

Project and Work Organization in Solidarity Economy: A first Approach According to Production Engineering

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Abstract. This article presents the possible contributions of Production Engineering to solidarity economy as regards projects and organization of work. The authors present logistics as the main channel of introduction to planning and organizing solidarity economy, seeking to show that the participation of Production Engineering leads to a breakage of some strains marked by neoliberalism, making evident the need of serious ecological concerns within the scope of the projects in that sector towards a cleaner production. The authors also point out the impossibility of development of solidarity economy programs without well mapped processes that include environmental impact evaluations and environmental education as pillars of sustainability in any development program.

Keywords: solidarity economy, production engineering, environmental education, sustainability, cleaner production, organization.

1 Introduction

Solidarity economy is understood as a collaborative style of producing, selling, buying and exchanging goods that are necessary for daily life, including in all transactions the sense of a fair trade. Solidarity enterprises are organized mainly in the form of cooperatives, associations, self-managed enterprises, cooperation networks and cooperative complexes. In the current world situation, solidarity economy is considered by many social scientists a global trend of income generation and reinterpretation of the concept of work. Kritikos and collaborators come even to assert that solidarity is "a matter of life or death" [10]. In a certain sense, solidarity economy translates the advent of a new way of production, overcoming the capitalist mode and establishing some kind of post-capitalist relations with peculiar social traits. Contributions to the formation of the idea of solidarity economy were given by thoughts coming from a true melting pot of reflections from socialists, utopian socialists, anarchists and Christians throughout

the twentieth century. The transformative potential of solidarity economy and the balance of the principal theses about its reasons are pointed out by Gaiger in an elucidating work [5].

The worldwide literature is generous with respect to the solidarity economy. Several papers discussed this subject in all aspects ([4], [7], [8], [10], [12], [13]). In some contexts the term "social economy" is considered a synonym of solidarity economy and the authors also adopt this use. This social economy combines the principle of unity of possession and use of the means of production and distribution with the principle of socialization of these means. In sum, by solidarity economy we understand the whole of economic activities of production, distribution, consumption and credit arranged in the form of self-management. Although solidarity economy has appeared in emerging countries as a possible alternative to scarce and precarious formal jobs, it is now changing to a sign of a new future in larger scale [9].

Despite all the benefits that solidarity economy abridges as an alternative to the current economic system, there are environmental concerns with respect to the sustainability of the production that we need to reinforce in social development programs. It has been observed that social work practices are rarely linked to ecological education and planning. The authors want to discuss the role of Production Engineering in its intrinsic value for solidarity economy, showing how it may aid socio-economic development in Brazil as a Third World country.

2 The Brazilian Solidarity Economy, Its Demands and Challenges

Solidarity movements in Brazil began to be formally taken with seriousness from the creation of the National Secretary for the Solidarity Economy (NSSE) in 2003, the great developer of the program "Solidarity Economy in Development". In collaboration with the FBSES (Brazilian abbreviation for Brazilian Solidarity Economy Forum), the MTE (Brazilian abbreviation for Ministry of Work and Employment) has supported a national mapping project, localizing all the running solidarity enterprises and organizing data in a CD-ROM application (2005) and further in a web application (2008) both named Digital Atlas of Solidarity Economy [14].

The solidarity economy has as principles self-management, democracy, participation, egalitarianism, cooperation in work, human development and social responsibility, none of them matters to the market, whose only concerns are the quality and efficiency of their products and services on competitive terms. Thus, the biggest challenge for the solidarity economy is reconciling its principles with the way of the market without incurring in capitalist vices. Being Production Engineering a technical area focused on the rational management of production, it has methods and tools to give satisfactory answers to the demands of planning and organization in solidarity enterprises, also having as concerns the negative effects of neoliberalism on people such as one forced to working more because partner is unemployed, increased frustration and insecurity, and less health insurance [6].

Among the necessary elements to support competitive strategies of solidarity enterprises, there are technical qualification, productivity, market conquest and expansion capital. Due to the lack of education in Brazil, very few people are able to work with an interdisciplinary view of the overall functioning of the enterprises. Thus, to promote programs and encouraging solidarity economy we need to consider a broad planning of training for the staff already engaged and for newcomers that want to integrate solidarity market. Production Engineering also plays an important role in this planning and the authors consider as a very way for the first trials the logistics approach.

3 The Logistics and Its Immediate Response as Organization Tool

Following the view of Corrêa, some of the areas that Production Engineering can act are [3]:

- Strategies and objectives;
- Network operations;
- Production management;
- Quality of the process;
- Productivity;
- Development of products and processes;
- Project and work organization;
- Ergonomics (physical, cognitive and organizational);
- Strategic planning.

