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Conflicting urban and rural territorial livelihood metabolisms: The "explosion" of the "sustainable" urban-industrial pulp complex in Bahia – Brazil

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ABSTRACT

The search for sustainability, particularly in an urban context, is in full swing. Based on a review of mainstream environmental management and the critical environmental justice perspective, this analysis proposes that concepts of space, territory, and livelihood which are operating at the interface of the social and physical world, offer possibilities to understand urban and rural metabolisms in a global context. The second part of the paper focuses on the main obstacles to achieve sustainability, arguing that the underlying causes for conflicts between urban and non-urban traditional territorial livelihood metabolisms are not being adequately addressed. The challenges of implementing sustainability often involve dealing with dynamic contradictory processes with unpredictable outcomes. Therefore, sustainability should not be seen as a certain state of the society, but as a kind of structuring structure characterized by the necessity of permanent rearrangement. Finally, to make this finding more applicable, we present seven parameters to evaluate socio-spatial relationships as a dialectical cognitive framework for planning towards more sustainability and environmental justice. The application of these parameters has been tested on the "sustainable" pulp industry in Bahia – Brazil, which is often regarded as sustainable due to certification by the Forest Stewardship Council.

1. Introduction

As early as 1987, the World Commission on Environment and Development defined "sustainable development" in the Brundtland report "Our common future", vaguely as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs." Although this definition was adopted at the Earth Summit in 1992 (United Nations Conference on Environment and Development (UNCED)) as a leitmotif for international social and environmental politics, efforts to operationalize this concept have not yet led to a generally accepted strategy. Irrespective of this fact, practitioners of international institutions like the United Nations, the World Bank, national based development agencies, Non-Governmental Organisations, and others came up with countless attempts to operationalize sustainable policies through 'learning by doing'. About 40 years later, we must state that, despite many isolated success stories in the development of 'clean' technologies and environmental management, ecological deterioration and social inequity are far from being resolved. In this paper, we start from the hypothesis that one of the explanations for this dilemma lies in the dominance of technical-scientific discourses and narratives within the debate over it, while little attention is paid to the importance of different and sometimes contradictory social representations and worldviews that orient human social-ecological practice in space. Hence, we propose an approximation to this problem through three concepts that we consider as essential for the understanding of social-environmental relations: spatial metabolism, territory and livelihood.

Consequently, this article focuses first on a brief recapitulation of mainstream and critical approaches and representations of sustainability. In the second part, we present a proposal to conceptualize conflicting urban and rural or traditional territorial livelihood metabolisms with the objective to point out possibilities for a more holistic research on sustainability. Finally, we suggest, based on our findings, parameters to orientate planning for sustainability, which we understand as a dynamic dialectical process of social transformation towards a more balanced society-nature relation and environmental justice between individuals, groups, peoples and cultures. The application of these parameters is illustrated in an analysis of the Veracel agro-industrial pulp complex in the south of the Brazilian state of Bahia, certified by the Forest Stewardship Council (FSC), often regarded as one of

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the most credible social-ecological evaluation systems among global governance institutions.

2. Mainstream environmental management versus environmental justice

The debate about the failure of classical development strategies began in the 1970s, when the Neo-Malthusian approaches warned against the impossibility of achieving the same prosperity for all of humanity because natural resources were not sufficient to cope with the population bomb (Ehrlich, 1968). Meadows, Meadows, Randers, and Behrens, (1972), on the other hand, pointed out that, alongside the population problem, a second exponential growth curve, that of the economy and rising consumption in Western affluent societies, which comprise only about one-fifth of the world's population, would bring the world to its physical limits. For almost a decade, the "limits of growth" dominated the discussion about economic development, which was questioned as unsustainable due to worsening social aberrations and previously unknown environmental problems of global dimensions.

It was the above mentioned Brundtland Report of 1987 that resurrected confidence in classical development models:

> The concept of sustainable development does imply limits - not absolute limits but limitations imposed by the present state of technology and social organization on environmental resources and by the ability of the biosphere to absorb the effects of human activities. However, technology and social organization can be both managed and improved to make way for a new era of economic growth (WCED, 1987, p.15).

To achieve this goal the commission recognized the necessity to redesign political structures on international, national and local levels to overcome differences in order to face problems of “one world” with the participation of all sectors of society in decision-making processes. The Commission called also for transversality and interdisciplinarity in academic and public institutions to find a more holistic way of approaching social-environmental questions. This demand configures a critique of not only the separation of human and natural sciences, but also of the internal epistemological differences within these branches, which often end up in an ideologically motivated mutual negation of the methods that are being developed in specialized academic disciplines. In modern society, this phenomenon is reflected in the division of labour as a key factor in social segregation and the hierarchization of society. Consequently, the corresponding sectorised political, regulatory and administrative institutions - influenced by specific lobbies of the private sector and civil society - are competing for influence and public funding.

Within this context, mainstream environmental management basically follows two strategies: 1) ecological modernization and 2) participative governance, which we will discuss critically in the following sections.

2.1. Mainstream environmental management

2.1.1. Ecological modernization

Ecological modernization promotes the “adjustment” of the hegemonic development model with the help of diagnostics about the state of the ecological and social situation on a global, regional and local level. The objective of this empirical work is to raise consciousness about the detected social, economic and environmental problems and generate acceptance for scientific founded technical and political responses to them. This positivist approach is usually based on evaluation procedures in which checklists of isolated and cumulative indicators relating to the state of the environment (land use, deforestation rates, emissions from air, soil and water, traffic, land sealing, waste disposal, etc.) and the economic and social situation of the population (income, social inequality, life expectancy, child mortality, access to public services, sanitation, etc.) are used. In order to gain a comprehensive understanding of the current situation, the collected data is used in the context of environmental impact research, project assessments and social-ecological certification systems to develop compensation and replacement measures to "fix" identified environmental damage and to propose "green" technologies. In urban planning, these methods are enhanced by methodological tools such as Material Flow Analysis or Lifecycle Assessments to develop metabolic equilibrium models in an analogy of ecosystems (Newell & Cousins, 2014). If we look at initiatives in global networks of city administrations, this technical-material representation of eco-efficiency (Acselrad, 1999) produces considerable results such as new concepts of mobility, passive energy homes, new forms of water, sewage and waste management and the promotion of regional cyclic production and consumption schemes (ICLEI (International Council for Local Environmental Initiatives) (2017)).

The relative success of these proposals is due to the fact that they are compatible with the capitalist system, as the “green economy” which will foster growth “…and lift people out of poverty, including support for developing countries that will allow them to find a green path for development” as stated in the official outlines of the United Nations Conference on Sustainable Development (UNCED) held in Rio de Janeiro in 2012.

Within this context, proposals to reduce the negative outcome of urban consumerism (revolution of sufficiency, see below), implying in some kind of reduction or restriction (measures to reduce individual transport, increase consumption of regional or organic products), are seen as the responsibility of individual citizens. The preferred way to address this issue is to promote consumer awareness through eco-labelling and certification, which also fit into the neoliberal doctrine of the green economy at international level. As trade restrictions for unsustainable products are not welcome due to the non-discrimination rules of the World Trade Organization (WTO), mainstream environmental policy is increasingly relying on these voluntary market instruments to convince transnational companies to improve their social and environmental behaviour. Today there are social-ecological certification systems for soya, palm oil, cotton, fish and seafood and even for mining, most of which follow the model of the Forest Stewardship Council. This initiative was founded in 1993 and supported by important NGOs such as the WWF (World Wildlife Fund) and Greenpeace, which is why it was recognised as an international governance structure by institutions such as the United Nations, the World Bank and the European Union (Laschefski, 2002). We will come back to it below.

