

CHAPTER 11
CONCLUSIONS AND RECOMMENDATIONS

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11.1 Conclusions

The Brazilian Amazon tropical forest is considered as one of the most important factors that affect the environment of the whole planet. However, degraded areas are expanding in the Amazon region since deforestation is advancing rapidly in the last few years. The deforestation in Para State, which is one of the largest states in the Amazon region, presently reaches to about 20% of the state's total area that corresponds to 250,000 km². As a result, approximately 15% of the total area is supposed to be going through a degradation process, resulting in a low economic land productivity. The expansion of degraded areas not only affect the regional environment, but also restrains the land use and the productive activities, thus affecting the living conditions of the rural population and their economic activities. Consequently, it hinders the improvement of the living conditions of the local population as well as the regional economic development.

In this context, it is necessary to look for appropriate alternatives of sustainable use and improvement of land productivity through the re-incorporation of degraded and/or abandoned areas that suffered the deterioration of their land productivity and decline of economic capacity. Therefore, the recuperation and the sustainable use of degraded areas will intensify the use of productive areas and will prevent further deforestation of agricultural frontier in the natural forest areas. Consequently, this project will contribute to the preservation of global environment through the preservation of the natural forest and the improvement of forest functions in the Amazon region.

The Master Plan encompasses 10 components to be implemented in 30 years period. The components, i.e., programs and projects are interrelated, and shall be implemented systematically. The core of the Master Plan consists of Central Projects directly oriented to the recuperation of degraded areas through direct actions of reforestation and implementation of agroforestry and agrosilvopastoril systems that can maintain the sustainability of those areas. In order to implement the Central Projects effectively, it is indispensable to implement supporting activities such as the strengthening and improvement of concerned organizations, training of human resources, technological diffusion, increase of technical capacity and production through mechanization and availability of modern production inputs, activation of the agricultural product market and strengthening of the processing sector, and infrastructure expansion.

On the other hand, several socioeconomic problems exist in the microrregião of Marabá as the external factors such as complex system of identification of land properties, invasion and illegal occupation of lands, poverty, low education and technical level of farmers, few job opportunities, non-organized rural population, precariousness of the social infrastructure, population increase, expansion of settlement projects, continuous deforestation of natural forests, lack of environmental conscience, financial difficulty, market economy, and decentralization of the power, which can affect the execution and operation of the Master plan, inhibiting the projected effect. Especially, the social problems can cause a strong impact in the implementation of the programs and projects. This Master plan was elaborated considering the need to lessen eventual difficulties in the execution, taking into account of the

possible maximum external conditions. It is important to implement the Master plan, giving enough considerations to the characteristics of the social structure, social and economic problems in reference to the culture of the rural population, among others.

Therefore the execution of the Master Plan will contribute for the sustainable land use in the microregion of Marabá, harmonizing the economic activities with the environment, and allowing the recuperation of degraded areas through an ordered development. Furthermore, the Master Plan shall exert a multiplying effect by preventing a higher loss of natural forests, becoming a model for the recuperation plan of degraded areas, thus contributing to the recuperation of these areas and to the preservation of natural forests in other regions of the Pará State. For this reason, it is extremely important to implement the Master Plan for the recuperation of degraded areas as fast as possible.

11.2 Recommendations

11.2.1 Immediate Implementation of the Recuperation Plan for Degraded Areas

The State Government and the concerned organizations involved in the recuperation of degraded areas shall improve the inter-institutional relationship and work actively together in a systematic way to make it possible for the most effective implementation of the Master Plan in order to achieve the expected positive results. On the other hand, this Master Plan for the Marabá microregion represents a model for the PROECO master plan, destined for the whole State, to recover the State's degraded areas.

The implementation of short term plans, mentioned in this Master Plan, aiming at the strengthening and improvement of environment related organizations, the environmental education and the technical qualification, is necessary not only to attain the targets of the Recuperation Plan of the Degraded Areas in the Marabá microregion, but also for the execution of other similar plans in other regions of the State. In this concept, the short term programs/projects, as well as the corresponding supporting policy shall be implemented with priority and immediately.