This is a complex universe, of course. One can not expect that the average profile of workers in solidarity economy is able to deal with such complexity. Accordingly, it will be interesting to seek a rational and more compact way to start them on a vision of planning and work organization that will be refining with the accumulation of lessons learned. Thinking in this way, the authors defend the idea that the initiatory path is the introduction to logistics as a teaching tool.

The logistics – and its more specific embodiment, the business logistics –, as an activity responsible for the movement of materials, services and information through the supply chain, is already well developed. Within the productive organizations, logistics has very specific goals. The success of the operations in the supply chain is defined by the so-called "three rights of the logistics", which means:

- The right product,
- In the right location,
- At the right time.

Certainly the "three rights" point to quality, efficiency and competitiveness. It is easy to implement this conceptual scheme for any situation in which it is possible to identify a chain of events that need to occur in a certain spacetime order to fulfill a goal.

Being part of the logistics, the business logistics has played an important role in several enterprises. It can be set in the context of solidarity economy as "the process of planning, implementing and controlling the flow of goods and services with low costs, from the point of origin to the point of destination, in order to meet not only market demands, but environmental requirements and public policies of sustainability". Within this approach, the main activities are: transportation, inventory maintenance, order processing, purchasing, warehousing, materials handling and maintenance of information.

The logistics vision of the enterprises, in our teaching approach, helps to break some stereotypes inculcated in the worker that areas of the production are forms of exploitation against the employee. Instead, these areas can be developed for the improvement and rationalization of production, the result of employee's labor and resource of its livelihood.

4 Solidarity Economy and Exploitation of Nature: A Dead End?

Another specific challenge arising from the lack of education in dealing with environmental issues is the fighting to the tendency for the replication of capitalist forms of exploitation of nature. Competition between the constituents of the organization itself and the focus of realization in the market create a paradox inside the ideal of solidarity. The reproduction of capitalist behavior obviously leads to a corresponding reproduction of the environmental aggression if ecology and environmental issues do not take part in education of people. The latter is one of the targets of planning, since there is no effective success in organization without knowledge dissemination.

Unfortunately, there is no data to demonstrate in unequivocal manner the environmental impact of agricultural and exploitation activities from solidarity economy. Judging by the correlation between devastated areas and presence of solidary enterprises, and the obvious indifference with which the eco-environmental education has been treated in Brazil, we only may infer the existence of a significant impact. Looking at the relationship between sustainable development and social work practice, Peeters and collaborators start from the assumption that an adequate interpretation of sustainable development for social work should take account of contemporary analyses of the ecological crisis and should recognize synergies between the social/ecological objectives and the critical tradition of social work [12]. It is simple to conclude that, if people are not educated and prepared to deal with the environment to preserve it from wrong production processes, they inevitably replicate what the great devastating enterprises have been doing last decades.

Within the "three rights" logistics vision is relatively simple to introduce environmental concerns in solidarity practices, beginning with the planning of routes for disposal of products, i. e., those routes that cause less environmental damage in the sense of traffic of goods (the planning of deliveries) and choice of means of transport operating in less polluting conditions in accordance with ISO standards. Moreover, when we speak of the right product, we do not talking only

about market adequacy, but adequacy of production methods to the environmental sustainability in the long term. For example, the exploitation of rubber – for which the world market demand is increasing – requires a specific technique of cutting the bark of the tree so that it remains productive throughout his long life. Lastly, the "right time" ensures not only the absence of financial loss, but the flow of processes in order to avoid environmental impacts caused by overcrowding or generation of waste by product losses due to long waiting times.

Cultural changes required for the success of the ideas discussed here can take decades, especially in countries whose populations suffer under the weight of corruption. However, it is possible to mitigate the problems caused by lack of environmental education, promoting training programs of distance learning embedded in logistical planning itself for training brigades of environmental supervisors primarily to support the most impactful solidarity initiatives. In this context, teleconferences can constitute a great option. Teleconferencing is a virtual meeting by means of telecommunications, where participants separated by geographical distances can simultaneously interact with each other [15]. Systems of teleconferencing are used with three closely interrelated functionalities: education, formation of virtual communities and knowledge management. All the typical tools of the modern dynamic teaching/learning can be concurrently used, such as PowerPoint presentations, collaborative work in real time using word processor and online whiteboard, file transfer, chat and personal annotations with notepad. Nevertheless, it is essential to convey in those programs, albeit in simplified language, how nature affects in biological and psychosocial levels the individual and collective behavior of human beings in the sense highlighted by Besthorn, who pointed that, ontologically, nature has consequences on both the way we perceive ourselves and the way we interact with others [2]. Only this perception will allow to map and dominate the processes that include environmental impact, leading to minimization of the latter.

