

Bolsa Floresta (Forest Conservation Allowance): An innovative mechanism to promote health in traditional communities in the Amazon

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Introduction

In the 2003-2007 period, the Secretariat for the Environment and Sustainable Development of the State of Amazonas designed and coordinated the implementation of a series of innovative mechanisms aimed at promoting sustainable development, with a special emphasis on environmental conservation, poverty reduction and climate change. This sustainability policy was dubbed *Zona Franca Verde* (Green Free Zone) so that it could be easily understood by the population. “Zona Franca” (Free Zone), in Amazonas, is a synonym for employment and income; “verde” (green) makes us think of the forest. The *Zona Franca Verde* was therefore defined as a program to generate employment and income from the sustainable use of forests, rivers and lakes’ natural resources. Its aim is to value the live forest and thereby generate employment, income and promote environmental conservation.

One of *Zona Franca Verde*’s innovations was to create the *Bolsa Floresta* (Forest Conservation Allowance) (sub) program. This article describes the concept and implementation strategy of the *Programa Bolsa Floresta* (PBF), with special emphasis on its health components.

First, the context in which the Program was conceived is described. Then, its concept, structure and results obtained until September 2008 are presented. Subsequently, a diagnosis and public health related actions are discussed. Finally, the Program’s historical significance and future perspectives are considered.

Context

If the current pace of deforestation and burning in the Amazon and other parts of the world is kept – and added to the effects of burning oil and mineral

coal byproducts -, the impacts of climate changes may take on a huge dimension, with serious consequences for human populations and natural ecosystems (UN, 2008). Deforesting and changes in how land is used account for about 20 per cent of greenhouse gas emissions. Forest conservation, therefore, must be an integral part of a comprehensive policy to mitigate climate change (Stern, 2007).

Conserving the Amazon forests is particularly important to Brazil. The rain that falls onto all other Brazilian regions is significantly influenced by water vapor processing by the Amazon forest (Salati, 2007). If we establish that rain is essential to feed our plants used in agriculture and cattle raising, as well as to fill the rivers that supply water to our cities and power plants, we can say that the Amazon is essential for the future of Brazil. Changes in rain variability – with more intense floods and dry seasons – are forecasted by most climate change models. If we deforest the Amazon, this variability will likely increase, with serious social, environmental and economic consequences. We may say, therefore, that conserving the Amazon forest live is a strategic part of our national interest.

Conserving the Amazon forests is also essential if one wants to secure opportunities to improve the conditions of life of the region's indigenous, traditional and riverside populations. These populations depend on the forests for their livelihood. They also possess a wealth of etno-ecological knowledge about the forest, which should be a strategic component of poverty reduction efforts and attempts to improve their quality of life.

How to promote forest conservation and sustainable development in the Amazon? The answer is that different strategies should be formulated for each Amazonian sub-region, since it is clearly heterogeneous. Here we shall focus on the context in the most conserved part of the region, which we call the “Deep Amazon”, inside which most of the State of Amazonas is located. This region is characterized by a low rate of deforesting (less than 2 percent), a high proportion of protected land (indigenous reserves and conservation units), the presence of traditional and indigenous populations and difficult access by land. This is the focal area for the *Bolsa Floresta* program.

The *Bolsa Floresta* program

History

The *Bolsa Floresta* program was conceived during *Zona Franca Verde*'s process of implementation. Soon after creating the Secretariat for the Environment of the State of Amazonas, we organized a trip so that Governor Eduardo Braga could get acquainted with Costa Rica's program of environmental services. After that, we participated in many events in Brazil and abroad, in which we presented the proposal to link deforesting reduction to payment for the tonnes of prevented carbon emissions (Viana et al. 2006; Viana, 2008; Viana & Cenamo, 2008). The initial concept of *Bolsa Floresta* was conceived and matured in a series of internal meetings at the Secretariat for the Environment and Sustainable Development (SDS) of the State of Amazonas and presented to the

public for the first time during an interview on Cultura network's "Roda Viva" TV show, in December 2006. In the beginning of 2007, we started the process of drafting new State laws, particularly Law no. 3.135, on Climate Change, Environmental Conservation and Sustainable Development of the State of Amazonas, and Complementary Law no. 53, on the State System of Conservation Units (Seuc), both promulgated in June 5th, 2007. In the former, we defined the legal foundations for the *Bolsa Floresta* program and, in the latter, the concept of environmental products and services. This legal milestone was the basis for the creation in December 2007 of *Fundação Amazonas Sustentável* (FAS, Sustainable Amazonas Foundation), with the mission of managing the environmental products and services from the State conservation units, as well as the *Bolsa Floresta* program.