At this point, we would like to call attention to a contradiction. The common narrative is that ecological and socially sound products have to be more expensive, turning them into elitist class products to which lower income groups have limited access. During a study on the acceptance of eco-labelled products in Brazil, some low-income respondents claimed that they would never pay more for certified products, as the state should be responsible for ensuring that all products on the market come from legal sources. (Laschefski, 2002). Certification might be seen as a means of transferring responsibility for environmental and social problems and crimes from governments to consumers, who face an opaque confusion of countless eco-labels in shops.

As a consequence, ecological consumerism and ecological modernization do have restricted potential in overcoming the internal contradictions of unsustainable capitalist structures.

2.1.2. Participative governance

As the technical solutions of ecological modernization are not always accepted without contestation, mainstream environmental management promotes participative consultation of citizens as a complementary strategy. Representatives of the state, the private sector and civil society are invited to participate in environmental councils, round tables, Agenda 21-Intiatives and other public hearings to develop measures, targets and timetables for action to achieve sustainability.

The expectation of this strategy is the improvement of the legitimacy of planning through a consensus building process. To some extent, the technical-material representations of ecological modernization are quite well accepted in these forums as long as they offer 'win-win' solutions for all participants. On the other hand, such participation schemes, promoted by international bodies such as the United Nations and the World Bank as means to achieve 'good governance', often present structural problems, as they configure artificially created social fields permeated by an unequal distribution of power (Bourdieu, 2001). Some representatives – usually those from the private sector - do have more social, economic and cultural capital and skills than those from civil society, especially from marginalized groups, enabling them to impose their interests. Under these circumstances, participation, especially in developing countries with deep social disparities in education, contributes more to the oligarchisation of power than to the democratisation of decision-making processes. (Carneiro, 2005; Zhouri, 2008). Further, environmental and social problems are often interpreted as negotiable "interests" to be bargained between the so-called stakeholders. In societies with a former authoritarian history, this ideology of dispute and conflict resolution through negotiation and mediation often undermines the initial purpose of social movements which have been struggling for participation for decades: to empower people to defend their rights. On the contrary, research about environmental licensing of megaprojects in Brazil involving the involuntary displacement of indigenous and traditional peoples, such as hydroelectric dams and mining undertakings, shows that formally guaranteed constitutional and human rights are also ending up on the negotiation table. During our research of environmental councils in the state of Minas Gerais, dominant power holders claimed on several occasions, that some people have to make certain sacrifices for the well-being of the large majority of society. In these cases, participation might even contribute to the erosion of the rule of law (Laschefski, 2014). Thus, there are strong indications that the normative postulation for equity or environmental justice is not properly embraced by conventional environmental management.

2.2. The environmental justice and ecological debt perspective

The perspective of environmental justice and ecological debt questions certain categories of representation of ecological modernization, such as the discourse on a global environmental crisis or generalizing interpretations of human-environmental relations. The focus is more on the unequal distribution of natural resources and prosperity, as well as on the diversity of socio-ecological relationships of different societies and cultures.

Given the currently available technological skills and the rates of material accumulation in developed affluent societies, there are justified doubts that worldwide equity based on the same production and consumption patterns of the Global North might be achieved without profound restructuring of the global economic system. However, it has to be taken into account that even in advanced emerging nations the cause of poverty are not the material limitations of land and natural resources, but colonial exploitation, which paved the way for capitalist or (neo-) imperialist accumulation by dispossession and their associated forms of political and social production of space (Harvey, 2004, Lefébvre, 1991). Brazil and Mexico are significant examples where unequal income and land distribution, property rights, human exploitation and violence have to be analysed to tackle poverty, given their low population numbers in relation to their area and environmental wealth.

In response, critical scholars focus on overconsumption of the affluent society as the main driving force for the environmental crisis. They emphasize the need to drastically reduce the use of energy and raw materials to literally open space for development in poorer countries. Concepts like environmental space (Opschoor, 1992, Lodke et al. 1996; BUND/Brot für die Welt/Evangelischer Entwicklungsdienst (Hrsg.) (2008)) and the ecological footprint (Wackernagel & Rees, 1996) gained a certain popularity to quantify land consumption outside national territories. The Global Footprint Network, for example, offers comprehensive statistics about the ranking of consumption on national levels and tools to calculate the individual footprint of the interested users (GFN-Global Footprint Network, 2017). Despite these quantitative approaches still having weaknesses with respect to the quality of the data and not offering any analytical tool for explanation of the ecological debt, they are encouraging critical reflection on development. One example is the reframing of the dependency theory by the concept of ecological unequal exchange (Gellert, Frey, & Dahms, 2017). They are increasingly taking into account the power relations of energy and material flows, reshaping the classical debate of unjust distribution of wealth benefits. Concerning this matter, Altvater (1999) states that the just organization of "environmental space" going beyond national boundaries requires a global restructuring of the "space of democracy". Thus, the "ecological debt" of rich countries can be seen as a counterweight to the economic debt of emerging economies. Consequently, to achieve equity in the distribution of natural resources on a global level, profound changes in the reproduction of modern societies are needed. As modern societies would hardly 'go back to the stone age', like conservative defenders of the classical urban-industrial development model would say, the question about concrete steps to induce societal transformation remains without satisfying answers.

Hence, the 'efficiency revolution' through new technologies and the rational use of energy and material proposed by mainstream environmental management has been seen as insufficient to achieve sustainability. In order to succeed, "a sufficiency revolution must precede the efficiency revolution" (Sachs & Santarius, 2014). Consequently, an alternative perspective asks, "how much environment human beings need" to "live well instead of possessing a lot". This proposal also implies a hidden critique of the ideology of economic growth and limitless accumulation of capital (Kurz, 2018; Zahrnt, Stoll, & Seitz, 2017; Loske & Bleischwitz, 1996; Sachs, 2000; Schmidt-Bleek, 1994).

Another current of environmental justice is concerned with the unequal distribution of environmental impacts, which usually hit poor and marginalised groups more severely. The movement coming from the United States speaks of environmental racism. In Brazil, the Environmental Justice Movement (*Rede Brasileira de Justiça Ambiental* - RBJA) tries to bring together the often locally active resistance groups into a movement to prevent the localization of global capital and thus contribute to a transformation of capitalist society (Acselrad, 2004).

3. Urban metabolism

Above we presented brief outlines of two basic underlying tendencies within the debate about sustainability, highlighting, on one hand, the technical material representation of mainstream environmental management and on the other hand, critical approaches of environmental justice and ecological debt. In our view, despite the opposing positions towards the future of capitalism, both currents made important practical contributions that could contribute to overcoming fragmentation and developing a more holistic framework for planning sustainability that we will present below. However, beforehand we would like to make some general remarks about three aspects:

1 Sustainability is a term that focuses on modern society as a whole with its internal contradictions and also its relationship with other societies, peoples and cultures. Therefore, we understand the term not as a certain state of society but rather as a relational concept, encompassing contradictory elements in constant change, demanding permanent reconsideration. In analogy to Bourdieu's concept of social fields, sustainability should be understood as some kind of "structuring structure" and not as a final state of society.
2 The above explanations indicate that sustainability is about a socially and politically produced space. Referring to Lefébvre, (1991),

we understand space as a conceptual triad composed of a) the material, perceived space as spatial practice, b) the conceived space which permeates the social representations, world views and ideological convictions of individuals and groups embedded within their cultures, and finally, c) the lived or social space of representations, where the conceived spaces encounter the material space. The lived space is therefore also relational, as any social subject is trying to organize his everyday life acording to his spatial representations, which causes contradictory and conflicting situations. Consequently, there is no such thing as a neutral interpretation of space. As Santos (1996) put it, corresponding to social plurality, any spatial object is associated with various philosophical contents. In the same way, the term "environment" can also have different interpretations and 'natures' according to the respective social representations of the subjects, which are reflected in their social-ecological relationships and practices. (Acselrad, 2004). In this sense, the idea of "untouched nature" can also be seen as a social construction that emerged in modernity. Planning must therefore deal with contradictions; it will always have to seek a compromise that will be permeated by power relations in society.

