

The District of Tiquaruçu As Reference in the Use of Social Techonolgy for the Production of Bonsai

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Abstract: The Incubator of Solidary and Popular Economy Initiatives of the State University of Feira de Santana (IEPS-UEFS) has been trying to call the attention for the great potential of the semiarid region over time. The partnership with a group of family farmers of the district of Tiquaruçu –Feira de Santana (BA) represents this action which tries to value their work, cultivation and trade of ornamental plants, among which bonsai made with caatinga plants. The objective is to understand the relevance of associative organization of social technologies in marks of geographic indication of the activities of a group which produces bonsai with caatinga plants in the district of Tiquaruçu mediated by IEPS-UEFS. The proposal is a theoretical research based on the gathering of information obtained from the work made with the group.

Key words: economic development; innovation; technological change

JEL codes: O

1. Introduction

The Brazilian semiarid is a climatic zone which covers not only natural forms, but also important social ones, and that reflects the daily routine of a people who struggle for the reaffirmation of its space in and out of the territory.

When it comes to the semiarid region of Bahia, Feira de Santana is part of this context. The northern region of this city is an area in which semiarid climate has some peculiarities that highlight the diversity of the region, specially the district of Tiquaruçu, located in the north of the city.

The district of Tiquaruçu, despite the process of rural exodus which reflects the reality of a great portion of the cities in Bahia, represents a great highlight concerning its expression in the rural commercial sector of Feira de Santana. That is the case of a group of family farmers who have been living in the district for 20 years and, through millenary Japanese technique incorporated to local culture, obtain the majority of their income from the production of bonsai made with native plants from the Caatinga biome.

The Incubator of Solidary and Popular Economy Initiatives Program of the State University of Feira de Santana (IEPS-UEFS), through its research projects and works, relies on faculty, students and volunteers working with popular groups that act according to another economy, following the principles of cooperation, solidarity and self-management. In that scenario, we got the opportunity to be in contact with the work of farmers and proposed

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partnership through the Ornamental Plants Project. The objective of this project is to promote the access of a group of family farmers in Tiquaruçu to the space of the cafeteria of Module I, aiming at composing the network of commercialization of popular economy regional products through sales of native ornamental plants.

Bonsai is a Japanese-origin art which means *tree on a tray*. The great differential of the bonsai this family produces lies on the use of simple techniques with appropriation of social technology in the forms of production, reproduction, learning and teaching of such techniques that have been added to this art due to the fact of being inserted in a peculiar soil and climate condition — the semiarid region of Bahia.

In that context, Tiquaruçu has become a reference in the production of Bonsai in the Caatinga. For that purpose, it is necessary the creation of a reference term anchored in Geographic Indication that ensures not only the protection of Tiquaruçu Bonsai trademark, but also the legitimacy of the importance of Social Technology use by the population of the district.

It is known that the process that involves the register of geographic indication is not simple, and for that purpose, IEPS-UEFS would intermediate the creation of such term collaborating not only with the bureaucratic procedures, but also with the strengthening of the work associated among the members of family farmers. Thus, the creation of a reference term for the Bonsai would make possible for the city of Feira de Santana to recognize the valuing of popular knowledge and stimulate other producers to use accessible technology associated to know-how that does not demand complex learning techniques.

This article discusses an ongoing work which started with the proposal of a Scientific Initiation research and the intention to make it a Master's degree project. That is the reason why specific objectives are necessary and possible future changes may occur. Thus, our general objective is to understand the relevance of associative organization of social technologies on geographic indication marks of bonsai producers that use plants from the Caatinga region of Tiquaruçu district — Feira de Santana–Bahia intermediated by IEPS -UEFS.

As for the specific objectives, we have: to prove the use of Social Technologies in the bonsai production process; to provide family farmers who produce bonsai in Tiquaruçu a better understanding about associative organization in search for Geographic Indication (GI); to promote dissemination of Social Technologies used in the production of bonsai in Tiquaruçu among inhabitants of the district; to promote the local knowledge through the creation of a reference term of Tiquaruçu bonsai. Considering that the research will be developed with family farmers from the district of Tiquaruçu, the social context of this work involves the understanding of the district's geographic characteristics, maps, books and online sources used in the research of factors that influence the formation of natural landscape such as relief, climate, vegetation and soil.

