Radical Environmentalism and "Commoning":

Synergies between ecosystem regeneration and social governance at Tamera ecovillage, Portugal

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Abstract

This article explores the scope and limitations of Radical Environmentalism as a source of practices of "commoning". The application of the radical environmental "Healing Biotope" model in Tamera, an ecovillage located in southern Portugal, further expands the understanding of "commoning" as a social process, as well as of Radical Environmentalism as a cognitive framework. This article distinguishes between the technical and political dimensions of "commoning". It also identifies two structuring dimensions of Radical Environmentalism, hereby called integrative rationality and the experiential action research and learning methodology. These dimensions support the technical aspect of "commoning" in Tamera by promoting epistemic and methodological coherence between social and environmental technologies. Despite their contested scientific validity, they contribute to the sustainability of the project by promoting synergies between ecological regeneration and social governance. However, they have limited capacity to address the political dimension of "commoning", related with rank and socio-economic inequalities among members.

1. Introduction[1]

This article is part of a case study-based project analyzing the contextual factors and processes that prevent the development of decommodified realms of production and exchange from being co-opted by the dynamics of reproduction of capitalism.[2] I hereby use ethnographic fieldwork data, collected in Tamera, an ecovillage located in southern Portugal, to explore the scope and limitations of radical environmentalism as a source of practices of "commoning", meaning the social process which creates and reproduces the commons (de Angelis, 2014). The relevance of Tamera as a case study comes from its epistemological foundation, as well as its sociocultural, institutional and technological characteristics. Tamera provides insights on the effects of its underlying conceptual structure, the "Healing Biotope" model, on what I hereby define as the two dimensions of "commoning": technical and political.

Given the exploratory nature of the article, as well as its focus on context and process, I chose to use a hermeneutical methodology. The data was collected during ethnographic fieldwork that took place in Tamera between April and October 2015. Fieldwork included daily participant observation, as well as archival research and 15

semi-structured interviews with community members. The interview guides were structured around the area of activity of the respondent and its relationship to the general "Healing Biotope" model. All the quotes were transcribed in the original language of communication and they are inserted here in the exact way they were spoken. In the quotes related to the overall functioning of Tamera, I was granted permission to use the real name of the subjects. In the quotes or notes that include information about personal topics, I chose to use pseudonyms, in order to protect the privacy of the subjects in question. Due to time, resource limitations and issues of consent, it was not possible to obtain financial data that was backed by official documents from the community. As a result, the data used in the analysis of these topics is based on estimations made by community members, or participant observation, unless otherwise specified.

2. From an essentialist view of community to "commoning" as a political process

2.1 Ecovillages as "testfields" of radical environmentalism

Ecovillages have been gaining prominence, since the mid-20th century, as sites of research, demonstration and training on social and environmental technologies that support the development of sustainable human settlements. These initiatives can be defined as communitarian endeavors that seek to integrate human activities with the natural world, as well as gain some measure of control over its resources, in a way that is supportive of lasting human development and environmental sustainability (Gilman, 1991; Dawson, 2006). The concept of ecovillages includes settlements as diverse as villages in developing countries that base their activities on traditional ecological knowledge (e.g. Colufifa, Senegal); farmland communes with sustainable living structures (e.g. Svanhlom, Denmark and Eartheaven, USA); eco-architectural town experiments (e.g. Auroville, India) and spiritual communities with ecological infrastructures (e.g. Damanhur, Italy and Wongsamit Ashram, Thailand) (Kunze and Avelino, 2015). It also includes intentional communities like Tamera, which self-identifies primarily as a training and experiential site whose educational initiatives focus on the social and cultural aspects of intentional community building, as well as on the synergies between this dimension and the economic, ecological and technological aspects of such process. Despite their diversity, ecovillages share the purpose of being "laboratories for the future", "testfields" for a structural transition towards a socio-economic systems based on post-carbon technology and the reconstitution of the commons (Berzano, 1998; Minor, 1998; Merrifield, 2006; Thomas and Thomas, 2013; Dregger and Joubert, 2015; Meltzer, 2015). They also share a radical environmental approach, rooted in a holistic cosmovision that regards ecology, community building, science and spirituality as integrated, inseparable fields (Harland and Keepin, 2014).

2.2 Radical environmentalism and the common good

Frodeman (1992) makes a distinction between reformist and radical environmentalism, claiming that the former is characterized by a quantitative,

analytical, and reductively economic rationality, characteristic of modern culture. The author claims that this type of environmentalism is anthropocentric, regarding nature and its ecosystems from an instrumental point of view, that of support systems for human life and wellbeing. In contrast, radical environmentalism is defined as ecocentric, being one of its core premises the fundamental relatedness and equality of all beings. This has given rise to two major forms of environmental activism. One of them is focused on direct action aimed at defending biodiversity and the commons, as in the case of Earth First!. The other, known as "bioregionalism", emphasizes the reconstitution of the commons through the creation of sustainable communities, autonomous from mainstream society and connected among themselves. The purpose is to redraw economic and political borders along the contours of differing ecosystem types and according to principles of decentralization and participatory democracy within political units (McGinnis, 1999; Taylor, 2001a).

