

Chapter 4

Contribution to the improvement of production concerning family farming, indigenous peoples and traditional populations

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Introduction

Actions that are representative of the contribution of Embrapa to the achievement of target 2.3 of Sustainable Development Objective 2 (SDO 2) are addressed in this Chapter. Target 2.3 is:

By 2030 double the agricultural productivity and incomes of small-scale food producers, in particular women, indigenous peoples, family farmers, pastoralists and fishers, including through secure and equal access to land, other productive resources and inputs, knowledge, financial services, markets and opportunities for value addition and nonfarm employment (United Nations, 2018).

The agricultural production of the social segments contemplated in this chapter – family farmers, indigenous peoples and traditional populations – has characteristics, meanings and challenges distinct from the other productive segments of the Brazilian agricultural sector. They demand adequate diagnoses and reflections on their meaning in different economic, social, political, cultural and environmental realities, in order to be able to approach strategies to increase production.

Currently, in the Embrapa project portfolio, there is an expressive set of projects that directly or indirectly contribute to the achievement of target 2.3 of SDG 2, in particular with regard to the increase in agricultural productivity and income of family producers, and which are sheltered in different arrangements and portfolios.

Family farming, indigenous peoples and traditional populations

Depending on the region, different categories of family farmers are considered, related to socio-environmental contexts (Vieira et al., 2014), technological trajectories (Costa, 2015) or other attributes. The categories of family farmers make up segments that have historically been excluded from the benefits offered by the agricultural policy, especially in relation to farm loan, minimum prices and production insurance (Mattei, 2014).

In general, the public policies for the rural area favored the most capitalized sectors, especially those associated with the production of commodities focused on the foreign market. Only in the early 1990s, in response to the mobilization of rural social actors, there was an effort to create a national policy focused on meeting the specific needs of family farmers, resulting in the creation of the Programa Nacional de Fortalecimento da Agricultura Familiar (National Program for Strengthening Family Farming – Pronaf), in 1996. However, from a legal point of view, they were recognized as a productive segment only in 2006, when Law 11,326/2006 (Brasil, 2006), the Family Farming Law, was enacted, being the first to set guidelines for the sector, one of the most fragile in terms of technical capacity and market insertion (Rosa, 1998; Mattei, 2014). Since then, a broad set of public policies focused on the family farming sector has emerged including, among others, the creation of the Ministry of Agrarian Development (MDA), the Programa de Aquisição de Alimentos (Food Acquisition Program – PAA) and, more recently, in 2012, the Política Nacional de Agroecologia e de Produção Orgânica (National Policy on Agroecology and Organic Production – Pnapo). One of the general principles of these initiatives is equity in the application of resources in ethnic, generational and gender terms. As of 2016, this situation tends to change again, with the extinction of the MDA and the dismantling of policies aimed at family farming, which will have significant negative impacts in the segment (Mattos, 2017).

In 2007, Decree 6,040 created the Política Nacional e Desenvolvimento Sustentável de Povos e Comunidades Tradicionais (National Policy and Sustainable Development of Traditional Peoples and Communities – PNPCT) with an emphasis on the recognition, strengthening and guarantee of territorial, social, environmental, economic and cultural rights and respecting and valuing their identities, their forms of organization and their institutions (Brasil, 2007). In politics, traditional peoples and communities (TPCs) are defined as culturally

differentiated groups that recognize themselves as such, have their own forms of social organization, occupy and use territories and natural resources as a condition for their cultural, social, religious, ancestral and economic reproduction, using knowledge, innovations and practices generated and transmitted through tradition. This policy indicates to public institutions the need to support TPCs in initiatives related to the sustainable development of their territories, respecting their cultural characteristics.

TPCs hold millenarian knowledge about food production practices that are transmitted from parents to children for many generations. In general, its agriculture is characterized by clearing, burning and slash-and-burn, by systems of cultivation with wide biological diversity, by the multiple use of natural resources and by management practices that reflect the constant observation of nature. Empirical experimentation by local researchers/experimenters over thousands of years has resulted in land use systems appropriate to the diversity of cultures and realities. Some of these experiences, such as those of agricultural systems in Negro River, have already been recognized as intangible heritage (Eloy et al., 2010).

Participation of Embrapa

Historically, Embrapa has followed up the demands of specific policies in the broad context of family farming and its TPC segment, and even subsidizing such demands with its knowledge base. In this way, it assists in the construction of policies and specific plans in support of productive activities for family farming and its PCT segment. Embrapa has also expanded its portfolio of research and technology transfer projects with the exchange and construction of knowledge among this public. It initiated a series of participations in instances related to the construction of specific public policies for PCT and its implementation. It participated in 17 workshops on ethnodevelopment of indigenous peoples and the *Fórum Nacional para Elaboração da Política Pública Nacional de Segurança Alimentar e Nutricional e Desenvolvimento Sustentável dos Povos Indígenas do Brasil* (National Forum for the Elaboration of the National Public Policy on Food and Nutrition Security and Sustainable Development of Indigenous Peoples of Brazil (Neumann, 2006); the preparation of the Indigenous Project Portfolio and its technical committee, the subcommittee on sustainable development of traditional peoples and communities (Condraf). It is currently a member of the Inter-Sectoral Committee on Indigenous Health (Cisi/MS), the Permanent Committee for Indigenous Food and Nutrition Security (CP6) of the National Council for Food and Nutrition Security (Consea), the subcommittee on socio-biodiversity of the National Committee for

Agroecology and Organic Production (Cnapo), among others. These instances have discussed many topics related to the promotion of productive activities with TPC. In addition, Embrapa has maintained a General Cooperation Agreement with the Fundação Nacional do Índio (National Indian Foundation – Funai) for 20 years, which is currently being rediscussed.

