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Brazil: Agro-ecology, a Possible Way to Overcome Hunger

In Brazil, the constitution guarantees that the land is for the good of society, or rather, that it has a social function to produce food and employment for Brazilians. However, the structure of Brazilian society does not enable this to happen.

As Brazil has a population of over 190 million and is the largest country in South America in terms of both area and population. While Brazil's gross domestic product is relatively high (US\$10,900 per capita), extreme inequalities mean that more than 16 million people still live in extreme poverty (Government of Brazil 2011) – although the number of people in extreme poverty has more than halved in the past decade.

Even though, Brazil is the world's fourth-largest food exporter, and has sufficient productive capacity to meet its internal and external demand, the poverty situation is still an issue. In 1983, an organization of rural workers (The Landless Movement – MST) was created by landless families and they fight for the right to have land to produce food. According to Fernandes:

The MST was officially founded in January 1984, in the city of Cascaval, in Paraná state. Nonetheless, its first struggles and the first meetings took place from 1978 to 1983 (Fernandes 2000). In its three decades of existence the MST passed through several different stages of the agrarian question. These changes brought with them new challenges, one of which can be found in the name of the movement itself.

We can picture two distinct agricultural scenarios exist in Brazil: the landowners and producers of commodities who control large areas of farmland, and the landless workers who would like to have a tract of land for their own subsistence. The great concentration of land and income associated with commodity production excluding that portion of Brazilian society, increasing poverty in rural areas.

The MST strives to gain land for families, to achieve agricultural reforms and to produce a more just and fraternal society. These families work collectively to produce the food, living and working in places called settlements. In many parts of Brazil where these settlements exist the food they produce ensures that small towns are supplied and provides an income for the settlement families. Hence this chain of production also guarantees that food is sovereign in the local mentality and attitude. This is an interesting strategy for implementing the social function proposed by the Brazilian constitution: to produce food and eliminate hunger from among the families of rural workers.

The settlers have a diverse socio-economic profile. This assessment could not be applied to the whole country but, for the State of São Paulo, it was possible to gain information from the Agricultural Reform Research Centre (NERA) at the State University of São Paulo (UNESP) which provided the data in a document entitled "Dataluta Pontal do Paranapanema" in 2010. We were able to identify some common characteristics from this research which we describe below. Settled families are generally made up of five people. The average age of the adults is 45 years (72% of settlements in Brazil; 85% in São Paulo).

Of the settlers in São Paulo State, only 10% of families are completely without education, the others having some degree of education. If we now turn our attention to the north-eastern states, we find that almost 95% of the people are without education. An important fact concerning basic schooling on the settlements in the State of São Paulo is that these rural schools are located on the settlements themselves and have a differentiated curriculum focusing on farming issues. When children cannot attend these institutions, school buses are provided for children to go to urban schools.

Concerning the disposition of land, research shows that family agriculture takes up about 85% of the settlements in Brazil. Generally, some 45% is devoted to pasture and 22% to crop production, percentages which are low bearing in mind the benefits of agro-ecology. To complete the profile of family composition on the rural settlements, it is a worrying statistic that 9% of these families survive on a monthly income below the minimum wage, around R\$650 or US\$361. This fact gives greater emphasis to the need for public policies to enable the families to make the best use of their piece of land.

It is important to distinguish the types of settlement. All the settlements use collective labor but two forms of agricultural practice take place at these sites. In the first type traditional practices are used, preparing the soil with tool and fertilizers, in which the soil is more likely to contaminate, providing a certain risk to the families.

In the second type, agro-ecology is used relying on non-conventional, organic practices. For the purpose of this article, we will concentrate on the settlements using the latter methods. By definition agro-ecology is the science that study agro-ecosystems allowing the implantation of agricultural practices that are more sustainable, in other words, it promote an ecological management of the natural resources intending to establish ways of production that do not degrade the nature.

The agro-ecological practices are better appropriate when used in small and medium farms, preferably near or adjacent to native forests. Thus, the settlements are great spaces to use this type of cultivation. On settlements where the concept of agro-ecology defines the production system, agricultural practices are typified by preparation of the soil without using of chemical substances, traditional fertilizers are replaced by organic composts, cattle are fed by grazing in association with reforestation and the health of the animals is maintained by phytotherapeutic methods. Families are not exposed to poisoning with this set of practices, though this risk does exist with traditional methods, and the quality of grazing prevents erosion and soil contamination. These conditions help to improve the quality of food produced.

In most cases, the food produced on this type of settlement not only guarantees environmentally safe food for the settlers themselves but also facilitates the sale of part of this production to the surrounding cities. A product labeled “agro-ecological” ensures commercial profitability, giving farm workers a significant additional value to their produce, in turn permitting the improvement of living conditions on the property. The image of a country property with just one house, a small orchard and pastures dominating the landscape has given way to a green property full of life with a variety of produce and home comforts for the family.

Given the fact that Brazil is a tropical country and *unequal*, these characteristics of the settlements can be regarded as a substantial improvement in agricultural production since the option of agro-ecology avoids degrading the environment. Quite the reverse, the soil is taken good care of and produce gains a higher commercial value.

