CASE STUDY

Satoyama Initiative in Brazil

- Project BRA/COMDEKS/2013 -

Brasília
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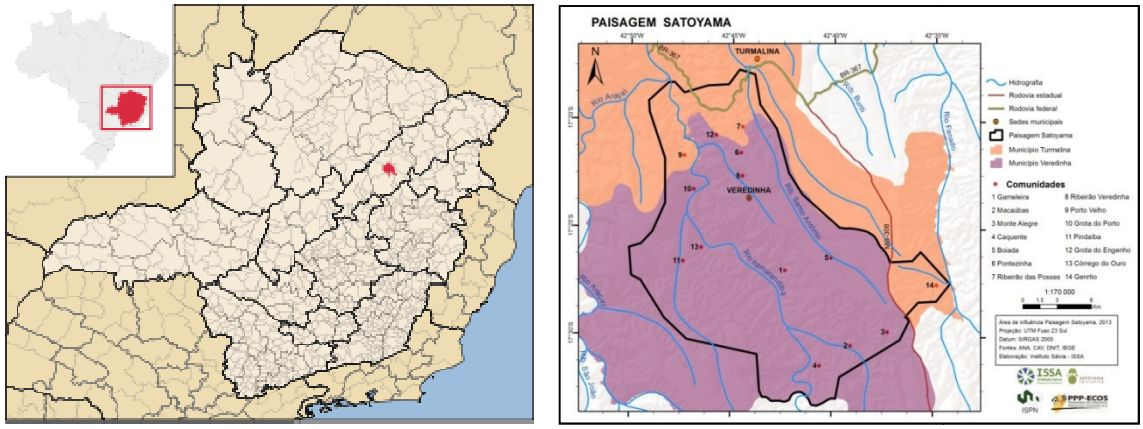
1 - Presentation

This document is the account of the Case Study of the Satoyama Brazil Initiative – project BRA/COMDEKS/2013 – and was prepared by the Instituto Internacional de Educação do Brasil - IEB.

The Satoyama Initiative is carried out in Brazil by the Institute for Society, Population and Nature – ISPN, and takes place in the municipalities of Veredinha and Turmalina located in northeastern Minas Gerais State in the Upper Jequitinhonha River. The initiative involves families in fourteen rural communities and the landscape covers an area of 40,596 hectares.

Figure 1 – Location of the Satoyama landscape and communities in northeastern Minas Gerais State, Brazil.



Support for the initiative is granted by the Small Eco-Social Projects Program (PPP-ECOS[1]) to seven projects[2] carried out in the fourteen communities, in addition to a project implemented by the Center for Alternative Agriculture Vicente Nica - CAV[3], financed by PPP-ECOS with counterpart resources from GEF5[4], for the purpose of integrating actions developed in the communities. Also, through PPP-ECOS GEF5, there is support from a project carried out by the Association of Smallholder Market Vendor Families of Veredinha – AFAVE, and another under the responsibility of the Rural Workers Union of Turmalina.

Section 1- Context and Panorama of the Satoyama Landscape

The region of the Satoyama landscape in covered with Cerrado (wooded savanna) vegetation and is composed of tablelands in the higher regions and grottoes (deep tight valleys) and valleys cut by rivers, streams and creeks in the lower areas. The rural communities occupy the smaller tablelands, grottoes and valleys where small properties with family farming predominate, producing crops and livestock (grain, root crops, fruit, meat, milk, etc.) for

[1] PPP - ECOS – Small Eco-Social Projects Program
[2] Associations responsible for the Projects and respective communities: CRV - Ribeirão Veredinha and Grota do Engenho; ADCP - Pontezinha and Ribeirão das Posses; AAUP - Pindaíba and Córrego do Ouro; AISS - Monte Alegre and Macaúbas; AFAVE - Grota do Porto and Porto Velho; AMOC - Gentio and Caquente; ACODEFAV - Gameleira and Boiada
[3] Non-profit civil society entity active for twenty years in the Upper Jequitinhonha region, seeking to contribute to sustainable development of family agriculture based on agro-ecological production, processing and marketing practices.
[4] GEF - *Global Environment Facility*

subsistence and for sale in local markets. The tablelands are important areas of water recharge for the Santo Antônio and Itamarandiba Rivers, tributaries of the Araçuaí and Jequitinhonha Rivers, a region increasingly occupied by vast eucalyptus plantations since the 1970s.

