Summary

Evaluation conducted by: JICA Brazil Office

1. Outline of the Project			
Country：Brazil		**Project title：The Brazilian Amazon Forest Research Project Phase II**	
Issue/Sector：Environment Forestry and Natural		**Cooperation scheme：Technical Cooperation**	
Division in charge：Forest and Natural Environment Department		**Total cost：357 millions yen**	
Period of Cooperation	**1 October 1998**	**Partner Country's Implementing Organization：National Institute of Amazon Research (INPA)**	
	30 September 2003	**Supporting Organization in Japan：Forestry and Forest Products Research Institute (FFPRI), Tsukuba**	
Related Cooperation	**Recovery of Degraded Areas in the State of Para; Program for Sustained Agricultural Technology Development in the Eastern Amazon.**		

1-1. Background of the Project

The Brazilian government requested a project with the aim of consolidating a model of management for preservation and use of the tropical rainforest in the Amazon region. The Japanese government responded by approving a project to institutionally strengthen the National Institute for Amazon Research (INPA), in Manaus, and conduct research. The Amazon Forest Research Project (the Jacaranda Project), Phase I, was executed between 1 June 1995 and 31 May 1998, with a follow-up lasting from 1 June to 30 September 1998. The Phase II project began immediately afterwards. In September 1999, it was included as an associate project of the Pilot Program for the Protection of the Brazilian Tropical Rain Forests (PPG-7).

1-2. Project Overview

The project had five components: patterns of distribution of forest types (remote sensing), dynamics of the natural forest, site characteristics, seed ecophysiology and site adaptability. The Super Goal was "The Amazonian forest resources are used on a sustainable basis."

（1）**Overall Goal**

Effective technologies for forest conservation and rehabilitation of degraded area in the Amazon are in use by the people/organizations concerned.

（2）**Project Purpose**

Biological and ecological knowledge is increased and technologies are improved at INPA for forest conservation and the rehabilitation of degraded areas in the Amazon.

（3）**Outputs**

 a) Updated information on land cover and land cover change is available.
 b) The understanding of natural forest dynamics is increased.
 c) Characterization of different sites in the natural forest and in plantations on degraded areas is improved.
 d) Main seed characteristics necessary for seed management are known regarding important species for forest conservation and reforestation of degraded areas.

 e) Planting techniques including seedling production is improved for rehabilitation of degraded areas in the Amazon.

（4）**Inputs** (as of the Project's termination)

Japanese side：

Long-term Expert	**10**	**Equipment**	**128 million**	**Yen**
Short-term Expert	**19**	**Local cost**	**59 million**	**Yen**
Trainees received	**16**	**Others**		**Yen**

Brazil's Side：

Counterpart	**30**	
Equipment	**local currency (____Yen)**	
Land and Facilities	**local currency (____Yen)**	
Local Cost	**635,000 reais (27 million Yen)**	
Others	**local currency (____Yen)**	

2. Evaluation Team

Members of Evaluation Team	JICA Brazil Office
	Commissioned to: Mr. Robert K. Walker – National Consultant

Period of Evaluation	Day/ month/ Year - Day/ month/ Year	Type of Evaluation：Ex-post
	14/07/2006 – 31/01/2007	

3.　Results of Evaluation

3-1.　Summary of Evaluation Results

(1)　Impact

　　The project purpose, "Biological and ecological knowledge is increased and technologies are improved at INPA for forest conservation and the rehabilitation of degraded areas in the Amazon," has been achieved (effectiveness). However, the overall goal proved too ambitious for a research institution such as INPA, which lacks the institutional mission and capacity to ensure that "education of and the transfer of skills to local residents for sustainable development of forest resources are carried out in a broad area of the Brazilian Amazon" or "Tree planting activities are undertaken systematically in a considerable space of the Brazilian Amazon" (two of the indicators). Consequently, the super goal, "The Amazonian forest resources are used on a sustainable basis," continues to be far out of reach. INPA researchers have questioned the government's recent claim to have reduced deforestation rates.

(2) Sustainability

　　INPA continues financially and institutionally sound, although recent budget cuts may threaten its sustainability in the coming years; erstwhile project researchers and their advisees at its Department of Research on Tropical Silviculture (CPST) and the Remote Sensing Laboratory (SIGLAB) continue pursuing lines of research characteristic of the Jacaranda project, with minor adaptations to meet the requirements of the new projects (basically the only source of research funding).

