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From Personal Transformation to Sustainable Development

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Abstract: *The transition to sustainable development requires a fundamental shift in thinking that for years has been outlining a destructive line of consumption with devastating consequences. Nature's inability to accept the results of human actions, and man's ability to absorb the devastating results on his health, have made it clear that unless man changes his attitude, he will soon become a victim of his actions. This paper analyses the theories of fundamental transformation towards sustainable production and consumption discussed in the social science field.*

1. INTRODUCTION

The severe consequences of human actions aimed at satisfying 21st-century specific consumption needs strongly suggest that if people do not change their behaviour, the consequences of their actions will catch up with them and have an increasingly destructive impact on them. Awareness of the response that prepares the nature of past human actions has stimulated scientific inquiry into both the causes of their origins and the variables on which their change depends. The difficulty in finding these answers has challenged social scientists (Frantzeskaki & Loorbach, 2010; Grin et al., 2010; Smith et al., 2005), as well as scientists from almost all fields, have found complex changes in recent years. The need for timely action triggered a series of political meetings, debates, and decisions (Organisation for Economic Co-operation and Development [OECD], 2011; United Nations Environment Programme [UNEP], 2011). All this intensified its development in the early 20th century. The deteriorating situation calls for urgent measures, which we witness not only in the scientific literature but also in the series of political decisions of the last decade.

This article is part of a series of scholarly articles devoted to the search for the answer to how change can be brought about, advancing the hypothesis that sustainable development in all areas of public life will come about when we witness the personal transformation and the integration of sustainable development into individual human consciousness.

This article wants to reassure the reader that the start of this process has already taken place and scientists have the opportunity to discover its dimensions in various smaller and larger manifestations of our social life.

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2. RESEARCH FIELDS OF POLITICAL AND SOCIAL SCIENCE ENGAGED IN THE STUDY OF SOCIO-TECHNICAL TRANSITIONS TO SUSTAINABILITY

Markard et al. (2012) distinguish several research fields of political and social science engaged in the study of sustainability transitions. These are the now popular Four Frameworks that focus on transition studies. The first two, Transition Management and Strategic Niche Management focus on designing innovation processes that foster the development of innovations that have the potential to contribute to the development of sustainable systems, as opposed to innovations that do not have such potential (Loorbach & Van Raak, 2006). According to Loorbach and Van Raak (2006), the first framework - Transition management "was for the first time defined in 2000 as a policy or governance approach and later developed into a policy model to deal with long-term desired change and sustainable development" (p. 1). According to Kemp et al. (2007), transition management considers societal change as a result of the interplay among various relevant participants across different levels of society within a dynamic societal environment. It underscores the necessity for the principles and techniques of Transition management to be mindful of the changing societal conditions (Kemp et al., 2007, p. 3). These problems include the fact that different people have different perspectives on the nature of problems and different preferences for their solutions (Kemp et al., 2007, p. 4). Moreover, humans are at different stages of their evolutionary development, from which they perceive the changes that occur in all spheres of social life. Their perception and the subsequent stage of analysis and interpretation are strongly influenced by their capacity for understanding, the prior theoretical reasoning available to them, and the basis on which they analyze the state of current problems. Ethnic, cultural and religious specificities, place additional emphasis on interpretive schemes of explanation. All this leads to differences in the final decisions and concrete actions that different people will take within a similar reality. This complicates attempts to control behavior, especially in cases where we need emergency measures and rapid changes in behavior. Control, according to Kemp et al. (2007), should not be distributed on a top-down basis. It should be spread among diverse participants holding varying beliefs, interests, and resources (Kemp et al., 2007, p. 4). Taking into account the differences in people's beliefs and actions and creating new forms of governance in the context of highly dynamic climate change puts researchers in a "vise" who on one hand have to study the dynamics in the development of cultural, ethnic, religious, regional, and other relations to contemporary changes and on the other hand have to intensively search for approaches to guide them. Now that we are finding more clearly than ever that we need to replace short-term goals with a long-term perspective in order to take account of the consequences of our actions in the future and ensure that they are sustainable over time, we need a fundamentally new approach, the basis of which must be the potential of our present actions in terms of its future dimensions. According to Kemp et al. (2007), we need a form of governance that is concerned with expressing long-term goals and managing transitions. "The essence of transition management is that substance and process go hand-in-hand, creating partisan-mutual adjustment against long-term transition goals" (p. 4).

