale, local work opportunities exist and where they can offer inspiration for others to transition into sustainable living.

Vånga:
The permaculture initiative in Vånga includes a few residents as well as many visitors and collaborators who desire to share their knowledge and learn from each other. The initiative has created and implemented an extensive permaculture design which functions as a tool to gain an overview on their being and to ensure that everything they do is socially, economically, and ecologically sustainable. They aspire to create regenerative ways of living and coexist with the environment and focus on local and regional change. The initiative acts as counselors and supporters within permaculture and hosts several courses and workshops to spread their knowledge of permaculture, sustainable transition, and environmental solutions.

Höör:
The permaculture initiative in Höör consists of a collective who are living and farming together with permaculture as a guiding method. The initiative and the individuals within it aim to create a community which values ecological sustainability by creating local nutrient cycles and building up local social and biological resources. Among others, the initiative has started different projects and activities to spread awareness of sustainable living.

All permaculture initiatives emphasized the importance of allowing for and valuing the cycles in nature such as the nutrient cycle and water cycle, working with these rather than cutting these off through linear, extractive solutions. This meant that none of the initiatives wanted to use or be dependent on municipal water or sewage. Instead, they used urine separating, dry toilets which allows the users to collect the urine and feces and bring back these nutrients to the land they grow their food on. Before the feces is brought back to the land it is composted in latrine composts. Further the initiatives want to handle their own gray water, meaning the water used for washing and dishing, to either collect and reuse it or let it simmer down to their local groundwater. One alternative solution for this used by the initiatives is a root zone. Besides managing their own water output and minimizing their water use, the

initiatives try to become self-sufficient on water by collecting rainwater and storing this in constructed ponds, but also by using private wells.

Further, the initiatives aim to grow as much of their own food as possible and when needed buy local, sustainable products. They also try to minimize food waste by eating many meals together, dumpster diving, in different ways conserving the food and storing it in an underground storehouse. This helps the initiatives to become more resilient but also saves a lot of energy and resources which is required when food gets transported from far distances. The underground storehouse is one alternative solution which helps the initiatives to reduce their energy use. Living in small houses, so called tiny houses which often are mobile, and sharing most of their living spaces and resources with multiple people is another way. The initiatives also talk about living more simplistically, for example by only having outdoor showers or shared showers or by lowering the indoor temperature in the winter and dress warmer instead.

"The idea is that everyone should have their own accommodation, but that accommodation should not have to contain things that are rarely used, such as for example the possibility to have a lot of guests, or workshop, or craft room, or whatever hobby you might have. The (non-shared) accommodation is about sleeping and eating breakfast and so on, and thus you can reduce the surface area a lot without it affecting your quality of life." - Tyringe

They aim to become self-sufficient in energy production.

We have just bought the first solar cells and we are discussing how we can set up more solar cells. The idea is to try to keep energy use down as much as we can in every way, and that includes having small houses but also in other ways. But also try to generate much of the electricity we use ourselves so that we use the electricity grid as little as possible. There are thoughts about some form of wind energy from wind turbines eventually and to insulate buildings. - Tyringe

Finally, as the initiatives are developing, they aim to build up everything using sustainable and often reused material.

5.2 Existing barriers (RQ2)

For many of the practices and alternative solutions that the initiatives have and want to implement, they have had to face some barriers. These can be divided into three main themes, laws and regulations hindering the initiatives to implement a certain alternative solution in the way they would like to, scale and cost within praxis making it very difficult or expensive for the initiatives to implement a certain alternative solution, and finally lack of knowledge creating uncertainties and unnecessary conflicts for the initiatives to develop. These three main barriers will be further developed below.

5.2.1 Laws and regulations

The most apparent issue is that the initiatives are aware of the existence of several rules and laws which they need to consider before implementing most of their alternative solutions, but that they are unsure of which these rules are or how they should or need to comply with them. It is up to the members of the initiatives to find out about existing rules and regulations and many of the initiatives find this quite difficult. Laws can be difficult to understand, the rules can be open for interpretation and depending on who they have asked the initiatives have gotten different answers to what is okay or not. This is something that the municipality as well recognizes as a difficulty.

