PROJECT COMPLETION REPORT

September 1, 2003 – July 31, 2006

Development of human resources in sustainable forest management and reduced impact logging in the Brazilian Amazon

PD 206/03 Rev.1(F)

International Tropical Timber Organization

August 2006

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A. PROJECT IDENTIFICATION

a. **Title:** Development of human resources in sustainable forest management and reduced impact logging in the Brazilian Amazon

b. **Serial Number:** PD 206/03 Rev.(1) F

c. **Implementing Agency**: Fundação Floresta Tropical

d. **Host Government:** Brazil

e. **Starting Date:** 1 September 2003

f. **Actual Duration (months):** 35

g. **Actual Project costs* (US$):**

ITTO:	599,650
FFT:	1,260,436
TOTAL:	1,860,086

*See Attachment 1 for the final project financial and cash flow statements as well as the final financial audit for the project.

PART I: Executive Summary

1. Background Information about Project

Key problems addressed (pre-project situation)

The Amazon Basin is the most biologically diverse terrestrial region on earth and provides numerous ecological services at local, regional, and global scales. Nevertheless, when this project began, its forests were being cleared, burned, and degraded at alarming scales. The forest sector of the Brazilian Amazon employs more than half a million people and generates annual revenues of about $US2.2 billion. The remaining Amazon Basin countries have smaller forest areas, but forestry plays an important role in land use throughout the region. A central motive for this project was that the forest sector, because of its economic potential and the large area it affects, should play an integral role in strategies to conserve the Amazon's environmental resources.

When this project began a growing number of producers had begun to adopt better forest management (FM) practices, and some had invested in training and obtaining third party certification. The potential of the forest sector was not being fully realized, however, because most forests across the Amazon were still being logged without regard to their long-term productivity and diversity. Moreover, workers employed by conventional logging operations typically faced poor or unsafe working conditions, lack of job security, and few opportunities for professional development. Finally, the great majority of the wood produced in Amazônia was coming from predatory origin: of the 30 million m^3 of wood harvested annually in the region, 75% came from legally authorized deforestation, 20% from illegal sources, and only 5% from areas with appropriately implemented forest management

plans.[1] The roots of this problem lie both within and beyond the forest sector and comprise social, economic, financial, legal, political, institutional and technical dimensions.

By the time the present ITTO project began, several Amazon countries had instituted legislation and technical guidelines to promote sustainable use of forest resources and new national policies supporting the continued development of the forest sector. In Brazil, the National Forest Program (PNF) had made sustainable forestry an objective for the forest sector of the Amazon. Likewise, the Pilot Program for the Conservation of the Brazilian Rainforest – administered by the World Bank and financed by the G7 (ProManejo-PPG7) was supporting the development and adoption of sustainable systems of forest management in Amazônia, with emphasis on wood products extraction, through strategic actions and pilot experiences in priority areas. To comply with the new legislation, the forest industry would need to understand and adopt improved FM practices. At the same time, many forest stakeholders realized that they could obtain long-term economic benefits by implementing FM principles and reduced-impact logging (RIL) practices. These stakeholders began investing in qualified personnel to implement FM-RIL practices, others were becoming interested in FM-RIL, and still others had not yet received the message.

The Fundação Floresta Tropical (FFT) provided much of the training and technical support for FM-RIL implementation before this ITTO project began. Nevertheless, its capacity was insufficient to meet the growing demand for training. The resulting shortfall in trained forestry practitioners at all levels constituted a significant obstacle to the adoption of FM-RIL across the Amazon and left the forest industry unable to comply with government regulations. Thus, when this project began, the demand and need for practical FM-RIL training was greater than ever.

Specific Objective & Outputs

The project aimed to achieve two specific objectives (SO):

(1) Increase the adoption of FM-RIL practices by timber producers in Amazonian production forests through practical training, capacity building at all levels; and
(2) De-mystify the concept and promote the practice of FM-RIL amongst stakeholders in the Brazilian Amazon through extension work.

FFT established the following targets as project outputs toward achieving each SO:

1.1 Course schedules for September 2003 through August 2005 developed in response to demand for training;
1.2 Two 1,000 ha forest areas prepared for training courses (including 400 ha / year for harvesting and 600 ha / year for demonstration);
1.3 Total of 410 people from all levels and all forest related sectors trained in the application of FM-RIL principles and practices in 38 on- and off-site courses;

[1] Sobral L, Veríssimo A, Lima E, Azevedo T, Smeraldi R. 2002. Acertando o alvo 2: consumo de madeira amazônica e certificação florestal no Estado de São Paulo. Belém. Imazon. 72p.

1.4 Two 1,000 ha forest areas prepared for training courses (including 400 ha / year for harvesting and 600 ha / year for demonstration);
1.5 FM-RIL operational manual, flip charts, and related documents refined or developed and used in training courses
1.6 Trainer lesson plans, lectures, and techniques compiled and published as FM-RIL trainer's manual
1.7 At least 800 ha logged with FM-RIL methods during training courses
1.8 Develop and test a system for monitoring the impact of the training courses on FM-RIL—including the various levels of trainees.
2.1 Annual schedules of extension activities for 2004 and 2005 elaborated;
2.2 Extension materials such as power point presentations, technical papers, posters, lectures, and folders updated or developed and used in events; and
2.3 Principles and benefits of FM-RIL explained to at least 400 participants in 16 extension events (seminars, workshops and lectures) during the project.

Strategy adopted in carrying out project

The approved project aimed to promote sustainable forest management (SFM) in the Amazon with a three-part strategy designed to develop the human resources in the forest sector of Amazon Basin countries. The central justification for this strategy was to contribute toward resolving the problems stated above. The first part of the program consisted of practical training courses targeting forestry professionals at all levels and tailored to their diverse needs and interests. FFT aimed to conduct 38 courses and train 410 people. In the courses, FFT trainers aimed to teach professionals of all levels why and how to implement forest management (FM) principles and reduced-impact logging (RIL) techniques.

The second component of the program aimed to promote interest in FM-RIL – and raise awareness about its importance and benefits – among the numerous forest stakeholders who do not understand the concepts of FM and RIL or are not yet convinced of their feasibility. This component entailed rainy season extension work, which consisted of lectures, small seminars, and workshops. FFT aimed to reach at least 400 people in these events.

The third part of the project strategy was to continue FFT's successful FM-RIL training program. As the project was being developed, this program – funded in part by a previous ITTO grant as well as by other donors – was evolving into a longer-term, more sustainable training program. The project planners believed it was critical to maintain the burgeoning interest in – and partially satisfy the demand for – FM-RIL training by sustaining FFT while FFT's successor (IFT) negotiated with the Brazilian government other partners to develop this more sustainable training program.

Planned duration & overall costs

This project was originally planned for a two-year period beginning June 2003 and ending May 2005. The project actually began in September 2003. The project's ITTO funding was exhausted by August 2005, but the project remained open until July 2006 to complete some key activities. FFT requested this extension to the project's duration in September 2005.

The original budget approved by ITTO was $1,715,381 of which $530,708 was committed from ITTO and the balance from counterpart funding. All of the committed ITTO funds were spent, but were insufficient to complete some of the project's activities. FFT obtained additional counterpart funding to complete all of the planned activities. Some of these were completed only during the extension period with the additional counterpart funding. In total, the counterpart funding spent on the project amounted to $1,260,436. Of this amount, $280,476 were raised and spent during the extension period.

2. Project Achievements

Outputs Achieved

The project achieved 8 outputs toward specific objective (SO) 1 and 3 outputs toward SO2. In nearly all cases, FFT achieved the outputs on time and exceeded the targets set out in the original project document. These outputs have been described in detail in the Progress Reports. A summary of when each output was achieved is in Annex A. Below each output is briefly quantified and/or described.

1.1 Course schedules for September 2003 through August 2005 developed in response to demand for training
FFT exceeded the training targets established in the approved PD and in YPOs1 and 2 (see Output 1.3). All of these courses were scheduled and completed on time.

1.2 Two 1,000 ha forest areas prepared for training courses (including 400 ha / year for harvesting and 600 ha / year for demonstration)
FFT prepared 2,672 ha (1,262 ha for demonstration and 1,410 for harvest) in its principal training area (Cauaxi), which exceeded the targets mentioned above.


Output 1.2 – Camp facilities upgraded


Output 1.3 – Hands-on training

1.3 Total of 410 people from all levels and all forest related sectors trained in the application of FM-RIL principles and practices in 38 courses
FFT conducted 75 courses (39 off-site and 36 at Cauaxi) and trained 737 people (347 off-site and 390 at Cauaxi)—nearly twice as many as planned (see Annex B).