Loorbach (2007) highlights the fact that we have been witnessing for years - modern institutions and policies have mainly focused on achieving short and medium-term goals and problems (p.11), which naturally leads to achieving short and medium-term results with different effects on future development. In itself, the process of formulating short-term goals would not be problematic if these goals were steps on the path to a global goal, properly situated in the context of sustainable development. But if its dimensions possess the limits of a specific short-term goal, isolated from the future or contradictory to sustainable development,

then it realizes itself, within the set goals, possibly achieving its intentions, but possibly negatively affecting sustainable development. According to Loorbach (2007), setting long-term goals and developing strategies to achieve them can be accomplished by overcoming individuals' existing routines, mindsets, and physical and mental barriers (p. 11). In his view, this is the only way to achieve a new course of sustainable development, a course that starts from a shared sense of urgency and replaces ideas of iconic growth with ideas of "sustainability, social equality, democracy, quality of life and reflexivity" (Loorbach, 2007, p. 11). This, says Loorbach (2007), means reassessing the core values and standards of our society "at all levels: how we collaborate, innovate and modernize" (p. 11), our collective consciousness and sensitivity to environmental and societal issues, and what values and qualities we want to preserve and develop for the future (Loorbach, 2007, p.11).

The shift from short-term to long-term planning, linked to the ideas of sustainable development, changes not only the time perspective of the new tasks. It fundamentally changes the understanding of the meaning of the end goal. The urgency of which Loorbach speaks is confirmed by the abundant evidence of hard-to-manage consequences of human actions to date. All of them provide strong evidence for the reason that we have found ways to successfully achieve our short-term goals, but that they have carried different long-term consequences in different areas of our lives. And if we are to make a fundamental change in our thinking today, that change should be focused on the short or long-term nature of the actions planned, but most of all, on their long-term positive effect on all. This new perspective emerged in the negative response that, like a boomerang, nature returned to us to show us that the way we planned our actions up to that point could have a devastating effect on us. And if until recently this prospect seemed possible, but in a future so imminent and distant from us that it was not even certain whether it would ever come to pass, today nature has shown us that the effects of our actions inconsistent with her, with short-term consequences, can have equally inconsistent short-term negative effects on us - today. The boomerang effect of our actions carries an important message about the possible results of our actions, but it also shows that what we will receive in the future will be what we send to it today. The situation in which we find ourselves prompts a transformation, a sharp turn towards humanization, an awareness of the effect of individual actions on all, and a choice of what effect we want to achieve.

People are at different stages of their development. They are aware of problems in different ways, influenced by age, ethnic, ethnographic, national and religious factors. Taking this fact into account would make an undeniable contribution to the search for new approaches to the management of their behavior, but at the same time, it should be borne in mind that, in addition to theories that take into account the undeniable differences, there are theories that take into account the undeniable similarities between people, no matter in which part of the world their lives take place. Take, for example, the hierarchical structure of needs created by Abraham Maslow, which arranges - in an order specific and universal to all people - our human needs. Regardless of people's backgrounds and the conditions under which they live today, the overwhelming majority of people want to feed their children and ensure their health; to provide security and peace of mind for their families; to love and be loved; to support and be supported; to develop themselves in the best way for themselves and others. These and other common, fundamental, inherent human needs, similar for all of us, regardless of age, ethnicity and culture, education and social status, create a basis of convergence, the consideration of which can help us find policies for change just as much as those policies that take into account the differences between us. Moreover, since what brings people together has always been greater than what

separates them from each other, seeking approaches based on fundamental similarities is likely to be more successful. And further, because these convergences address fundamental human needs, people are much more likely to respond to them than to policies that address their differences.

The second framework, resembling some extent the first, appeared at about the same time and place, and similar personalities, such as that of René Kemp, underlie its development. This framework takes the name Strategic Niche Management and was introduced in the late 1990s as a new concept that combines policy tools for managing technological innovation with research models in so-called niches (Loorbach & Van Raak, 2006). As per Kemp et al. (1998), Strategic Niche Management represents an essential and self-aware element within deliberate transformative processes of societal systems (p. 12). In the words of Loorbach and Van Raak (2006) Strategic Niche Management refers to the process of consciously managing niche formation processes through real-life experiments (p. 2). Embedded is the concept that people's needs and wants as consumers are dynamic and influenced by their experiences. Their dynamic nature implies opportunities for change. Strategic Niche Management combines the social character of sustainable development with the development of new technologies and "supplies" the dynamics of technological development with social relevance. Although it is technology-centered (Loorbach & Van Raak, 2006, p. 9), this concept also places special emphasis on the environmental benefits of different technological options and encourages sustainability.

In some publications, we seem to find a critique of the framework that technology remains the starting point in its development and the idea of supply and demand takes center stage, but despite this real emphasis, the framework makes an elegant transition from the previously dominant principles to the idea that they can function within the idea of sustainable development. This framework suggests that new technologies, which all aspire to, even if they follow the principles of supply and demand, can offer users technologies that are consistent with the principles of sustainable development.