3 The discussion on sustainable development has its origins in the criticism of the social and ecological failures in implementing the Eurocentric development model of industrialisation and urbanisation in other parts of the world. It is not surprising, then, that an academic field has emerged that focuses specifically on urban sustainability which is primarily concerned with municipal administration and 'smart' urban design. Within this area, we easily perceive that elements of both representations delineated above are somehow present. Nearly any city government which decided to join the pathway to sustainability is developing measures for energy efficiency, alternative waste treatment, reorganization of transport and circulation and improvements of urban ecology. Even the need to reduce environmental space is considered; mainly in an abstract rationality that most measures of ecological modernization to improve material and energy efficiency are also means that somehow might contribute to global equity. But these concepts of urban sustainability often do not consider important aspects of the city's metabolism, which is dependent on global networks of information, trade and production sites in other parts of the world.

In contrast, Marxist geographers and urban political ecologists are theorizing urban metabolism as power relations which shape cities, also emphasizing to some extent the above mentioned flows of goods, energy and raw materials to identify possible *loci* of exploitation of humans and nature (some representatives are David Harvey, Eric Swyngedouw, Neil Smith, and John Bellamy Foster - for an overview see Dinarès, 2014; Heynen, Kaika, Swyngedouw, 2005a, 2005b; Newell & Cousins, 2014). The results are offering interesting and sophisticated insights into these relations. However, most publications in this area refer to the metabolism of certain cities within their administrative boundaries or to certain aspects of urban development (water supply, transport, waste, green architecture and design).

In contrast to this "methodological cityism" (Angelo & Wachsmuth, 2015; Brenner, 2015), in this article we would like to emphasize the metabolism of the urban society or simply 'the urban' (Lefébvre, 1991, 2003) which is taking over the globe. Even von Thünen (1966), in 1826, had already designed his mathematical model of an ideal state as an urban accumulation and the *associated hinterland*, or in other words, the agricultural areas and forests necessary to sustain the cities production and consumption. Today, the *hinterland* is not easy to identify as contemporary cities are assuming the role as nodal points of global market relations, embedded within networks of transport and information that enable the exchange of goods throughout the planet. Lefèbvre (2003) described the global tendency of population concentration in cities and the sociospatial dispersion of "the urban" beyond the constructed city within its politically determined boundaries as implosion - explosion. The apparent "outside" of the cities of the urban-industrial-capitalist system is composed by a mosaic of uniform landscapes, each one destined to produce a particular market product or commodity, like mechanised, large-scale agricultural plantations, planted forests, mines, hydro energy, etc. The production depends on technical inputs (agrochemicals, machinery, energy) which give the impression of the possibility to disconnect human activity from the rhythm of natural regeneration cycles. The result is environmental and social monoculturalization and at the same time fragmentation of space, representing, hence, the spatialization of division of labour. We consider these non-urban areas in contrast of rural areas (see below) as operational landscapes (Brenner, 2015) for urban production and reproduction embedded in the capitalist world system. The above mentioned "ecological footprint" - defined as the biologically productive area necessary for everything that people use: fruit and vegetables, fish, wood, fibres, absorption of carbon dioxide from the use of fossil fuels and space for buildings and roads (GFN-Global Footprint Network, 2017) - could serve as a tool for "measuring" urban "explosive" effects, although we use this concept here, given its above mentioned limitations, quite metaphorically.

When we speak about environmental and social consequences of urban production and consumption patterns, we are also speaking about the spatial relations of everyday life and urban livelihoods forming a global metabolism whose territorial demands are interfering with territories of other peoples, challenging the sustainability of their livelihoods. Given the experience of three decades of research with groups and communities threatened by the urban, we reject the idea that extended urbanization (Monte-Mór, 2014) has already led to complete planetary urbanization, like Lefébvre and some of his followers suggest. Like Smith (2006) argued that capitalism neglects the metabolic interdependencies of the society with nature, we would add, that those livelihoods of rural noncapitalist peoples and societies are also conceived as separated from (urban) modern society, meanwhile, the delegitimation from their territorial rights and dispossession are in full swing. Even if they have already suffered a kind of cultural hybridization through contact with the city, whether through the presence of industrialized consumer goods, the use of public services or the adoption of "emancipatory" strategies of urban citizenship (*civitas*) to defend their territories - sometimes interpreted as differential or counter-spaces in the Lefébvrian terminology- we insist that they do not belong to the urban. The difference lies in their distinct territorial livelihood metabolism, which we will discuss in more detail below. In analogy to Lefébvres "urban" we suggest terming this kind of social formation as "the rural".

4. Conflicting territories and livelihoods

Our argument that we will develop from here on is that there is a gap between urban metabolic research and the focus on social inequality and the power of political ecology, which could be filled by two concepts that directly address the interface between the social and physical worlds: Territory and livelihood.

4.1. Territories

The term territory refers not only to built cities, their political boundaries and operational lansdscape, to use Brenners' terminology quoted above. Based on a free interpretation of Raffestin (1993) we understand territory very broadly as relations of power of certain groups over circumscribed continued or discontinued spatial units, connected through social networks. In the modern world, the Nation State is the dominant reference for the territorial division of space, its material appropriation and the spatial practices of its inhabitants. But several authors are highlighting that globalization, neoliberalism and regional economic integration are gaining influence over nation states, which in part are subordinating sovereignty to these new power

regimes (Murphy, 2013; Sassen, 2013). This development facilitates that multinational corporations and international investors territorialize and deterritorialize their activities according to the beneficial conditions nation-states offer to them, but without means to keep them within their territories. To the extent that financial capital surpasses productive capital, the companies are able to relocate their production units from one nation to another, protected by the international jurisdiction of the WTO. Therefore, nation-states, but also cities, became vulnerable to the above mentioned “blackmail of dislocation”, particularly when they try to impose unilaterally social and environmental conditions.

On the other hand, in countries of the Global South, the states have not completely territorialized themselves within their own boundaries. Rural communities often live in areas where questions about land tenure are not regulated and state institutions like police, public health systems and schools are underrepresented. These local groups usually pass through a process of territorialisation, circumscribed "…as a collective effort of a social group to occupy, use, control and identify itself within a specific parcel of the physical environment, converting it into its ‘territory’ (Little, 2002, p.3, own translation). Therefore, in contrast to abstract territoriality of nation-states or other political-administrative spatial units – traditional people produce a variety of different territories with socio-cultural particularities and specific “cosmographies”, defined by Little (2002) as the environmental knowledge, ideologies, and identities created collectively and historically situated, which a social group uses to consolidate and maintain their territory. The concept also includes the customary use and property rights of land, the affective relationship of group members with the locality, the collective memory of its occupation history, social use and the forms of territorial defence.

4.2. Livelihood

The National Science Foundation (NSF, 1998) presented a proposal to shift the discussion on sustainable development of urban space or societies to the question of sustaining urban life and livelihoods, which we consider appropriate to bridge the theory of planetary urbanization with urban socialization in everyday life. Briefly summarized urban livelihood is defined through

> …processes of social and ecological reproduction situated within diverse spatial contexts. We understand processes of social and ecological reproduction to be non-linear, indeterminate, contextually specific, and attainable through multiple pathways.
> Within the terms of this definition, sustainability:
>
> 1 entails necessarily flexible and ongoing processes rather than a fixed and certain outcome;
> 2 transcends the conventional dualisms of urban versus rural, local versus global, and economy versus environment; and
> 3 supports the possibility of diversity, difference, and local contingency rather than the imposition of global homogeneity.
>
> (…)
> Approaching sustainability in terms of sustainable livelihoods highlights the conceptual centrality of geographic scale. Livelihoods are constituted in local places where sustainable and unsustainable practices are experienced and where agency is rooted. But while sustainability is embedded in localities, this understanding necessitates clarification of the idea of locality and of local–global relations. (NSF, 2000, p, 9).