Concept

The *Bolsa Floresta* program grants financial compensation for the service provided by the traditional and indigenous populations of the Amazon: forest conservation. With *Bolsa Floresta*, we are acknowledging that forest conservation is a result of people's attitudes, especially those who live in the borders and in the interior of our forests: the forest guardians. *Bolsa Floresta*'s starting point is an agreement signed both by FAS and the populations that conserve the Amazonas' State forests. The communities commit to zero deforesting (in primary forest areas) and FAS commits to implementing the four components of the *Bolsa Floresta* program. Initially, the *Bolsa Floresta* program is directed toward the populations that reside in the State conservation units. There is a simple reason for this: in these areas, a legal basis for the provision of "environmental products" and "environmental services" already exists. The intention is to reach other areas of the State of Amazonas in a second stage.

Bolsa Floresta's implementation process included dozens of discussions during meetings and conferences in Manaus and workshops in the communities. As a result of this participatory process, several rules were defined, such as the requirement that a family must reside for at least two years in a conservation unit in order to be eligible to receive an allowance. This is to avoid migration to these areas. The remaining criteria are available at FAS' website (www.fas-amazonas.org).

One of FAS' strategies is to have its methodology for calculating carbon emissions - based on the contribution of a Scientific Committee formed by researchers from nationally and internationally renowned non-governmental organizations and research institutes - validated and certified by an independent institution with international credibility (TUV-SUD). The program's implementation involves a Scientific Committee, a Monitoring Group and Working Groups (in the areas of health, education and income), in which more than twenty Amazonas' governmental and non-governmental institutions participate. In this way, *Bolsa Floresta*'s criteria and implementation strategies are in a constant process of evaluation and improvement.

Components

Bolsa Floresta has four components, as follows.

Bolsa Floresta Familiar (*BFF*, or Forest Conservation Allowance for Families): The first component, *Bolsa Floresta Familiar*, includes payment of a R\$ 50 (about US\$ 22) monthly stipend to mothers of families who reside in conservation units and who are ready to commit to zero deforestation (in primary forests). They are allowed to deforest *capoeiras* (secondary forests), as this is part of traditional production systems. It is an important mechanism to involve the population in the activities to combat deforestation. *BFF* is not intended to be the main source of income for families, but an income complement, paid as a reward for conserving the forest and as an investment in the productive chain of environmental services.

Bolsa Floresta Associação (*BFA*, or Forest Conservation Allowance for Associations): The second component is the *Bolsa Floresta Associação*, geared towards the State's conservation units' residents' associations. It is equivalent to 10 percent of all *BFFs* (Forest Conservation Allowances for Families). It is aimed at strengthening community organization and social control of the program. This is one of the most important programs in the Amazon's history, in respect to strengthening community-based organizations. *BFA* encourages the social control of the *Bolsa Floresta* program, with the aim of ensuring that its rules and commitments are respected.

Bolsa Floresta Renda (*BFR*, or Forest Conservation Income Allowances): The third component is *Bolsa Floresta Renda*, which grants an average of R\$ 4,000 (about US\$ 1,740) per community per year, considering that each community is composed of an average of 11,4 families. This component is aimed at supporting sustainable production of fish, vegetable oils, fruit, honey, managed timber harvesting etc. All legal activities which do not entail deforestation are eligible for these allowances.

Bolsa Floresta Social (*BFS*, Forest Conservation Social Allowances): The fourth component is *Bolsa Floresta Social*, which grants an average of R\$ 4,000 (about US\$ 1,740) per community per year. Its aim is to finance improvements in education, health, communications and transportation, basic components for building forest guardians' citizenship. The actions shall be developed in collaboration with the responsible government bodies and partner institutions.