Underlying radical environmentalism is a conception of subjectivity as interrelatedness with other humans, as well as other species, and an undermining of the nature/culture distinction, with the purpose of de-commodifying nature and reintegrating human culture in natural patterns (Frodeman, 1992). There is also a perspective on the common good that includes nonhuman nature as well as humans (Devall and Sessions, 1985; Naess, 1989; Frodeman, 1992; Taylor, 2001a; Scheid, 2016). Such reinterpretation of the self, culture and community is the basis for what Arne Naess called "deep ecology", which is sharply opposed to classic liberalism's tradition of the autonomous and isolated individual for whom nature is mere material or property (Naess, 1989). Underlying this concept is a monistic conception of the universe, which assumes Spinoza's central concept that "matter, the world and humans are not dualistic entities structured according to principles of internal opposition", but instead manifestations of a "raw cosmic energy that underscores the making of civilizations, societies and their subjects" (Braidotti, 2013: 55-6). Deep ecologists base their conception of self, nature and community on the premise that the "cosmic energy" that interconnects all beings can be understood through mystical experience in nature (Devall and Sessions, 1985; Taylor, 2001a). Such experience is the basis of what they perceive to be a cross-cultural metaphysics that recognizes the interdependence and sacredness of all life, which can be found among indigenous peoples, in Judeo-Christian and Muslim mysticism and in Eastern spirituality (Frodeman, 1992; Scheid, 2016). Despite the pronounced mystical orientation of radical environmentalism, there is a growing tendency to use scientific premises to support theory, spirituality and activism based on this perspective. Although it is often understood that such premises are drawn from "unorthodox science", there is an increasing movement towards basing radical environmentalism upon mainstream scientific premises, especially those drawn from quantum science, with the view of reconciling science and spirituality (Taylor, 2001b, Johnston, 2014).

2.3 Technical and political dimensions of "commoning"

De Angelis (2014) identifies three constitutive elements of the commons: Pooled resources, composed by non-commodified means of fulfilling human needs;

community, understood as the human collective that shares these resources and define the rules according to which they are accessed and used; and the process of "commoning", which is defined as the social process, inherent to the pooling of resources, which creates and reproduces the commons. Based on existing literature, I assume that such process can be understood as having a technical and a political dimension. The technical dimension is related with the technological and methodological aspects of pooling resources. The political dimension relates to how structural and symbolic inequalities between people affect such process. While the former is widely acknowledged by radical environmentalism, the later has been explored mainly by scholarship rooted in political economy.

Radical environmentalism presumes an identitarian, essentialist view of community. It is based on the premise that the recognition of complementarity and interdependence, the "willingness to become communal subjects", and the setting in motion of a process of sharing of resources, is enough to decrease or cancel the power inequalities inherent in structural and symbolic differences (Gibson-Graham, 2006: 16). This implies a view of "commoning" as process in which differences and inequalities are automatically understood as a potential source of complementarity and connection, instead of implying negotiation and the possibility of competition and conflict, as well as hierarchy and exclusion (Op. cit.; Engel, 2010; de Angelis, 2014). Gibson-Graham (2006) argued for the need to conceive community and the process of "commoning" in a way that takes into account the impact on individual and collective agency of the power dynamics inherent to structural and symbolic inequalities. De Angelis claims that such perspective is necessary in order to assess the extent to which specific processes of "commoning" are autonomous from capital, or the result of a symbiotic relationship in which capital and the de-commodified realm of the commons actively and reciprocally contribute to each other's constitution and reproduction. Such autonomy is especially important in matters of social reproduction, particularly at the initial stages of a process of "commoning" (de Angelis, 2014). For the author, this analysis allows one to assess the extent to which such process might lead to the constitution of a "distorted commons", meaning one in which resource-pooling and community-building are functional to the production of commodities, therefore subordinating social reproduction to the accumulation of capital (de Angelis, 2010; 2012).

Scholars of radical environmentalism are starting to pay attention to how structural and symbolic inequalities shape participation in related movements and initiatives. Ferguson and Lovell's (2015) exploratory survey on grassroots participation in the international permaculture movement detected significant barriers to entrance and participation based on race, class and gender. White/Caucasian ethnicity and intermediate to high purchasing power (measured as income) and cultural capital (measured as education) were found to be prevalent among the vast majority of participants. Although the gender ratio of the overall composition of the movement was balanced, women (as well as non-Caucasians) were found to be at a significant disadvantage in terms of access to leadership and professional positions. The authors claim that the fact that the Permaculture movement has not yet

acknowledged or dealt with such inequalities has constrained its ability to promote social change. This indicates that further research developments should include the study of how structural and symbolic inequalities affect the functioning of ecovillages and other radical environmental initiatives based on "commoning".

3. Tamera: Composition, structure and functioning

Tamera, founded in 1995 in the municipality of Odemira, southwestern Alentejo, Portugal, has the goal of becoming a model for sustainable human settlements, based on economic self-sufficiency founded upon the collective participation in the commons and supported by an inclusive and participatory form of governance. It is being developed according to the "Healing Biotope" model, which resulted from the accumulated experience of the founding group in previous community-building experiments in Germany and Austria between the 1970's and 1990's. At the time of fieldwork, Tamera has achieved full water autonomy, produced nearly 50% of the energy it consumed and was on the way of achieving full autonomy in terms of agricultural production at the regional level. However, about 40% of its financial revenue was dependent upon donations, as well as on financial contributions from the private economy of its members. Besides, indications of the presence of an informal hierarchy raise questions about the effectiveness of the governance structure in promoting inclusive participation in decision-making.