To start with that task, we remember an affirmation of Giddens Anthony (1996) that industrialisation released capitalism from its organic ecological constraints and altered interaction of human societies with their ecosystems. Indeed, technological progress, the division of labor and long distance market relations led to a kind of alienation of modern livelihoods from their physical base of reproduction (territory). To illustrate this observation we might take Lefébvre, (1991) simple example of a house in an urban space:

> Consider a house or a street, for example, one might almost see it as the epitome of immovability, with its concrete and its stark, cold and rigid outlines […] Now, a critical analysis would doubtless destroy the appearance of solidity of this house, stripping it, as it were, of its concrete slabs and its thin non-load bearing walls […] In the light of this imaginary analysis, our house would emerge as permeated from every direction by streams of energy which run in and out of it by every imaginable route: water, gas, electricity, telephone lines, radio and television signals, and so on. Its image of immobility would then be replaced by a complex of mobilities, a nexus of in and out conduits […]
> Comparable observations, of course, might be made apropos of the whole street, a network, a network of ducts constituting a structure, having a global form, fulfilling functions, and so on. Or apropos of the city, which consumes (in both senses of the word) truly colossal quantities of energy, both physical and human, and which is in effect a constantly burning, blazing bonfire. (Lefebvre, 2003, p 92-93).

We note in this quotation that the urban spatial structure is intrinsically linked with the individual consumption of people. This fact limits the possibilities even of an "eco-friendly citizen" to reduce his consumption patterns due to his dispersed socio-spatial structure in which everyday life happens. In urban space, social-environmental relations are mediated through commerce and technology: water comes from the tap, electricity from the plug and food from the supermarket. In everyday life, it is not possible to track the origins of these goods. Consequently, territory as a base of living became an abstract concept which does not matter in everyday life. Territorial questions in an urban world do not have the multiple economic, social and cultural or even psychological-emotional dimensions like in traditional rural communities. They are reduced to issues about the location of places where needs and desires are fulfilled (habitation, work, shopping, education, leisure, and others). The quality of living depends, therefore, principally on monetary income, which determines the conditions of how and to which places people dislocate themselves.

Because of the cognitive detachment from the material basis of their livelihoods, urban societies are often not aware of the operational landscapes - or better - territories they require to sustain their reproduction.

In contrast, the significance of territory for traditional groups as a material base of their livelihoods is much clearer. But we have to alert that this understanding differs from theoretical attempts to define sustainable livelihoodsas a kind of system approach along the water–-energy–food nexus to create an operational concept to identify vulnerabilities and ensure ‘Environmental Livelihood Security’ (ELS) and poverty reduction through participative development planning (Biggs et al., 2015, Morse & McNamara, 2009). Here we are referring to modes of living of autochthon communities embedded in a specific physical environment that presents a high degree of autonomy to sustain social (and environmental) production and reproduction. We might call them “camponeses” or traditional family farmers with policultural land use practices which did not adopt capitalist modes of production. This does not mean, that they are isolated from markets, but rather that they are able to reproduce their own means of production (seeds, maintaining fertility through ecological adapted land use systems without the need for credit to buy agricultural inputs, creating debt which needs to be repaid, maintaining food sovereignty).

These livelihoods are not vulnerable in the sense that they do not need development aid, as SLA approaches frequently imply. On the contrary, they suffer from the pressure from “development” brought from outside, based on a market ideology of economic growth, which is dependent on eternal expansion in space. We denominate this dispute between different modes of appropriation of the environment as “territorial environmental conflict”. In contrast to “distributive

environmental conflicts" (inequalities in access to resources) or spatial environmental conflicts (conflicts about pollution spreading in space), theses territorial environmental conflicts are rarely able to be resolved through negotiated conflict resolution (Laschefski, 2014; Zhouri, 2008). As we will show below in the study on conflicts in the pulp industry in Bahia, Brazil, it is almost impossible to achieve a "win-win consensus", as mainstream environmental management propagates, because loss of territory also entails the destruction of the material base of the livelihood of at least one of the parties in dispute.

In the following schemes, we summarise some of the most important spatial effects of traditional and urban livelihoods.

Table 1
Territorial livelihood metabolism of non-urban self-sustaining communities.

Everyday community life	**Community regulation over *space*:**	**Spatial expression in territory:**
is organized within the conditions of the *local or regional environment.* There is *no clear spatial and social separation* of living, labour, education, leisure, social services (organized within the family/community structure). Other demands are met by commercializing the surplus production in their own territory.	subordinated to *use value* *Self-sufficiency* Housing and landuse systems are embedded in natural regeneration cycles and locally available water and energy resources, sanitation solutions are based on local knowledge. Low dependency on *globalized urban circulation networks*	*Dispersed forms* of settlement, small village or towns. *Production and consumption networks* are articulated in local material and energy flows. *landuse and settlement forms* are embedded within the local environment based on - agrobiodiversity - economic diversity - cultural and social plurality ***Autonomy:*** Capacity to reproduce the means of production without external inputs (reduced need for monetary capital for social reproduction)

Main community value: **maintenance of territory as patrimonium**	→	***Production of space in search for durability***	→	**Stable *ecological footprint.*** **(dependent on population dynamics)**

Table 2
Territorial livelihood metabolism in urban (capitalist) societies.
Source: Laschefski 2017.

Urban Everyday life	**Urban regulation over *space*:**	**Spatial expression in territory:**
is determined according to the division of labour by the circulation between separate places for living work education leisure shopping social services long distant places (work, tourism, etc.) other demands.	Private and public *property rights on space*, subordinated to *exchange value* *Buildings integrated* into an *extensive infrastructure* for transport, water and energy supply, sanitary facilities, information, etc. High dependence on globalised *energy-intensive urban circulation networks.*	Concentration of the population in *urban centres* dependent on global *networks of production and consumption* (territorial division of labour) to organize *flows of material and energy* inbetween cities and ecological- and socially *monoculturized áreas* for - agriculture and forestry - energy (e.g. hydroelectric dams) - mining (rocks, metals etc.) ***Heteronomy:*** depending on monetary capital for social production and reproduction.

Value of well-being: **unlimited material and financial accumulation**	→	***Capitalist production of space***	→	**Increasing *ecological footprint*:** **pressure on other human territories and ecosystems**

Table 3
xxx.
Source: Laschefski, 2002, adapted 2018.

	Parameter	Sustainable	Unsustainable
1	**Land use**	natural: unused (socially unsustainable) almost natural: use without changes in the structure of the natural ecosystem (extraction, recreation, etc.) semi-natural: rotation systems embedded in natural regeneration cycles, low reduction of biodiversity (natural forest management systems, agroforestry, organic agriculture, etc.)	semi-artificial: land use with exotic species and uses, mechanised with application of agrochemicals reduced biodiversity (monocultures, industrial agricultural production) artificial: complete transformation of nature (mining, urban construction, infrastructure)
2	**Spatial organization**	decentralised: diversified land use, tendency towards low concentration of population	centralised: land use monoculturised for certain products, marked tendency towards concentration of population in urban areas
3	**Carrying capacity**	self-supporting: the needs of a given society can be satisfied with the available area (dependent on the society's basic values)	weak and dependent: satisfaction of society's needs is highly dependent on external inputs from other territories
4	**Consumption of resources and space**	stable: resource and space requirements are stable	expansive: tendency towards increased consumption of resources and space
5	**Transport system**	short distances: extensive: low consumption of materials and energy (e.g. boats, horses) natural: e.g. rivers, unpaved roads	long distances: intensive: high consumption of materials and energy (e.g. trucks, cars) artificial: channels, roads, airplanes
6	**Pollution of the environment (distribution of the localization of emissions and waste)**	low: few polluters, short distance between locations of production and consumption (less packaging required and few emissions, many sources of decentralised clean energy)	high: many polluters, production with high consumption of materials, long distance between production and consumption locations (large amount of packaging, waste and emissions), energy comes from centralised suppliers of non-renewable sources
7	**Environmental justice** **a) balance of distribution and access to resources and territory** **b) governance effectiveness**	a) balanced: few differences between individuals with respect to the distribution of and access to resources and territory b) governance to guarantee individual, collective, diffuse, formal and customary rights	a) unbalanced: large differences between individuals with respect to the distribution of and access to resources and territory b) governance based on neoliberal approach to the negotiation of different interests

5. Parameters to evaluate the sustainability of livelihood-territory relations

Based on a comparative interpretation of Tables 1 and 2, we propose seven fundamental parameters for issues that seem to be generally accepted within the sustainability debate, although their importance or application may divide opinions.