Living and housing:
One of the alternative solutions where the initiatives have run into the most rules and regulations concerns their accommodations and way of living together with other people. There exists multiple rules and standards of what a residential building should include and how it should be built. For example, the initiatives mentioned the aspects of the houses needing to be adapted for disabilities, needing to keep a certain temperature, having a certain minimum ceiling height and light admission, include a shower, be built with a minimum insulation level and having a road leading up to the front door. When building multiple homes, it is also required to have a detailed planning for these as well as building permits for most new buildings. Many of these rules are becoming obstacles for the types of homes the initiatives want to build.

The idea of having small, mobile homes of around 20-30 square meters builds on the possibility of maximizing the use of space and not being fixed to one place. Today the initiatives can only get a temporary permit for their tiny houses, which needs to be reapplied for every 5th year and can be renewed for a maximum of 15 years, which of course is a problem when they want to be able to live in their homes for longer than 15 years.

Currently it is not possible for the initiatives to legally live in or consider their tiny houses as their permanent homes. This also means that if there does not exist a residential house on their land which they could assign their address to, they will not be able to get their post to their home or get municipal garbage disposal for private use. Even if the initiatives were to build permanent housing, according to all regulations, this would require a lot of monetary investments, fast decision making and big risks for the members of the initiatives. The permaculture method involves making time for observing and thoroughly planning for where to place buildings and different zones. This makes mobile homes a good solution for the permaculture initiatives as the community can start up and the members can move in, while not rushing the permaculture design method. The buildings can be placed temporarily and then moved to a permanent place after the observation phase is done. However, as the mobile homes never get permanent building permissions, this is currently not a legal option unless some sort of creative solution or loophole could be established, like for example making the living area a camping zone, a solution which one of the initiatives are looking into but does not currently know if it is possible.

Further, there are rules and regulations considering co-living, both in terms of rentals and co-ownerships. The rules are meant to support the individual resident but, in this case, where the communities require a functioning relationship among the residents, this can have consequences for the initiative and community as a whole.

"The collective can be punished to protect the individual if it is someone who refuses to move out and has the law on their side." - Tyringe

The rules make it difficult to achieve a system with equal power dynamics and which is completely democratic. This in turn creates uncertainties and imbalances among the members of the initiatives and community.

All though the initiatives are turning to the municipalities for these types of issues, most rules and laws come from the housing authority which the municipality always needs to consider and follow.

"Municipalities are bound in the same way as these to the existing rules. It is up to the building board or the environmental board how to interpret the law and the guidelines that come from the housing authority." - Hässleholm municipality

This is something that the initiatives as well recognize, they understand that the municipality is operating from rules and praxis which they need to follow and that these rules are placed to protect people and nature. Still, this does not change the fact that the laws and regulations have become a barrier for the initiatives while many of the initiatives feel that the permaculture principles are good enough to ensure this protection.

Electricity:
There were not many barriers concerning energy according to the initiatives. On the contrary, they had noticed that the municipality was giving out free energy consultation to any household that was interested. The only problems mentioned were the fear of the municipality having opinions of the placement of solar cells and wind turbines and that there existed some rules for energy producers if you would reach a certain level of energy production, which one of the initiatives was slightly worried about becoming an issue.

Making a living on the land:
All three of the initiatives wanted to have different businesses on their land and provide for themselves through for example selling products produced from their own farming. Here the initiatives feel that the rules for processing food for sales are too strict for it to function for small scale businesses.

"It limits us from living off something on the land." - Vånga

Sewage and water management:

There are some rules for how you need to treat your sewage for it to not leak out or damage the local nature. For example, there are some specific requirements concerning the compost container which has had some consequences for the initiatives.