1.4 Teaching and technical skills of the 13 FFT trainers improved and training repertoire expanded

FFT conducted 16 workshops and courses comprising 33 person-courses ranging from improving administrative practices to diversifying the training expertise of all of the instructors including the foresters, technicians, and operators. These activities not only bolstered the technical skills of the instructors but also expanded the range of topics that they were qualified to teach. (See Annex C for details).

1.5 *FM-RIL operational manual, flip charts, and related documents refined or developed and used in training courses*
FFT refined and/or revised all of its training materials (including 20 lesson plans, 9 manuals, and 15 flip charts) during the project's two rainy seasons. In addition, the lesson plans and operational manual were finalized, peer-reviewed, and operationally tested during the project's extension period. See Output 1.6.

1.6 *Trainer lesson plans, lectures, and techniques compiled and published as FM-RIL trainer's manual*
Additional counterpart funding was used to complete, peer-review, and operationally test the trainer lesson plans and trainer's manual. These are both included as Attachment 2 to this report. FFT is seeking funds to publish these materials for wider distribution.

1.7 *At least 800 ha logged with FM-RIL methods during training courses*
FFT harvested 892 ha in its principal training area (Cauaxi) during the courses with FM-RIL methods.

1.8 *Develop and test a system for monitoring the impact of the training courses on FM-RIL—including the various levels of trainees.*
The monitoring system (including a database) was created, tested, and standardized during the project's extension period with counterpart funding as explained in the last two Progress Reports. Additional counterpart funding was used to then operationally test the system during courses FFT conducted from May–August 2006. The monitoring system and results are included as Attachment 3 to this report.

2.1 *Annual schedules (with locations) of extension activities for 2004 and 2005 elaborated*
FFT did not encounter any logistical problems in scheduling or conducting these events (and even exceeded the target—see Output 2.6), but it is important to note that counterpart funding covered most of the costs for travel, lodging, and per diem of the FFT trainers.

2.2 *Extension materials such as power point presentations, technical papers, posters, lectures, and folders updated or developed and used in events*
FFT completed all of the planned activities pertaining to this output on time. FFT obtained counterpart funding to update some of the extension materials. FFT distributed various materials during the events included an FM-RIL manual, video (The Future of the Forest), and various booklets furnished by FFT's partners.

2.3 *Principles and benefits of FM-RIL explained to at least 400 participants in 16 extension events (seminars, workshops and lectures) during project*

FFT conducted 19 extension events, which were attended by 1,860 people (See Annex D for details). These events helped sustain (or increase) demand for hands-on training.

Specific Objectives Achieved

Indicators that the project successfully achieved the 2 specific objectives include:

1. The incorporation of the FM-RIL methods and principles that FFT teaches into the Brazilian government's new forestry law. Furthermore, government agencies (at both the federal and state level) are not only adopting FFT's FM-RIL guidelines, but also demanding training from FFT. Similarly, these FM-RIL practices are being verified by EMBRAPA with participation from CIFOR and IFT in an ITTO supported project (PD 57/99 Rev.2 (F)).
2. Most, if not all, graduates of the 3 forestry technical schools in the Amazon find employment in forestry immediately upon graduation. The government of Amazonas has hired all of graduates of the Amazonas technical school to serve as forest management extension agents in municipalities across the state.
3. Demand for FM-RIL training has increased over the past three years. FFT estimates that if it had more trainers and could offer more open and more off-site courses, it would receive more than 1,000 requests for training annually. Demand for extension events has also increased, partly because people are now curious about how to comply with the new forestry laws. State and federal agencies responsible for enforcing the law must train their staff to evaluate both forest management and annual operating plans, as well as to conduct field audits to determine whether guidelines for FM plans are being followed and whether they are being properly implemented.

Contribution to the Achievement of the Development Objective

Indicators that the project contributed to the achievement of the development objective include:

1. As noted above, IBAMA and also state regulatory agencies have adopted FFT's FM-RIL guidelines (which include the full range of FM-RIL components from macro-zoning to infrastructure design to tree mapping and selection), and are applying them when they evaluate forest management and annual operating plans. To continue operating legally, companies must abide by these guidelines. Thus, FFT infers that both the number of companies applying FM-RIL, and the area harvested with FM-RIL are greater now than before this project began.
2. The recent resurgence[2] in interest in obtaining third-party certification and consequent increase in demand for training by companies seeking to obtain certification. FFT has observed that the limiting factor for many forestry enterprises is no longer whether FM-RIL makes sense, but rather land tenure.
3. There are now more entrepreneurial opportunities for trained practitioners than before the project. Several small companies have become established to apply specific

[2] Unfortunately, in 2005 due to pressure to combat illegal logging, IBAMA did not distinguish between certified and uncertified companies, and did not approve any operating plans. This administrative problem slowed progress in the certification movement during 2005, but the problem was resolved in early 2006, which in turn stimulated demand for training as interest in certification has resumed.

aspects of FM-RIL as 3rd party contractors to companies and also for communities that do not yet have the capacity to comply with the law on their own.

4. The socio-economic dynamic of forest sector employment is starting to change because companies that have invested in training their personnel (especially certified companies) are increasingly retaining their people through the rainy season. Thus, the security and stability of employment is increasing.

Description of situation after project completion vs. pre-project situation

In addition to the changes just described, two other aspects of the post-project situation are worth mentioning or reiterating. First, the state and federal government field supervisors are now more rigorously auditing forestry enterprises across the Amazon. Field auditors have a detailed checklist that resembles the FM-RIL system FFT teaches. The auditors do not approve the annual operating plans unless the entity is implementing FM-RIL. The second major point is that the need and demand for training will only increase in the next few years because qualified people will be needed at all levels throughout the forest sector to implement various aspects of the new forest policy. For example, the Brazilian Forest Service has established 6 million ha of new national forests as part of a sustainable forestry district between Santarem and Cuiaba. Trained people will be needed to establish and demarcate the concessions in these national forests as well as to supervise the concessionaires. Likewise the concessionaires themselves will need qualified people in order to win the government bids.

3. Target Beneficiaries Involvement

This project offered FM-RIL training to a broad spectrum of forest sector stakeholders. The participants in FFT's training courses were the project's main beneficiaries. Table 1 shows the number of participants from each stakeholder group in the forest sector.

Table 1. Number of participants by forest sector target audience (Sept. 2003–Aug. 2005)

Target Audience	Off-Site	On-Site*	Total†
Community	129	52	181
General		105	105
Government		16	16
Industry	202	18	220
Technical Schools		126	126
Other Training Centers	16	14	30
Trainer Training		8	8
University		51	51
Total	347	390	**737**

*Refers to courses conducted at FFT's principal training center in Cauaxi, PA

† The total number of people trained exceeded the projected target of 410 by nearly 2-fold.

Salient points related to these beneficiaries include the following:

- The forestry practitioners (i.e., sawyers, machine operators, technicians, foresters, managers, and public and private sector decision makers) participating in the courses were principally from the Brazilian Amazon, but several were from other ITTO member

countries in the region. They all benefited from an improved ability to implement required practices.

- The 3 forest technical schools in the Brazilian Amazon, which had previously incorporated FFT's courses as part of their curriculum, benefited from the funding that helped solidify and formalize this arrangement;
- Brazilian governmental agencies benefited through training of key staff as well as by adopting the FM-RIL guidelines into federal and state laws all of which contribute toward building the government's capacity to implement its new forest policies;
- Forest management trainers at other Amazon training centers benefited through their participation in FFT courses aimed at standardizing the quality of FM-RIL training provided across the region;
- The training provided to several community forestry projects and forest-based communities will make them more competitive in the market and less dependent on large operators or timber traders. The training also helped some of these communities obtain certification, which also opens better markets for their products.

In general, the forest sector across the Amazon benefited from an increased awareness of the benefits of forest management as well as the economic benefits of harvesting the region's wood resources more efficiently and sustainably. The project's extension activities substantially contributed to this increased awareness and understanding of the benefits of FM-RIL, and, in turn, created more demand for training and capacity building.

4. Lessons Learned

Development Lessons

1. *Aspects of project design, which most contributed to success in achieving the development objective*
   - The experience FFT has gained and the lessons FFT has learned over the past 11 years of FM-RIL training, extension work, and FM-RIL model development;
   - The existence and long-term operation of a hands-on training center for FM-RIL greatly enriched the courses, and increases in value as a demonstration and training center as time passes.
2. *Changes in intersectoral links, which affected the project's success*
   - The support of collaborators and associates greatly contributed to the project's success, but this support was heavily dependent on personal relationships with FFT senior staff. Therefore, in the future, these relationships should be formalized.
   - The greater acceptance by both the general public and the private sector that good FM can contribute to forest conservation and a better economy was important. This recognition meant that both the public and private sector recognized that FM training is essential to carry out good FM. This positive change in attitude also contributed to the project's success.
3. *Additional arrangements that could improve cooperation amongst project's stakeholders*
   - As noted above in (2) the relationships with partners and collaborators should be formalized.