3.1 Roots in the mid 20th-century Central European counter-culture

Tamera was created by an intentional community of expatriates with roots in the German and Austrian countercultural scene. At the time of fieldwork, it had a dimension of 154 hectares and was inhabited by 170 permanent community members, of which only seven were Portuguese, none of which born or raised in the region. Nearly two thirds of the inhabitants were German-speaking, originating from Germany, Switzerland and Austria. The remaining members originated from a variety of countries and regions, including Spain, Israel-Palestine, Italy, Great Britain, France, the USA, Chile and Greece. The average age of the community members was 35 years old. The gender ratio was about 60% women and 40% men. Nearly 30 inhabitants were under 18 years of age. During the early years of Tamera, German was the language mostly used in daily interactions. According to internal sources, the English gained increasing relevance from the mid-2000's onwards, as a result of the entrance of a growing cohort of new community members originating from non-German speaking countries. Although, during fieldwork, English was the language used in most gatherings and public events in Tamera, German native speakers often opted to speak in public in their original language, supported by English translation. Non-native speakers often reported feeling a sense of cultural marginalization and exclusion. A Portuguese member reported to me that such dynamics gave the impression that was in Tamera "German bubble that was hard to burst".

3.2 Governance structure: Formal inclusiveness and informal hierarchies

Tamera has a mixed organizational identity, composed by a for-profit and a non-profit sector, which includes three different legal entities.[3] Ilos, Peace Research Center, Lda. is the "umbrella" company that owns the land and infrastructure of Tamera and deals with household expenses, such as food, healthcare are restorations. Such revenues are equally shared between the shareholders of Ilos, two non-profit associations known as "G.R.A.C.E." and "Associação para um Mundo Humanitário" (AMH). The active members of the association are the community members of Tamera. AMH is responsible for the environmental and technological research projects of Tamera: the Solar Village Test Field, landscape and ecosystem restoration, and the food autonomy network. The G.R.A.C.E. Association is responsible for the Global Campus program[4], as well as educational projects for children, such as the internal childhood and youth educational program, as well as the projected International School "Escola da Esperança".[5] The Association also manages a scholarship fund that allows people from developing countries and crisis areas to attend Tamera´s educational and training initiatives.

At the time of fieldwork, the internal governance structure of Tamera included the Vision Council, Carrier Circle and Plenary. These organs are responsible for decision-making regarding the overall strategy and management of the project. It also included a Women's Council, composed by women over 50, which dealt with social questions in the community. The decisions were implemented by the Government of Tamera, composed by three members that are chosen by the community to fulfill such role for a period of 12 months. Each thematic area, such as finances and regional autonomy, had project groups and councils endowed with the authority to make decisions regarding topics of their area of activity. Such topics and decisions were shared with the whole community in the Plenary.

Several community members said, during interviews as well as in public events that the goal of this governance structure is to promote inclusiveness and participation and undermine the emergence of hierarchies. The centrality given to the Women's Council and to care work is said to be a strategy aimed at "undermining patriarchy and empowering women" in the governance structure. It was not clear if such form of "empowerment" reinforces traditional gender roles of women as primarily responsible for care work, or if it expanded their options in terms of social roles and construction of their own subjectivity. The fact that the members of the Government are chosen among people who "enjoy the greatest amount of trust among the community" is also understood to be a strategy aimed at preventing the emergence of such hierarchies. It is noteworthy that, despite such claims, most community members who addressed this topic indicated that there is a correlation between the time people have been living at the community and the amount of "trust" that is ascribed to them. The Vision Council and the Carrier Circle are composed by the founding members of the community, as well as by people who have been recognized by them to be "carriers of the vision of Tamera". All this factors indicate the presence of an informal rank based on age, period of time lived in the community and recognition, by core community members, of identification between one's values and behavior and the ideas of the founding members.

3.2 Towards water, food and energy autonomy?

The "Healing Biotope" model is the basis of a community-building strategy based on the collective participation in the commons. This happens through the sharing of water and energy already produced within the community's premises, as well as food produced organically within its soil or by an emerging regional food autonomy network, composed of other intentional communities and small and medium organic and biodynamic farms in the region. This is supported by an internal regenerative land management strategy based on permaculture, low carbon architecture and technology based on off-the-grid renewable energy sources. Tamera produces surplus in the form of knowledge on community building, ecosystem regeneration, food and energy autonomy. This surplus is commercialized in the form of educational programs[6] and pedagogical material such as books, leaflets and documentaries. The community also supports the replication of such knowledge in partner intentional communities and ecological farms in crisis areas in different part of the globe through the "Global Campus" program.

According to data from the ORIGIN research project[7], in 2015, Tamera was already producing 45% of all the electricity consumed within its premises during the year. The goal is to achieve complete energetic autonomy during the coming decade. The community also started moving towards water and food autonomy in 2007, with the development of a permaculture-based horticultural[8] strategy of ecological land management and food production, known as "Water Retention Landscape"[9]. According to sources from the Ecology team of Tamera, the community became fully autonomous in terms of water retention, conservation and usage in 2009. Tamera started moving towards energetic autonomy in 2006, with the creation of Testfield 1 - Solar Village[10], where research in the field of solar energy and biogas is carried out, tested and integrated into daily life. This research project moved one step further in 2014 with the inauguration of Biosphere III, an initiative aimed at researching and developing strategies for community living, based on the use of these technologies, as well as on the adaptation of consumption habits to the supply of the regional food autonomy network.