With participation and influence in the national scenario of public policy construction, Embrapa has encouraged the expansion of research actions and the availability of technologies for family farmers, indigenous peoples and traditional populations. Especially since 1980, in several of its research centers, teams that worked in experimental fields began to work alongside this productive segment and progressively expanded their activities with these producers. Some examples: the research experience and intervention projects carried out between 1987 and 1997 in four regions of the Northeastern Semiarid region with rural communities, under a cooperation project between Embrapa Semiarid Agriculture and La Recherche Agronomique Pour le Développement (Cirad) (Leite, 2002); the experience of cooperation between Embrapa Temperate Agriculture and Empresa de Assistência Técnica e Extensão Rural do Rio Grande do Sul (Company of Technical Assistance and Rural Extension of Rio Grande do Sul – Emater-RS) (Gomes et al., 2011); the study focused on soil conservation in areas of family farming in the northeast of Pará state, conducted at the then Center for Agricultural Research of the Humid Tropic (currently Embrapa Easter Amazon), in cooperation project with the German Technical Cooperation Agency (GTZ) (Burger, 1986); and the project focused on farming systems in family farming in the Amazon carried out at Embrapa Easter Amazon, in cooperation with Cirad (Tourrand; Veiga, 2003). Sousa (2006) gathered a sample of results of research and technology transfer projects implemented by Embrapa focused on family farming, at the beginning of this century, by topic and by ecoregion.

In fact, one of the milestones of Embrapa's institutional effort for family farming was the creation in 2003 of Macroprogram 6 (MP6): Support for the Development of Family Farming and the Sustainability of the Rural Environment. The MP6, during its 14 years of existence, has stimulated and strengthened dozens of projects aimed at initiatives for the sustainable development of family farming and traditional communities with a territorial approach as a priority to add value. It promoted the convergence of multi-institutional and interdisciplinary efforts in the network of partnerships that supported it. Embrapa has also studied economic aspects associated with the environment and environmental services

applied to family farming, traditional populations and indigenous peoples (Mattos; Hercowitz, 2011; Dias et al., 2016a).

Various arrangements and portfolios of Embrapa have projects related to the increase of productivity and income of family farmers, traditional peoples and communities. This is the case, for example, of the Ecological Base Production Systems, Social Innovation in Agriculture, Climate Changes, and Native Forest Resources [portfolios](#), and of the project [arrangements](#) Strengthening of Family Agricultural Systems Rain Dependent in the Brazilian Semi-Arid; Agroecological Innovation: construction and knowledge exchange with family farming in the Northeast region of Brazil; Agroecological Systems as an Alternative for the Development of Family Farming in the Midwest Region; and Fire-Free Agriculture in the Amazon. The arrangement approved in 2017, Construction and Knowledge Exchange for the Sustainable Development of Traditional Peoples and Communities (ConPCT), aims to organize, strengthen and stimulate projects primarily with PCT public.

Several projects are focused on increasing the productivity and income of small-scale food producers with a focus on family farming, considering their ethnic and generational approaches, such as: Synergy and Insecticide Potential Evaluation of Essential Oils from the Brazilian Amazon (Sineroil); Technologies for Rational Cultivation of Acai (*Euterpe oleracea* and *E. precatoria*) Production for the Production of Fruits in the Amazon Region (Açaitec); Techniques for the Recovery of Degraded Pastures in the Amazon (Repasto); Soil Conservationist Management in Family Production for Low Carbon Agriculture in the West of the State of Acre, Juruá Produces (Juruapro); Management of the Soil and Culture of Pineapple for Family Farming of the State of Acre (Abac); Utilization of Essential Oil of *P. aduncum* L. (Piperaceae) on Citrus Psilidus Control (Diaphoroil); Geotechnology for the Management of Tropical Forests in the Amazon (Geoflora); Optimization of Brazilian Nut (*Bertholletia excelsa*) Drying Processes for Value Aggregation in Extractive Production Units (Secast); Adjusting Brazilian Cashew Drying Technologies for Adoption in Family Units of Extractive Production; and Quality of Raw Material, Acai and Coffee Processing and Management of Family Agroindustries of Acre (Fortalece).