11.2.2 Strengthening of Coordinating Organization of the Programs/Projects

The Government of the Pará State, mainly SECTAM as the executive organization, will have a central role in promoting the efficient implementation of programs and projects of the Master Plan, coordinating the work with concerned federal, State and Municipal organizations. Other organizations such as ITERPA, SAGRI, EMATER, etc., which are the possible executing agencies of individual programs/projects, shall actively participate in the Master Plan implementation. These organizations can improve their activities with new responsibilities and thus their institutional strengthening through equipment improvement of the supporting infrastructure, and training of human resources involved in the management and administration of projects are needed.

11.2.3 Technical Training and Organization of Producers

The reforestation and cultivation technologies shall be absorbed by the settled farmers and small-scale producers, since they are the main actors in the implementation of the Central Projects. This is necessary so that the productive activities can be established in a sustainable

manner through the introduction of new forest species and agricultural products. Technical training is an indispensable task for the region's local population considering their cultural origin and the educational level. For this purpose, the concerning organizations shall actively be involved in the technological diffusion activities. Furthermore, the immediate training of extension and guiding workers shall be carried out.

On the other hand, in order to promote the permanency of rural producers in their properties and to concretize the sustainable land use, the following actions are necessary: 1) promotion of farmers' organization; 2) organizational qualification in management and administration; 3) diffusion of communal agricultural activities including technical training, new technologies and agro-industrial technologies aiming at the aggregation of value-added agricultural products. Apart from this, it is important to promote the development, the diffusion and guidance on the applicable technologies and the practices aiming at the productivity improvement. The execution of these actions requires the technical assistance of more industrialized countries with accumulated experiences on these aspects and results, and thus attaining an efficient foreign technical cooperation is essentially recommended.

11.2.4 Approach of the Land Ownership Issue

The complexity of the land ownership issue in the Amazon region is an obstacle for the medium and long terms investment actions, hindering the implementation of projects concerning to the recuperation of degraded areas. Therefore, this problem shall be at first solved in an appropriate manner so that the programs/projects subjected to degraded areas can be implemented. The Project of land ownership survey, registration and mapping, which is one of the integral components of the Master Plan, is extremely important because it provides the necessary basic conditions for the execution of the central projects such reforestation and enrichment, development and improvement of family agriculture, among others.

It is indispensable to deal this issue as soon as possible in order to execute the programs/projects for the recuperation of degraded areas. Thus, the referred Project has high priority. Technical assistance concerning to the integration and operation of the system, as well as concerning to the installation of necessary equipment for the systematization of land ownership information, therefore, is essential.

11.2.5 Necessity of Zoning

The effective and economic use of degraded areas shall be analyzed as an integral part of a rural or regional development plan, since this theme concerns to both the deforestation prevention and to the generation of income and work opportunities for the rural population. In other words, the mitigation of poverty and the regional economic development shall be mutually incorporated in this analysis. In this context, the Ecological-Economic Zoning, that supplies basic information for future development plans, is an efficient methodology for the analysis of land use in the degraded areas.

In view of the fact that the forests deforestation for the extraction of wood and for the agricultural exploitation, legally or illegally carried out, still persists, apart from the fact that the settlement projects are increasing, the Government of Pará State shall complete the task of land use zoning as soon as possible. Through this zoning work, the preservation areas, the exploitable areas and the development targets are classified and identified, and thus the expansion of degraded areas caused by a disorganized land use (development) can be avoided.

This methodology, therefore, is indispensable for the preservation of the Amazon region natural resources and environment, as well as to assure the economic activities of the rural population.

11.2.6 Improvement of Credit System and Financial Resources Procurement for the Projects

The small- and medium-scale rural producers cannot implement new projects for recuperation of degraded areas with their own resources due to their limited financial capacity. Besides, there are many obstacles to access the existing credit lines. Therefore, a long term credit line with low interest rates, applicable to forestry projects, shall be made available considering that even the fast growth forest species requires at least 15 years until the logging time. The establishment of a credit system with favorable conditions of financing for the small and medium scale producers, through the creation of a new special fund of the State government, aiming at the implementation of the Master Plan shall be useful.