The general view among the permaculture initiatives is, however, that laws and rules for sewage systems and water management are less strict and more open for new kinds of solutions. In this case the initiative feels more that the issue is the attitude of the municipality rather than the actual laws and regulations. This brings us to the next barrier for the permaculture initiatives, lack of knowledge and openness.

5.2.2 Lack of knowledge and openness

The initiatives feel that there is a lack of knowledge within the municipalities concerning what is necessary to create resilience in our societies and which alternative solutions could function on a local level to increase this kind of resilience. Permaculture emphasizes the need to create cycles of, for example nutrition, but the initiatives feel that the municipality barely understands what they mean when talking about cycles. The same goes with many of the alternative solutions which the initiatives want to implement, the municipality lacks necessary knowledge to both understand and support the initiatives with these.

"In general, I think that the level of knowledge is what can be an obstacle from the municipality's side of things" - Vånga

This lack of knowledge in specific alternative solutions is something that Hässleholm municipality agrees that they have.

"The only thing I can think of is that we have a very active energy and climate advisor, or above all an energy advisor, on how to be able to install solar cells and other solutions to reduce your energy consumption or become more self-sufficient. But that's also the only thing that I think the municipality has." - Hässleholm municipality

Furthermore, Hässleholm municipality had not heard about permaculture initiatives or their practices at all before, nor did they know that type of sustainability initiative existed in their municipality. However, Hässleholm municipality offers both open lines of communication and shares their personal contact information online to encourage citizens and organizations to get into contact with them. There have thereby been opportunities for the initiatives to inform their municipalities about them and their practices, something that they have been bad at doing to varying degrees.

"We've flown under the radar." - Tyringe

Still, the initiatives criticize the municipality's lack of openness towards new ideas and ways forward. They express that the municipalities are stuck to their view of what is the best way and quite resistant towards approving alternative solutions at first and especially if the municipal system already is installed. The initiatives had experienced or heard of others who had experienced that the municipality had only approved their alternative solutions once they had finished the project and could prove that their system worked and showed good test results. Hässleholm municipality, however, expresses a different view considering this. They were positive towards the initiatives and their alternative solutions and for example saw many benefits in keeping both sewage and water systems local. They instead brought up the problem of not being able to make demands on these kinds of solutions for contractors in the city as they were afraid that would lead to less expansion of the city and municipality. Though this did not refer directly to the initiative's projects, it brings up another issue brought up by the permaculture initiatives, the lack of urgency and efforts for environmental and social sustainability. The initiatives feel that the municipality is putting too much emphasis on economic sustainability, something that got much room in the answers of Hässleholm municipality as well. Though the initiatives understand that the municipality is operating within the current economic growth paradigm which society is existing within today, they wish their municipality would recognize the importance of their efforts to balance all three parts of sustainability. However, apart from sharing contact information, Hässleholm municipality has done little to encourage or support sustainability initiatives at the moment. They are handing out some monetary benefits to try and encourage sustainable projects, but this act is highly symbolic.

5.2.3 Scale and cost within praxis

Many of the alternative solutions which the initiatives want to implement require permits from the municipality. Many of these are either costly, require large processes or frequent updating, something that is not always compatible with the capacities for the initiatives.

"We can take samples and so on, that's no problem, but when we have to pay thousands of kroner for controls that are unannounced and that have to take place several times a year, it's not reasonable if you want a vivid countryside." - Vånga

This has also caused problems for the initiatives in areas such as getting a building or sewage permit, building dams, or as mentioned above, using their own water in products they would like to sell. The main issue is that the scale of both workload and money is not reasonable for the small-scale businesses and communities which the initiatives have. They would like to seek council from the municipality, but this costs 1000 SEK an hour and does not grant them any security for solutions or accepted permits. Even if their applications do not get accepted the fee remains the same. Furthermore, many of the solutions that the municipality is directing the initiatives to are very expensive.