With the expansion of eucalyptus plantations, populations that historically practiced agriculture on the hill slopes and valley bottoms, and extractivism and cattle grazing on the tablelands, were increasingly confined to the lower areas. The cattle were displaced to the hill slopes, pressuring the Cerrado, advancing soil exposure and compromising springs because of trampling. Other threats such as deforestation for charcoal production and burning also contribute to erosive processes, loss of biodiversity and drastic alteration of hydrologic cycles with the increase in evapotranspiration on the tablelands, reduction in water infiltration into the soils, lowering of the water table and siltation of watercourses.

These effects led to reduction in food production, in income and in the availability of water for human consumption and production. One consequence of this scenario is rural exodus, principally of young people, reducing the family labor force and contributing to ruptures in the transmission of cultures and traditions and in generation of knowledge.

Fragile social organization is an obstacle to families of smallholders unable to alter this rural exodus. Some community organizations exist and communities are assisted by local partners such AFAVE, Escola Família (Family School) in Veredinha, EFAV, Rural Workers Union of Veredinha and Turmalina and CAV.

Section 2- Construction of the Baseline and Consultation with Communities

ISPN developed a call for proposals for project financing with the support of CAV and with participation of the communities. This process involved surveys of the region and dialogue with families who presented their demands from the point of view of problems they face – lack of water, environmental degradation, rural exodus, etc. The four steps involved surveys, diagnostics and definition of a logical framework with the participation of ISSA[5], CAV and ISPN: 1) survey of secondary socio-economic and environmental data and production of maps; 2) analysis of documents; 3) field surveys in twelve communities in the region – soils, vegetation, productive potential; and 4) evaluation of the starting point (*baseline assessment*) and definition of priorities.

The last step of the *baseline assessment* was carried out in a workshop conducted in November 2013 in Turmalina, with twenty-five smallholders from eleven communities and representatives of local entities present. Participation of both men and women smallholders in this phase was important for definition of the logical framework and of priorities to be supported by the Satoyama Initiative

Before the workshop event, preparatory meetings with local partners were held for the purpose of selecting the landscape, adapting the methodology and indicator language and elaborating the implementation strategy for the landscape selected.

[5] Sálvia Institute of Socio-Environmental Solutions

Adjustments were made to the baseline indicators so that they better represented the reality of the smallholders. Among these adjustments were exclusion of the indicator on indigenous languages and the addition of three new indicators – access to water, soil quality/adoption of ago-ecological production systems, and social/political resources. The twenty original indicators were transformed into twenty-four indicators.

The process of evaluation (*ex-post*) was carried out between March and May 2016 in a participatory manner, comprised of the following steps: 1) preparatory meetings between CAV, ISPN and IEB to define the evaluation process; 2) obtaining field information by way of collective interviews with all of the communities involved and visits to the project interventions; and 3) workshop to analyze the evolution of the landscape from the baseline.

The second workshop, held in May 2016, had twenty-five participants representing fifteen communities that evaluated landscape evolution by comparing the 2013 baseline with 2016 data, and suggested adjusting the indicator on health.

Participation of men and women smallholders and partners from the start in defining the call for proposals, and in analysis of landscape evolution from the baseline, captured the interest of the families and increased the level of commitment to the projects.

Section 3 – Strategies for the Satoyama Landscape in Brazil

The main idea behind the Satoyama Initiative is to contribute so that human interventions in productive, conservation and multifunctional environments guarantee resilience of the landscape and sustainable development of human populations.

The principal long-term, objectives were:

- Increase the quantity and quality of water available for smallholders by way of adoption of integrated systems of resource management;

- Adoption of sustainable systems and techniques for production and soil management that allow for soil improvement, restoration of degraded areas and conservation of native vegetation connecting productive systems;

- Increase in income, food security and access to markets by way of processing and marketing of agro-ecological products and products of Cerrado biodiversity, helping to retain young people in rural areas;

- Strengthening community organizations and other collective institutions such as committees and councils for the purpose of participatory management of natural resources through formal and informal agreements.

The following priority areas were identified for actions to achieve these results: 1) replication and dissemination of integrated water resource management techniques (small dams, containment basins, terraces, cisterns, spring protection); 2) adoption of sustainable soil management practices including demonstration areas with agro-ecological production systems; 3) restoration of degraded areas; 4) better use of natural resources of the Cerrado

(fruits, remedies, honey, and others) for income generation; and 5) shared and participatory management of natural resources in the landscape.

To intervene in these areas, the projects invested in sustainable production, in capacity building of communities and in strengthening local organizations.