4. *Factors that will most likely affect project sustainability after completion*
    - Perhaps the most important factor is the will of government agencies, the forest sector, and the public to develop a sustainable forest products sector. Furthermore, these stakeholders must be willing and able to invest in the needed training and capacity building to develop the sector accordingly.
    - Increasing the public's awareness that forest management not only financially benefits a few in the short-term, but can also provide a long-term sustainable development option for the region.
    - Increasing the public's awareness that properly applied forest management also generates social benefits, and that the forest is not a barrier to development.

Operational Lessons

1. *Project organization and management*
    - Despite FFT's 11 years of project management experience, it continually seeks to learn, improve, and develop new ideas. At the same time, FFT seeks to execute its projects with very high quality standards and a high level of professionalism. FFT tends to promise more than it can sometimes achieve the result of which is that the activities are carried out well at the expense of the organization or the well-being of the project personnel.
    - Thus, during this project, FFT learned that it is a very slim organization with limited capacity to adjust to losses of key personnel or to major financial shortfalls.
    - The key lesson learned was that back-up and contingency plans are essential to cope with unexpected events.
2. *Project documentation*
    - FFT has learned over time that careful financial documentation is critical especially when multiple donors support a project.
    - This project reinforced the need for careful documentation not only for audits, but also for administrative and operational effectiveness.
3. *Monitoring and evaluation*
    - The oversight normally provided by the steering committee is an important part of the project.
    - There should have been more than 1 steering committee meeting during the project.
    - In the project's progress reports submitted to ITTO, some key issues related to the project's finances were raised in the section on "Critical Analysis and Project Progress"; the ITTO Coordinator should have discussed these issues with FFT.
4. *Quality of project planning*
    - Project planning is extremely important in all projects. It was especially important in this project because most of the activities took place in remote locations where communication was difficult. Thus, detailed planning was essential, and an equivalent level of planning should take place in all similar projects.
    - The detailed planning included a number of issues including equipment, materials and supplies, food, and health and safety. The logistic aspects of all of these items had to be carefully planned.

- The detailed planning also had to include contingency instructions for illnesses or injuries. If an instructor was sick or injured, for example, a substitute had to be available. Similarly, FFT had to develop evacuation procedures and other contingency planning to be prepared for the possibility of participant injuries or serious illnesses.
- Contingency plans also need to be made for inclement weather. Thus, during the training courses, alternative schedules and lessons had to be available, and the instructors had to be prepared to change the program on rainy days.
- Because the project emphasized hands-on training of individuals working in small groups (as part of a larger group for each course), contingency plans were also needed to efficiently accommodate any changes to the schedule of these small groups, which were usually highly coordinated.
- The equipment furnished as part of the counterpart funding had to function well and according to the overall course schedule. Thus, fast, reliable, and responsive logistical and maintenance support by the project's in-kind donors were critical.
- At no time during the project were the scheduled activities compromised due to inadequate planning. The reason for this success was substantial experience, constant monitoring, vigilance, supervision, and evaluation of the day-to-day situation.

5. *Definition of roles / responsibilities of partners involved in project implementation*
   - FFT was the sole executing agency. No partners participated in this project.
6. *Actions to be taken to avoid variations between planned and actual implementation*
   - Contingency plans and preventative actions should be in place to ensure that implementation proceeds according to plans. FFT made sure to develop such plans based on its operational experience.
   - The schedule and overall plans should have a certain amount of flexibility as well as alternative options to account for unexpected changes or events.
   - Planning for financial variations was difficult in this project (and probably will be for most projects). This project had to contend with continually worsening currency exchange and inflation rates. FFT had to take two rather drastic cost reduction programs, which detrimentally affected the organization and staff, but fortunately did not compromise the project's results or effectiveness. The receipt of additional counterpart support helped ensure that the project was successful in the face of increasing financial costs.
7. *External factors that influenced the project implementation and that could have been foreseen*
   - The project's budget was 25% greater <u>when it was first submitted</u> compared to the approved budget. Despite cutting the budget by that amount, the number of activities was not reduced.
   - Additional donor funding was expected but not guaranteed at the time of the proposal and a certain risk factor should have been more seriously considered.
   - Several project activities, which should have been financed from the ITTO funds according to the approved budget, were only completed because additional counterpart funding was obtained during a requested extension period.

8. *External factors that influenced the project implementation and that could not have been foreseen*
    - The 30% devaluation of the US dollar during the project period could not have been foreseen.
    - Over the past 30 years, the devaluation of the Brazilian currency has always compensated for the inflation rate (approximately 10% per year). In contrast, during the project period, the Brazilian Real increased in value against the US dollar and exacerbated the effect of inflation. The combination of the US dollar devaluation and inflation put enormous strain on the project's finances as explained in three of the Project Progress reports.

5. Recommendations

The recommendations listed below are divided into two categories. The first category comprises practical suggestions for similar projects that emphasize hands-on field training and capacity building. Many recommendations are common sense, but others are based on the experience of this project as well as prior experience of FFT. The second category comprises recommendations for ITTO and other donors to consider for future projects or endeavors to advance better forest management in the Amazon.

A. Practical Recommendations

- A prerequisite for conducting field courses is the existence of adequate infrastructure. It is essential to consider the basic needs and comfort of field staff, trainees, and visitors. Specifically it is necessary to ensure that the field facilities are clean and hygienic. In addition, bathing and bathroom facilities have to be well maintained and have capacity and privacy for men and women.
- Although the instruction emphasized experiential (hands-on) learning, most of the field activities that will take place during each course must be prepared well in advance. Specifically, areas needed for a particular training module must be available and in many cases prepared before the actual courses take place. For example, to effectively teach skid trail planning, there must be trees harvested and ready to be skidded. Similarly, it is difficult to teach road building unless the cutting block is first demarcated.
- The foresters and technicians who comprise the technical instructors for the courses ideally should be able to teach various subject matters and not be limited to 1 or 2 of the 12 basic FM-RIL topics taught during the courses. Although most instructors will tend to be specialized in one or a few subjects, this specialization may not be required for many courses. For example, in courses with large groups, other technicians and operators can fill in for group instruction.
- Operating instructors (sawyers and equipment operators) should understand and be able to help with other subject instruction. For example, sawyers should be able to help teach others how to conduct a 100% inventory, and equipment operators should be able to help teach road and skid trail planning.
- Both technical instructors and operator instructors should be able to tailor the instruction (both in terms of subject matter and technical language) to the level and needs of participants. For example, while decision makers must understand the principles of safe,

effective, and appropriate chainsaw operation, sawyers must also learn how to maintain the chainsaw.