"Often the municipality points to treatment plants and then we are talking about several hundred thousand in cost." - Tyringe

5.3 Addressing the barriers and improve social learning

All three initiatives want to have a good relationship with their municipality and wish to get support through advice and guidance which came at a reasonable price in order to lawfully develop their initiatives. They wish to be able to have open minded discussions with their municipality and request competent personnel and easily understandable information around self-sufficiency, through for example manuals.

"The USA is actually a very good example because (..) they have aimed for their population to be as self-sufficient and resilient as possible. So, they have published large booklets, binders with information on how to proceed, for example, how to handle food, how to pickle, how to conserve, dry, all that kind of stuff. It is an example to follow if the municipality should be a force in the transition as well" - Vånga

They wanted a relationship that went both ways, so that the municipality and initiatives could learn from each other and together work to create a better society.

"I would also like to see that the municipality saw this as a win-win relationship." - Tyringe

"We want to try to get them to understand that we want to create a better world and that they can actually benefit from us and that maybe we can cooperate instead of them working against us." - Tyringe

Would the regulatory framework allow it, the initiatives are open to different forms of collaborations like co-teaching, teaching politicians about the transition and the alternative solutions, as well as spreading awareness and knowledge to the municipal residents with the help of the municipality. Further, the initiatives think the municipalities could have an important role as a network nod, helping to connect different initiatives to each other and reach people outside of the existing network. Hässleholm municipality sees opportunities for collaboration, they too want to improve sustainability in their municipality and can see how the initiatives could be a positive force in this, even spreading sustainability outside the municipality as well. They also see the positive impact the initiatives could have on the rural areas, offering anything from population growth to tourism. Hässleholm municipality is, however, clear that the initiative for these types of collaborations needs to come from the permaculture initiatives rather than from the municipality. They have expressed possibilities of offering support both in the form of networking, knowledge sharing and law changes. However, the municipality seems to require specific project-based collaborations and in some cases also address the problems as needing to be handled on a county or national level.

What we can do is if you were to come in to do something specific, then we can always help out with competence for planning and how to do it." - Hässleholm municipality

Though the initiatives would like the municipality's support, they express a sense of difficulty in getting this, a difficulty in getting the municipality to understand their importance and act to help them overcome the barriers. Hässleholm municipality has also expressed the difficulty in gaining the politicians attention in matters like these and for the employees in the municipality to do anything outside of normal praxis.

The initiatives mostly just want to be able to create the communities they want, implementing the alternative solutions they feel necessary to build resilience and sustainability and for the municipality to not interfere or hinder them in this.

"In a way one also just wants them to leave us be." - Höör

By avoiding contact with their municipality, the initiatives also avoid further restrictions.

"If you don't ask, you don't get a negative answer" - Vånga

This goes as far as the initiatives being willing to reject the regulations or laws in order to develop their communities as they see necessary.

"I think it is better to transition in practice and do that instead of spending time on changing the laws. When enough people do so, then the law will follow." - Vånga

Still, all initiatives want to operate within the law and wish there existed better regulations which could allow them to do this.

"So, in a way, one would wish that there was some kind of climate pilot rule that said that you can break a few rules or make exceptions to certain rules if the purpose is to try to find a way forward." - Tyringe

6. Exploring barriers: A social learning perspective (RQ3 & RQ4)

The permaculture initiatives in this study share very similar traits and practices as found in previous research on permaculture initiatives like that of Caraway (2020), Chakroun & Droz (2020) and Ingram et al. (2014). This could be seen when comparing existing barriers as well. Previous sections demonstrate that there exist barriers which could be categorized into three different themes: laws and regulations, scale and cost within praxis, and finally lack of knowledge and open-mindedness. These barriers are similar to those found in previous research which demonstrated challenging policies and bureaucracies (Massicotte & Kelly-Bisson, 2018 ; May Kruger, 2015), as well as lack of flexibility and an attitude of

resistance towards alternatives (Massicotte & Kelly-Bisson, 2018 ; Campbell, 2007). Social learning demonstrates a change in understanding within communities of practice (Reed et al., 2010), something that would be necessary in order to address all three themes of existing barriers. Following section will discuss why these barriers exist and what are possible ways to address the barriers, by investigating the conditions and possibilities for social learning between the permaculture initiatives and the municipality as two different communities of practice. The discussion will be divided into the three different forms of belonging as understanding these will provide insights into areas of necessary and/or possible reformation for the social learning system (Wenger, 2000). Furthermore, throughout this section I will discuss the state of the boundaries between the initiatives and municipalities as well as the conditions for facilitating learning at these boundaries as demonstrated by Wenger: shared interests, open engagement and common ground, suspension of judgment and translation methods (ibid).