Section 4 – Activities and Innovations

Each project, according to the demands of each community, had a distinct focus, although there was convergence in installation of technologies, in fencing the springs and in restoration of degraded areas. In addition, some communities had specific actions, such as Pindaíba, that installed running water from the spring, Pontezinha, that fenced the gallery forest, Grota do Porto and Porto Velho, that acquired nurseries and rototillers, and Caquente and Macaúbas, that are installing processing mills.

Contracting of technicians under the CAV, ACODEFAVE and AFAVE projects was important for assisting the rest of the projects, given the structural and organizational fragility of the local associations. The technicians held initial awareness-raising and planning meetings with the communities and assisted in installation and monitoring of practices, in capacity building of the families and in organization of the associations.

Some of the activities that were installed were already familiar to the families, such as small dams, basins and terraces. The innovation promoted by the Satoyama Initiative consisted of the process of installation of these technologies, in which technicians and smallholders decided together the location, type of technology and the dimensions. Many of the problems of these types of technologies installed before project involvement, such as rupturing and limited water and soil retention efficiency, were caused by lack of involvement of the smallholders in decision-making, or by lack of technical assistance.

Fencing the springs and gallery forests with native tree species, forming live fences, is also a new practice that should help reduce the labor required for maintenance, and helps to attenuate pressure on the Cerrado.

Probably the greatest innovation is the process of debate and agreements on collective management of natural resources, principally on the use of water. This is a fundamental theme, given that many of the problems encountered by the communities arise from lack of collective planning and solutions defined in a joint and integrated manner.

In Annex I, the principle activities carried out by project and respective results reached are presented.

Section 5 – Results and Innovations

- Environmental Services and Conservation of Biodiversity

As demonstrated by the socio-environmental diagnostics carried out by ISSA before start of the projects, approximately 27% of the landscape area is composed of degraded areas and 50% is composed of residual vegetation constituted by altered areas that are in the process of restoration or are still degraded. These percentages were not and could not be altered in two brief years. However, project actions and the adverse situations faced by the communities amplified the consciousness of approximately 242 families on the need to preserve the Cerrado and to conserve the soils, reducing the area in pasture, restoring degraded areas and intervening in acute erosive processes.

> Seventy-six structures for retention and storage of water were installed – containment basins, small dams and terraces. Fourteen springs were fenced in the communities, besides fencing 4,700 meters of gallery forest along Lamba Creek in the Pontezinha community.

The families have altered the use of their properties as a whole, reducing loss of fertility on hill slopes caused by intensive use and by deforestation, and increasing use of areas lower in the topography, of higher fertility – mid-slopes, lowlands and upper floodplains of streams and rivers. These changes took place prior to support from the Satoyama Initiative.

This is more evident with families involved with the projects who began to perceive the positive effects of installation of water retention structures (basins, small dams, fencing of springs and gallery forests) and soil retention structures (terraces). These positive effects include reduction in erosive processes and reduction in the speed of surface water runoff from rainfall, reflected in greater moisture for crops downslope.

Those involved also expect improvement in flow rate and water quality from conservation of the Permanent Protected Areas (APPs) – springs and gallery forests, and therefore in availability of water for their crops. But this effect also depends on conservation of recharge areas (springs, gallery forests) above these structures, including consideration of eucalyptus plantations that are located on the tablelands upstream from some of the communities.

> In Pindaíba, 7,000 m of water tubing were installed capturing spring water, along with a 60,000 liter and two 14,000 liter water tanks supplying twenty-four families.

In the Pindaíba community where spring water was channeled in tubing, the results were immediate, supplying water for families whose consumption was being provided by tank trucks. Also, this measure reduced the impact on the flow rate of Pindaíba Creek with interruption of withdrawal from its watercourse, that actually dried up in 2015. Another effect of the immediate availability of water was the decision on the part of some residents to revert their intention to leave the community, resolving to stay and to continue producing.

Greater retention of water in the soil and on the surface, and therefore available for crops, assured greater environmental resilience and made it possible for the smallholders to resist the acute effects of the drought that coincided with the period of execution of the projects. Even though rainfall in 2013 amounted to 1305.5 mm, distributed over nine months, in 2014 and 2015 it rained only 664.5 mm and 590 mm respectively, concentrated in only a five-month period (source: CAV).

"I regret that the project did not start five years ago to hold back water runoff and erosion." Maria Fernandes/Gentio

In Ribeirão Veredinha, farmer Abelino uses water from the small dam to irrigate his field of beans in consortium with maize, squash, peanuts and pigeon peas. Before irrigation, he lost two crops of beans for lack of rainwater.