The research-action is the guiding principle of all phases of the research which, according to Thiollent (2000, p. 14) “[...] is conceived in close association with an action or solution for a collective problem in which researchers and representative subjects are involved in a cooperative and participative way”. For that purpose, anchored on research-action, the phases of research will proceed as following: participation in the process of bonsai production, aiming at understanding how the phases of production process develop as well as the use of Social Technology; chat wheels involving family farmers bonsai producers and other inhabitants of Tiquaruçu to understand the history of formation and organization of the place; meeting with local associations to apprehend the way bonsai is produced.

2. Tiquaruçu Bonsai

A great part of the territory of Bahia is located in the climate zone of semiarid. Data from Semiarid Report published by Superintendência de Estudos Sociais e Econômicos da Bahia (Superintendency of Social and Economic Studies of Bahia – SEI) in 2012 register that the semiarid region is composed by 265 cities, which correspond to 70% of this territory. These cities represent 27% of total GDP and 46% of agriculture GDP, (SEI/BA, 2012). The semiarid region of Bahia covers a significant area of the Brazilian territory, specially concerning cultural and economic aspects, which have peculiar characteristics reflecting a legacy marked by territorial dispute and continuous search to reaffirm the space through population resistance.

The city of Feira de Santana – Bahia is located in a region of ecotone, an area of transition between two kinds of biomes: in the south, vegetation that suffers influence from climatic conditions of Recôncavo, a border region of the city. In the north, the Caatinga reflects the semiarid climate, also present in the region. The city is formed by 8 districts: Humildes, Jaíba, Governador Dr. João Durval Carneiro, Bonfim de Feira, Jaguará, Maria Quitéria, Matinha and Tiquaruçu. The north region of Feira de Santana is an area in which the semiarid climate has distinct characteristics that highlight the region diversity, specially the district of Tiquaruçu, located in the North of the city, south of Santa Barbara city, west of Santanópolis and east of BR116 North (Federal road).

Despite the little representation of rural population in the district of Tiquaruçu (6.8%) according to Santos (2007), in relation to other districts, one cannot neglect its importance as a mark of expressive cultural manifestation of the city. In this scenario, the traditional Festa de Reis, which takes place every January, stands out. Another relevant factor is the participation of small groups of farmers in street markets in downtown Feira de Santana. This condition provides the families involved their income as well as the dynamics of the city's commerce, promoting an important trade network in the region.

In that aspect, the district of Tiquaruçu, despite the fact that it has gone through a process of rural exodus (reality experienced by many cities of Bahia), is a highlight in the rural commerce sector of Feira de Santana. Thus, family farming is a reality of a great part of the rural population of the district as a means of income, as well as the maintenance of a historical and cultural legacy that is beyond measurement of losses and gains from the point of view of economic indicators.

In this perspective, it is worth mentioning a group of family farmers that has lived in the district for 20 years and get their income from the associated work through a millenary Japanese technique, the bonsai, made out of native plants from the Caatinga biome.

The family, who lives in a farm named *Chácara dos Olhos Verdes*, had their first contact with IEPS-UEFS in 2015 from a proposal of partnership between a group of farmers and solidary canteens, a space where the family would exhibit their products and exchange experience with other subjects involved in the projects.

These farmers had their income from work with commerce at first. After participating in an exhibit promoted by an association of which they are members, they found out bonsai and realized it would be possible to reproduce the art using their own techniques, adding aesthetical regional characteristics, using plants from Caatinga in the region of Tiquaruçu.

Since then, the family has been improving not only the cultivation, but also the teaching through exclusive methods and the use of Social Technologies (TS) as the main path to learning and promoting art. According to Rios and Lima (2016, p. 2): “Social Technology fosters positive aspects which Conventional Technology lacks, such as the development of local communities. The problem is that such knowledge is not disseminated”.

The explanation is that TS is directly associated to popular classes. That is the reason why it is not given the proper importance. Thus, the use of Conventional Technology ends up camouflaging the richness of popular creativity offered by TS, which is cultivated and sustained by knowledge that preserves local culture, environment and solidarity among subjects. According to Fernandes and Maciel (2010, p. 10):

[...] it is important to highlight that TS always considers the peculiarities of local realities that are directly related to collective and democratic organizational processes. It ends up representing solutions to overcoming different situations of social vulnerability and social exclusion, improving life conditions of those involved with TS.

According to the citation, family farmers of Tiquaruçu represent a great potential concerning the diffusion of TS as the one applied in the production of bonsai due to the form of learning, cultivation and teaching by producers.