On the other hand, considering that the State faces a budgetary restriction, the Government of Pará shall analyze the possibility of procuring financing resources for the implementation of the Master Plan for the Recuperation of Degraded Areas, searching for international financing sources, from international organizations and from bilateral cooperation agreements. The government shall particularly search for environment oriented financing, which presents favorable finance conditions.

11.2.7 Governmental Responsibilities

The development of the Amazon region was stimulated by the Federal Government under the policy “Land without people to people without land”. This development was promoted starting from strategic areas, which allows the opening of natural forests mainly for the agricultural exploitation and for the implementation of colonization projects. This development policy aimed at the integration of the Amazon region and to fight against poverty, giving priority to the poorest class of the population such as the landless rural workers and to the unemployed people from the Northeast and Southeast regions of Brazil. In this context, the colonization projects implemented together with the construction of roads have caused a demographic explosion in the Amazon region, and consequently allowing the degradation of areas. In this context, the Federal and State Governments, therefore, shall assume their responsibility, working for the recuperation of degraded areas.

The recuperation of degraded areas in the Amazon region is an important issue at the national level. The Federal and State Governments shall establish a system that allows the active participation of executing agencies, analyzing the measures concerning to the technical assistance, fiscal incentives and other subsidies that allow the implementation of the Master Plan. The governmental organizations shall also monitor the programs/projects for the recuperation of degraded areas so that they do not induce even more the deforestation process or exert negative influence on the environment. Furthermore, they shall improve the methods of application of forest technologies such as the forest management, considering that the currently applied forest management has caused a partial deterioration of the natural forest. The correct utilization of applicable technologies, therefore, is extremely important. In this context, the appropriate certification system of wood origin shall be analyzed, to promote recuperation projects such as the reforestation projects in the degraded areas, considering the existence of non governmental organizations that grant the sustainable forest management

certificate (SELO VERDE – GREEN SEAL) based on international criteria.

11.2.8 Active Participation of Local Population

The reduction of natural forests and the increase of degraded areas in the Amazon region can be considered as the results of the extraction of forest wood species with commercial value, as well as the results of the establishment of pastures and large-scale farms. As direct or indirect perpetrators of deforestation, public enterprises such as the implementation of settlement projects and the construction of hydropower plants and roads have been involved on one side, and the extractions of wood for domestic use by the rural residents and for the production of firewood and vegetal charcoal for industrial use have been observed on another side. The forest fires, caused by the use of fire in agriculture in the slash-and-burn system and in pasture management, are also considered as critical causes of deforestation. Therefore, the rural population responsible for the degradation of areas shall become aware of their responsibility, to actively participate in the recuperation projects.

The local social actors represented by the executing agencies of the Central Projects of the Master Plan shall play the main role for implementing these projects. Their participation is indispensable, although they present different living conditions, technological and educational standards, apart from different manners of activities exploitation and financial capacity, among others. Therefore, the programs/projects coordinating organizations shall apply alternatives of recuperation and implementation methods compatible with the executing agencies, aiming at their broad participation. Simultaneously, they should diffuse among the rural population the concept that the execution of the Master plan can generate jobs and income in the area.

11.2.9 Effective Utilization and Protection of Forests

The Amazon region natural forest is considered as the source of production not only of for wood but also of for several other forest products such as fruits, nuts, medicinal plants, resin, raw materials for handcrafts, food, fibers, roughage, etc. These forest products generate an important income for the rural population, mainly for the poorest class of farmers and landless rural workers.

The efforts oriented towards the protection and preservation of the Amazon forest, therefore, shall also be oriented towards the mitigation of poverty, the improvement of quality of life, the region's economic development, and the mitigation of the regional inequalities. For this purpose, the utilization of forests in a sustainable manner is indispensable (Conservation Units – Indirect Use and Conservation Units – Direct Use). In this sense, the existing programs shall be effectively utilized such as the Extraction Reserves-RESEX, Sustainable Development Reserves-RDS, through which the remaining natural forests can be exploited in a sustainable manner.