- Implementing Agro-ecology and Food Security

At the present time, project activities have been more concentrated in installation of the technologies (containment basins, small dams, terraces) and protection and distribution of water resources (fencing and installation of water tubing from springs, protection of gallery forests) than investment in more sustainable production based on agro-ecological principles, even though some actions have been made in this regard.

A total of 5,556 seedlings of tree species native to the Cerrado and exotics (fruit and timber species) have been planted in the enrichment of backyards, farm fields, and in fencing springs and gallery forests, besides planting grass species in degraded areas and in areas surrounding the technological interventions, as a conservation measure and to cover the soil. In some locations, planting was done taking advantage of the greater availability of surface and subsoil water with installation of technologies for retention and storage of water.

In Porto Velho and Grota do Porto, two innovations have the potential to increase agro-ecological production. Installation of ten nurseries should intensify the practice of cultivation of horticultural crops, an important activity for generation of income and for food security. The acquisition of two rototillers is already reducing the labor needed to prepare for planting, and is aiding soil conservation with the incorporation of organic matter.

It is not possible to state that the communities are in full transition to productive agro-ecological systems, but a number of initiatives in diversification, crop consortia, adequate soil management and natural practices for disease and pest control indicate that a process of transformation to more sustainable production systems has begun.

CAV is beginning to organize seed banks in Veredinha and Turmalina, and with support from EFAV, promoted registration of heirloom seed varieties. This is also an action in its initial stages and needs to be enhanced, given that seed autonomy is a fundamental aspect for food security and reproduction of family farming in a productive environment. The communities are losing their command over heirloom genetic material, becoming hostage to seeds made available on the market, seeds that frequently are not adapted to local conditions.

- Sustainable livelihoods – income generation and subsistence

The marked water deficit in recent years resulted in reduction in productivity of some crops. According to the smallholders, these loses have been compensated by greater diversity of crops. Project actions have stimulated the enrichment of backyards, consortium of plants and installation of vegetable gardens. The greater availability of water with the technologies adopted may also have stimulated this diversification. This demonstrates how crop production diversity in a strategy of reproducing family farming and the capacity to absorb impacts generated by environmental and economic disturbances is determinant.

Marketing was already a theme dealt with even before the support of the Satoyama Initiative. With the assistance of technicians contracted in the framework of the CAV, ACODEFACE and AFAVE projects, access to the farmers' market in Veredinha was facilitated. Another market source is delivery of products for school lunches by way of PNAE[6]. These are important actions to increase diversification, guarantee sales, and consequently income, although PNAE still has few supporters and needs improvements to increase access.

One possibility of increasing product markets in the future is establishment of organic certification by way of the Participatory Guarantee System (SPG) that CAV has been working with, and has to date created one group of organic certification involving the Escola Família Agrícola (Family Agricultural School) and fourteen smallholders from three municipal market-seller associations.

> The Gentio womens' association was formalized in September 2015 with twelve participants, and already has twenty-nine women who are prepared to raise funds to train themselves, to assist the Gentio community, and to work for the preservation of Rio Fanado and surrounding areas.

Another initiative that has not yet shown results, but could mean possible sources of income for families, are the processing structures that are being installed in the communities with the support of the Satoyama Initiative – a manioc mill in the Caquente community and a collective kitchen for processing fruit in Macaúbas. Such structures will demand technical assistance in management of the enterprises by the local associations.

> Of the 438 people who participated in the processes of capacity building promoted by the project, 161 were women.

- Strengthening of institutional systems and of governance

The groups supported by the projects are quite heterogeneous in their organization. Some are older and a little more structured and others are more fragile. By dealing with the seven projects, the Satoyama initiative has supported strengthening of the community associations that already existed and contributed to creation of two more associations – that of the Boiada community and the womens' association in the Gentio community.

[6] PNAE – National School Lunch Program

For the large part, communities supported by the projects consist of a primarily male public, but gradually women are becoming involved in decision-making and are assuming the coordination/direction of local associations, unions and informal groups.

Involvement of the associations with projects supported by the Satoyama Initiative bestowed greater responsibility to the participants and appreciation in the eyes of their communities. New processes were initiated with the creation of committees and definition of regulations and agreements for the use and maintenance of water and the establishment of the projects.

In the execution phase of the projects, fourteen agreements were reached, serving as directives for the collective management of water resource use. But given the fragility of the associations, it is important that permanent attention be given to these groups until they are able to acquire greater autonomy of management.

In spite of public authorities in Veredinha being aware of the seriousness of environmental and social problems in the municipality and region because of the reduced availability of water, involvement of public agencies is still timid and spotty in regards to project activities or even to recognizing the landscape approach addressed by the Satoyama Initiative.