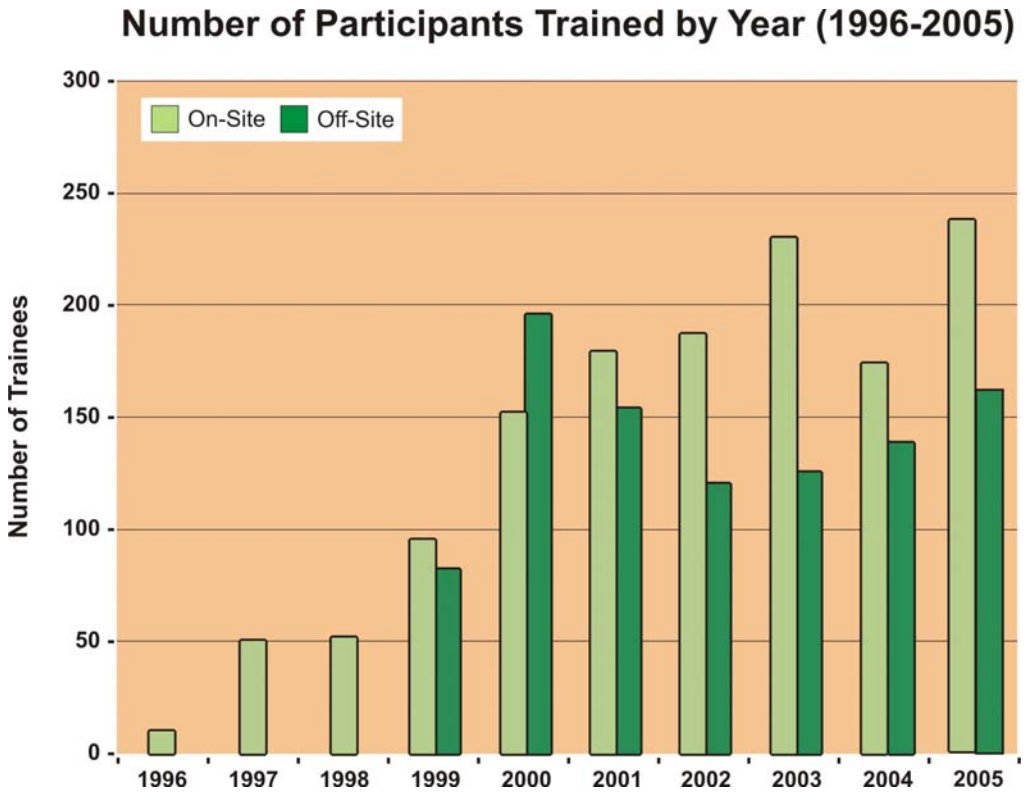
- Course planners must recognize the disparate motives, needs, and capacities of different training audiences. Specifically, decision makers must learn why particular practices are conducted in a particular way, foresters must learn how they those practices are conducted and be able to supervise their proper implementation, and technicians and operators themselves must be able to conduct the relevant activities and practices. Effectively taking these differences into account requires different training aides and different technical language.
- The importance of support personnel should not be overlooked. Cooks, drivers, nurses, tree identifiers, and field laborers all play a critical role in making the courses run smoothly. They should be capable of adapting to the field camp situation as well as be willing and able to maintain positive morale. They also must understand that during courses and capacity building events their actions are being observed (or scrutinized), and their behavior and attitude affects the attitude of the participants.
- Where possible drivers should be able to perform other functions and assist in the courses to reduce costs and avoid monotony. Capable drivers can also serve as substitutes for other field personnel in cases of sickness or absence.
- Lesson plans should be followed and executed in a consistent manner regardless of the instructor.
- The number of participants should be limited to 12 to 20 people depending on the type of course. Mid-level courses can be effectively run with as many as 20 participants, whereas courses for managers and decision makers should be limited to 12.
- Participants in most courses (but especially the senior level courses) should be screened so that they comprise a diverse mixture of backgrounds and experiences. When the participants have diverse backgrounds, the debates and discussions during the courses are richer and the overall learning is greater than if participants come from only 1 sector.
- During most courses (as well as for field demonstrations) the group should be divided into smaller groups of 4 to 6 people. The more intense the hands-on training, the smaller the groups should be so that each person actually carries out the activity him/herself.
- Field camp food should be sufficient and of good quality depending on the level and age of participants. Special dietary needs should be considered within reason.
- Although course participants might be accustomed to working in remote areas, it is nevertheless advisable to start all courses (except perhaps for those for decision makers) with a module on first aide. This is not only for the course, but also to make them better prepared for their chosen field of work.
- Field camp rules should be established and followed unequivocally by all personnel and trainees.
- During the field courses, any conflicts or differences between participants or staff should be resolved immediately.
- Between courses, the instructors should evaluate themselves and the courses to continually upgrade the instruction techniques and improve the skills and effectiveness of the individual instructors.
- An evaluation system should be established for participants to make suggestions on how to improve the courses or otherwise make comments.

- The training center should be located far enough away from urban centers or rural entertainment facilities so that participants and field staff are not distracted.
- The field courses should include, and take advantage of, evening programs (FFT suggests 2 hours). These programs can include (but are not limited to) lectures, visual demonstrations, or practical exercises (including data analysis). During higher-level courses for practitioners and decision makers, time should be allocated to allow participants to share their personal experiences to enrich discussions and the participant's knowledge base.
- As new information becomes available and experience gained, the instructors should revise, refine, and otherwise upgrade all training materials.
- The course content should account for the fact that participants work in many different settings and that the forest type, industrial context, terrain, etc. are likely to be distinct from the prevailing characteristics at the training center. Thus, course content should include alternative systems and practices that are relevant for different regions and contexts.

B. Recommendations (and Ideas) for further Advancing FM-RIL in the Amazon

Based on experience FFT gained during this project as well as previous projects, FFT has several ideas and suggestions for further advancing FM-RIL adoption in the Amazon now that this ITTO project is over. These ideas are listed below.

- The need and demand for FM-RIL training and capacity building are great, will persist for quite some time, and will require continuity (see graph below). In fact, FFT anticipates that the Brazilian government's new forest policy will cause this demand to mushroom in the near term. Not only did the policy create new forest regulations, but it also created the Brazilian Forest Service, and transferred responsibility for the supervision of harvesting on private land from IBAMA to state agencies. Thus, the need for training for government agency officials as well as for the private sector will become enormous in the next few years.
- Although FFT (and now IFT) has conducted FM-RIL training in the Amazon for the past 11 years, its efforts have been supported principally by short-term donor support. To have the kind of impact needed, IFT needs to become a permanent program with a longer-term financial horizon for proper planning. Unless such a transition occurs, and more trainers are hired, IFT's training capacity will remain limited to no more than 400 people per year (see graph below). This number is substantially smaller than the need and demand, which FFT estimates to be about 1,000 people per year.



- Until recently, the FM-RIL courses have been completely subsidized by bilateral or multi-lateral donors. Although in some cases (e.g., small communities, small industry, and educational centers), such support will continue to be necessary, to be sustainable, the costs for these courses must be transferred to a greater extent to the relevant local and regional public and private sector (e.g., the Brazilian government, industry, and public).
- The demand for FM-RIL from other ITTO member countries in the Amazon Basin has expanded in recent years. The idea of a permanent FM-RIL training center that would service the Amazon Basin (including the Guyana Shield countries) has been promoted for several years. The idea should be more seriously considered, developed, funded, and implemented as soon as possible.
- Although a major permanent training center is necessary, and would serve as a regional center of reference, FFT also recommends that regional FM-RIL centers (e.g., the center in Guyana) be established and coordinated via a regional network that would facilitate the exchange of information and instructors. One important rationale for a network and information exchange is the fact that the Amazon Basin spans a huge, diverse area with many differences in forest type and topography as well as socio-economic factors. Taking account of these differences will require that distinct methodologies and systems be developed and shared. Given its mandate, ITTO should provide leadership and a mechanism to promote such a regional initiative keeping in mind that technically competent foresters, technicians, and operators will need 5 years to become competent instructors.

PART II. Main Text

1. Project Content

Background and Justification

The Amazon Basin is the most diverse terrestrial region on earth. It is a storehouse of biodiversity and provides numerous ecological services at local, regional, and global scales. This vast area, comprising 9 countries, is also home to millions of people, many of whom rely on the Amazon's forests and other natural resources for their livelihoods. Nevertheless, when this project began, its forests were being cleared, burned, and degraded at alarming scales, and the region desperately needed to invest in development options that would conserve the region's natural resources and provide sustainable livelihoods.

Sound forest management represents a viable option for the region. The forest sector of the Brazilian Amazon employs more than half a million people and generates annual revenues of about $US2.2 billion. The remaining Amazon Basin countries have smaller forest areas, but forestry plays an important role in land use throughout the region.

Considering its economic potential and the large area it affects, the forest sector should play an integral role in strategies to conserve the Amazon's environmental resources. This potential will only be realized, however, if producers improve their practices. A growing number of producers have already begun to adopt better forest management (FM) practices, but most forests across the Amazon are still being logged poorly and without regard to their long-term productivity and diversity. Moreover, workers employed by conventional logging operations often face poor or unsafe working conditions, lack of job security, and few opportunities for professional development. Finally, when this project began, the great majority of the wood produced in Amazônia was coming from predatory origin: of the 30 million m^3 of wood harvested annually in the region, 75% came from legally authorized deforestation, 20% from illegal sources, and only 5% from areas with appropriately implemented forest management plans.[3] The roots of this problem lie both within and beyond the forest sector and comprise social, economic, financial, legal, political, institutional and technical dimensions.

In recognition of these problems, several Amazon countries recently instituted new legislation and technical guidelines to promote sustainable use of forest resources and new national policies supporting the continued development of the forest sector. In Brazil, the National Forest Program (PNF) made sustainable forestry an objective for the forest sector of the Amazon. In order to comply with the new legislation, the forest industry must understand and adopt improved FM practices. Many forest stakeholders realized they could obtain long-term economic benefits by implementing FM principles and reduced-impact logging (RIL) practices. These stakeholders began investing in qualified personnel to implement FM-RIL practices; others are becoming interested in FM-RIL, and still others have yet to receive the message.

[3] Sobral L, Veríssimo A, Lima E, Azevedo T, Smeraldi R. 2002. Acertando o alvo 2: consumo de madeira amazônica e certificação florestal no Estado de São Paulo. Belém. Imazon. 72p.

The FFT provided much of the training and technical support for FM-RIL implementation before this project began, but its capacity was not sufficient to meet the growing demand for training. The resulting shortfall in trained forestry practitioners at all levels constituted a significant obstacle to the adoption of FM-RIL across the Amazon and left the forest industry unable to comply with government regulations.