As we have argued throughout this text, we understand sustainability not as a closed concept of a certain state of society, but more as a structuring structure that needs to be permanently reshaped in interaction with the dynamic of social-environmental processes in space. In our understanding, space is socially and politically produced by social subjects, peoples and cultures according to their different forms of symbolic and material appropriation of the physical environment. The current unsustainability of modern urban society is characterized by a livelihood that – due to the equating of quality of life with material accumulation as a basic social value – is not only responsible for resource depletion and global environmental problems, but also for the continuous expansion of its territories, generating conflicts when these areas are claimed by other groups to sustain their own modes of living.

In this context, policies that appeal to consumer awareness in order to reduce ecological footprints at an individual level will not lead to sustainable livelihoods or environmental justice so long as spatial planning fails to create the conditions necessary to intervene in the unsustainable metabolism. The aggregation of isolated indicators and criteria to evaluate sustainability will only lead to partial, fragmented solutions and probably create new problems and contradictory situations.

Based on these assumptions, we extracted from concepts such as nature conservation, eco-social production, compact cities, transport and environmental justice the following list of dynamic parameters of sustainable or unsustainable situations (Table 3).

This evaluative schema for livelihood-territorial metabolisms provides a framework for understanding the agency of a specific project, planning procedure or public policy within a particular set of socio-environmental interdependencies in space and ongoing spatio-temporal processes. The schema is not limited to methodological cityism, therefore, although it can be used in classical urban planning.

The parameters are not meant to promote a "back to the past" romanticism, given that many sustainable initiatives already point to a modern way of achieving sustainability: urban gardening, car sharing initiatives, and regionalized organic agriculture, for instance. Hence, our proposal here is essentially to put things in context.

6. The case of the Veracel pulp plantation and production ventures in Bahia, Brazil

To illustrate the use of the above parameters within the context of conflicting livelihood metabolisms, we present the case of one of the world's largest pulp producers, Veracel, a joint venture between two multinational companies, Suzano/Fibria and Stora Enzo.[1] The company is located in the region *Extremo Sul de Bahia*, Brazil. While the industrial facilities are based in Eunapolis, the plantations are distributed around Eunápolis in Canavieiras, Belmonte, Guaratinga, Itabela, Itagimirim, Itapebi, Mascote, Porto Seguro and Santa Cruz Cabrália. Veracel began buying land in 1991 and owned 207,353 ha in 2018, 87,263 ha of which are used for plantations of *Eucalyptus urograndis* (Rainforest

[1] Veracel was founded in 1991 as Veracruz Celulose, a subsidiary of the construction company Odebrecht. In 1997, the firm became a joint venture with Odebrecht and the Finish cellulose giant Stora, which decided to build the industrial pulp plant, including the Belmonte harbour in Eunapolis, in the south of the Brazilian state of Bahia. In 2000, Odebrecht withdrew its participation, consequently assumed by Aracruz Celulose, which after fusion with Votorantim Celulose e Papel in 2009 became Fibria. Stora merged with Enso in 1998. In March 2018, Fibria was taken over by Suzano, a Brazilian paper and cellulose industry. Veracel is today a joint venture between Suzano Fibria and Stora Enso, therefore, which together form one of the most powerful global players in the pulp and paper sector (information obtained from the websites of the aforementioned companies in May 2018).

Alliance, 2018). Additionally, 5% of the raw material comes from third-party forestry partners – small producers fostered by the company (Veracel, 2017). The company intends

> …to become a worldwide benchmark in sustainability and distinguish itself as an environmentally correct, socially fair, and economically viable company. In line with this, a Sustainability Agenda was prepared, consisting of a set of actions seeking to ensure:

- The business's competitiveness
- The best environmental practices in forest management
- The best environmental practices in pulp production
- A strong social commitment
- An active dialogue with stakeholders
- The generation of positive economic impacts for the region (Veracel, 2016)

The firm claims that 50.6% "of the territory has been set aside for environmental preservation" (Veracel, 2017). Seeking international recognition for its endeavours to sustain an environmental and socially sound performance, the company requested certification from the National Program for Forest Certification (Cerflor) in 2005 and the Forest Stewardship Council (FSC) in 2008. Certification from the FSC, founded in 1993, in particular is a very important step for companies to gain credibility among consumers since the initiative is backed by important NGOs like WWF (World Wildlife Fund) and Greenpeace. The FSC certification scheme, therefore, is an example often cited as a model for international governance by institutions like the United Nations, World Bank and the European Union (Laschefski, 2002). The main difference in comparison with most other ecolabelling schemes is its stakeholder process, designed to guarantee the participation of all interested people in the undertaking in question, including those who are faced with its negative consequences.

Nonetheless, Veracel's certification proved to be highly controversial (Kill, 2016; Kröger and Nylund, 2012) following a series of scandals involving companies that received such certificates without the necessary social and environmental compromise (Counsell & Loraas, 2002). In this article, however, rather than focusing on specific violations of FSC principles and criteria, we shall analyze the sustainability of the company's spatial relationships based on the parameters presented above. Our research is grounded in an analysis of the abundant material available from the company's certification process, complemented and updated by field studies conducted between 5th and 12th April 2018 as part of an investigation for a report for German and French television on the 25th anniversary of the FSC.[2] This research included visits to film interviews with occupants of the landless people camps in Paraíso and Barra Verde, the indigenous settlements of Barra Velha and Nova Esperança, the public prosecutor's office, the Padre José Foundation in Teixeira de Freitas, two smallholder farmsteads and a pesticide victim. A visit to Veracel was also planned but did not take place. Given the scope of the present work, here we can merely give a few brief impressions of the research findings.

6.1. The sustainability of land use

Veracel's most striking spatial intervention are certainly the eucalyptus monocultures, which form a technically transformed, almost artificial landscape. These can hardly be considered sustainable. Unlike non-certified companies, Veracel committed itself, in principle, to respecting areas covered by nature conservation legislation, the controlled use of agrochemicals, measures to avoid soil compaction, and so on. Even if we overlook the numerous irregularities reported by social movements (Kill, 2016; Kröger & Nylund, 2012, own research in 2018), the company can still be said to adhere to the concept of unsustainable monoculture. This contrasts with the objectives of the FSC in Germany, which aims to convert monocultures into near-natural commercial forests. The impressive figure represented by more than 50% of the Veracel site being covered by natural areas is not the outcome of an active renaturation strategy, though, but merely an acquired stock of land, which amounts to a persistently high potential for conflict with the local population (see 7. Environmental justice).

6.2. Spatial organization

The agro-industrial complex associated with eucalyptus and pulp production in the south of Bahia has been a decisive factor in the urbanization of communities over the last 30 years. Together with the pulp mills, a wide variety of services have been established, turning the integrated cities into economic development poles. This development has led to considerable growth in urban centres and, at the same time, the migration of a rural-urban population encouraged by the hope of finding employment. According to Almeida et al. (2008), the rural population fell by 51% between 1980 and 2000 in the Extremo Sul de Bahia. Everything indicates that the process of implosion-explosion is in full swing. The Getulio Vargas Foundation (FGV-Fundação Getúlio Vargas, 2007) estimated that Veracel created 741 direct and 29,600 indirect jobs with the installation of the cellulose factory. However, Neto (2012) points out that the largest number of jobs were generated during the construction phase. In the following phase of operation, labour requirements were reduced and restructured as the company needed more highly trained workers with the knowledge necessary to handle the modern installations and machines. Today, in the cities dominated by pulp mills, there has been a significant growth in slums, meaning that what can be seen generally is not an improvement but simply a change in the nature of social problems. Hence the promise of development propagated by the companies has failed to materialize (Neto, 2012; Almeida et al., 2008).