Supporting programs

Bolsa Floresta's supporting programs' function is to carry out long-term and structuring activities.

a) Health and education support program

The health and education projects are geared towards partnerships with the State government, mayors and research institutions aimed at fulfilling the UN Millennium Goals.

b) Sustainable production support program

The sustainable production projects seek to encourage activities that enable the dynamization of forest and fishing productive chains, both those working with timber and not. The priority is the use of new technologies to improve the competitiveness of the collection, transport, storing, processing and commercialization stages of sustainable origin products.

c) Control and monitoring support programs

The control programs seek to bring agility, technology and innovation to the process of deforestation prevention and combat in the conservation units involved in the *Bolsa Floresta* program. The focus of the environmental monitoring component is to assess the dynamics of forest carbon emissions and sequestration in the conservation units.

d) Conservation Units Management support program

EAS' management program to support scientific development is mainly geared towards works and studies related to forest carbon stock and dynamics in conservation units.

Results

Bolsa Floresta began being implemented in September 2008. In September 2008, 4,244 families had already been registered, and 2,702 of those were eligible to receive *Bolsa Floresta Familiar* (Forest Conservation Allowances for Families). The difference between these numbers is due to lack of documentation to support applications. Along the implementation process, an improvement in registration efficiency was observed and attributed to increased training of the specialized technical team and citizenship-building activities (Image 1).

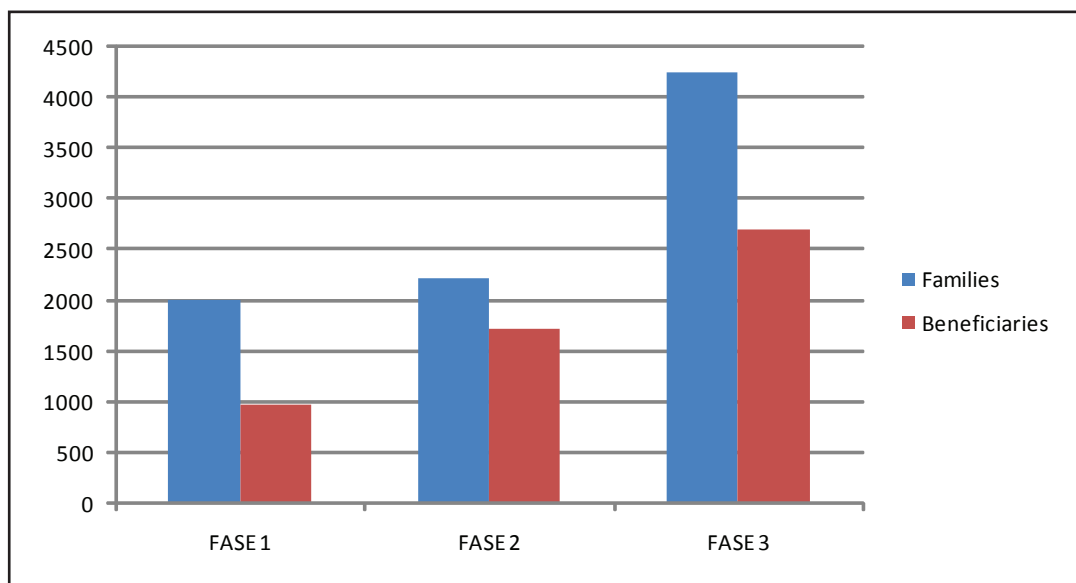


Image 1 – Evolution of results

Currently, *Bolsa Floresta* program is being implemented in twelve conservation units. The plan is to include all sustainable use units until 2010 (Table 1).