The actions implemented are too recent to influence or to guide public policies, but can serve as a reference for future public actions. The beginning of articulation to act in a micro-basin of the Rio Fundo in the municipality of Turmalina already exists, involving CAV, STR Turmalina, EMATER[7], community associations and an urban environmental movement. According to the coordinator at CAV, the approach taken by this action should be based on accumulated experiences of the Satoyama Initiative.

In Annex II, quantitative data on the situation in the beginning of the projects, planned targets and results obtained to date are registered.

Section 6 - Challenges

Liberation of resources took place five months after project approval and coincided with the rainy season, compromising installation of technologies for retention and conservation of water (containment basins, small dams and terraces), since machines are able to work only in the dry season. This harmed implementation of the projects within the established deadlines and overloaded the CAV team responsible for assistance, having to stretch their resources to be able to support a large number of activities in the communities at the same time.

Another limitation relates to the period of two years established for execution of projects that aimed at altering landscapes. This is a very ambitions target for such a short period of time[8]. What the activities carried out to date have accomplished in such a short period of time is construction of some references of processes and products that could lead to greater environmental resilience over a period of time.

[7] EMATER – Rural Technical Assistance and Extension Enterprise

[8] As a reference, initiatives developed starting in 2002 in several territories of the semi-arid Brazilian Northeast by the Dom Hélder Câmara Project (PDHC), financed by the International Fund for Agricultural Development (IFAD), that continued starting in 2007 with Project Sertão, executed by the Secretary for Territorial Development (STD) of the Ministry of Agrarian Development (MDA), can be cited. In 2014 an external review carried out by Sidersky P. & Ferreira Neto P.S. concluded that after twelve years of investments, environmental gains were verified such as reduction in erosion, burning and soil exposure, better use of water and evidence of improved family income and food security.

The low rainfall during the period of execution of the projects, concentrated in a few short months, also resulted in limitations to execution of some activities, principally planting of seedlings and seeds for restoration of degraded areas. In addition to the climate difficulties, there are no definitive methods on the part of the smallholders or advisors as to methods for re-vegetating these areas, an important initiative as a complement to the terracing and fencing/isolation interventions. However, some experiments show that soil compaction can be overcome through manual intervention and introduction of species more adapted to the region.

Ageing of the communities as a result of exodus of young people is also a challenge, because in an initiative that intends to promote alteration of the landscape and maintain natural and productive resources, it is vital to guarantee the succession of generations and betterment of knowledge. This challenge is not exclusive to the Upper Jequitinhonha, but rather is a problem present all over Brazil.

EFA students participated in certain activities: production and planting of seedlings, assistance in monitoring spring flow rate, research for organic certification and capacity building for radio communicators.

The recent change in executive power in Brazil has brought many uncertainties as to the continuity of public support for family farming, conservation of natural resources, enforcement of environmental legislation and policies such as PNAE, that could lead to threats to the landscape and to the accumulated gains supported by the Satoyama Initiative.

Section 7 - Sustainability

For now, continuity of actions promoted with the support of the Satoyama Initiative is directly related to the capacity of CAV to assist current project beneficiaries, while increasing activities with other families in the region.

The Escola Família Agrícola (EFA) of Veredinha is a strategic partner because it helps establish a link between young people, communities and municipal authorities, while acting to train rural youth. The differential and contextualized training provided by EFA can facilitate the involvement of sons and daughters of smallholders in activities initiated by the projects, and thus contribute to continuity of project actions.

Strengthening associations and creation of committees and commissions that operate guided by pacts and regulations, and even training initiatives in monetary reserves, such as the fund set up by the Pindaíba group that manages the capture and distribution of running water, are prospects demonstrating that communities may gradually assume responsibility and a key role in the search for landscape sustainability. But as was mentioned already, this is a medium to long term perspective, given the deficiencies and fragility of community organizations.

Initiatives supported by the revolving fund should also encourage local processes that contribute to continuity and increase of actions initiated in the region. Currently, there are sixty-one initiatives underway financed by the revolving fund, under the auspices of the Satoyama landscape initiative.

Section 8 – Replication and Scale-up

There are still no practices supported by the Satoyama Initiative that have been replicated on a larger scale, mainly because the actions are very recent. What exists are localized attitudes of a number of smallholders who invested on their own in soil and water conservation practices encouraged by the prospect of results in controlling erosion and increasing water infiltration by adoption of basins, terraces, small dams and conservation planting.