6.3. Carrying capacity

If we now interpret the companies as nodal points embedded in a global urban livelihood metabolism, the following picture emerges. The installation of the pulp mills accelerated immigration and concentration of the population in the cities and increased the monoculturisation of rural areas, which had already been initiated by coffee, cocoa and sugar cane production since the beginning of the twentieth century. This has been accompanied by a loss of land for basic food production, water scarcity and a higher demand for energy and so on, which has resulted in an overall expansion of the environmental space of urban centres. Social indicators show that for many people, though, a decent standard of living has not been achieved in these cities. An aggravating aspect is the unilateral dependence of companies on the global pulp market, the vulnerability of which was already noticeable during the 2008 economic crisis and the subsequent decline in employment figures (Cunha, 2009). The prosperity of the cities depends, therefore, on the consumption of tissues and toilet paper overseas. The one-sided focus on export-oriented pulp production has dramatically increased the region's vulnerability and dependence on other territories and volatile cross-border markets, which even calls into question the economic sustainability of the company itself.

6.4. Consumption of resources and space

The parameter "consumption of resources and space" is closely linked to the previous parameter "carrying capacity." In contrast to the latter, however, this refers not to a structural systemic characteristic but to the tendencies relating to its future development. In this case, the

[2] Ladwig, Manfred; Reutter Thomas, "Die Ausbeutung der Urwälder Kann ein Öko-Siegel die Forstindustrie stoppen?" First broadcast: ARTE 16 October 2018. Available with English subtitles: https://www.youtube.com/watch?v=zAbUWWeQoDo, Accessed 30 October 2018.

situation is relatively easy to analyse. Veracel is a growth-oriented capitalist company that aims to expand its production capacities and associated markets. Both Veracel and its owners Suzano-Fibria and Stora Enso have incorporated the expansion of their activities, including strategic steps towards new growth cycles in southern Bahia and Minas Gerais, into their corporate planning (Celulose online, 2008). The developments described above will therefore continue.

6.5. Transport system

Veracel's agro-industrial complex is based on an extensive transport network that has not only actively developed the regional transport infrastructure but has also set up a port for overseas transport. As usual for multinational companies, Veracel's agro-industrial complex is based on a global transport network. In the Eunapolis area alone, the company has built at its own initiative 110 km of asphalt roads and 1500 km of gravel roads designed for heavy trucks (Neto, 2012). It has also built a port for sea transport to the capital of Espirito Santo, Victoria, from where the pulp produced is shipped primarily to Europe and China. Of course, the infrastructure also benefits the local population, a fact that might contribute to the alleviation of social problems, but the main purpose of this far-reaching energy-intensive and mainly artificial transport system is to facilitate the global flow of commodities.

6.6. Pollution of the environment

We refer here to the structural aspects determining the pollution potential of the metabolic system under analysis, rather than listing specific pollutants. The deeper rationale behind this approach is the fact that the limit values set in urban societies for specific pollutants often fail to meet the needs of population groups that live directly from natural resources. For example, the Rhine in Europe is said to have good water quality, yet nobody would actually drink this water. This is only acceptable in fully urbanised regions where the technical and financial resources are available to treat water for human consumption. In the Brazilian context, these quality criteria are often adopted acritically, although in areas such as the extreme south of Bahia there are still many traditional peoples who are not connected to urban supply networks, and are therefore more vulnerable to environmental damage through pollution.

During our field studies, we heard the same complaints about pollution problems caused by the plantations in all the communities we visited. The use of agrochemicals, some of which are released by aircraft, not only makes surface waters undrinkable and unusable for other purposes (personal hygiene, laundry, etc.), but it also leads to human and animal health issues.

The production of traditional food crops such as manioc often fails due to the use of glyphosate and other herbicides. As well as the well-known negative effects of eucalyptus plantations on ground and surface waters, caused by dust and sludge produced by the erosion of clear-cut areas, the environmental impact of the transport system and emissions from industrial plants should also be included.

A chief of the Pataxó people in Barra Velha, Bahia, summarized the problems during a meeting of all the region's chiefs in April 2018: "We live here trapped among the eucalyptus plantations, the water is poisoned, the soils are drying up, the animals are gone. We feel that our people are being extinguished."[3]

Consequently, this agro-industrial complex has a systemic pollution potential across all its managed areas and beyond. According to the certification reports, however, there were only minor violations of the relevant FSC principles and criteria that do not compromise certification (Rainforest Alliance, 2017 and 2018).

6.7. Environmental justice

6.7.1. Balance of distribution and access to resources and territory

The interviewees were representatives of indigenous communities and social movements campaigning for the distribution of unregulated state land (*terras devolutas*) to benefit the landless population. Their main strategy is the occupation of land to speed up the implementation of the constitutional law on agrarian reform. Conflicts arise in areas that Veracel is also claiming for its expansion projects. The landless peoples movements, along with indigenous leaders who are working to regain their original land, are continually threatened and criminalised.

At the aforementioned meeting of chiefs in Barra Grande, the participants even spoke of war. In the words of the eldest chief from the group: "The eucalyptus is planted on our land. That is why we met here to discuss whether we should continue to negotiate with the company, or whether we should take back our land by other means."[4]

Another example refers to a territory occupied by landless people called *Baixa verde*, lelegallly recognized by the courts as a pre-settlement in 2009 and which has since been in a regulatory process to be formalized (Souza, 2018). During a visit in April 2018, the women told us about the frequent harassment they suffer. Below is an account of one particularly serious case:

> "The men had all gone to work or were in the fields. Suddenly there were fires in three different places around the village at the same time. Because of the smoke, we and especially the children were left coughing, we could hardly breathe and our eyes burned. The fire came closer and we fetched water from a river with buckets and tried to extinguish it. It was hopeless. Then a water tank truck passed by. We forced the driver to help us extinguish the fires. That was the only way to save the village."[5]

In another case in Eunápolis, which also began in 2009, an illegal land register procedure called *grilagem*[6] replaced a farmer's land title from the 1970s with another Veracel, which was issued for a property 21 km away in the neighbouring municipality of Santa Cruz de Cabrália. Since then Veracel has planted eucalyptus on the farmer's land. While the farmer has contested the irregular transfer of property rights in court, the police, together with private security services hired by the company, have repeatedly evicted him from his land and destroyed his house twice (Stolze, 2018). During our field studies, we witnessed the farmer trying to save the eucalyptus trees from being cut down by Veracel harvesters. The farmer justified his action as follows:

> "Veracel has been planting eucalyptus on my land for eight years.

[3] Authors' translation. Original Portuguese: "*Nós vivemos aqui encurralados entre as plantações de* eucalipto*. A água é envenenada, os solos secam, os animais sumiram. Nos sentimos o nosso povo está sendo extinto*." Interview with a Pataxó chief during a meeting of indigenous leaders in the Barra Velha comunity, Porto Seguro, Bahia, Brazil.

[4] Authors' translation. Original Portuguese: "*O eucalipto é plantado em nossas terras. É por isso que nos reunimos* aqui *para discutir se devemos continuar a negociar com a empresa ou se devemos pega de volta as nossas terras por outros meios.*" Interview with a chief of the Pataxó during a meeting of indigenous leaders in the comunity Barra Velha, Porto Seguro, Bahia, Brazil.