Table 1 – Program implementation in 12 conservation units

Conservation Unit (CU)	Registrations			Beneficiaries		
	Phase 1	Phase 2	Total by CU	Phase 1	Phase 2	Total by CU
RDS UATUMÃ	280	0	280	154	69	223
RDS MAMIRAUÁ	939	857	1796	349	574	923
RESEX CATUÁ-IPIXUNA	142	0	142	125	9	134
RDS PIAGAÇU-PURUS	431	0	431	246	13	259
RDS UACARI	187	0	187	88	40	128
RDS CUJUBIM	38	0	38	9	2	11
RDS AMANÃ	0	60	60	0	38	38
RDS JUMA	0	271	271	0	175	175
RDS RIO MADEIRA	0	584	584	0	453	453
FOREST MAUÉS	0	455	455	0	358	358
RDS GREGÓRIO	0	86	86	0	70	70
RDS AMAPÁ	0	264	264	0	249	249
Total	2.017	2.577	4.594	971	2.050	3.021

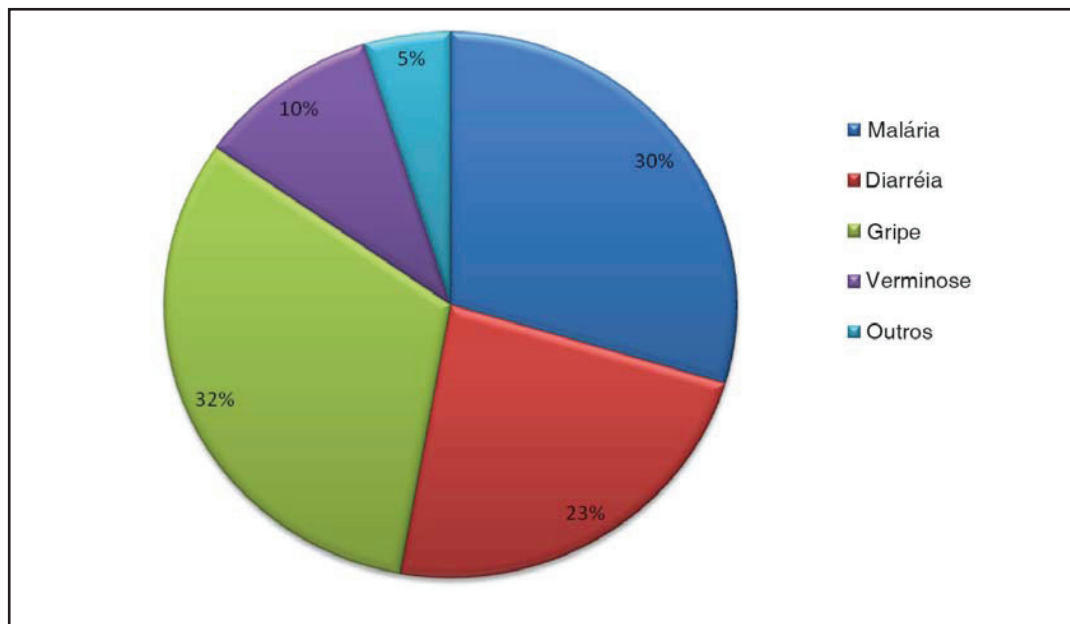
Health in *Bolsa Floresta* communities

Healthcare is an essential component of *Bolsa Floresta* program. It is part of a holistic approach to sustainable development, in which public health activities play a strategic role. If not accompanied by an improvement in health, the effects of income generation, environmental conservation and education efforts are limited. Isolated healthcare, on its turn, if not accompanied by the other sustainability activities, has limited impact. *FAS'* efforts, however, are not aimed at substituting the municipal, State and federal executive authorities, which are allied in the *Sistema Único de Saúde* (*SUS*, or Single Health System).

Healthcare efforts are developed in a partnership basis, involving the *Secretaria Estadual de Saúde* (State Secretariat of Health), *Fundação de Vigilância da Saúde* (Health Surveillance Foundation), *Fundação Alfredo da Mata* (Alfredo da Mata Foundation), *Centro de Educação Profissional do Amazonas* (Amazonas' Center for Professional Education) and *Fundação de Amparo à Pesquisa do Amazonas* (Amazonas State Research Foundation).

Main diseases occurring in Bolsa Floresta communities

Malaria, diarrhea, influenza and verminosis account for 95 percent of the diseases found in *Bolsa Floresta's* conservation units. These diseases vary according to the conservation unit (Graph 1).