The strategy developed around the "Water Retention Landscape" and "Biosphere III" is intimately connected with the emergence of a regional food autonomy network, based on purchases of raw and processed food items from small and medium-sized organic and biodynamic farms in the Alentejo region. According to data shared by Birger Bumb, participant in "Biosphere III" and coordinator of purchases from the regional food autonomy network, in April 2015, 20% of the food consumed within the community, which follows a vegan diet, was produced within its premises at that time. An additional 60% was bought from organic farmers in southern Alentejo. Bumb claims that Tamera is developing its horticultural strategy in a way so that, in the next decade, the percentage of food consumed within the community that is produced on its grounds shall rise up to 80%. The regional food autonomy network allows Tamera and its network partners to become increasingly autonomous from globalized food chains. Besides, it is a network of mutual support

that contributes to the revitalization of subsistence farming in the region, as well as to ecosystem regeneration through the support of organic production. The relationship between Tamera and its regional food providers is not limited to commerce. It also includes mutual support, in the form of participation in harvests in partner farms, exchange of knowledge about permaculture and herbal healing and the establishment of a regional seed bank of native species.

3.3 Internal economy: Labor in exchange for access to the commons

The internal economy of Tamera functions according to what is known internally as a principle of "gift economy". "Co-workers in training" and "co-workers", as full-time community members are known, offer their skills, in the form of labor, to ensure the overall functioning and development of the project, in exchange for free housing, food, water, energy, participation in community events and use of the overall facilities. The difference between the two categories of community members is that "co-workers" receive 20 Euros of pocket money every week for personal expenses, plus have the duty of helping to cover possible deficits in the community budget by holding paid jobs outside its premises or contributing with revenue from private property. "Co-workers" and "co-workers in training" are covered by a collective health insurance policy that allows them to access health treatments in Portugal or in other EU countries. Besides, they also benefit from access to "Posto de Saúde", an internal clinic staffed by doctors and nurses that are either "co-workers" or members of the network of supporters of the project who offer their services to community members, as well as to visitors on donation basis.

During fieldwork, I was informed that a group of "core" 15 coworkers of Tamera was developing a "gift economy pool". This is a collective financial "commons" to which each participant contributes according to her or his ability and takes according to her or his needs. For the amount that each coworker contributes to this pool, the community altogether contributes with an equal parcel, taken from the internal account of Tamera. The whole group deliberates about how and who uses the money. This process began in April 2015 with an experimental phase, from which the core group will learn lessons that will afterwards be used to develop a gift economy strategy for the communalization of financial means in the whole community. This stage in the development of the project was preceded by 20 years of internal research, experimentation and setting up, in a phased manner, of institutional and technological strategies geared towards this goal.

3.4 A need-oriented funding strategy

At the time of fieldwork, the financial sustainability of Tamera was dependent upon revenue from educational and training programs, an international network of donors and private sources of income that community members held externally. Most "co-workers" and "co-workers in training" held external sources of income, within or outside Portugal, either as self-employed professionals, business owners or temporary workers in harvests or at Christmas markets. This allowed them to raise funds to cover possible budget deficits, as well as non-essential personal expenses. Since I was

not granted access to accounting documents from community, it was not possible to assess whether inequalities in terms of private wealth reflect themselves in the contributions each community members made to the covering of budget deficits.

During a public discussion round that took place in September 2015, a source from the financial team indicated that the total household expenses in Tamera amounted to an average of one million Euros per year.[11] The source claimed that Tamera's financial strategy is need-oriented rather than profit-oriented. The major source of revenue (over 60%) were the fees paid by participants in the educational programs, seconded by donations and interest-free loans, given by its international network of supporters. The loans and donations were managed by the Grace Foundation, headquartered in Zurich and with branches in Tamera and Sonoma, California. The Foundation's website states that "The Grace Foundation gives people with money, influence and other resources the opportunity to support a global system change by investing in a new planetary culture".[12] The money is used to fund household expenses, as well as the Global Campus. This "network of trust", as it is often referred within the project, plus the external sources of income of "co-workers" and "co-workers in training", contributes to keep reliance on the banking system for credit to a minimum. Tamera has the goal of increasing internal food and energy production, diversifying educational programs and increasing the number of participants. If that goal is achieved, it will allow the community to decrease its reliance on donations, as well as on external sources of income from the part of its members, to cover possible budget deficits.

4. The "Healing Biotope": A model built upon contested premises

4.1 Epistemological foundations

Tamera is building a decommondified realm of production and consumption upon a radical environmentalist conceptual framework, known as the "Healing Biotope" model, whose premises are deemed controversial by mainstream science. According to German sociologist Dieter Duhm, one of the founders of Tamera, a "Healing Biotope" is a prototype of sustainable human settlements, based on the creation of structures aimed at promoting trust and cooperation in three areas: Epistemology, sociability and ecology. The key condition for a fully functioning "Healing Biotope" is understood to be the full integration, coherence and harmony in the interaction within and between community building and ecosystem regeneration, made possible by an epistemological foundation that undermines the nature/culture division (Duhm, 2015: 95). From this perspective, without a functioning ecosystem at the local and regional level, a human community lacks a material basis of sustainability and either disbands or is absorbed by the mainstream. On the other hand, a solid, functioning community is fundamental for the cooperation between the different areas of skills and expertise that are necessary to set up and maintain the technologies that support the regeneration of natural cycles. On the other, a functioning community building process is supposed to ensure cohesion and sustainability, by promoting the incentives that support cooperation and reciprocity

and minimize the gains that may result from free riding, accumulation and exploitation (op. cit.).