[5] Authors' translation. Original Portuguese: "*Todos os homens tinham ido trabalhar ou foram na roça. De repente surgiram ao mesmo tempo três fogos ao redor da aldeia em lugares diferentes. Por causa da fumaça nós e sobretudos as crianças tiveram que tossir, não conseguimos mais respirar e nossos olhos estavam ardendo. Os fogos chegaram cada vez mais perto e nós tentamos apaga-los com a água do corrego que buscamos com baldes. Foi um desespero só. Felizmente passou um caminhão pipa ali e corremos para pará-lo. Forçamos o motorista a nos ajudar a apagar os fogos. Somente assim consguimos salvar a nossa aldeia.*" Interview with a woman from the 'Movimento de Luta pela Terra' settlement, Fazenda São Caetano, Eunápolis Bahia, 8 April 2018.

[6] The term *grilagem* originated from the practice in earlier times of putting forged documents in a drawer together with crickets (*grilos*), whose excrement stained the paper and thus allowed it to age prematurely.

> During this time I have been unable to use the land and have made losses. Twice the police along with the company's security forces destroyed my house. Now I want to harvest the eucalyptus myself to get compensation for the loss."[7]

A day later, the same judge who declared legal his expulsion from his farm ordered a review of the overlapping land titles. An interview with Veracel, scheduled for the next day to hear the company's opinion on the above problems, was unable to take place.

Over the course of our investigations, we paid particular attention to farmers who are not represented by specific associations or other advocates. Since these small farmers have always depended on various masters (*senhores*, *patrões*), the culture of speaking out, verbally contradicting or even rebelling against authority figures is not common for them. This situation applies to one farmer whose land is literally crammed with eucalyptus plantations. He told us that in 2004, during the construction of the access road to the pulp mill, then under construction, the company spilled building rubble on a spring that supplied water to his land and the areas owned by nine other farmers. Since 2007, by informal agreement, the company had been replenishing the family's water reservoir once or twice a month by means of a water tanker truck. In December 2017, though, Veracel decided to stop the supply for cost reasons. The basis for the entire production and reproduction of the farmer's livelihood on his property was thus destroyed. Lately he has been getting more and more offers to buy his land, which he refuses because he would be unable to buy an equivalent area of land elsewhere for the proposed price. Many farmers do accept these offers, however, and thus, by giving up their land, pave the way for cellulose companies to reforest these areas – now designated 'degraded landscape' – with eucalyptus plantations suitable for FSC certification (FSC, 2017; Pawson et al., 2013).

Last year, the peasant farmer tried to hire a lawyer, but he gave up when asked for a written document denouncing the violations related to the spring. The reason was his mistrust of IBAMA (Brazilian Institute for Environment and Renewable Resources), which is responsible for penalizing environmental crimes. During our field studies in April 2018, he remarked: "Why should I go to IBAMA? They're always driving around with brand new pickups donated by the company. They'd make my complaint disappear into the drawer immediately."[8]

Looking for positive resolutions of land conflicts, we also visited the indigenous villages of Barra Velha and Nova Esperança, mentioned in the 2017 Rainforest Alliance/IMAFLORA certification report, which states that the company treats land ownership issues with goodwill and thus does not violate FSC principles and criteria (Rainforest Alliance, 2017, p 23-24). However, the interviewed chiefs said that the conflicts were by no means resolved and that they were in a virtual state of war with Veracel. In Nova Esperança they guaranteed land for 40 families from a community of 63 families. The fact that 23 families would remain without any prospects for the future did not simply contribute to the sense of profound dissatisfaction:

> "So that's when I named the village here Nova Esperança [New Hope]. I hoped this village will belong to us. We hope that – in the name of God – I hope that soon in this village here we can say 'Veracel never, Veracel never – only Indians' […] But the birds no longer live here, the houses no longer exist, we have no right to anything […] if we cros over the fence here we cannot even pick up one bit of firewood. But that was in agreement with these people."[9]

The report mentioned another case of a 'quiet' and 'conflict-free' evacuation of 20 people, including women and children, and the subsequent demolition of their shacks on the Sapucaia Farm. The victims were transferred to a camp situated by the side of the BA 683 Federal Highway (Rainforest Alliance, 2017, p. 26). What is described in the report's bureaucratic language as a proper procedure was in reality a human tragedy. Those families denied any right to physical space live in terrible conditions along the roadsides: in Marx's terminology, these people can be seen as 'free-as-a-bird' outlaws (*Vogelfrei*) who arose in the course of primitive accumulation (Marx, 1885).

The examples briefly outlined here represent a common narrative in all the regions of Brazil where eucalyptus plantations have been established and either open conflicts have arisen over land or rural territorial livelihood metabolisms are being destroyed by negative environmental impacts, forcing those affected to abandon their previous way of life.

6.7.2. Governance effectiveness

Veracel published a code of conduct in 2016 setting out its governance principles, which comprise integrity, transparency, impartiality, professionalism, trust, sustainability, compliance and respect for human rights. As a condition for FSC certification, it claims to pursue a policy of dialogue with all stakeholders, including rural communities. During our field studies in 2018, however, we found that the inadequacies already identified in numerous studies regarding Veracel's so-called stakeholder process, which is meant to be integral to FSC certification (Kill, 2016; Kröger & Nylund, 2012), have by no means been eliminated to date. Only a few of the interviewed people, including community leaders and representatives of social movements, had heard of the stakeholder process, and fewer still understood its importance. The only person who was aware of participating in the process, a leader of MLT (*Movimento pela Luta pela Terra*), was disappointed because there had been no apparent interest in his concerns. To him it felt more like they were trying to persuade him of the benefits of eucalyptus and the plantations. This indicates a major shortcoming of the environmental audits, which neglect the negative effects caused by changes in direct or indirect land use, a topic that affected stakeholders often wished to discuss when they feel that their territories are under threat. For this reason, the indigenous leaders interviewed are currently discussing how they themselves can reappropriate their land, allegedly stolen by Veracel, since they feel stalled by the endless and fruitless negotiations with the company and authorities, including the certifiers.

Former land use patterns, which would probably better attend the needs and wishes of those living there, are normally not considered, given that certification is primarily focused on internal conditions of production and the associated chains of custody over the produced goods. Instead, what is usually treated in the stakeholder process are measures to mitigate or compensate social and environmental impacts, or, in other words, proposals for how to adapt the existence of these local communities to the company's interests.

[7] Authors' translation. Original Portuguese: "*A Veracel tem plantado eucalipto na minha terra há oito anos. Durante esse período, não consegui usar a terra e sofri perdas. Duas vezes a polícia e as seguranças da empresa destruíram minha casa. Agora quero colher o eucalipto para obter uma compensação pelas perdas*," Interview with a farmer at the Fazenda Conjunto São Geraldo, Eunápolis, Bahia, Brazil, 9 April 2018.

[8] Authors' translation. Original Portuguese: "Por *que eu deveria ir para o IBAMA? Eles estão sempre andando por aí com caminhonetes novissimas doadas pela empresa. Eles engavetariam minha reclamação imediatamente*." Interview with a peasant farmer living next to the Fazenda Brasilândia Highway, 10 April 2018.

[9] Authors' translation. Original Portuguese: "*Então foi quando coloquei esse nome aqui Aldeia Esperança. Espero que esta aldeia seja de nós. Espera que – em nome de Deus – espero que em breve que nesta aldeia aqui podemos dizer Veracel jamais, Veracel jamais – só índios… Mas, os passaros não vivem mais, as casas não existem mais, agente não tem dereito a mais nada…! se passa a cerca aqui você nem pode colher um pau de lenha. Mas isso houve no acordo com o pessoal.*" Indigenous leader, Nova Esperança, Teixeira de Freitas, Bahia, Brazil. 10 April 2018. (Transcription of the documentary by Ladwig, Manfred; Reutter Thomas, "Die Ausbeutung der Urwälder - Kann ein Öko-Siegel die Forstindustrie stoppen?" First broadcast: ARTE 16 October 2018, Available with English subtitles: https://www.youtube.com/watch?v=zAbUWWeQoDo, Accessed 30 October 2018 (from 1:05:42 to 01:06:20).