One of the criteria used for acknowledging a product in IG mark is the attribution of the product to organized groups, such as cooperatives, not to private ones. The collaboration IEPS-UEFS with family farmers also works out in that sense through spaces of formation, discussing politics and reinforcing solidary economy with the objective of creating consciousness in the use of social technology not only due to the low cost they represent, but also to its importance for the development of the location where it is applied.

Some authors or institutions approach TS in the perspective of social inclusion such as Fundação Banco do Brasil (FBB) which, in 2001, launched Banco de Tecnologias Sociais (Social Technology Bank). This bank has registered 850 technologies since its creation: programs, projects and initiatives from all parts of Brazil with solutions for specific social problems. A brief analysis related to these registered technologies allows us to observe that, despite the fact that there are some initiatives that present low cost, environmental concern, possibility of income generation among other characteristics which define a technology as social, there is a great majority that presents a high value for implementation. It brings a false idea that it is environmentally adequate, without worrying with political and social character of people involved in the process of implementation (the case of some educational technologies) and some do not consider the involvement of the population in a way to foster the principles of Solidary Economy.

For a better analysis, we selected 4 TS registered in the Social Technology Bank of FBB, which compose a table that separates them by: name of Social Technology, social function and location.

Table 1 Some Technologies Registered in the Bank of Social Technology of FBB

Social Technology	Social Function	Location
Flora Tietê	Provide income to small farmers of rural settlements through reforestation projects with Eucalyptus seedlings, and avoid cutting of native trees to supply the timber sector.	Penápolis/SP
Programa Água Limpa	Develop a systematic rural sanitation action, with the objective of improving quality of life of families that live in the rural area of the city of Caxias do Sul, encouraging preservation and recovery of native vegetation, soil and hydric resources conservation.	Caxias do Sul/RS
Banheiro Redondo	Build restrooms in the rural area guaranteeing basic sanitation to rural families, contributing to health maintenance, environment preservation and water saving in order to improve quality of life in Brazilian semiarid region.	Recife/PE

Source: Adapted from Social Technology database of Banco do Brasil Foundation

Despite the importance of each cited project, due to necessities Brazilian population might have, one cannot help making some inference related to the referred technologies. Flora do Tietê is one example of technology that,

besides its high cost, has great environmental impact demonstrated by scientific research. It is known that Eucalyptus trees are extremely allelopath (it does not allow the growth of other species in the surroundings) and demands a large amount of water for cultivation (around 360 liters/day for each plant).

In other words, if one considers that the income generation alone promoted by implementation of monoculture is a TS, it is the same as reducing the meaning of TS itself to income generation only. Furthermore, it is not taking into consideration the environmental impact, high cost for implementation of plant nursery and the local potential of native flora that could be recovered through sustainable consortiums widely known around the world.

The TS named *Àgua Limpa* also has high cost considering that fact that it was created to small farmers. The TS is feasible only through partnerships with financial institutions. The applicability of such TS to small farmers (the way described in the project) exempts responsibility of great producers and also participation of urban population, consumers of hydric resources. By doing so, network awareness is left behind. Such awareness, brought by the TS, is achieved through popular education with a work calling the attention to the causes and effects of deforestation, pollution and hydric resources waste.

The “Banheiro Redondo” Technology is a great alternative for the needy population from northeast semiarid. However, it requires specific material for building, which demands costs, due to the fact that these people have low income.

In general, the TS presented by FBB points out two important aspects. The first one is about the understanding or appropriation of such technologies. It is necessary to think how, by whom and for whom they are being produced to because if they do not reach society as a whole, it becomes only reproduction of Conventional Technology. Mainly, if we consider principles such as collective purpose, local development, environmental preservation and fair trade. A second aspect refers to existence of Technologies that are really more adapted to society. It is worth highlighting the Tiquaruçu bonsai in which TS is present from the choice of the plant to the form of reproduction and teaching of the art. The following table (Table 2) shows the TS used during the process of reproduction.

Table 2 Composition of Social Techonlgies That Involve Cultivation of Bonsai in Tiquaruçu

Tecnology	Function
Plants of caatinga biome	decoration/Bonsai
Home-made biofertilizers	Plant nutrition
Home-made fertilizers (solid)	Fertilization
Natural insecticide	Pest control
Adapted tools	Production/maintenance

Source: MOURA, 2018.

The forms of bonsai cultivation in Tiquaruçu alone constitute a TS because, due to the fact that they are an oriental art and the plants used have a peculiar format and special care, one could not imagine reproduction with caatinga plants.