The core epistemological goal of the "Healing Biotope" model is the promotion of a worldview that supports a form of substantive rationality, as well as embedment of the individual human being in community, nature and the universe, based on the intrinsic nature of living systems, instead of religious dogma (op. cit.). The basic ontological foundation of the "Healing Biotope" model is the assumption that the whole of reality is a web of symbiotically interlinked fluxes of information that forms a unified field of consciousness, structured as "an open system with the characteristics of a living organism." Nature and the realm of human culture form "holons", meaning that they are both entities with their own internal dynamics and interconnected parts of a larger system. Such assumption is based on premises that are contested by mainstream science. Its key epistemological foundations are Wilhelm Reich's (1974) concept of "orgone", as well as those of "morphic fields" and "morphic resonance", formulated by Cambridge biochemist Rupert Sheldrake (2011). These premises imply that the whole of nature is interconnected in a single field of consciousness, which implies that memory is inherent in nature and that natural systems, such as swarms of insects or insulin molecules, inherit a collective memory, originating from that field, which was held by all the beings or elements of their kind that preceded them (Duhm, 2015: 95). Critics within academia have claimed that Reich and Sheldrake's theories are forms of "pseudoscience", being based on flawed methodological premises, as well as incomplete and inconsistent empirical evidence (Hanegraaf, 1998; Cordon, 2012; Strick, 2015).

Equally contested by mainstream science are the principles of "harmonics" and "resonance", promoted by Viktor Schauberger, an early 20th century Austrian forester and engineer. Such principles, which have found significant support in the Anthroposophical milieu, are the basis of the technological infrastructure developed in Tamera. Schauberger's research aimed to develop "humanizing technologies" based on a deep, experiential observation of nature "in situ" (Cobbald, 2009). Based on his observations, Schauberger conceived the Earth as a living being that nourishes life not only through nutrients, but also through a planet-wide grid of energy that supports and interconnects all life on the planet. He called such energy "levitational" because he saw it in counter-balance to gravitational energies, and associated it with what oriental medicine calls the "Qi" (Coats, 2001). Such research led him to conclude that water carries such energy across the Earth's surface. He envisioned a continuous stream of nutritive life force energy that flowed upstream all the way from the ocean onto rivers and streams, connecting all of life along its banks. He viewed all water existing on the planet as a living being, and believed when this being was forced into a reservoir, it would essentially die. Without the ability to flow, the river would no longer connect to the nourishing energies of the Earth, and therefore would no longer supply this energy to the plants and animals along its course (Alexandersson, 1990; Coats, 2001). Central to this theory is the role of the forest in ensuring the balance of "the hydrological or water cycle", by promoting the cyclical movement of water from subterranean regions to the atmosphere and back again.

Schauberger predicted that deforestation would lead to climate change, as it would decrease the ability of soils to receive water and support its circulation in subterranean regions of the Earth. Schauberger called this "the half hydrological cycle" (Bartolomew, 2004).

4.2 Social foundations

The second area of the "Healing Biotope" model consists in the building of a social structure aimed at promoting what are considered to be the core rules of the community: Truth, mutual support and responsible participation in the whole. A key aspect of such process is the promotion of the integration between the intellectual, affective and instinctual side of human beings, namely through what within the community is understood as "free love". This means the liberation of erotic expression from coercion and judgment, so that people may choose to openly assume sexual identities and behaviors that do not fit the patterns of heteronormativity or monogamy if they feel so inclined. The community offers support and solidarity to this process in a way aimed at supporting the full expression and individuation of the person, while making sure that such process develops in a responsible and constructive manner.[13] Such process is supported by social technologies for social regulation and decision-making based on a critical process of direct, public communication among community members, in which self-expression, including verbal, kinaesthetic, rational and emotional elements, as well as care work, have a central role. The purpose is to regulate social interactions not according to fixed rules, but in a way that takes into account the changeable existential circumstances of the person and how they connect to wider community processes.

The core social technology is the "Selbstdarstellung Forum" (Self Expression or SD Forum), partially based on Wilhelm Reich's "body armor" theory (Richter, 1990). The goal of SD Forum is to promote trust and transparency among community members, through a process of "de-privatization" of issues related with personal identity, human relationships, emotions, power and competition (Op. cit.). That happens through the inclusion of individuals in dialogical circles, in which intimacy and cooperation is created around these topics. Through this method, participants combine reasoning-based verbal communication and spontaneous physical and emotional performance through song, talk, gesture or mime to convey social situations, as well as thoughts, emotions, attitudes and steps of inner development. The Forum facilitator moderates the process and contributes with information that synthesizes what has been previous shared in the middle and supports the performer in taking new steps in inner growth, trying new roles or solving a conflict situation (*Op. cit.*). The performer is given tools and encouragement to step out of personal identification with the issue being performed and represent it as an aspect of a "global phenomenon" of which the specific situation is part. The other participants are then invited to provide "mirrors", in which they express aspects of the situation they saw that might not be conscious to the person performing it. However, as they give feedback, they should step out of personal identification with the situation being performed, as well as with the relationship they might have with the performer. The

role of Forum facilitator is attributed to people recognized as having accumulated significant experience and skills in the handling of human questions.

The purpose of this social technology is to promote dynamics of mutual witnessing and accountability through individual and collective self-reflexivity on everyday lived experience. Its aim is to make inner questions and social situations transparent, so that they can be worked on collectively. SD Forum also serves as a methodology for individual and collective self-reflective research and learning about the embodied, everyday experience of living in community. Besides, it sustains decision-making processes by giving all members the opportunity to contribute directly, as well as clarifying and solving inherent human conflicts. This process prevents the formation of a psychological and social "shadow", as community members have the incentive to make transparent aspects of their inner and social lives that, according to the norms of mainstream society, as well as of Tamera, would be detrimental to their reputation and social standing. During a discussion round with guests, Birger Bumb argued that

> "[l]ove*, money, status, competition over these three topics, are the main aspects that threaten communitarian projects. (...) Trust and experience of positive authority cannot be created by artificial systems. It comes organically from life. We rely on the leading structure of trust and wisdom of the elders, especially the wise, mature women of the project.*""
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> [Fieldwork notes, April 2015]