There are financial limitations to replication of mechanical technologies for soil and water conservation for smallholder families. The cost per hour of machine time is 120 reais[10], and the average time needed for construction of terraces, containment basins and small dams is respectively, four, five and fifteen hours. Adoption of these types of technologies on a larger scale would require support by public or private agents.

A factor that could influence the capacity to replicate initiatives is the visibility gained by results that were obtained. One dissemination effort that is called for under the Satoyama Initiative is use of the Veredinha FM radio station, that once articulated with EFA, could play an important role in raising awareness among the general public.

The process of participatory certification of organic production underway in Veredina and Turmalina could also help spread the visibility of actions, given that exchange activities and monitoring of the properties are called for as part of the certification process.

Section 9 – Lessons learned

As was already mentioned, more than two years are needed for approaches that propose to transform landscapes. In regions with water limitations, degraded soils and social fragilities, from five to ten years of support for smallholders are probably necessary to increase environmental and social resilience.

It is important to invest in actions that have immediate effects and that stimulate families to become involved in other initiatives that can transform landscapes. An example is rainwater utilization with installation of cisterns[11], supported by ASA/MDS, and also the installation of tubing of spring water in the Pindaíba community. Both actions contributed to people remaining in the communities, avoiding having them swell the ranks of rural exodus.

"If running water had not arrived in the community, some people would already have left to live in the city." Valdemar/Pindaíba

The testimonies of smallholders demonstrate that there has been a gradual increase in awareness, and therefore, in interest in conserving natural resources. Engagement of the associations, and principally CAV, in capacity building, training and information awareness

[10] This is the amount that CAV achieved by negotiating the construction of various earth moving technologies. This amount would probably be higher in a process of direct negotiation between a smallholder and a service provider.
[11] The cisterns were financed by the One Million Cisterns Program under the auspices of the Citizenship Territories program of the Ministry of Social Development (MDS), in partnership with the Semi-Arid Articulation program (ASA). CAV was the entity responsible for regional coordination of this program in the Upper Jequitinhonha River Valley, Minas Gerais State.

activities in the communities has been important to this change. The CAV coordinator expresses precisely this lesson learned:

"Change in the landscape occurs through change in awareness."- Valmir S. de Macedo/CAV

It is important to concentrate and integrate practices in a same area to enlarge landscaoe effects. Engaging in seven projects in fourteen communities, with a limited amount of resources available, guaranteed installation of various actions, even in a dispersed manner.

This lesson learned is a reminder of the need to give special attention to recharge areas, which implies acting on the tablelands that have much of their area occupied by eucalyptus. An observation by a farmer involved with the project clearly expresses this need:

"It is of little use if we conserve the grottoes, springs and streams down here if eucalyptus plantations are interfering with the waters that spring from the uplands."

Section 10 – Recommendations and Perspectives

- *Water Retention and Storage Technologies*

Increase integration and articulation between different practices – earth moving technologies, fencing of springs and agro-ecological production. CAV plays an important role promoting horizontal technical assistance and should intensify the dynamics of exchange of experiences among smallholders, encouraging diagnostics, analysis and territorial planning.

- *Agro-ecological Production and Pasture Management*

Engage on hill slopes, in addition to the degraded areas, seeking more sustainable management of cattle, using division of pastures and forage production (protein banks, silage, etc.), contributing to reduction of pressure on the Cerrado.

Intensify investment in productive agro-ecological techniques (drip irrigation, diversified planting, crop consortia, use of natural insecticides) in areas with high potential productivity[12] (backyards, farm fields, vegetable gardens, orchards) with the prospect of increasing family food security, income generation and assuring greater stability and resilience of production systems.

- *Restoration of Degraded Areas*

Utilize areas in the initial and spontaneous stages of regeneration as a reference for interventions in restoration of degraded areas, and involve researchers and farmers with proven knowledge of restoration in Cerrado areas.

- *Impact of Eucalyptus*

Initiate institutional articulation involving local (CAV, AFAVE, EFAV, STR) and regional partners with the objective of facing and minimizing impacts suffered by the communities with the planting of eucalyptus by firms on the tablelands.

[12] Concept broached in Petersen, Silveira et al., 2002 – Family farming and agro-ecology in the semi-arid: advances in the Agreste of Paraíba State.

- *Youth*

In addition to intensifying participation of EFA students in activities underway, CAV should consider the possibility of structuring a modular program of rural youth training that connects landscape issues with themes of interest to youth.

- *Public Policies*

Use accumulated experiences to build awareness among public authorities, making use of different instruments, and improving monitoring and synthesis of practices supported by the Satoyama Initiative.

Promote local articulation, aiming to improve the organization and structure of PNAE implementation.