Objectives and Outputs

Considering the problems stated above, the project was conceived to address the following development objective: *To promote the use of sustainable forest management practices by timber producers while increasing the socioeconomic benefits of forest management activities in the Brazilian Amazon.*

The project aimed to achieve two specific objectives (SO) to contribute to this development objective:

1. *Increase the adoption of FM-RIL practices by timber producers in Amazonian production forests through practical training, capacity building at all levels; and*
2. *De-mystify the concept and promote the practice of FM-RIL amongst stakeholders in the Brazilian Amazon through extension work.*

Participants of IUFRO Conference (48) visiting Cauaxi (FFT's principal FM-RIL training site).

FFT established the following targets as project outputs toward achieving each SO:

1.1 Course schedules for September 2003 through August 2005 developed in response to demand for training;
1.2 Two 1,000 ha forest areas prepared for training courses (including 400 ha / year for harvesting and 600 ha / year for demonstration);
1.3 Total of 410 people from all levels and all forest related sectors trained in the application of FM-RIL principles and practices in 38 on- and off-site courses;
1.4 Two 1,000 ha forest areas prepared for training courses (including 400 ha / year for harvesting and 600 ha / year for demonstration);
1.5 FM-RIL operational manual, flip charts, and related documents refined or developed and used in training courses;

1.6 Trainer lesson plans, lectures, and techniques compiled and published as FM-RIL trainer's manual;
1.7 At least 800 ha logged with FM-RIL methods during training courses;
1.8 Develop and test a system for monitoring the impact of the training courses on FM-RIL—including the various levels of trainees;
2.1 Annual schedules of extension activities for 2004 and 2005 elaborated;
2.2 Extension materials such as power point presentations, technical papers, posters, lectures, and folders updated or developed and used in events; and
2.3 Principles and benefits of FM-RIL explained to at least 400 participants in 16 extension events (seminars, workshops and lectures) during the project.

Strategy adopted in carrying out project

The project aimed to promote sustainable forest management (SFM) in the Amazon with a three-part strategy designed to develop the human resources in the forest sector of Amazon Basin countries. The first part of the program consisted of practical training courses targeting forestry professionals at all levels and tailored to their diverse needs and interests. FFT aimed to conduct 38 courses and train 410 people. In the courses, FFT trainers aimed to teach professionals of all levels why and how to implement forest management (FM) principles and reduced-impact logging (RIL) techniques. The courses were conducted at both FFT's principal training center (i.e., on-site courses) in Cauaxi (near Paragominas, PA) as well as at various other sites (i.e., off-site courses).

The second component of the program aimed to promote interest in FM-RIL – and raise awareness about its importance and benefits – among the numerous forest stakeholders who do not understand the concepts of FM and RIL or are not yet convinced of their feasibility. This component entailed rainy season extension work, which consisted of lectures, small seminars, and workshops conducted in various locations across the Amazon. FFT aimed to reach at least 400 people in these events.

The third part of the project strategy was to continue FFT's successful FM-RIL training program. As the project was being developed, this program – funded in part by a previous ITTO grant as well as by other donors – was evolving into a longer-term, more sustainable training program. The project planners believed it was critical to maintain the burgeoning interest in – and partially satisfy the demand for – FM-RIL training by sustaining FFT while FFT's successor (IFT) negotiated with the Brazilian government other partners to develop this more sustainable training program.

Required Inputs

Four general inputs are necessary for a project of this nature and magnitude. First, since the project involved training, capacity building, and extension, it was necessary to have highly qualified and experienced instructors. Fortunately, FFT's instructors (operators, technicians, and foresters) all have 10 years of experience and are excellent trainers.

Second, since the project involved hands-on, practical training in the field, a good forest area (of sufficient size and quality) was needed. It would have been difficult or impossible to conduct all

of the elements of FM-RIL without an adequate forest area and permission to harvest the forest (both from the landowner and from the government). Fortunately, FFT has been collaborating with CIKEL for 12 years. CIKEL granted sufficient area at the start of this project to allow FFT to continue training for an additional 5 years. Moreover, forest areas that have been harvested and silviculturally treated for the past 11 years surround the training center in Cauaxi, which enables rich and effective demonstrations during the training courses.

The third major set of inputs includes an adequate supply of materials and equipment. FFT has been fortunate to receive in-kind donations of heavy equipment from Caterpillar, Inc., chainsaws from Stihl, as well as other donations over the past 11 years. Without the cooperation and involvement of Caterpillar especially, this kind of project would be prohibitively expensive.

The fourth major input is adequate funding, without which it is impossible to hire and retain qualified people, purchase and maintain the necessary equipment, materials, and supplies, or pay for travel and other relevant expenses. Unfortunately, a lack of adequate and sufficiently long-term financing has always plagued FFT. Consequently, FFT has remained a very thin organization, which in turn has limited its capacity. Fortunately, due to the dedication and professionalism of its staff, this problem has never compromised FFT's achievements or results.

Work Plan Review

All of the project's principal activities were completed on time and in most cases, the targets established for the outputs were exceeded (see Annexes A and E). Due to the funding shortfall explained elsewhere, FFT had to make a decision mid-way through the project what areas to cut or postpone. FFT decided to postpone the monitoring program (Output 1.8). Due to lack of funding also, FFT did not publish the trainer's manual (Output 1.6).

Compliance with ITTO Objectives and Action Plan

This project was consistent with the following ITTO objectives:

- To help research & development which will improve forest management and wood use
- To encourage tropical timber reforestation and forest management
- To encourage national policies which aim at sustainable use and conservation of tropical forests and their genetic resources, and at maintaining the ecological balance in the regions concerned

The project also complied with ITTO criteria established by the Committee on Reforestation and Forest Management and is principally related to the following areas:

- Natural Forest Management
- Harvesting, logging infrastructure, training of technical personnel

The project also complied with the following objectives established by this committee:

- relation to production and use of industrial tropical timber
- benefits to the tropical timber economy and relevance to producing and consuming nations
- relation to maintenance and expansion of the international tropical timber trade

- prospects for positive economic returns
- use of existing research institutions and relationship to other efforts supported by ITTO

The project was also consistent with the ITTO Action Plan and related to the priorities established by the *Committee on Reforestation and Forest Management* in the areas classified within Demonstration as follows:

- Demonstrate the economic viability and promote long-term investments in sustainable forest management
- Develop and promote the intellectual, economic and technological basis for integrated forest management systems and optimal use of the tropical forests, taking in consideration multiple benefits that can be derived from them
- Assist in creating a scientific basis for sound forest management

and within Facilitation as follows:

- Promote and assist in the development of adequate skills for research and for implementation of forest management operations
- Facilitate the establishment of demonstration areas that reflect different models of management to enhance the transfer of technology and scientific knowledge

It also related to the following priority established by the *Forest Industry Committee*:

- Promotion of human resources development on all levels.

Finally, it is worth noting that the project was consistent with the recommendation of a 2002 ITTO diagnostic survey in Brazil that listed the development of human resources for the implementation of sustainable forest management as a priority area for ITTO support.

2. Project Context

Forest policy shifted substantially in Brazil in the few years preceding the project and also during the project's extension period. Before the project began, two major sectoral policies had been promulgated in an attempt to conserve Amazonian forests in various ways including by improving forest management: the Pilot Program for the Conservation of the Brazilian Rainforest – administered by the World Bank and financed by the G7 (ProManejo-PPG7) – and the National Forest Program (PNF). One of ProManejo's principal objectives has been to support the development and the adoption of sustainable systems of forest management in Amazônia, with emphasis on wood products extraction, through strategic actions and pilot experiences in priority areas.

The Brazilian government also launched the National Forest Program (PNF) in September 2000 to promote sustainable forest development, harmonizing economic use with the protection of ecosystems, and making forest policy compatible with the other public policies, so as to promote the expansion of markets both at home and abroad and the institutional development of the

sector. In 2001, the PNF[4] aimed to (*i*) expand national, state and local forests in the Legal Amazon by 50 million hectares by 2010 (10 million ha by 2003); and (*ii*) incorporate into the system of sustainable management an area of 20 million hectares of natural forests in private properties in the Amazon region by the year 2010.

In 2006, the Brazilian government enacted a new forest law that, among other things, (i) established new National Forests and created a legal basis for their management for wood production, (ii) created a new Brazilian forest service (BFS) to oversee the management of the National Forests, and (iii) transferred responsibility for supervising harvesting on private land from IBAMA to state regulatory agencies.

The intent of the new legislation, technical guidelines, and international cooperation was to promote sustainable use of the forest resource. Unfortunately, to comply with these new, well-intended requirements, the forest sector needs trained and qualified people who can implement FM-RIL as well as people who can supervise, manage, and audit the practitioners. Thus, even before the project began, the forest sector faced a lack of trained people, which in turn constitutes one of the greatest obstacles to the adoption of good forest management practices across the Amazon. Now that the new forest laws are being implemented in Brazil, the BFS has been established, the states have new supervisory responsibilities, and the OTCA (Amazon Treaty Cooperation Organization) has begun working to build capacity for applying sound FM across the Amazon Basin, the demand for practical training is mushrooming.