Part of this process implies becoming public about inner tendencies and social situations that may contain elements of deception, distorted communication, competition, jealousy, hierarchy, hoarding or free riding. This is done in a way aimed at neutralizing the potential for conflict within the inner question or social situation, turning it into an opportunity for collective learning and for the strengthening of social cohesion. The ultimate goal is to bring subconscious motivations to the conscious level, so that conscious reasoning may guide individual and collective decision-making. Thus spoke "Jutta" when introducing a circle of guests to SD Forum:

> *"The Forum is a world stage. (...) Every person who goes to the middle to perform a personal question is actually performing a world issue, a situation created by society and how it manifests itself in his life. (...) There is no such thing as a private question. We learn that from the Forum. (...) People see the performance and may think 'I have experienced something similar', or might know someone who has experienced something similar. (...) They give 'mirrors', feedback that reflects what they see in the performance, to help gain a deeper understanding of the situation.(...) "I don't shy from making the worse of myself transparent to the community when I come to the middle of the Forum (...) "When I feel jealousy or anger, I fully show it, and even*

perform how I would like to twist the neck of the person that makes me feel jealous or angry. (...) [t]his helps me to de-identify from the situation. (...) The feedback people give me helps to transform the situation. (...) Everybody learns from what they see in the middle, both the performances and the mirrors people give."

[Fieldnotes, July 2015]

Despite such claims, it was not clear whether the self-revelation and the individual and collective "shadow work" that takes place in the Forum contains or reinforces the informal hierarchies within the community. When addressing this topic with community members, whether in the framework of interviews, in informal conversations or in public events, I was often told that the role of the Forum is exactly to be a "protected space" where those topics can be made public and worked. Further research is necessary in order to assess the degree to which Forum leaders may manipulate performances and "mirrors" to serve personal or collective goals, as well as that to which people may resort to self-censorship in order to protect or promote their standing.

4.3 Ecological foundations

The third area of the "Healing Biotope" model consists in the building of a regenerative connection between human economic activity and local ecosystems, namely through the promotion of water, energy and food autonomy at the regional level. That happens through technologies and strategies of ecosystem management based on Permaculture, solar energy and biogas, as well as the development of a regional food autonomy network. Their purpose is to regenerate the ecosystem and contribute to the satisfaction of human needs in a way that promotes a symbiotic, non-accumulative relationship with nature (Duhm, 2005; [1975] 2011; 2015). Despite their contested epistemological foundations, Schauberger's principles are the ecological basis of Tamera's strategy of "commoning". It consists in a successful strategy of ecosystem regeneration that allowed the community to become self-sufficient in water in 2009. Bernd Walter Müller, coordinator of Tamera's Institute for Global Ecology (IGE) calls it the "closing of natural cycles". It includes the development of "Water Retention Landscapes" a strategy of ecological land management that recovers eroded soils for farming by increasing their capacity to harvest rainwater, through the construction of a system of lakes, ponds, swales, terraces and rotational grazing ponds (Holzer, 2011). Waste from food processing, as well as animal and human biological processes (collected and processed in compost toilets) is also included in such process. This regenerative strategy is the basis for autonomous water supply, as well as the regeneration of topsoil, pasture, forest and food production, as well as the diversification of wild species in the ecosystem. Michal Kravcik, one of the external experts that have been contributing to the development of this strategy, claims that it can contain or even reserve climate change by increasing the capacity of the soil to transport water back into the atmosphere through evapotranspiration (Kravcik *et al*, 2008).

The "Water Retention Landscapes" strategy is closely connected to project "Terra Deva"[14], which researches forms of non-exploitative cooperation between humans, animals and plants. That happens through a methodology, known as "spiritual ecology", which studies their behaviour through deep observation and intuitive communication "in situ". Heike Kessler, member of the "Terra Deva" team, refers to pigs and other herd animals as "co-workers" in this process, due to their ability to naturally revolve the ground, clean out weeds and fertilize the soil with their waste. Research on animal and plant behavior is guided by a methodology of "cooperation with nature", developed by permaculture expert Eike Braunroth. From this perspective, no animal or vegetable species should be considered a "pest", since every species plays a role in nature. The development of plagues is a symptom of an imbalance in the ecosystem that can be corrected through the study of interactions between the species (Braunroth, 2002). The validity and reliability of the outcomes of this research are rationally verified by the co-workers of "Terra Deva", by other internal working groups in the ecology field, as well as by external experts. They are then incorporated into the work of the IGE and the development of the landscape and supply gardens.

The "closing of natural cycles" also includes the use of solar energy in the development of vortex implosion-based technologies[15], aimed at supporting the creation of energy autonomous communities. That is the goal of Sunvention International GmbH[16], led by physicist Jürgen Kleinwächter, which is developing and test driving an energy autonomy system for water pumping, greenhouse powering and food processing and storage, known as the "Solar Village". The development and testing of this system takes place in Tamera's Testfield 1[17], where Kleinwächter's inventions are integrated into everyday life. They are complemented by elements like Scheffler mirrors, as well as biogas digesters, developed by engineer Thomas H. Culhane[18], which turn food waste into a source of fuel for food processing, as well as into soil fertilizer.