All interviewees pointed to Veracel's close ties with the state government, mayors, public institutions, the judiciary, political parties, and even certain environmental organizations and social movements, which, with a few exceptions, prevent any independent investigation into the irregularities, confirming the analysis of Kröger and Nyland 2012.

As stated earlier, the stakeholder consultation thus configures a social field with an asymmetric distribution of power in which local peoples' projects for the future remain invisible, inhibiting the autonomous construction of their own territory and history.

7. Final considerations

The evaluation of the impact of the pulp industry based around the FSC-certified Veracel in the extreme south of Bahia, Brazil, using the parameters identified in this paper, has produced the following results:

Even industries that present themselves as benchmarks for sustainability are stimulating classic development through the drastic spatial restructuring of the regions in question, with all its unsustainable consequences. This is particularly the case when such industries move to developing and emerging countries in order to open up new operational spaces for urban societies of the Global North. The 'explosions' are reflected in the expansion of the environmental space – or the operational landscapes of (near) planetary urbanisation – in order to meet the wishes of prosperous urban societies.

The explosions of these operational landscapes:

- trigger territorial environmental conflicts with local landless movements, farmers and indigenous peoples. Operational landscapes are not only functional spaces of the urban, they are territories, understood as a relational fabric of power relations of the urban. They are subject to power struggles, therefore, if other cultures claim that they need them as the physical basis for their livelihoods. Consequently, the operational landscapes of the urban must be analysed and re-politicised. (Parameter 7: environmental justice.)
- contribute to the monoculturisation of vast areas of land and thus 'explode' the local socio-biodiversity. The main victims are those whose territorial livelihood metabolisms are destroyed by the negative environmental impacts, often the reason for spatial environmental conflicts. Hence these effects are not simply objects of causal scientific impact analyses, but phenomena that are perceived differently by groups embedded in their specific territorial livelihood metabolisms. These too must be dialectically analysed and politicised. (Parameter 1: land use, 6: pollution of the environment, 7: environmental justice.)
- encourage rural exodus and the concentration of the population in the cities in which the companies are located – processes that, however, often lead to social distortions and impoverishment, while only a small portion of the population enjoys prosperity. The explosion of urban centres thus creates operational spaces in which precarious explosions/implosions take place – these are an expression of the social and political production of space. (Parameters 2: spatial organization, 3: carrying capacity, 4: consumption of resources and space.)
- deepen the mutual interdependencies between newly created fixed spatial points (production sites, places of consumption) that are articulated via global transport and information networks in order to guarantee the flow of materials, energy and goods. These high energy and material intensive networks are exploding too. (Parameters 2: spatial organization, 5: transport system, 4: consumption of resources and space, 6: pollution of the environment.)

Based on these results, we can draw an initial general conclusion: the search for sustainability includes the re-implosion of the exploding operational landscapes generated by the urban. In a less academic reading, we might could summarize the causes of the conflict related to Veracel as follows: in the interviews, several members of the indigenous peoples and the landless movement expressed their incomprehension that the most valuable farmland, which could eliminate the plight of the poor rural Brazilian population, is being made available for the production of toilet paper for affluent urban societies in the so-called Global North.

The question now is why the FSC, praised as one of the most credible international governance programmes and supported by formerly advanced environmental NGOs, seems to be blind to the quite obvious problems identified. One reason is that its principles and criteria aim to solve – following the logic of ecological modernization of mainstream environmental management – specific problems in order to improve the social and environmental performance of capitalist undertakings at company level without considering their structural interdependencies in lived space. Problems with people indirectly affected by the ventures or with stakeholders and their territorial claims are treated as negotiable interests within the framework of a dialogue policy, not as unchangeable necessities to maintain their livelihoods. However, territorial environmental conflicts cannot be resolved through negotiations and consensus-building since a win-win logic simply does not apply in this instance. When it comes to territories, there is no middle ground: either you have it or you do not. Depriving people of territory inevitably has a negative effect on the livelihood metabolisms of those who lose out. As we have shown, power hierarchies that almost entirely prevent the poor rural population from expressing its opinion have pervaded the stakeholder process. Furthermore, the work of certification largely consists of verifying documents, which companies can easily obtain through their influence on politics and public institutions. These documents do not necessarily reflect reality on the ground.

Last but not least, there exists a general structural problem in the FSC system, which is also very common in other kinds of ecological audits: a certifier or auditor, hired by the interested company, is willing to sell its product, namely the certificate or attestation of environmental viability. Refusal to endorse the business venture would expel them from the competitive market, given that they would be unable to obtain any clients in the future.

As shown by cases in the Brazilian Amazon too (Laschefski, 2002, 2010), certification thus offers a narrative of ecological and social correctness to justify the expansion of the environmental space at the cost of other peoples' territories, configuring a kind of hidden land grabbing within the context of ecological imperialism (Laschefski, 2010).

As a second conclusion we argue that ecological modernization in the current context of mainstream environmental management neglects or even denies space and imposes power relations. As a consequence, it fails to ensure sustainability.

The proposed parameters thus represent a normative framework for a dialectical analysis of geographical objects, focusing on the sustainability of their socio-environmental embeddedness within a conflictual territorial dynamic. Nevertheless, we are aware that these parameters are not enough to overcome one of the main causes of social and environmental unsustainability: the resolute belief in the possibility of unlimited capital accumulation. In the case discussed above, the answer seems simple: the further expansion of Veracel could be counteracted by the use of recycled paper (as a contribution to the efficiency revolution) and the avoidance of waste (as a contribution to the sufficiency revolution). We need to recall, therefore, the concepts that promoted the sufficiency revolution – not only at the level of the individual consumer, but, first and foremost, in relation to spatial planning to enable a re-implosion of the operational spaces that sustain urban territorial livelihood metabolisms. But it must be borne in mind that Veracel is an important structural base for the cities in which it is located. The closure of the company would have serious social consequences for the people who depend on its activities. Such a re-

implosion strategy must therefore also include restructuring these cities towards greater sustainability. The example shows that the search for solutions can often only take place through a balancing process. The parameters presented here are intended to serve only as a guideline, not as a predetermined solution.

This said, we come to our fourth conclusion: ecological modernisation has to be politicised, confronting it with the unsustainability of capital accumulation. Interestingly enough – given the increasing scepticism displayed towards mainstream sustainability policies – there has been a revival of discussions concerning alternative lifestyles, recalling the radical proposals of environmental movements in the 1970s and 1980s. These discussions are marked by humanistic values, solidarity and an increasing interest in the 'new commons' – or, in other words, shared material and immaterial resources, which need to be regulated neither by the state nor by the market. Some academic schools, particularly in Latin America, have sought to conceptualize these issues as an alternative political theory (Esteva, 2006). Indeed this model has already inspired a government policy of *Buen Vivir* (Living Well) in Ecuador, based on the indigenous philosophy of Sumak Kawsay (from the Quechua language spoken by indigenous peoples in the Andes) and its community-centric, ecologically-balanced and culturally-sensitive cosmovision (Acosta, 2016; Gudynas & Acosta, 2011; Prádanos, Helland, & Esteban, 2015). Embedded in a critical assessment of neoliberal globalization and affluent capitalist societies, these authors are working in dialogue with a growing academic group calling for research that exposes the persistence of a dominant 'racist' Eurocentric thinking, or *colonialidade* (coloniality), within the institutions of former colonies (Lander, 2016).

Based on the above, we hope that this paper has contributed to a "possible object" (Lefébvre, 1970) with a new understanding of *sustainable* urbanization that may prove useful to ongoing struggles against planetary enclosure, market fundamentalism and global ecological plunder "… towards collective re-appropriation and democratic self-management" (Brenner, 2015, p 28) of space through a re-implosion of operational landscapes which 'exploded' onto other peoples' territories.

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