Weber et al. (1999, p. 11) wrote that experiments conducted within different protected niches should be designed to take into account different technological but also organizational, and social contexts. They also introduce additional dimensions of success, extending the framework used to evaluate it to date. Defining as successful this experiment also contributes to the transition toward a more sustainable system (Weber et al., 1999, p. 79).

One of the main ideas of Strategic Niche Management is that by experimenting with new technologies and new socio-technical arrangements, processes of co-evolution can be stimulated (Hoogma et al., 2005). According to Hoogma et al. (2005), technological change has become a central feature of modern societies, but the consequences of human actions show that we cannot continue to produce and consume as we have done. Change confronts us with the urgent need to direct everything we produce towards sustainability, but this is difficult to do as quickly as change shows us it is necessary. According to Hoogma et al. (2005), the need for change occurs before the necessary tools and policies are in place to achieve that change. There is a lack of a plan for a sustainable future and there is a need to experiment with alternative pathways (Hoogma et al., 2005). Strategic Niche Management is an opportunity to create protected spaces to develop new technology, to experiment and search for better and sustainable alternatives, and pathways to integrate them. Strategic Niche Management presents an imperative and necessary effort to bring social science understandings and innovation research into evolutionary economics (Lopolito et

al., 2022), opportunities to understand complex and multidimensional transformations in socioeconomic systems towards more sustainable patterns of production and consumption (Köhler et al., 2019). Giganti and Falcone (2022) propose that the key to comprehending the potential substitution of the prevailing sociotechnical system lies in concentrating on sociotechnical niches and the governance endeavors linked to them. This involves a kind of introspective governance that arises from joint efforts, centered on the core concept of substituting established (harmful) technologies with novel (eco-friendly) alternatives (Voss et al., 2006, p. 1).

Over the years, the socio-technical multi-level perspective (MLP) has become one of the main frameworks for the study of sustainability transitions (Geels, 2019; Köhler et al., 2019; Markard et al., 2012; Smith et al., 2010). It has added to the other components of socio-technical system transformations, the social-psychological phenomena under which people perceive, endorse, support or reject innovations. Although the focus on these is not the basis of this conceptual framework, in many publications we see a search for a link between consumer behavior and the factors that determine it. The clarity that the endorsement of innovation is dependent on people's beliefs, interpretations and expectations leads to the understanding that socio-technical transitions and changes in consumer practices are intertwined, with changes in technology including changes in consumer practices, policies, cultural meanings, infrastructures, and business models (Geels, 2018), public policies and markets (Elzen et al., 2003) and vice versa.

According to this framework, there are three levels at which processes interact: the first level is the level of current structures and practices; the second level is the level of deeply embedded cultural patterns; and the third level is the level of "radical innovation" where actors drive the development of technological innovations (Geels & Schot, 2007). The multilevel perspective postulates that "transitions occur through processes of interaction within and between three analytical levels: niches, socio-technical regimes, and socio-technical landscapes" (El Bilali, 2019).

According to Geels (2020), socio-technical transitions are interpretive and are dependent on people's expectations, visions, beliefs, meanings and interpretations that shape their motivations and preferences. They influence the social acceptance of certain innovations and the legitimacy of policy efforts. The discrepancies between beliefs and interpretations mean that transitions will not emerge based on consensus, on the contrary. They will spark controversy, debate, and struggle (Roberts & Geels, 2018). Interactions between innovations and existing regimes may also cause struggles: struggles between new and old companies, struggles between new and old technologies, discursive struggles from framing problems and solutions, struggles between dominant logic and new patterns, and political struggles. Consequently, according to Geels et al. (2016), transitions can be subject to contestation and controversy if actors change their beliefs and goals, or if there is increasing contestation of particular pathways. Conversely, transitions can be subject to consensus, on the occasions in which they meet people's beliefs.

A socio-technical multi-level perspective poses an important question in evolutionary terms, a question that has challenged transitions for hundreds of years. Namely, sustainable transitions to the next stage of development are possible when there is a synchronization between innovation (in whatever form - ideas, policies, new engineering solutions) and people's understandings. The ideas of socio-technical transitions and the tools for their implementation reflect and will always reflect the progress of a more dynamic, innovative and inventive part of society, endowed with the knowledge and capabilities to conceive of the need for innovation, to create their projects and to find ways to implement them. Although its level of development ensures