6.1 Engagement

Following section will discuss how the permaculture initiatives and their municipalities belong through engagement, looking into engagement through communication and collaboration, and how this connects to the existing barriers.

6.1.1 Communication

The communication between the permaculture initiatives and their municipalities is poor, though this is not a result of missing contact opportunities. Hässleholm municipality is valuing and encouraging communication from its citizens, trying to make it easy to come in contact with them. Rather this issue stems from other reasons.

The two communities of practice have different ways of communicating. The initiatives want to be able to discuss alternatives in an open-minded way with their municipality. They are in need of some sort of discussion and communication forum where they can get advice both in terms of knowledge of alternative solutions and in terms of what is feasible within the law. The municipalities instead are bound to certain praxises of how they normally communicate or deal with other communities of practices. As the solutions the initiatives are interested in are everything but normal praxis, the normal process of sending in an application which could be approved or not approved, does not work, and would cost the initiatives a lot of money. The free advice which some initiatives could get, for example concerning energy production or through the open line, is not sufficient to fulfill the needed consultation for the initiatives. This clash in ways of communicating thereby plays an important role for the existence of the barriers, leading to the nonfunctioning scale of workload and cost for the initiatives as well as the lack of open-mindness from the municipality. Hässleholm municipality expressed open-mindedness towards improving the ways of communicating, for example by suggesting becoming better in directing the initiatives to people who have the requested knowledge and information or inviting networks to share their knowledge at some form of meeting. However, changing praxis or gaining

politicians attention to work on this was expressed as being a challenge from both Hässleholm municipality and the initiatives.

Further, the two communities of practice use different languages and don't have sufficient translation methods to handle this. Permaculturists have their own language in a way, containing vocabulary and "truths" which the municipality seems not to have heard about or have thought about. The same goes the other way around, many rules and practices within the municipality contain complex language, making it difficult for the initiatives to understand what is required from them and making communication between the two hard. This translation issue is a core part of the barrier concerning laws and regulations for the initiatives. Improving translation methods holds much potential in overcoming at least part of this barrier. Manuals and booklets, containing guiding information for self-sufficiency on a household level within the law, are one example of how to make information more accessible for the initiatives but they also wish to have competent personnel to discuss and get support on this issue from. Hässleholm municipality expressed willingness to work to improve translation methods but emphasized that it would require coordination and concrete suggestions from the initiatives.

Finally, a major communication issue lies in the avoidance of communication. All three permaculture initiatives avoided communication with their municipality due to the fear of becoming restricted if they included their municipality too much in their processes. Here it is clear that the boundaries between the two communities of practice have resulted in divisions and lead to seperation, something that is not uncommon at boundaries as demonstrated by Wenger (2000).

6.1.2 Collaboration

Engagement through collaboration shows more similarities and shared interests between the two communities of practice compared to the engagement through communication, though these are connected and there lies much needed effort to improve collaboration as well.

Hässleholm municipality is open to and positive about collaborations with sustainability initiatives like those of permaculture. However, they require these collaborations to be project based and initiated by the permaculture initiatives.