4.4 Synergies between the social and environmental dimensions

Despite its theoretical and practical limitations, the "Healing Biotope" model promotes synergies between the social and ecological dimensions of the project, which generate dynamics that facilitate communication, collaboration and the generation of feedback loops between different areas of activity and expertise within the project. The holistic foundation of the "Healing Biotope" model supports such synergies by promoting epistemic coherence between the social and ecological dimensions of Tamera around two structuring factors: Integrative rationality and experiential action research and learning methodology. Integrative rationality is based on analogical thinking, as well as the understanding and steering of social and biological phenomena according to perceived natural patterns of symbiosis and cyclical flow. From Duhm's perspective, the assumption that nature and culture are two separate realms that function according to different principles is a distortion that

is at the core of the ecological and social crisis faced by modern civilization (Duhm, 2015: 49). The source of this crisis is perceived to be the goal of understanding and controlling social and natural processes according to ahistorical, linear and hierarchical laws and mechanisms, with the goal of progressively transcending nature, which is inherent to the Abrahamic religions as well as to western Enlightenment. Integrative rationality does not aim to understand and shape social and biological processes according to criteria of linearity and productivity, but to steer them according to perceived natural patterns of (re)integration, symbiosis and cyclical flow. Such a steering process acknowledges and integrates the "shadow area" in biological and social processes by preventing the accumulation of biological "waste", as well as of inner and outer sources of tension and conflict in interpersonal relations. It does that by acknowledging these elements, neutralizing its potentially destructive aspects and metabolizing the aspects that contribute to the regeneration of biological and social processes. Such elements are valued as legitimate sources of information and energy which, when properly understood and integrated, become central to the promotion of social and environmental sustainability in human collectives.

The experiential action research and learning methodology is embedded in everyday community life and based on collective self-reflexivity. This method, based on a phenomenological approach to knowledge, aims to understand phenomena holistically and historically, focusing on the web of relationships between their different aspects, as well as on those that connect them to their environment. It is embedded in everyday community life and based on collective self-reflexivity. It is based on a phenomenological approach that gives centrality to tacit knowledge and self-expression. This form of research and learning is pursued through internal processes in which everyday interactions and collective decision-making regarding everyday community functioning is also intentionally framed and experienced as a form of experiential, self-reflective research and learning, carried out and embedded in the community and its environment. Such form of ongoing, open-ended research and learning, in which all participants are both researchers and objects of study, lead to the production and accumulation of knowledge that is used to further decision-making and the social, economic and technological development of the community.

In contrast to the experimental method, which objectifies and compartmentalizes reality, the experiential action research and learning methodology does not see the phenomena under study as something "separate" from the person who studies them. According to Bernd Walter Müller,

> *"[a]ll beings share the same basic DNA. It is from this common point, this point of oneness, that we can get in contact with other beings, communicate with them, understand them*."
>
> [Interview 9, August 2015]

Duhm identifies this "point of oneness" with what holistic-minded minded nature experts like Eike Braunroth call the "consciousness" of animals, plants and mineral elements. The author claims that, given their interconnection with other parts

of the whole, they can be intentionally influenced by human reasoning (Duhm, 2015: 95; Braunroth, 2002). Müller contrasts the objectification that is inherent to the experimental method with the "contact" between the "perceiver" and the "life that is perceived" that is central to the experiential method. The purpose of this method is to understand beings and phenomena in the "here and now", in their ongoing interconnection with other life processes.

Tamera's strategy for food and energy autonomy is a key example of such synergies, as it is dependent upon the creation of social structures in which these questions can be constructively addressed at the community level. "Biosphere III" was conceived as a social container for the technologies that are being developed in Testfield 1. This group structures its subsistence and social life according to the rhythms of the regional ecosystem, eating only seasonal foods produced in the region and structuring energy use around the rhythms of sunlight. With the support of Forum and other social technologies, this group researches the social and psychological impact of these strategies. One of the core topics addressed is the psychological impact, at the individual and group level, of giving up certain consumption habits that are only possible in the framework of globalized food chains. Many of these habits are interpreted as coping mechanisms for stressful situations or lack of fulfilment at the emotional, social and professional level. Birger Bumb, said in a discussion round with guests that

> "*[w]e are researching why people crave milk and sugar, why they crave white flour, white rice, which we do not consume in this project because they are not produced regionally. We are researching what happens in them as a result of not having access to these consumption items, which we tend to take for granted. (...) We have clues that show that we crave sugar, coffee, chocolate, white flour, white rice for emotional reasons. (...) Certain foods create in us a feeling of home. It is a question of habit. Others comfort and soothe us, calm down certain inner emotions. It is important to take a look at this and find solutions at the human level. (...) As long as we are influenced by the old system, we are victims of the system."*
>
> [Fieldnotes, September 2015]

Other topics addressed include the psychological and social impact of sharing ovens and fridges with a large group, given that all the participants were previously socialized to use such technology individually or as part of small family units. It also includes the challenge of organizing the group for the use and maintenance of the technology, namely by promoting collaboration between experts in different technical areas.

Conclusion

"Commoning" can be understood as a process that includes two dimensions of practices: A technical one, which covers the technological and methodological aspects of the process, and a political one, which relates to the power differentials between the people involved. The relevance of Tamera as a case study comes from the fact that it provides insights on how the undermining of the nature/culture division, implicit to radical environmentalism, supports the technical dimension of "commoning", but is limited regarding the political aspect of the process. The "Healing Biotope" model, upon which Tamera is based, supports the development of the technological and methodological aspects of "commoning" by weaving sustainable connections between people and the non-human world. It promotes epistemological and methodological synergies between strategies of ecological regeneration aimed at promoting water, food and energy autonomy and institutions and social technologies set up for the social governance of the community. However, it leaves blank the question of how to prevent structural inequalities between community members from reproducing themselves in the process, therefore distorting the constitution of the commons.