the progress of the whole society, its ideas will find their sustainable realization when they are adopted by the rest of society. This means that the elements of transition depend on a part of society, but if it does not ensure that they are integrated into the consciousness of the rest of society, their development will remain questionable. Socio-technical transition should therefore set out the idea that bringing innovations down to the understanding of all people is an important, and perhaps primary, issue in defining the people of their development. And since millennia of human history abound with examples that forcing society to accept the "new" is temporary, and that actual integration into consciousness ensures the persistence of perception and behavior, it is more than clear that efforts must be directed toward approaches that ensure actual understanding, awareness, and consent to the new. Of course, enforcing people's behavior, finding mechanisms to sanction non-compliance, and introducing an obligation to adhere to certain behaviors can and often does provide a quick and direct route to innovation. This is a very important issue when the complexity of the situation requires urgent measures that do not provide the necessary time for public reflection and acceptance. In this case, the appropriate policy would provide timely action, but if it is not then integrated into people's minds and recognized as an action they want to stick to, it will be temporary and only function within the framework of the relevant policy or sanction.

The complexity of the human psyche is hardly random and requires the simultaneous movement of all members of society in a common direction. The reason why one part of society possesses more knowledge than another is hardly accidental. It is hardly accidental that the mechanism for the movement of the whole is tied to the dependence between the insights of a part of the people and the ability of another part to bring its understanding to it. It requires innovators to make their insights understandable, ensuring their success only if they make their efforts to have those insights understood and people willing to join them.

The negative consequences of human actions, which have long since passed the limit of nature's capacity to bear them, restarted this mechanism with particular force. And it encouraged people with more opportunities to lend a hand to people with fewer ones to move forward together. Amazingly, instead of "avenging action" and punitive action for what he did, nature, as a truly loving mother, stimulated man through mechanisms of humanization.

Technological innovation systems is another conceptual framework aimed at exploring the factors that influence the adoption of innovations and the development of technological changes made in the context of sustainable development. It is interested in the time it takes for technological innovations to diffuse at scale (Ortt & Kamp, 2022), the risks that innovators and entrepreneurs take from the creation of new technology to its successful large-scale diffusion, the impact of protected niches as an opportunity for lower-risk production. Technological Innovation Systems focus more on learning flows of knowledge than on learning flows of mere goods and services (Carlsson & Stankiewicz, 1991, p. 111) and creating technological novelty (Bergek, 2019, p. 203). It is interested in a set of infrastructures involved in the generation, distribution, and use of technology (Bergek, 2019, p. 203). Central to this conceptual framework since its creation is the understanding that technological change is determined by the characteristics of a social structure within which firms and institutes are embedded (Freeman, 1995). It highlights the role of the characteristics of societal structures in the adoption of technological innovation and sustainable development.

3. DISCUSSION

The transition to sustainable development is a complex and very dynamic process; a process dependent on many factors and the interactions between them. Its implementation, which involves different levels, participants, and internal and external conditions, depends on a series of transformations. Transition begins with a change in beliefs, values, political convictions, deep-rooted cultural patterns of thinking, and factors that influence people's preferences and motivations. Such change leads to changes in governance, dominant practices, and socio-technical systems. Changes in all levels of this system, carry out the development of technological innovations and opportunities for the implementation of the transformation towards sustainable development.

The emphasis of the dominant body of theoretical frameworks analyzing the transition to sustainability on new technologies and the mechanisms for their imperative adoption among consumers is understandable, given the dynamic changes in the climate that suggest daily that time is limited. But when we talk about change, and place so much emphasis on the economic principles by which we want to achieve it, we leave behind the fact that change requires people, not just a change in their consumer behavior, but a fundamental change in their relationship to the world around them. From now on, people must not just decide what car to replace the car they have been using and whether to dispose of their waste separately, but must fundamentally change the basis on which they make these decisions. If up to this point, social and economic status have defined the limits of possibilities and presupposed situational choices, and mass production has guaranteed the replacement of what has been purchased after the expiry date, today this basis must change its direction. This means not just a change in people's consumption. It means a fundamental change in understanding the meaning, the fact of consumption, and its effects on self and others. And because these issues uniquely bind people together and similarly threaten the existence of all, they invite simultaneous action today, regardless of ethnicity, religion, and social and economic status.

4. CONCLUSION

With each passing year, the changes man makes to the world in which he has been given to live to suggest that the values that guide the satisfaction of his needs are destroying all basic resources. It does not require a scientific search to see that temperature changes and winds do not enable us to grow our crops unless we use artificially created stimuli for this purpose. But new technologies are needed to discover the causes of the increasingly specific diseases of our children and elderly parents, to combat the dropped age limits of chronic diseases. We have developed unsustainable patterns of consumption and production in socio-technical systems (Köhler et al., 2019) and without needing special scientific approaches, we can predict what the effects will be on us.

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