3. Project Design and Organization

Adequacy of the Identification Phase and Sound Conceptual Foundation of the Project
FFT modeled this project's design and organization after the previously successful ITTO project, *On-site training of tropical foresters and forestry trainers* (PD 45/97 Rev. 1(F)). That project helped FFT gain substantial training experience and gave it worldwide recognition. FFT attempted to expand its program and become more permanent after that ITTO supported project. The need and demand for training grew annually, and the problems addressed by the previous ITTO project were still relevant. Thus, FFT believes that the time it spent on identifying the relevant problems and on formulating the project was adequate especially considering that this project was even more successful (in terms of people trained and reached via extension per dollar spent) than the previous ITTO project. Perhaps the only change should have been to reduce the promised outputs after the Brazilian government slashed the original project budget.

Roles and responsibilities
FFT was the sole executing agency for this project. It understood its role very clearly. At the same time, FFT relied on various collaborators (Caterpillar, Stihl, CIKEL, etc.) to carry out the project in a timely and effective manner. FFT had many years of experience working with all of its collaborators, which helped ensure that each of them followed through on their commitments.

[4] PNF. 2001. National Forest Program-PNF. Brasília. MMA/SBF/DIFLOR. 54p.

Beneficiary involvement
This project emphasized hands-on, experiential learning during its training courses. The beneficiaries learned by actually doing (or participating in) the various activities composing FM-RIL. Thus, FFT believes that the beneficiaries were directly involved in the project's efforts and actions.

This project's monitoring component also created a mechanism for extensive critique and feedback of the participants during the courses. Course participants often pointed out and discussed ways to improve the project and the courses. The most important critiques usually came from the participants in the senior courses. FFT seriously listened to all the suggestions, comments, and feedback it received. As a result, it substantially improved the course content, materials, and methods during the project. Thus, the beneficiaries contributed substantially to the project's success.

4. Project Implementation

Differences between planned and actual implementation
The main difference between the planned and actual implementation of the project was in two aspects of the schedule. The first difference in the schedule was minor: the project started 3 months later than anticipated, but this delay did not in any way negatively affect the achieved outputs.

The second difference was more substantial, but again did not negatively affect the outputs. FFT had to request that the project be extended for 6 months (at no cost to ITTO) in order to complete several activities it promised in the original project document. These activities related to Outputs 1.6 and 1.8. Output 1.6 was the publication of the trainer's manual with lesson plans. Output 1.8 was the development, testing and consolidation of a monitoring system. These outputs were achieved during the extension period. In fact, the extra time provided some benefits. Instructors who do not normally teach particular lessons operationally tested the lesson plans included in the trainer's manual during the extension period. Likewise, the extra time afforded by the extension period, allowed FFT to operationally test the consolidated monitoring system during courses held from May through July 2006. During the extension, FFT also took advantage of the infrastructure and instructors by holding additional courses (September through December 2005). Thus, ITTO received many benefits from the extension, although it was quite a burden for FFT not to have adequate financial resources during this period.

Measures and Actions that Could Have Been Taken to Avoid Variations
There were no actions that FFT could have taken to avoid the need for the extension. The extension became necessary because of the financial shortfall the project experienced. The shortfall resulted from the combination of the unfavorable exchange rate and inflation. This combination had not occurred in Brazil for 40 years and was not anticipated before the project began. The extension, therefore, was a mitigating measure that, in combination with FFT raising additional counterpart funding, allowed FFT to complete the project as planned.

Appropriateness of the Assumptions
FFT believes that the assumptions it made during project formulation were reasonable, and that the risks it identified were valid. In fact, the risks FFT identified were exactly correct, as indicated by these statements in the Project Document:

> FFT has identified two risks – both financial – that may affect the project if they are realized. The first involves the fluctuating and uncertain currency exchange between the dollar and Brazilian real (R). The exchange rate has hovered around 3.7 Rs to the dollar in recent months. To be conservative, FFT developed a budget based on the possibility that the exchange rate would drop and the dollar become less favourable. If, however, the exchange rate drops (or is set by the new government) below the rate used in budget calculations (3.4 to 1), the budget may be insufficient to meet actual project costs. The only practical way to guard against this risk is to include a line for contingency. No such line item was included, however, to keep the overall budget as low as possible.

As noted above, the currency devaluation and inflation combination had not occurred for 40 years in Brazil. Thus, FFT expected this risk to be relatively low. The second risk pertained to finding sufficient funding to sustain FFT's program until the ITTO project started. FFT was successful in that endeavor.

Project Sustainability
As noted above, this project extended a program that had been in existence for 9 years. It also allowed FFT to transition its existing program to a new Brazilian entity: IFT. Since ITTO financing ended in August 2005, IFT has managed to keep the program going. Although achieving financial sustainability will always be difficult, it is important to reiterate that the need and demand for training and capacity building is large and will increase for the foreseeable future.

Several factors contribute to this anticipated increase in demand, but all are tied to a growing regional commitment to improving forest management. In Brazil alone, the creation of the Brazilian Forest Service, new national forests, and the transfer of responsibility of supervising harvesting on private land to state agencies are all creating enormous demand for training. Already, IFT has contracts for training from 2 state agencies. IFT also has contracts for 3 courses with OTCA. Finally, IFT recently received a request to help establish a training program in Peru. Thus, the main difference in the post-project situation is that increasingly, beneficiaries are beginning to pay in full for the required training. FFT expects that there will always be a need for outside funding to subsidize training for smaller enterprises (including communities), but it is encouraging to start receiving substantial income from training contracts.

Appropriateness of Project Inputs
FFT believes that of the four general inputs necessary for the successful completion of the project—qualified instructors, good forest area, adequate equipment and materials, and adequate funding—only the financing was inadequate and problematic. See Part II, Section 1, *Project Inputs* for further commentary.

5. Project Results

Situation Existing at Project Completion

Several indicators suggest that compared with the pre-project situation, the forest sector is moving slowly, but steadily forward toward improving forest management. These indicators include the following:

- IBAMA and also state regulatory agencies have adopted FFT's FM-RIL guidelines (which include the full range of FM-RIL components from macro-zoning to infrastructure design to tree mapping and selection), and are applying them when they evaluate forest management and annual operating plans. To continue operating legally, companies must abide by these guidelines. Thus, FFT infers that both the number of companies applying FM-RIL, and the area harvested with FM-RIL are greater now than before this project began.
- The recent resurgence[5] in interest in obtaining third-party certification and consequent increase in demand for training by companies seeking to obtain certification. FFT has observed that the limiting factor for many forestry enterprises is no longer whether FM-RIL makes sense, but rather land tenure.
- There are now more entrepreneurial opportunities for trained practitioners than before the project. Several small companies have become established to apply specific aspects of FM-RIL as 3rd party contractors to companies and also for communities that do not yet have the capacity to comply with the law on their own.
- The socio-economic dynamic of forest sector employment is starting to change because companies that have invested in training their personnel (especially certified companies) are increasingly retaining their people through the rainy season. Thus, the security and stability of employment is increasing.

In addition to the changes just described, two other aspects of the post-project situation are worth mentioning or reiterating. First, the state and federal government field supervisors are now more rigorously auditing forestry enterprises across the Amazon. Field auditors have a detailed checklist that resembles the FM-RIL system FFT teaches. The auditors do not approve the annual operating plans unless the entity is implementing FM-RIL. The second major point is that the need and demand for training will only increase in the next few years because qualified people will be needed at all levels throughout the forest sector to implement various aspects of the new forest policy. For example, the Brazilian Forest Service has established 6 million ha of new national forests as part of a sustainable forestry district between Santarem and Cuiaba. Trained people will be needed to establish and demarcate the concessions in these national forests as well as to supervise the concessionaires. Likewise the concessionaires themselves will need qualified people in order to win the government bids.

Extent to which the Project Achieved the Specific Objectives

Indicators that the project successfully achieved the 2 specific objectives include:

[5] Unfortunately, in 2005 due to pressure to combat illegal logging, IBAMA did not distinguish between certified and uncertified companies, and did not approve any operating plans. This administrative problem slowed progress in the certification movement during 2005, but the problem was resolved in early 2006, which in turn stimulated demand for training as interest in certification has resumed.