When these family farmers could adapt this art to an environment considered so hostile such as the semiarid climate, using plants with adapted radicular system and leaves that can control evapotranspiration in order not to waste water, has made caatinga bonsai even more special. Caatinga plants are easy to access and can be cultivated by any person.

Tiquaruçu bonsai does not require the use of chemicals because most of it is produced using home-made recipes in the production of biofertilizers, natural insecticides, organic fertilizers and, most important, the miniature trees are actually replicates of what they look like in nature, with their forms and natural shapes, typical of the caatinga biome.

Concerning the way the group has learned the art, it was made possible by the curiosity and observation that made them seek improvement, associating oriental techniques to local ones. In other words, the way popular knowledge is made, accumulated and increased according to Freire (1980). Thus, from the knowledge acquired by trial and error with the art involved in the work, according to Tiriba (2014), these farmers share their knowledge without restrictions or priorities through courses, mini-courses and workshops.

No doubt the work developed by the family farmers of Tiquaruçu reveals the various positive aspects involved in the work in associated and socio-productive character. This work, anchored on Social Technology, having the semiarid region of Bahia as scenery may express the creation of an adequate territory for the incentive of practice and diffusion of simple technologies.

The territory studied in the research is the district of Tiquaruçu, assigning the idea of “used territory”, term that Milton Santos (1999) claimed to consider the territory with its socio-spatial dynamics that shapes its content, for the author

[...] If one takes it from its contents, a content shape, the territory has to be seen as something that is in process. It is the life frame of us all, in its global dimension, national dimension, intermediate dimension and local dimension (Santos, 1999, p. 19).

In this scenario, Tiquaruçu assumes the form of territory when seen as location where local and global relations of power are reflected. In addition, when some economy and global rules are established, characteristic that affects local dynamics. In this aspect, the content is configured in the peculiarities of such territory (Tiquaruçu) in which are inserted the forms of local production, entertainment options, reproduction of local knowledge and all factors that compose local ways of living that influence the territory dynamics.

Due to all these peculiarities, it is necessary to create a reference term for Tiquaruçu bonsai through Geographic Indication (IG). The National Institute of Industrial Protection (INPI) considers that IG:

It is used to identify the origin of products or services when the place has become known or when a specific characteristic or quality of product or service is present. The IG has two categories: Denomination of origin (DO) and Indication of Origin (IP) (Instituto Nacional De Proteção Industrial, 2013).

In this context, by creating the reference term, we would be not only protecting the creation of the group of family farmers, but also establishing the district of Tiquaruçu as a territory that covers potentials directly linked to the geographic location. Tiquaruçu bonsai is an example of art whose characteristics reflect cultural, soil and climate conditions. The law of intellectual property — LPI (Law 9.279/96), article 177, defines intellectual property.

[...] Indication of Origin is the geographic name of a country, region or location of a territory that has become known as a center of production or extraction of a determined product or service provision (LPI, 1996).

The best modality that fits such reference term is the denomination of origin (DO), considering these bonsai acquire form, size and specific values because they are produced in a territory where, among other factors, the climate, the soil and the culture shape them. The law of intellectual property (LPI – Law 9.279/96) also defines

the denomination of origin in article 178:

[...] Denomination of origin is the geographic name of the country, city, region or location of a territory that designates product or service whose characteristic qualities derive from geographic environment, which includes natural and human factors (LPI, 1996).

In this context, the importance of the reference term plays a significant role beyond acknowledgement of its legal form. It also makes possible for the District of Tiquaruçu to become a reference territory not only due to the excellence in the production of caatinga bonsai, but also to the strengthening, promotion and export of the use of social technology, contributing for the promotion of knowledge and local traditions of that territory.

3. Final Considerations

The special character of bonsai produced by family farmers of Tiquaruçu lies not only in the plants used for its production, but also in the raw material, forms of use, treatment and the socio-environmental context they are part of. It is noticed when one considers that the Social Technologies adopted by farmers are beyond the use of manufactured tools. When caatinga plants are used the care is distinct from that of cold weather plants. The resistance of species and other characteristics that condition the “less elaborated” cultivation, end up influencing in the form of bonsai because they assume a structure extremely similar to the natural one.

The Geographic indication, more than a certification stamp, means promotion of organized groups, product, farmers (in the case of Tiquaruçu bonsai) and the location itself. The potential of the farmers as promoters of the use of simple technologies may influence other farmers to produce environment-friendly. It also helps promoting local culture and valuation of the species from the caatinga biome.

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