Embrapa, in its Amazon Units, has also worked in partnership with other institutions in research, development and technology transfer projects, focusing on family farmers in new projects or on strengthening existing enterprises linked to associations and cooperatives representing that public. These are small agroindustrial enterprises that aim, in general, to add value to the products of

extractivism and agriculture practiced in rural communities. A noteworthy example was the Farinha de Cruzeiro do Sul project: strengthening of family farming and geographical indication of Território da Cidadania [citizenship territory] of Vale do Juruá, which aimed to develop the necessary basis for family farmers to request the geographical indication of the Território da Cidadania of Vale do Juruá, Acre, for cassava flour, with the objective of improving the living conditions of the producers of that region (Souza et al., 2016).

Embrapa develops a series of projects with indigenous peoples and traditional communities (Udry et al., 2015; Dias et al., 2016a). It works together with the Krahô indigenous people of Tocantins, where an action of enrichment of yards and related training in the format of field days in the villages made the diversification of production possible by planting 20 thousand seedlings of fruit trees in 20 villages, contributing to the increase of production (Figure 1). Of these 20,000 seedlings, about 6,000 corresponded to dwarf cashew varieties (Dias et al., 2015).



Photo: Ubiratan Piovezan

Figure 1. Enrichment of yards with fruit trees in Macaúba village.

In this territory, it also promoted the collection, multiplication and reintroduction of 24 rice varieties, with an increase in local production (Rangel; Dias, 2016). In addition, Embrapa has supported indigenous peoples, in partnership with Funai and other institutions, in the organization of important seed fairs (Dias et al., 2014), with the expansion of collective awareness of the value of agricultural diversity to increase production, income generation and appreciation of the local culture.

In the state of Amapá, the Acai, Banana e Citros (ABC) Project of the Family Cultivation of the Indigenous Communities of Oiapoque has carried out interchange of technologies in fruit culture and formed multiplier agents that have appropriated lasting, replicable technologies, interactively, ethically and collectively (Figure 2). This has contributed to increased production and income in communities (Santos, 2016)."

Embrapa's Units in different regions of Brazil, with their different mandates and competencies, tend to offer different actions regarding the public contemplated and the nature of the theme. Thus, in Roraima, the state with the



Photo: Jackson Santos

Figure 2. Field day on banana cultivation, in Manga village (BR-156), Karipuna indigenous land, October 2013.

highest percentage of indigenous lands, in relation to the total area, the actions of Embrapa are focused on the availability of technologies related to cassava cultivation and support to the production of watermelon by the indigenous peoples, especially the Macuxi and Wapichana, which are the largest producers of this fruit in the state. In the Federal District, a partnership between Embrapa Units, Funai and indigenous and indigenist organizations has provided courses in the form of agroecological dialogues, addressing contents related to the conservation of agrobiodiversity and indigenous food security (Dias et al., 2016b).

According to Dias et al. (2016b), a series of actions are carried out with traditional communities, such as: a) mangabeiras, in the state of Pará – the mapping of 227 mangaba (*Hancornia speciosa*) natural occurrence sites; survey of 80 extractive communities and the analysis of the role of these communities in the conservation of natural areas and related knowledge; b) Brazilian nut, in the state of Acre – establishment of a participatory sustainable forest management model, georeferencing of matrices, creation and strengthening of socio-environmental education practices; c) babassu (*Attalea ssp.*), in the state of Maranhão – promoting exchanges between groups of extractivists; d) artisanal fishing, in the states of Tocantins and Sergipe – studies of traditional knowledge; e) mangrove-crab (*Ucides cordatus*), in the states of Piauí, Maranhão and Ceará – participatory research for fishing management and characterization of the productive chain, among others.

It is worth mentioning, in addition to the action of the Núcleos de Estudos Agroecológicos (Agroecological Studies Centers – NEAs) implemented in several Embrapa research units, also the figure of regional arrangements of projects focused on agroecology, which aim to ensure articulations and expand the contribution of the institution to family farming. In the context of the TPC segment, the ConPCT arrangement counts on the participation of 17 Embrapa Units and several related projects. The arrangement aims to promote innovation actions among traditional peoples and communities that contribute to identify, characterize and value traditional systems of use, management and conservation of natural resources that contribute to food and nutritional security with a territorial focus, guaranteeing sustainable ways of life.

Final considerations

An analysis of the actions carried out and the results achieved in relation to the improvement in production with family farming, indigenous peoples and traditional populations makes it evident that, especially during the last 2 decades,

there has been a significant advance in this sector, especially in family farming, result of the support provided by more inclusive public policies, in which the work of Embrapa is expressive, through its multidisciplinary teams spread through its Units in all Brazilian regions.

Despite the relevance of the productive segments mentioned in this chapter, for their contribution to food security and sovereignty in Brazil, including their own territories, there is concern about the drastic changes that have been implemented in the public policies addressed to these segments, which includes Embrapa's agenda. The experience accumulated by Embrapa teams that has contributed to the advancement of knowledge, including the adoption of methodologies of exchange and collective construction of knowledge along these productive segments. There should be actions in partnership with other governmental institutions and governmental organizations to improve food security and sovereignty in Brazil and beyond, through increased agricultural productivity, and access to productive resources, inputs, knowledge and value-added opportunities, as outlined in SDG 2 target 2.3.

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