At the time of fieldwork, Tamera has reached significant development in the technical dimension of "commoning", although not enough to guarantee its autonomy from external sources of financial revenue. Still, it has reached autonomy in terms of water resources and has achieved a significant degree of autonomy in terms of internal energy production. Besides, most of the food consumed within the community was produced either within its premises or in the emerging regional food autonomy network. The radical environmentalist premises of the "Healing Biotope" model supported such development by promoting synergies between the social and ecological dimensions of Tamera around two structuring factors. One of them is what I herein call integrative rationality, based on analogical thinking, as well as the understanding and steering of social and biological phenomena according to perceived natural patterns of (re)integration, symbiosis and cyclical flow. The other is what is herein called an experiential action research and learning methodology, embedded in everyday community life and based on collective self-reflexivity. This method, based on a phenomenological approach to knowledge, aims to understand phenomena holistically and historically, focusing on the web of relationships between their different aspects, as well as on those that connect them to their environment.

Further research is necessary in order to assess the extent to which the governance institutions and social technologies developed in Tamera properly address issues of power dynamics and structural inequality. Their stated purpose is to undermine the formation of hierarchies and promote inclusive and participatory governance. However, the data collected indicates the presence of an informal hierarchy based on seniority and reputation. It also indicates that being a German native speaker facilitates inclusion in dialogical processes. It was not possible to assess if the dimension of the private economies of individual community members, and possibly their contribution to the internal household budget, has any impact in their participation in decision-making. Besides, it was not clear whether the supposed goal of "women's empowerment", namely through the central role ascribed to the "Women's Council" and to care work in governance, implied a reproduction of a

traditionally gendered division of labour, or if it opened space to other possibilities in terms of subjectivity and social roles. Further research is necessary is order to assess the dimension of such inequalities, and whether the existing governance structures in Tamera effectively contain them or contribute to their reinforcement. These factors indicate that further avenues for research and intervention on processes of "commoning" within radical environmental initiatives should be theoretically anchored in political economy. They should also combine participant observation with a demographic and life history approaches, so as to better grasp how structural and symbolic inequalities determine participation in processes of "commoning".

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[3] https://www.tamera.org/what-is-tamera/economy/ (Last retrieved on February 23, 2016).

[4] https://www.tamera.org/project-groups/global-peace-work/global-campus/ (Last retrieved on February 23, 2016).

[5] http://www.escola-da-esperanca.org/ (Last retrieved on February 23, 2016).

[6] Information about the educational programs of Tamera can be consulted at https://www.tamera.org/main-menu/events/, https://www.tamera.org/project-groups/global-peace-work/terra-nova-school/ and https://www.tamera.org/project-groups/peace-education/ (last retrieved on October 30, 2015).

[7] http://www.origin-energy.eu/portal/#/home The ORIGIN research project, funded by the European Commission, was in progress at the time of fieldwork. The project's mission is to develop an intelligent ICT system for the management of renewable energy in communities, and associated business. It includes three eco-villages in different climatic setting: northern Scotland (Findhorn), southern Portugal (Tamera) and the Italian alpine foothills (Damanhur).

[8] Horticulture is the study and practice of intensive growing of vegetable garden plant species for food, medicinal and ornamental purposes. It primarily differs from agriculture in two ways. First, it generally encompasses a smaller scale of cultivation, using small plots of mixed crops rather than large fields of single crops. Secondly, it generally includes a wide variety of crops, even including fruit trees with ground crops. Horticulture primarily differs from agriculture in two ways. First, it generally encompasses a smaller scale of cultivation, using small plots of mixed crops rather than large fields of single crops. Secondly, horticultural cultivations generally include a wide variety of crops, even including fruit trees with ground crops. The origins of horticulture lie in the transition of human communities from nomadic hunter-gatherers to sedentary or semi-sedentary horticultural communities, cultivating a variety of crops on a small scale around their dwellings or in specialized plots visited occasionally during migrations from one area to the next. (Adams, 2012).

[9] http://www.tamera.org/project-groups/autonomy-ecology/

[10] http://www.tamera.org/project-groups/autonomy-technology/

[11] The information contained in this paragraph was shared in a talk on the internal economy of Tamera for participants of the "Community Course". This talk, which took place on September 9, 2015, was organized by staff of the financial office of the community.

[12] http://www.the-grace-foundation.org (Last retrieved on November 6, 2015).

[13] https://www.tamera.org/basic-thoughts/what-is-free-love/ (Last retrieved on April 4, 2016).

[14] https://www.tamera.org/project-groups/feminine-peace-wisdom/terra-deva/?L=999999.9 (Last retrieved on November 5, 2015).

[15] Schauberger claimed that the technology of the Industrial Revolution was based on an inefficient, unnatural system of energy and motion-motions, which Nature uses to decompose and dissolve matter. From this perspective, implosion is seen as regenerating, while explosion is regarded as a degenerative process in which most of the energy is lost through frictional resistance, producing useless waste heat. He claimed that "[t]oday's technology strives to move forwards with forces that operate backwards". In contrast he argued that "A bird does not fly – it is flown. A fish does not swim – it is swum". (Cobbald, 2009: 32)

[16] http://www.bsrsolar.com

[17] https://www.tamera.org/project-groups/autonomy-technology/

[18] Thomas H. Culhane is the founder of Solar CITIES, a nonprofit organization that works on capacity building in developing countries through the development of low-cost high-efficiency biogas systems and system integration training for "food-waste-to-fuel-and-fertilizer" biodigesters at the household and community level.http://solarcities.blogspot.pt/p/what-is-solar-cities-and-how-can-you.html