However, the agro-ecological option is not universal. There are settlements still using traditional practices which unfortunately reverse the economic situation of many of the families settled. Therefore it is necessary to make agro-ecology more popular, which must be done through organized meetings by rural workers who opt for agro-ecology, so these conferences will be an exchange of information and techniques among producers through agro-ecology and others.

In the settlements that have so far opted for agro-ecology, certain improvements can be seen: an increase in income and quality of family life; the incorporation of new technology; partnerships with other institutions such as universities, research centers and NGOs that reinforce the use of ecology in agriculture. This can be seen from the example of the municipality of Mirante do Paranapanema, in western São Paulo State, where the settlers’ agro-ecological produce has increased the local GDP by almost 30%. The experience and “know-how” of these institutions has contributed to improved productivity and the dissemination of new practices which have helped bring about this improvement.

Along the concept of organization, we mention another example, the Cooperativa de Produção Agropecuária Vitoria Ltda. - COPAVI (Cooperative Farming Vitoria Ltda – COPAVI), settlement in Paranacity, Paraná State. A collective organization of production where the land belongs to everyone that works and divides the capital. Agro-ecology is the way of cultivate various products such as brown sugar and “cachaça” which are exported to Europe. Besides the families deliver brown sugar, biscuits, bread for school lunches of several municipalities around the settlements.

The settlers from COPAVI decided not to divide the land in small portions for each family, they registered the land in name of the cooperative. With around 25 families living together, the work is organized by sectors of production and the remuneration is proportional to the hours of work, which is controlled by the coordinators of each sector. There are no differences between the sectors of productions and the workers can choose the sector that they identify with.

COPAVI settlement is an economical, political and social model. This happens because the settlers follow three basic principles: respect for the environment, collective work, gender and equal participation, where each individual is respected and seen as autonomous citizen.

Another point which should be mentioned concerning agro-ecological production is the social value of the relationship between consumption and consumer. The farm worker who opts for this method of production, makes a political choice, and it is clear that the food sold is fruit of a chain of production that has sustainability and respect for the environment. The consumer, in his turn, not only reinforces the importance of awareness of the type of food they are consuming, but also its place of origin. It must be noted that agro-ecological produce is expensive when compared with similar conventional produce but the social benefit is worth the additional expense.

There remains a challenge yet to be overcome: the pressure, both political and economic, from commodity products and pesticides on this production model. The agro-ecological producer having chosen not to use pesticides, the difficulties of successfully raising the crop are less, not taking climatic irregularities into account. In Brazil, products such as sugar cane ethanol and soya have a world market that, in a certain sense, presses for the opening of new agricultural areas to grow these products. As the landowners have considerable economic power, they push their interests in the agricultural policies developed by the State.

From another side, according to Fernandes (2001) “the media usually compares the productivity of agribusiness and the familiar agriculture, as is was possible to compare the bread production of a bakery with the production of a multinational company, considering that, in Brazil, the familiar agriculture is responsible for more than a half of the production in rural areas.” (p. 3)

The contest is unequal since the government is thus inclined to direct its effort and resources into the production of commodities and not into food production. This brings about a concentration of poverty on the land, putting at risk the very existence of small farmers, regardless of their choice of agricultural production.

An interesting proposal to overcome this challenge would be for many other Brazilian rural families still using traditional methods of agriculture and livestock to opt for an agro-ecological production system – or just to introduce some of the methods into their day-to-day operations. We can see how to increase this type of agricultural practice; the marketing effects will also develop, bringing about better prices and informing conscientious consumers who want and appreciate the benefits of agro-ecological products. In addition, there will be greater conservation of land and better quality food will be produced. Rural settlements of landless workers who adopt agro-ecology play a key role in this transition because they serve as a model for other families concerned to use their land in sustainable ways.

The creation of an educational system in the rural areas and settlements must be directed to the students, organizing a curriculum that gives them useful topics about rural life. This education must be

made through the horizontal communication, on the basis of exchanging information between the individuals involved in the educational act.

With a strong and organized educational base, other rural workers should adopt successful agro-ecological methods. Settlers and workers can convince others through demonstrations as these acts always generate a great repercussion in the media. Thus, it will be possible to get support from the government to adopt measures such as: federal tax incentives need to be involvement, such as exemption from taxes or other impositions for these settlers. The work of disseminating the positive results achieved by families using agro-ecology should be done consolidated through social networks and media coverage.

Partnerships are critically needed: among the rural workers, who enjoy the agro-ecology, with public institutions that can help to create a model of cooperative, like COPAVI, with municipalities that purchase products for school meals and receive nutritional quality for their children. There must also be a process of awareness with other institutions: NGOs, public universities, private foundations which can help with training courses, as well as public policies on planting and harvesting.

Thus, given these results, we can see from the successful experiences of rural settlements in Brazil using agro-ecology that they are able, in the short term, to improve the living conditions of many rural workers, in the medium term to improve the quality of food produced in the country and, in the long-term, to eradicate poverty in rural areas.

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