Provide ontinuity of external support so that communities and their organizations can consolidate what they started and expand actions to other areas. New funding assistance should provide for longer terms than just a two-year period.

Annex I –Activities carried out and results achieved

Activities	Results	Activities	Results
Ribeirão Veredinha and Grota do Engenho ADCRV		***Pontezinha and Ribeirão das Posses ADCP***	
• 4 awareness-raising and planning meetings • Equipment rental • Construction of small dams, containment basins and terraces • 1 evaluation meeting (40 smallholders)	• 47 families made aware • 1 community committee elected • 17 families benefitted (11 containment basins, 7 small dams and 4 terraces) • 6.5 million liters of water stored • 30 families involved directly and indirectly (30 women, 19 youths and 22 elderly) • 586 fruit seedlings planted in backyards of the families	• 3 awareness-raising and planning meetings • Equipment rental • Construction of technologies • Measuring and fencing of area surrounding Lamba Creek (Pontezinha), and 1 spring (Rib. das Posses) • Acquiring native seedlings (IEF) to be planted at Lamba Creek and in degraded areas • Evaluation meeting	• 39 families made aware • 12 families benefitted (8 containment basins, 3 small dams and 3 terraces0 • 8 people on the monitoring committee • Isolation of 4,700 m of gallery forest • 1,500 IEF seedling planted and 19 families benefitted • 500 m (1.5 ha) of area preserved (Rib. das Posses spring) • 26 women, 8 youth, 9 elderly • 5.4 million liters of water stored • 2.7 ha under restoration • 3 new families associated
Pindaíba and Córrego do Ouro Pindaíba Smallholders United Association		***Monte Alegre and Macaúbas S. de Santana Brotherhood Association***	
• Holding two courses - soil and cattle management and restoration of degraded areas in Ouro and Pindaíba Creeks (41 families participating) • 7 awareness-raising meetings • Measurement of the water course and channeling water at Pindaíba • Selection of 1 spring for protection at Ouro Creek • Selection of 2 degraded areas to be restored	• 45 families made aware and 1 community committee composed of 6 members • 7 km of piped water benefitting 21 directly in Pindaíba • 1.5 ha of spring preserved in Ouro Creek with live fencing • 3 ha of area fenced for restoration and 2 properties in the process of restoration in the 2 communities • 8 containment basins and 7 small dams in Ouro Creek and 6 terraces in the restoration areas	• 6 awareness-raising and planning meetings • Construction of a community and fruit processing space in Macaúbas community • Distribution of seedlings (622 seedlings) of fruit species for 48 families • 2 courses on restoration of degraded areas (one per community) • Elaboration of regulations for collective use of community space • Measurement of springs for fencing • Choice of degraded area for restoration and planting of live fencing with 300 native seedlings	• 45 families made aware and 1 committee composed of 6 members • 20 families organized and 1 processing space constructed in Macaúbas • 2 leaders trained in project management and monitoring of indicators • Initiation of restoration of the degraded area in Macaúbas – planting of approximately 300 seedlings • 622 tropical fruit seedlings planted in backyards by 48 families in the two communities • 2 springs selected for fencing

• Construction of containment basins, terraces and small dams			
Grota do Porto and Porto Velho AFAVE		***Gentio and Caquente AMOC***	
• 2 awareness-raising and planning meetings • Contracting of 1 technician for AFAVE • 20 technical visits to the 14 communities • Preparation of small seedling nurseries • Acquisition of 2 rototillers • Participatory experimentation of agro-ecological innovations • 1 course on management of soil and cattle and restoration of degraded areas (14 participants, 1 restoration plan elaborated)	• 26 families mobilized and 1 committee composed of 6 members • 10 families selected for monitoring of agro-ecological production • 5 degraded areas selected • 8 families selected for soil analysis • 10 small seedling nurseries under construction • 10 families producing heirloom seeds of 5 varieties; 25 smallholders benefitted with the use of 2 rototillers • 10 families introducing agro-ecological practices (5 ha managed) • 8 terraces and 3 basins constructed with 5 families benefitting	• 4 awareness-raising meetings • Equipment rental • Construction of technologies • 1 evaluation meeting on construction of technologies (8 participants) • Construction of manioc meal production unit in the Caquente community • Creation of 1 womens association in the Gentio community • Soil sample collection in the two communities • Measurement of spring areas and degraded areas for fencing • Fencing of springs and degraded areas • Organization of the general assembly of the Caquente association	• 55 families benefitted by the project (20 women, 18 youths, 3 elderly) • 2 committees composed of 6 members • 16 families benefitted with 6 terraces in Gentio and 16 containment basins with storage capacity of 3,470,000 liters of water • 17 families benefitted directly and 45 indirectly by the manioc mill (Caquente) • 2 association directors trained in project financial management and monitoring • 9 springs fenced in Gentio and Caquente, totaling 27 ha • 1 degraded area fenced for natural regeneration, totaling 1.5 ha
Gameleira and Boiada ACODEFAV (EFA)		***Strategic Project - CAV(PPP-ECOS resource)***	
• Meeting with representatives of the 2 communities, CAV, AFAVE and ACODEFAV • Selection of technician • 4 mobilization meetings • Holding 1 course on cooperative and association formation in	• 37 people made aware • 49 people and 19 families involved in planning activities and creation of the committee with 6 members • 12 families trained in cooperativism in Boiada • 29 families trained in Management of Water resources and 1 Water Resource Use Regulation elaborated • Nursery constructed (60 students	• Meetings in the 14 communities for awareness-raising and planning • 1 course on financial planning held • 1 workshop on monitoring of indicators • Assistance in preparation of reports and accounting • Technical visits to the properties • Exchange visits to PSA experiences and to participatory certification	• 272 families mobilized and 11 committees composed • 24 leaders trained in project financial management and monitoring of indicators • 7 association directors assisted • 100 families assisted by way of AFAVE in organization of production and 44 in the construction of technologies • 30 properties selected for soil analysis • 2 annual market surveys conducted