- The incorporation of the FM-RIL methods and principles that FFT teaches into the Brazilian government's new forestry law. Furthermore, government agencies (at both the federal and state level) are not only adopting FFT's FM-RIL guidelines, but also demanding training from FFT. Similarly, these FM-RIL practices are being verified by EMBRAPA with participation from CIFOR and IFT in an ITTO supported project (PD 57/99 Rev.2 (F)).
- Most, if not all, graduates of the 3 forestry technical schools in the Amazon find employment in forestry immediately upon graduation. The government of Amazonas has hired all of graduates of the Amazonas technical school to serve as forest management extension agents in municipalities across the state.
- Demand for FM-RIL training has increased over the past three years. FFT estimates that if it had more trainers and could offer more open and more off-site courses, it would receive more than 1,000 requests for training annually. Demand for extension events has also increased, partly because people are now curious about how to comply with the new forestry laws. State and federal agencies responsible for enforcing the law must train their staff to evaluate both forest management and annual operating plans, as well as to conduct field audits to determine whether guidelines for FM plans are being followed and whether they are being properly implemented.

Impact on sectoral programs, the physical & social environments, and target beneficiaries
The project's impact on sectoral programs was described above; federal and state forestry regulators have adopted the FM-RIL guidelines promoted by the project.

FFT infers that the project has had a positive impact on the physical environment because its cost-benefit study and other studies have shown that FM-RIL reduces physical impacts of harvesting on the residual forest and also reduces the amount of wood waste. Furthermore, FFT is confident that FM-RIL is being applied in the 1.7 million ha of forest that is currently certified. FFT trained the people working in those certified areas. Thus, the project has had a positive environmental impact.

FFT also infers that the project has had a positive impact on the social environment. As mentioned above, companies that have invested in training are increasingly retaining their employees to avoid losing their investment and having to hire and re-train new people. Thus, FFT has observed an increase in job security and employment stability in some parts of the forest sector, and this is a direct result of the project. FFT believes another important social benefit of the project is that FM-RIL increases the labor needs by 36% compared to conventional logging. More specifically, companies (or communities) that apply FM-RIL require a greater range of skill levels of its forest workers than just the 3 or 4 categories of people employed by conventional operations. Thus, the project has contributed to increasing employment opportunities in the forest sector and also to professional development opportunities.

Project sustainability
As noted above, this project could be sustained for many years (assuming adequate funding) if one considers the large need and demand for training. As noted above, this large demand in Brazil is being driven by (i) the creation of the Brazilian Forest Service, (ii) the creation of new

national forests targeted for sustainable forestry, and (iii) the transfer of responsibility of supervising harvesting on private land to state agencies are all creating enormous demand for training. Already, IFT has contracts for training from 2 state agencies. IFT also has contracts for 3 courses with OTCA. Finally, IFT recently received a request to help establish a training program in Peru. Thus, the main difference in the post-project situation is that increasingly, beneficiaries are beginning to pay in full for the required training. FFT expects that there will always be a need for outside funding to subsidize training for smaller enterprises (including communities), but it is encouraging to start receiving substantial income from training contracts.

6. Synthesis of the Analysis

Item	Assessment	Comment
Specific objectives achievement	Realized	Both objectives were achieved as evidenced by (i) steadily increasing demand for FM-RIL training; (ii) the expansion of employment and entrepreneurial opportunities in FM and the immediate hiring of all forest technical school graduates; and (iii) the incorporation of FM-RIL guidelines by government regulatory agencies and the demand for training by these agencies to build capacity to enforce these guidelines.
Outputs	Realized	All outputs except Outputs 1.6 and 1.8 were completed on time, and the targets for most outputs were exceeded (See Annex A). FFT completed Outputs 1.6 & 1.8 with counterpart funding during the project's extension period (Sept. '05–July '06).
Schedule	Delayed, not seriously	On time for ITTO outputs but a 6–9 mo. delay for 2 outputs funded by other donors. In accordance with the Aug-05 report and the extension request. See Annex A for details.
Actual Expenditures	>10% above planned	ITTO funds were exhausted by August 2005 as per Aug-05 semi-annual report. Additional counterpart funding totaling $280,476 sustained the project for part of the 2nd year and during the extension period. See Attachment 1 for the final financial statement, cash flow statement, and final project audit conducted in September 2005.
Potential for replication	Significant potential	There would be a great loss if the training and capacity building program were not continued because it is quite unique and has now trained over 3,500 people, and has trained all of the certified companies in the Brazilian Amazon.
Potential for scaling up	Modest potential	FFT suggests a modest potential not for lack of need but rather the time factor and financing capabilities.

Part III. Conclusions and Recommendations

1. Development Lessons

- The experience FFT has gained and the lessons FFT has learned over the past 11 years of FM-RIL training, extension work, and FM-RIL model development contributed substantially to the project's success;
- The existence and long-term operation of a hands-on training center for FM-RIL greatly enriched the courses, and increases in value as a demonstration and training center as time passes.
- The support of collaborators and associates greatly contributed to the project's success, but this support was heavily dependent on personal relationships with FFT senior staff. Therefore, in the future, these relationships should be formalized.
- The greater acceptance by both the general public and the private sector that good FM can contribute to forest conservation and a better economy was important. This recognition meant that both the public and private sector recognized that FM training is essential to carry out good FM. This positive change in attitude also contributed to the project's success.
- Continuing to convince or pressure government agencies, the forest sector, and the public to develop a sustainable forest products sector will be necessary to sustain the benefits of this project, and to further advance FM as a means of sustainable development in the Amazon. Furthermore, these stakeholders must be willing and able to invest in the needed training and capacity building to develop the sector accordingly.
- It is important to convince the public that forest management not only financially benefits a few in the short-term, but can also provide a long-term development option for the region that generates numerous social benefits.

2. Operational Lessons

- Despite FFT's 11 years of project management experience, it continually seeks to learn, improve, and develop new ideas. At the same time, FFT seeks to execute its projects with very high quality standards and a high level of professionalism. FFT tends to promise more than it can sometimes achieve, the result of which is that the activities are carried out well at the expense of the organization or the well being of the project personnel. Thus, during this project, FFT learned that it is a very slim organization with limited capacity to adjust to losses of key personnel or to major financial shortfalls. The key lesson learned was that back-up and contingency plans are essential to cope with unexpected events.
- Careful financial documentation is critical especially when multiple donors support a project. This project reinforced the need for careful documentation not only for audits, but also for administrative and operational effectiveness.
- Steering committee oversight is an important part of the project. There should have been more than 1 steering committee meeting during the project. In the project's progress reports submitted to ITTO, some key issues related to the project's finances were raised in the section on "Critical Analysis and Project Progress"; the ITTO Coordinator should have discussed these issues with FFT.

- Project planning was especially important in this project because most of the activities took place in remote locations where communication was difficult. Thus, detailed planning was essential, and an equivalent level of planning should take place in all similar projects.
- The detailed planning included a number of issues including equipment, materials and supplies, food, and health and safety. The logistic aspects of all of these items had to be carefully planned.
- The detailed planning also had to include contingency instructions for illnesses or injuries. If an instructor was sick or injured, for example, a substitute had to be available. Similarly, FFT had to develop evacuation procedures and other contingency planning to be prepared for the possibility of participant injuries or serious illnesses.
- Contingency plans also need to be made for inclement weather. Thus, during the training courses, alternative schedules and lessons had to be available, and the instructors had to be prepared to change the program on rainy days.
- Because the project emphasized hands-on training of individuals working in small groups (as part of a larger group for each course), contingency plans were also needed to efficiently accommodate any changes to the schedule of these small groups, which were usually highly coordinated.
- The equipment furnished as part of the counterpart funding had to function well and according to the overall course schedule. Thus, fast, reliable, and responsive logistical and maintenance support by the project's in-kind donors were critical.
- At no time during the project were the scheduled activities compromised due to inadequate planning. The reason for this success was substantial experience, constant monitoring, vigilance, supervision, and evaluation of the day-to-day situation.
- Contingency plans and preventative actions should be in place to ensure that implementation proceeds according to plans. FFT made sure to develop such plans based on its operational experience. At the same time, FFT included a certain amount of flexibility and alternative options in the schedule and overall plans to account for unexpected changes or events.
- Planning for financial variations was difficult in this project (and probably will be for most projects). This project had to contend with continually worsening currency exchange and inflation rates. FFT had to take two rather drastic cost reduction programs, which detrimentally affected the organization and staff, but fortunately did not compromise the project's results or effectiveness. The receipt of additional counterpart support helped ensure that the project was successful in the face of increasing financial costs.
- The project's budget was 25% greater <u>when it was first submitted</u> compared to the approved budget. Despite cutting the budget by that amount, the number of activities was not reduced. Additional donor funding was expected but not guaranteed at the time of the proposal and a certain risk factor should have been more seriously considered. Several project activities, which should have been financed from the ITTO funds according to the approved budget, were only completed because additional counterpart funding was obtained during a requested extension period.
- The 30% devaluation of the US dollar during the project period could not have been foreseen. Over the past 30 years, the devaluation of the Brazilian currency has always

compensated for the inflation rate (approximately 10% per year). In contrast, during the project period, the Brazilian Real increased in value against the US dollar and exacerbated the effect of inflation. The combination of the US dollar devaluation and inflation put enormous strain on the project's finances as explained in three of the Project Progress reports.