Graph 1 – Incidence of diseases

Bolsa Floresta program main healthcare activities

Activity 1 – *Training of Community Health Agents*: It shall be developed in ten-day modules, in Manaus, in classes with up to 40 people. The aims are: (i) to improve the quality of basic preventive care and (ii) obtain primary information on health in the conservation units.

Activity 2 – *Training of nurses*: It shall be developed in three to five-day modules, in Manaus, in classes with up to 40 people. The aims are: (i) to sensitize the nurses to leadership and (ii) promote the nurses' involvement in preventive actions.

Activity 3 – *Participatory Planning Workshop*: The aims are: (i) to plan activities for each conservation unit and (ii) the design of an investment plan by healthcare workers for each conservation unit. The participants include doctors, researchers, nurses and community health agents. At the end, a plan for monitoring results shall be developed. This plan shall be unveiled in each conservation unit during a seminar to present the Priority Health Activities Plan, in the presence of basic health decision-makers: mayors, municipal health secretaries and other involved institutions.

Activity 4 – *Implementation of the Priority Health Activities Plan for each conservation unit*: After the design, review and approval of the Priority Health

Activities Plan, their implementation shall be carried out according to a division of responsibilities between all institutions involved.

Activity 5 – *Monitoring and participatory evaluation of the Priority Health Activities Plan for each conservation unit*: During the implementation of the Priority Health Activities Plan for each conservation unit, they shall be monitored and evaluated, in a participatory way, according to a division of responsibilities between all institutions involved.

Perspectives

The results obtained so far are encouraging, especially because of the great interest and motivation of the communities involved. However, great challenges remain, particularly regarding the articulation of activities that involve a large number of institutions. This challenge, dubbed “coordination flaws” by ECLAC (2007), is recurrent in all development and conservation programs in Latin America. Overcoming this challenge, through the Monitoring Group and the Working Groups, will be essential for *Bolsa Floresta*’s success.

Bolsa Floresta is an innovative tool with great potential to promote conservation and sustainable development in the Amazon. Lessons were learned regarding the institutional and legal scopes, as well as relating to socio-environmental and economic methodologies.

The validation process of the methodology to calculate carbon emissions by measuring deforestation reduction presents findings which are important when dealing with strategic themes such as baseline, additionality and permanence. This may be very useful for the development of carbon projects in other tropical forests.

The *Bolsa Floresta* program was conceived taking into account the context of the “Deep Amazon” traditional and indigenous populations. The concept on which it is based, however, - paying for environmental services – is applicable to other parts of the Amazon, Brazil and the world. The multiplication perspectives of *Bolsa Floresta*’s concept are encouraging, especially if the carbon credits associated with deforestation reduction are incorporated into the new international agreements related to the Framework Convention on Climate Change.

EAS’ strategic role is to improve the synergy and coordination between the many institutions that work to improve the health conditions of traditional communities, with special emphasis on the “Deep Amazon”. One of its aims is to advance toward the fulfillment of the UN’s Millennium Goals. Its ultimate objective is to turn health into a key element in the promotion of better quality of life and conservation in the Amazon.

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ABSTRACT – The program Bolsa Floresta [Forest Conservation Grant] implements a series of pioneering activities in the area of environmental conservation and sustainable development in the Amazon. Its conception is inserted in the context of global climate change and deforestation reduction, and a special emphasis is given to the traditional communities of the “Deep Amazon”. This article describes the program’s concept and strategies of implementation, highlighting its health related actions. First, the context in which the program was conceived is presented. Then, the concept, structure and results achieved until September 2008 are exposed, followed by a presentation of the diagnosis and of its public health related actions. Finally, the program’s historical meaning and perspectives are discussed.

KEYWORDS: Amazon, Bolsa Floresta [Forest Conservation Grant Program], Global climate change, Deforestation reduction, Public health.

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Received on 10.14.2008 and accepted on 10.20.2008.

Translated by Maria Blant. The original in Portuguese is available at http://www.scielo.br/scielo.php?script=sci_issuetoc&pid=0103-401420080003&lng=pt&nrm=iso.

ANNEX 1 - Incidence of diseases per conservation unit.