the Boiada community • Technical monitoring of the associations and EFA • Construction of a seedling nursery in EFA • Fencing of 4 springs with live fencing in the Gameleira community • Monitoring of activities of EFA (seed beds, seeds, management, organization of space) • Creation of the Boiada community association • Contribuition to organization of the traditional celebration in the Gameleira community • Holding 1 course on Management of Water Resources in the Boiada community and elaboration of community regulations for use of water resources • Construction of terraces and containment basins in the Gameleira community • Holding 1 course on seedling production	involved) • 4 springs fenced in Gameleira protecting 5 ha, involving 14 families working together and 22 EFA students in planting live fencing with 2,800 seedlings of sansão do campo (Mimosa caesalpiniaefolia) • 42 tecnologies constructed in the Gameleira community (31 terraces and 11 basins), 14 families benefitted; 42 direct beneficiaries • 55 students trained in seedling production • 1 community association created with 38 associates	(OCS) • Soil analysis on 26 properties • Course for radio communicators • Market research (Veredinha and Turmalina) • Analysis of solidarity revolving fund projects • Meeting of couples protecting the springs (18 people in 5 municipalities) and 1 visit to the Gameleira spring • Measurement of the flow rate of the springs • Dissemination of the Satoyama initiative in public spaces (Araçuaí Basin Council, CMRDS Turmalina, Veredinha municipal council) • Interchange in Chile – International Day on desertification and drought (presentation on the experience of the Satoyama initiative) • Activity evaluation meeting with participation of 29 leaders of all of the communities	(Veredinha and Turmalina) • 61 revolving fund projects approved in Veredinha • 6 springs montored for flow rate • 36 students trained in popular communication and radio programming • Establishment of an organic certification group through the Participatory Guarantee System (SPG), involving EFA and smallholders in Satoyama landscape communities • 4 smallholder associations made aware and organized for organic production • 37 families receive technical assistance for construction of 76 technologies for capture and storage of water • 6 families assisted in financial and productive property planning (Monte Alegre, Macaúbas, Grota do Porto, Porto Velho and Pindaíba)

Annex II – Quantitative project information

Indicators	Beginning (baseline)	Situation April 2016	End of project
Number of communities involved	14	14	14
Number of families involved	187	242	332
Number of Men trained	115	277	234
Number of Women trained	93	161	180
Total number of men and Women trained	208	438	414
Number of seedlings/trees planted	0	5,556	4,500
Area under sustainable use (ha)	76.25	90	103.5
Area under restoration (ha)	0	77.5	107.5
Agreements on resource use	4	10	14
Area employing agro-ecological management practices (ha)	76.25	136.5	152.5
Technical visits to family properties	0	262	360
Markets accessed	3	3	4
Number of small dams, containment basins and terraces constructed	30	76	94
Number of springs fenced	6	14	25
Average volume of water made available by the small dams and containment basins	2.3 million liters	28.5 million liters	31.8 million liters
Number of families with access to water	0	37	25
Number of small projects supported by the revolving fund	0	61	100

Note: These data refer to the starting point of the CAV project and therefore incorporate results obtained in the other seven projects.