The permaculture initiatives also see many benefits in starting collaborations with their municipalities and have not expressed any issues about the form of collaboration which the municipality is seeking. However, grounded in the same reasons as for avoidance of communication, the initiatives are currently not ready to start any collaboration as they are fearing having to face more restrictions in doing so. The power dynamics between these two communities of practice might therefore decrease the possibilities of social learning between them. One clear way to alter these power dynamics and allow for more communication and collaboration would be to change regulations and praxis to the extent that the permaculture initiatives would feel secure in being completely open and transparent with their

practices. The permaculture initiatives have themselves suggested a climate pilot rule of sorts which could allow for exceptions to laws and praxis in areas which are currently becoming barriers for the initiatives. Further research into how such a climate pilot rule could look and function would be very interesting for sustainability science in order to encourage and support sustainable community initiatives at a larger scale. Law changes are, however, not something the municipalities could do, this needs to be dealt with on a national level. Hässleholm municipality, on the other hand, expressed that they might be able to help the initiatives in asking for these law changes if they felt these were justified.

6.2 Imagination

Looking into the belonging through imagination, the way which the permaculture initiatives and municipalities view themselves and their role in the world, will allow for further understanding in why the barriers exist and what could be done to overcome these. This will be further developed below.

6.2.1 Conflicting worldviews and perspectives

The initiatives expressed frustration towards the municipality not sharing their worldview, their sense of urgency for the climate crisis or attitude towards required transitioning. They feel it is strange that the municipality is not more positive and encouraging towards their initiatives considering the importance they see closing cycles has for the climate crisis. They criticize the municipal way of cutting these loops. This differentiating view of circular versus linear systems might not stem from what is considered the best system, but rather a difference in priorities between the municipality and initiatives. Hässleholm municipality has been positive towards keeping sewage and water systems local and circular but does not feel they are in a position to make demands for this, their priorities lie in expansion.

This difference in priorities in turn stem from the deeper view of the system in which the society is operating. The initiatives understand that the municipality is working from the economic growth paradigm which is steering society today. This was also something that showed in the answers from Hässleholm municipality who at multiple occasions emphasized the importance for economic growth for the municipality. The initiatives want to operate from other values than that of economic growth, in a way acting outside or parallel to the current system. Though the municipality is bringing forward the importance of environmental and social sustainability as well, the initiatives feel that a big conflict between them and the municipalities is the distribution between these and the economic aspects of sustainability.

The barrier of lack of knowledge and open-mindedness is likely grounded in this core difference in values and worldviews. As the two communities of practice have had different priorities and viewpoints, they have also gained different knowledge and gotten stuck in their own ways of doing things. This difference is creating a larger distance in the boundaries between the two communities of practice. The permaculture initiatives are willing to break rules and laws as they see they are operating from better or more important values. As they are working to build resilience in their communities, they are also

actively decreasing their dependence on the services from their municipality, further distancing themselves from their municipality. From the permaculture initiatives' perspective, however, this distancing might not necessarily need to be negative for the possibilities of social learning, on the contrary, the initiatives are very eager in wanting to share their perspective with their municipality, helping them to learn their way of building resilient and sustainable communities. They also show traits of suspension of judgment towards their municipalities as they expressed an understanding that the employees and politicians in the municipality have their own laws to follow and ways of doing things to consider. Further, they agree that most of the rules hindering them are set for good reasons and that they are important to protect both nature and people. This understanding and suspension of judgment is a key element to maximize social learning between communities as introduced by Wenger (2000). There is thereby potential in allowing social learning to help overcome the barrier of lack of knowledge and open-mindedness. On the other hand, the distance, in particular the attitude towards breaking laws and regulations, might lead to resistance towards collaboration from the municipality's perspective, making social learning more difficult. There also seems to be differing attitudes towards the permaculture initiatives depending on both the municipality and individuals within the municipality. There seem to exist some judgment towards the initiatives within the municipalities, likely due to the differences in perspectives.

6.2.2 Common ground and shared interests

Regardless of the differences between the initiatives and the municipality, it is apparent from all answers that all parties want to improve sustainability and resilience. This is one major shared interest among them. Hässleholm municipality has expressed positivity towards supporting the initiatives and are open for changes in legislation as well.