Also from the viewpoint of the protection of genetic resources of the commercial value forest species with commercial values, as well as of the capacity of forests in regard to retention of CO₂, the recuperation of the degraded areas as well as their ecosystem and the protection of the ecosystem in general are considered as a fundamental issue. The recuperation of degraded areas represents the aggregation of value to the land that suffered the decline of its economic value. Here, the economic value does not mean simply the renewal of agrosilvopastoril resources. For instance, the implementation of eco-tourism in abandoned pasture areas after

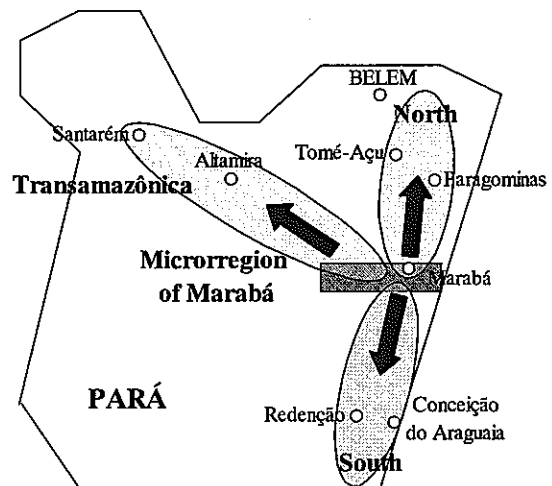
the reforestation for the ecosystem recuperation can also be considered an action for the aggregation of economic value. The programs that allow this type of activities, such as the RPPN – Private Reserve of Natural Patrimony, shall be effectively adopted. We can infer that the RPPN has significant effects on the utilization of legal reservation areas of rural properties, besides also preventing the invasion and illegal occupation of land by the landless rural workers. RPPN is also important because of its involvement of the private sector in the preservation of areas, without the governmental intervention. Apart from this, the clarification and systematization of the agrarian issue through the implementation of the Project of Land Ownership Survey, Registration and Mapping, which is one of the components of the Master Plan, will allow the effective development of the RPPN program, allowing the inclusion of more forest areas in this program.

11.2.10 Enlargement of the Effects of the Master Plan

The Master plan will be applicable to other areas of Pará, as a model of the plan for recuperation of degraded areas. The techniques of the proposal and methodology of the plan of recuperation of degraded areas discussed in this Study is indispensable to promote PROECO for the development of a wider region. An early execution of Feasibility Study (F/S) and the materialization of programs/projects are important so that the results of this Study may be advanced to the next stage. In the next phases, the socioeconomic problem of the objective area should be well analyzed so that they can be considered in the elaboration of the plan and in the execution of the project.

It is indispensable to properly formulate a Feasibility Study (F/S) in order to implement the development activities of agriculture, livestock and silviculture appropriately as appropriate technological measures for recuperation of degraded areas. The development plan should contain agrosilvopastoril activities in a sustainable manner, including technological measures of systems of agroforestry and silvipastoril and reforestation to the Central Projects of this Master plan. Besides, the characteristics of the objective area should be diagnosed accurately and to elaborate the adapted plan which suits the regional characteristics. Therefore, to execute a more appropriate development study, the participation of a study team composed of experienced experts will be indispensable and international technical cooperation shall be immediately requested for the execution of the study at the early stage.

The micro region of Marabá is favored by its strategic situation of its location, since it is located in the center of the degraded areas in the State and it is also located where the main highways pass through. Hence, the Master Plan has great perspectives to be extended to other regions of Pará State with the following characteristics: 1) Northeast Region (Paragominas, Tomé-Açu, etc.) is provided with social infrastructure, and there are a large number of farmers with high technologies. It is a region where wood extraction activities are realized historically and are still being carried out. There are many sawmills along the PA-150; 2) South Region (Redenção, Conceição do Araguaia,



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etc.) that suffers a strong population pressure with a strong demand for the land possession, with a large devastated forest areas for the agriculture and animal husbandry exploitation, considered as environmentally hazardous areas and Cerrado areas; and 3) Transamazônica region (Altamira and Santarém) with colonization and settlement projects planed by the Federal Government, under a strong influence of rural people coming from the Northeast of the Country, and provided with roads (difficult to access during the rain season) and electrification. The immediate execution of a Feasibility Study (F/S) in the next phase is extremely important for the Northeast Region.