It is a colossal (but not impossible) task to prepare people to living in this new world, since it is necessary a reverse engineer from that already exists to that would be close to ideal. There is a long way trip to achieve the effectiveness of this fundamental task. Recent projects conducted primarily by IPEA (Brazilian abbreviation for Institute of Applied Economic Research) are intended to produce as much knowledge as possible about all forms of solidarity enterprises in Brazil with regard to environmental problems that are related to their actions in order to promote improvements in current policies of solidarity economy. One of this projects is now being proposed by Serpa and colleagues about the current situation of human and veterinary medical waste disposal in Brazil, its environmental impacts and effects on individuals that survive from the collection of waste in order to subsidize the PNPD (Brazilian abbreviation for Subprogram of Research for National Development) with information resources to support decision making. Although it is a small portion of the total urban waste, nosocomial waste is highlighted by the high potential of contamination, exposing communities to the risk of dissemination of respiratory illnesses or diseases transmitted

by contaminated groundwater. The project is not limited to the presentation of quantitative results, but explains alternative suggestions for the treatment of municipal waste from healthcare unities, such as cottons, glasses, plastics and metals, proposing solidarity enterprises of collectors who are specialized in these wastes, so that the garbage is sent to certain specific destinations physically established by law.

4.1 Some Comments on the Planning and Organization in Solidarity Economy at Third World

Analyzing neo-liberal variants in vigor at Third World, solidarity enterprises are known wanting from the goal of a great integrative and socializing way of development, limited to local needs of survival and livelihood [8]. To enlarge the horizons it is not enough to turn ethnocentric person's mindset into one exhibiting compassion for other people, but attention to introduce environmental concerns and entrepreneurship in major discourses. The reality of solidarity economy often stands in great contrast to both theory and anecdotal practice in part because de lack of planning and organization. Also, the growth of inequality (the income of social distance) may lead to less feelings of solidarity [11], a fact that can bring on less sensibility to perceive the importance of egalitarianism and cooperation in work as fundamental elements of social development in large scale. In practice, Brazil did not decrease that social distance, only masked it with populist policies that in no way contribute to the dignity and the sense of entrepreneurship we need so much to grow socially and economically.

To surpass this contradictory state, an interesting path to follow in planning and organization, as well as in environmental education, would be to establish, like some initiatives in France, the "ecological solidarity" [16], that is, the resulting social state of mind that aims to detect all eco-social interlinks which interfere with biodiversity in order to build a conceptual shell for collective actions to access in a sustainable way a multiplicity of values issuing from the natural world, seeking to lower the social discrepancies by injecting resources in projects of solidarity entrepreneurship motivation aimed at spreading equal profits, inviting more and more partners to expand the solidarity economy as a real way to achieve more equitable distribution of income. Clearly this is a subject in which Production Engineering may contribute building that conceptual shell of actions obeying well mapped and dominated processes. This shell is nothing more than a result of the planning and organization of the work.

Lastly, for the fully success in Brazil of the above mentioned shell, a governmental structural correction would need to be made, locating NSSE in direct connection with the *Casa Civil* (Brazilian equivalent of Department of State), including a sub-secretary for international interchanging about sustainability for social economy in cooperation with other countries, themselves in a true solidarity and permanent dialog.

5 The Role of Cleaner Production

In parallel to the process of ecological-environmental education, it is necessary to establish comprehensive programs for modeling sustainable social exploitation of nature, among which it has a highlight position the so-called "agroforestry systems" based on the consortium of distinct species as alternatives of sustainable solidarity enterprises of low cost and good profitability for small producers. Our considerations culminate in a critical point: the cleaner production (CP), within the scope of Production Engineering, should consider an advisory branch entirely devoted to the solidarity economy, targeting small and medium enterprises along the lines of care described above, since CP has been characterized as a strategy of prevention useful to orient the reduction of loading from production processes of the small-and-medium-sized enterprises [1]. Initiatives have to involve financial support for technical assistance programs to offer correct options and knowledge by consultants prepared to enhance CP especially in high-risk areas. Success of these programs shall depend on the proposed scope reaching out to a large group of enterprises. The offer of alternatives, as well as the orientation of the existing enterprises of extractive activities, must turn to more sustainable patterns of production-in-consortiums in order to ensure the natural capital represented by that environments.

6 Conclusion

Present article presented and discussed the role of Production Engineering in the planning and organization of the work in solidarity economy at Brazil in face of the lack of ecological proficiency in both workers and governors. It showed in what lines Production Engineering may contribute, pointing out logistics as the first way to approach the subject in an educational program for workers in solidarity enterprises. It also emphasizes the prominence of the so-called "agroforestry systems" as alternatives for sustainable solidarity enterprises of exploitation of nature to be considered by local populations. It is hoped that this introductory discussion will lead to further works to establish the position of Production Engineering as an area of expertise essential for the establishment of public policies aimed at promoting the social economy.

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