The municipality also further adds to this by including the interests of spreading sustainable practices outside of the municipality as well, something that the initiatives also has communicated as being important for them. The municipality seems, however, to see the environmental sustainability aspect as one out of several possibilities to develop the municipality and not as much as a fundamental interest as the initiatives does.

Apart from the environmental sustainability aspect, the initiatives and the municipality agree that there are many shared interests, as well, for the rural areas if the initiatives would develop there, e.g., creating job opportunities, attracting tourism, and populating the rural areas.

6.3 Alignment

Finally, the following section will analyze the belonging through alignment to gain an understanding of how perspectives and actions are or can be coordinated between the initiatives and their municipality.

6.3.1 Coordinating perspectives

The initiatives seem to have gotten a decent picture of the municipalities' perspective, though this could always be improved. For example, they have expressed the need for clearer views of what position the municipality has on the different practices and alternative solutions which the initiatives want to implement.

The municipality on the other hand seems to be quite unaware of the initiative's perspectives. Hässleholm municipality showed understanding and positivism about permaculture and the alternative practices and solutions which the initiatives promoted when this was explained to them. The initiatives, however, see this differently. They feel they would need to make quite a big effort to get their municipality to fully understand or agree with their perspective, non the less act on it.

Currently there are no efforts in coordinating the perspectives between the permaculture initiatives and municipalities. The initiatives have, however, ambitions in trying to do this in the future. Hässleholm municipality was clear that all efforts of these sorts would need to be initiated by the permaculture initiatives, there are no plans or thoughts about improving support and encouragement of these types of sustainable community initiatives. This is worrying considering the importance for these types of initiatives and leave overcoming the barriers in the hands of the initiatives themselves to at least initiate unless there are efforts for this on a national level. Considering as well that laws and regulations would need to change on a national level, further research on this perspective, looking into possibilities for encouraging and supporting sustainable community initiatives nationally, would be interesting and valuable.

6.3.2 Coordinating actions

Similar to the above section, it was clear that no coordination of actions was currently happening between the two communities of practice. There are, however, several potential joint actions which both the initiatives and the municipality are interested in seeing. The main actions include networking, knowledge sharing and guiding. The municipality has expressed interest in supporting the initiatives in different ways in all three aspects but in varying degrees. For example, to develop a more comprehensive knowledge base and sharing, the municipality would see that the responsibility should fall on the county or nationally rather than on the municipality alone. Further, the municipality sees the possibility of acting as some sort of network center for the initiatives but would need the initiatives to initiate this. The municipality is withdrawing any type of responsibility in this case as well, all though being open to help. The existing permaculture initiatives in Scania are small scaled, locally based initiatives, making large scale law and praxis changes, communication changes and knowledge sharing, a difficult task to say the least. There are multiple actions which the initiatives can take in order to increase social learning and work with existing barriers, improving their communication with the municipality and clarifying what type of support they are interested in would be important ones. Making use of the existing personal contact information, emphasizing the shared interests and meeting the

municipality in their desired form of engagement; project-based collaboration, would be a good idea as well. However, if these types of sustainability initiatives should be encouraged and supported on a large scale, the municipalities will need to take more responsibility for their role in this.

7. Conclusion

The permaculture initiatives mention several different alternative solutions which they have or want to implement to build a resilient and sustainable community locally. These solutions cover most of the areas needed to be considered to live self-sufficiently on a small scale while still considering their environmental and climate impact. They cover the water and waste treatment through root zones, latrine composts, rainwater collections and constructed ponds or private wells, to keep the flows of water and nutrients in a local cycle. They cover the energy need and use through renewable energy systems and energy saving systems such as underground storage for food, tiny living, and shared spaces and resources. They grow their own food using permaculture methods and build up their community in the same way, using sustainable and preferably second-hand material. These practices and other general traits of the studied initiatives are similar to previous researched permaculture initiatives.

