

Hemp as a functional crop to enhance Food Security in the Brazilian São Francisco valley - a case study.

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The aim of this thesis is to investigate the structural causes that perpetuates hunger in the Brazilian Sertão and how a traditional plant in the region, hemp, can enhance Food Security through its use as a functional crop and to evaluate its possible use as fiber, seeds, oil and forage by traditional communities in the research region.

The *Sertão* region, located in the North-eastern part of Brazil is the most densely semi-arid area in the world, with an estimated population of 23 million, spread along its 1.078.900 square kilometres present in 8 states. The region has always been subject to uneven climate and is currently facing the most severe drought in the last one hundred years: since 2012 the volume of rainfall has been insufficient to enable agriculture and livestock herding in the region, with devastating consequences to the local economy, combined with the country deepest economical recession. The local population still struggling from the lack of infrastructural and financial support from the federal government (Filho & Batista 1996; Burney et al. 2014; Buckley 2010). Besides decades of Investments on Food Security National Programs the region still corresponding to 45,0% of the Food Insecure Brazilian population, besides having 27,7% of the country's population (IBGE, 2014).

The 2013 National Survey identified that 52 million people were found under some level of food insecurity, 22.6% of the households surveyed. This number has progressively reduced– 34.9% in 2004 and 30,2% in 2009 - (IBGE, 2013) due to efforts from the Brazilian government since the early 2000's, via National Programs to fight hunger by the strengthening of family agriculture and cash transfer programs such as the "Zero Hunger" and the "*Bolsa Família*", which removed the country from the Hunger map in 2013. Besides the astonishing achievement, food insecurity prevalence still present in 40.1% of the rural households.

Although the right to food and nutritional security – as a Human Right – was included in the country's constitution in 2010, it does not reach all the population and its execution is still being a challenge within an expressive complexity taking into account the country's continental size, its diversity and the formation of the country over history. The Right to Food also incorporates the population's right to access natural and productive resources, to produce – in a sovereign and dignified way – its own food or to have access to financial, physical and material resources to a dignified and adequate nutrition. Conclusively any impediment towards this direction is a violation on the population right's (Abrandh & Opsan, 2010).

Among those affected by hunger, traditional communities such as indigenous populations and Quilombolas – former substance communities formed in slavery time by fled slaves from colonial agrarian farms – are good examples of the rural population struggling with Food Insecurity, mainly because their remote locations, lack of access to markets, resources and their substance production system (Pinto, A. et. Al, 2014).

Such communities rely on additional income activities from gathering in the Sertão natural vegetation, Caatinga, for natural fibers such as the Caroá to perform traditional handicraft, sold by cooperatives in the cities around in order to provide income for the food security of the community. In the drought periods, the availability of these fibers is compromised, so the food security situation of the community. One of such fibers is hemp, which established perfectly to the dry climate of the region. Already present for long time in the region but subject to criminal activities because of illegal use, hemp (*Cannabis sativa. L.*) arrived in the São Francisco valley within the Portuguese colonization and Slaves from Africa in the 17th century, Brazil was once the biggest exporter of Hemp fibers to Europe, mainly used for Nautical ropes and fabrics. Within prohibition in the early 20th century, hemp cultivation has been hardly fought by the Brazilian government, creating a gap of opportunity to the actions of criminality nowadays, which crops in the São Francisco Valley 40% of the illegal Cannabis produced in the country, using working labor of smallholder farmers, which affected by the drought doesn't have other options. This situation created a social problem in the region, with the rural population being exposed to Violence and Prosecution.

Within a Cannabis regulation scenario in Brazil on the next years, could this fiber be used to provide an additional source of fibers, oil, seeds, forage to increase income to communities such as the Quilombolas in their activities?

Case Study: Hemp as an alternative source of fiber to handicraft activities in Quilombola communities

- **Aims/Research questions**

The aim of this thesis is to investigate the structural causes that perpetuates hunger in the Brazilian Sertão, how the government has been aiming this issues via National programs and how could hemp provide an ecological alternative solution to increase farmers income and therefore Food Security based on a existent social problem in the region.

The research questions of the thesis are the following:

- What are the structural causes of Food Insecurity prevalence in the *Sertão*?
- How is Food Security enhanced/implemented by national programs in the region?
- What are the main income activities performed by farmers and traditional communities and how could hemp be implemented as an additional income source to those activities?

- **Methods**

The proposed research will be conducted with a qualitative research design based on semi-structured interviews with smallholder farmers, traditional communities, such as Quilombolas and riverside population along the São Francisco river valley, in the Sertão of Northeast Brazil

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