3-2.　Factors that have promoted project

(1) Impact

　　Experiments in a ranching area near INPA headquarters have produced important findings regarding forest replanting techniques and species selection. Private enterprise has supported a few reforestation projects, with some involvement of CPST researchers and students in investigation and extension work, producing small but theoretically significant impacts in terms of rehabilitation of degraded areas. Research by CPST and other INPA researchers has shown and publicized the relevance of forest conservation to carbon balance and its consequences for the global and Brazilian climate; this has contributed to policy proposals which, if adopted, may help prevent global warming and avoid other threats. However, the main factors restricting to some degree the rampant deforestation process (mostly along the "Arc of Deforestation" in the southern and southeastern Amazon region) have been the high Brazilian interest rates and consequent overvaluation of the national currency vis-à-vis the stronger currencies. Through the establishment of forest conservation units, mostly in the other parts of the Amazon, some protection is provided. CPST researchers have begun to show some promising results, such as the environmental and economic feasibility of planting tree species such as balsa wood, rosewood and kopie.

(2) Sustainability

Adequate funding for institutional maintenance, student fellowships and thesis advising, as well as some training of elementary and secondary students, has been forthcoming; and research continues to be supported in areas related to the project objectives (e.g., the current CT Petro Amazônia project, coordinated by INPA, which supports research on reforestation of clearings). Equipment donated by JICA has been maintained and put to good use; items that obsolesce more rapidly have been replaced. Organized post-project initiatives have included the training of Amerindians (owners of 20% of the Amazon forest) in remote sensing and the incorporation of maps based on local knowledge, as well as the publication of attractive explanatory brochures about seeds and on traditional extraction of the Guiana crabwood (Carapa procera D.C. and Carapa guianensis Aubl).

3-3   Factors that have inhibited project

(1) Impact

Except for the experiments mentioned above, no other attempts at reforestation of *pasture lands*, which are responsible for 75% of the deforestation of the Amazon, have been directly supported by INPA. Reforested lands still occupy only a tiny fraction of the Amazon, virtually undetectable by remote sensing. Furthermore, a widely cited INPA researcher has shown the limited potential of secondary forests (as opposed to primary forests) on former pasture land as a carbon sink. The contributions of the Amazon forest are seriously undervalued relative to slash and burn cattle ranching and soybean production, which are major sources of hard currency for Brazil. Failure to include the tropical forests in the Clean Development Mechanism, at least until after 2012, and the fact that few if any economically viable alternatives have been made available, have resulted in continued rampant deforestation and very little reforestation.

(2) Sustainability

One significant problem for project continuity seems to be a lack of institutional funding for support staff, e.g., hired hands and low level technical personnel to maintain the experimental plots. Re. the publications on seeds and extracts, distribution has been restricted by the limited number printed (1000 each). INPA researchers misunderstood JICA's restrictions on the sale of publications; in fact, non-profit sale is not prohibited.

3-4.   Conclusions

The Jacaranda Project has proven to be sustainable in terms of the project purpose, which is the production and dissemination of relevant knowledge. Extension work and actual large scale restoration and conservation of the Amazon forest are incipient and very difficult to accomplish. Attempts by erstwhile project researchers and other INPA scholars to influence public policy locally, at the state and federal levels and globally have been significant, but have yet to bear fruit. Project relevance and impact have been limited by theory failure: unrealistic assumptions (e.g., "The Brazilian government implements a unified and effective policy on Amazon land use": the main problem here lies in enforcement) and failure to explicitly include economic considerations in the project document, as well as the largely untested hypothesis that restoration of degraded forest lands can be a major factor in environmental protection, relieving the pressure on the primary forest.

3-5. Recommendations

Close attention should be given to the adoption and enforcement of appropriate global and national policy on the tropical forests. In international forums, the Brazilian and Japanese governments should support immediate adoption of some form of carbon credits for forest recuperation and preservation. National and multinational corporations should be encouraged to support and publicize the reforestation of degraded areas in the Amazon and other tropical forests. Support for translation and widespread dissemination of INPA/Siglab maps and information from remote sensing, which are now being made available in Portuguese via Google, should be provided. The Brazilian government should guarantee continual basic support for research and site maintenance at INPA and its Department of Research on Tropical Silviculture (CPST), and consider adoption of networking arrangements in support of extension work.

3-6 Lessons Learned

Recovery of degraded tropical forests can only have a substantial impact on global warming and related matters if it is implemented through comprehensive policy initiatives. At that point, the kind of research published during and after the Jacaranda Project will be of great relevance. Whether or not this happens, the world urgently needs to put a stop to the destruction of tropical forests, of which the Brazilian Amazon is the prime example. Economic considerations must be taken into account from the outset. Although the weakest of the five components during project execution (1998-2003), remote sensing (Component 1), which got underway during Phase I of the Jacaranda Project, now provides very timely information, of relevance to local communities (as shown by the work with the Amerindians) as well as to the nation and the planet itself.

3-7 Follow-up Situation

Consult former project researchers regarding preparation of materials to be used in any future extension projects related to the Amazon forest.