For many of the alternative solutions that the initiatives have and want to implement, they have had to face some barriers. These can be divided into three main themes, laws and regulations hindering the initiatives to implement a certain alternative solution in the way they would like to, scale and cost within praxis making it very difficult or expensive for the initiatives to implement a certain alternative solution, and finally lack of knowledge and open-mindedness creating uncertainties and unnecessary conflicts for the initiatives to develop. It is up to the members of the initiatives to find out about existing rules and regulations and many of the initiatives find this quite difficult. Laws can be difficult to understand, the rules can be open for interpretation and depending on who they have asked the initiatives have gotten different answers to what is okay or not. This has led to obstacles mainly when building the tiny house community and the alternative solution for sewage and water systems but also hindered the initiatives from making a living on their land. Furthermore, the initiatives have requested support in form of knowledge and guidance in consideration to creating local resilience and increasing sustainability at a household or small community level from the municipality, but feel the municipality lacks necessary knowledge to both understand and support the initiatives with these. Finally, the processes which the initiatives have had to go through to implement their solutions, they feel have been too complicated and expensive.

Using the lens of social learning theory has allowed me to look deeper into the reasons behind existing barriers and possibilities to address these. This has shown that all barriers are connected to each other in a chain of knots forming a circle. The barrier of laws and regulations is leading to avoidance of communication for the initiatives as they are afraid of becoming more restricted by existing rules if communicating with their municipality. This avoidance makes it difficult for the municipality to know what type of support the initiatives need, or that they need it at all. This connects to the barrier of praxis

which is grounded in the ill functioning communication method and lack of translation methods between the initiatives and their municipality. There is a need to improve the way which both communities of practice engage with each other, but with existing avoidance of communication this will be difficult. This barrier is further connected to the lack of open-mindedness from the municipality. The municipality is stuck in their way of doing things which is currently not working for the initiatives. This lack of open-mindedness as well as lack of knowledge is grounded in differentiating and in some ways conflicting perspectives (worldviews, values) between the initiatives and municipalities. This is a difficult issue to deal with, though working to understand each other's perspective through communication and knowledge sharing could help. However, the initiatives are hesitant to collaborate in this way with their municipality before laws and regulations allow them to develop their communities and practices lawfully, connecting back to the barrier of laws and regulation. Furthermore, the municipality is withdrawing their responsibility in initiating support and encouragement for these types of sustainability initiatives, making overcoming the barriers a whole lot more difficult.

Changing laws and regulations, through for example a sort of climate pilot rule would be a major contribution to support and encourage the initiative and likely make a huge difference in overcoming all three barriers as the barrier of laws and regulation is a core part of the chain of issues. Furthermore, forming discussion forums within the municipality where the initiatives can openly discuss ideas or questions without having to pay a lot for this consultation, is needed. These forums could function as a translation method for the initiatives as well if the municipality could offer explanations and guiding information on how to interpret existing laws, regulations, and praxis. Easily understandable manuals or available information online would be another translation method which could help a lot in overcoming many of the barriers. Further, the municipality would need to develop a better understanding and knowledge within local resilient community development and alternative solutions in this. Hässleholm municipality suggests becoming better in referring to the right people who hold this knowledge and invite to networking meetings where this knowledge could be shared. There are also possibilities for the initiatives themselves to contribute to this knowledge sharing.

There are, as shown, many ways to address the existing barriers. However, currently the responsibility to do this has fallen on the initiatives. Though this task will be complicated and difficult for the initiatives to tackle, there are multiple aspects they could consider to make this easier. There exist many shared interests between the initiatives and the municipality and an openness and positivity towards supporting the initiatives according to the municipality. Approaching the municipality with this in mind could be helpful to gain their attention and willingness to collaborate. Furthermore, the municipality is looking for project-based collaborations, thereby meeting them in this desired engagement method would be a good idea. Hässleholm municipality also strives to have a close relationship with their citizens, making their personal contact information and so available online for anyone to find. Making use of this and inviting for more personal discussions with local politicians and municipal employees could help to improve the communication and allow for more open dialogue. Importantly, the permaculture initiatives need to become better in expressing what kind of support they need and desire from their municipality.

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