3. Recommendations for future Projects, regarding

Identification

- Several issues should be resolved before determining that a project involving practical FM-RIL training is necessary. FFT recommends that future project formulators consider these issues by asking the following questions:
  1. Does the region have forest resources and if so;
     - Is production forestry viable and appropriate in these forests or should they only be considered as preservation forests?
     - Are these forest located where a viable wood industry sector exists or could become a reality and are markets for the forest products available?
     - Is there pressure for land conversion and if so to what extent? If so, is conversion of the land for other uses appropriate?
     - Does a government zoning plan exist for the area of action?
  2. Is the public aware of the use and benefits of FM, and if not is the state actively involved in generating awareness for forest conservation?
  3. What is the need for training and capacity building and at what level (i.e., foresters, forest technicians, wood workers, etc.)?
  4. Does a need or a demand exist or could one be created for Forest Management training and capacity building?
- During the identification phase for investment in training and capacity building for Forest Management multiple dimensions have to be considered, including:
  - Why do poor logging practices exist?
  - Are there cultural reasons for the persistence of poor practices?
  - Are there policy, social, or financial disincentives?
  - Is land tenure a problem?
  - Is the socio-economic setting unfavorable (i.e., no or poor market access)?

  If any of these cause serious constraints, the training and capacity building for good forest management might be in vain. The timing of any such project is of extreme importance.
- The implementation of any similar project should consider if only hands-on practical training in FM-RIL is sufficient to address the key problem(s) identified. Or is there a need to coordinate training with applied research that builds understanding of FM constraints and trade-offs including ecological, silvicultural, socio-economic and sectoral. Such an integrated approach is more likely to lead to sustainability.

Design

- Unless the training is designed in a modular fashion where instructors and courses move to different locations, which may not be as effective as a training center, the project should be a semi-permanent entity for long-term utilization.

- The design phase should consider an effective period for the project of at least 10 years because the need and demand for FM-RIL training and capacity building is great, will persist for quite some time, and requires continuity.
- Partnerships for project implementation should not be on a personal basis on informal but should be written out and agreed to on a formal basis. These partnerships should be developed to provide the greatest number of and variety of stakeholders.
- The project site should be chosen to reflect the full range of factors affecting forest management, including forest type, topography, soil type, and forest products or uses (timber, NTFPs, and other forest uses). Demonstration areas should also include "how to do it" and "how not to do it" sites.
- Any future project should avoid repeating the mistakes made by others.
- A fully functional and effective training site will require at least 3 years of preparation so that it includes areas for demonstration and all the necessary training modules. Additional time may (probably will) be necessary to train the trainers. The project might consider this preparation time as pre-implementation.
- Project designers should also consider whether the forest products processing sector also needs upgrading and training. If so, designers should consider implementing a project that combines training for forest management as well as for forest products processing.
- Strong multi-sector support should be guaranteed during the design phase of the project. Every effort should be made to convince all relevant stakeholders of the project's benefits before the implementation phase.
- The practical recommendations in section 5 of the Executive Summary should be very much part of the design phase of any potential project.

Implementation

- As mentioned above, it might take up to 3 years for the actual training project to be operational considering the need to plan, layout, and construct the infrastructure and to prepare the areas for demonstration and training modules.
- The forest management area has to be ready for all phases of instruction; preparing these areas takes considerable time because of the sequence of activities.
- Instructors who already have a technical or operational background will need 5 years to prepare to become course instructors unless they have previous instruction experience. Nevertheless, the permanent training staff should be part of the implementation phase to allow them to get hands-on experience themselves and also to become familiar with the project site.
- Selection of an appropriate site must be given substantial priority because the emphasis is on hands-on field training for various levels and different sectors. Thus, the site should be in a working forest and should not be located in proximity to urban centers or any other commercial activity unless the activity pertains to the purpose of the training site. A forest industry (e.g., sawmill or other processing facility) could become part of the training program.

Organization

- The organization of the project can either be a government, semi-government organization, or an NGO. At present, FFT suggests that the entity would be most

efficient if it were an independent NGO with direct connections to government organizations because it would have the efficiency of an NGO but have the support and backing of government organizations.

- If the organization is to be an NGO, it should have a Board of Directors the members of which can (and will) support the proposed activities either financially, administratively, or technically. If the organization is a government or semi-government entity, it is important that there be a technical advisory committee comprising practical and highly qualified people who could carry out similar functions as a board of directors. In this case, the members of the advisory committee should not only represent partners, but also the scientific community, the private industrial sector, and educational institutions.
- Regardless of whether the executing entity is from the public sector or an NGO, it should create strong partnerships. These partnerships should be functional; they should not only support the project's activities, but also complement the project (e.g., participate in research and development, education, and in the forest products sector). These partnerships should be formalized and legalized.
- There is no ideal organizational chart for a project; much depends on the size and scope of the project and the objectives desired. It also depends on the range of FM-RIL training, which may or may not include FM-RIL model development and basic research. To minimize costs, a thin and vertical organization may be desirable. On the other hand, the demands on instructors will be great, and all individuals will have to be able to perform many different training activities. Although an organizational hierarchy will help training programs run smoothly and efficiently, the organization will inevitably become more horizontal with managers, foresters, technicians and operators all doing training sessions.
- The basic management structure will be divided between administrative and operational unless a research and development component is included. In that case, individuals engaged in R&D activities would report directly to senior management.
- Instructors have a tendency to specialize in certain activities. Although these specializations are generally good (and should be promoted), a good training team should be flexible, and instructors should be able to rotate their instruction activities. This flexibility not only allows the instructors to better support the organization in case of sickness or absences, but it also provides them with a better understanding of FM-RIL as a whole and also reduces the monotony of repeatedly teaching the same thing. This point is relevant for all levels of trainers within the organization.
- All members of the organization should recognize the important role of support personnel (cooks, drivers, nurses, assistants, etc.). If these personnel are not selected properly and trained, their costs will be high and they often will be underutilized. For example, if only a professional driver can be hired (e.g., because of safety regulations), s/he will be limited to that function and will spend many unproductive hours. In contrast, if s/he were also to be included in some of the FM-RIL activities, he would be better utilized, which would reduce overall costs.

Management

- Management of training projects should be flexible and innovative. FM-RIL is not static and the variation in forest type, physical factors (e.g., soil and topography), and the socio-

economic setting all demand this flexibility. In addition, management should also be capable of adapting and learning from new information (e.g., from basic or applied research). Any training or capacity building program needs to show leadership by exemplifying adaptive management, and be willing to improve itself.

- At the same time, instructors should not change practices or lesson plans without cause or on a whim. It is important to supervise the instructors and ensure that they perform consistently and maintain uniformity in the training and capacity building program. Any change in practice has to be well thought out and peer reviewed. In many cases these turn into forest management options, which are incorporated in the instruction.
- Management should encourage and respond to suggestions for improvements from the staff as well as from outside sources. The latter include partner organizations as well as course participants. The suggestions of senior course participants with substantial experience must especially be considered since they have different perspectives and come from different backgrounds.
- Establishing a cooperative team spirit (i.e., "esprit du corps") is recommended in any project. In projects located in remote areas, where the staff experiences substantial repetition over time, it is extremely important that management not only does quality selection of the staff and instructors but also stimulates their team spirit and sense of achievement.

Financing

- Financial considerations for project stability and continuity are of utmost importance. The investment in infrastructure and training of the instructor staff as well as the support staff is costly, and will only provide a return if there is financial stability of the project.
- Although some or all training is subsidized an "earnest fee" should be charged for all courses to provide a sense of investment by either the participant or the sponsor.
- If the project is successful, the course fees can be increased over time as the benefits become obvious.

Responsible for the Report

Name: Johan C. Zweede _____ **Position Held:** Project Director

Date: _____

Annex A: Progress in Implementation of Activities

Activities	Percentage executed as of 31 July '06	Completion date
Output 1.1 Course schedules for 2003 and 2004 developed in response to demand for training		
1.1.1 Schedule and promote courses	100%	July - 2005
1.1.2 Screen applications; select course participants	100%	August – 2005
1.1.3 Arrange travel, lodging, etc. of participants, trainers & consultants	100%	August – 2005
1.1.4 Arrange for training consultants (scheduling, objectives, etc.)	100%	August – 2005
Output 1.2 Two 1,000 ha forest areas prepared for training courses (including 400 ha / year for harvesting and 600 ha / year for demonstration) during the project		
1.2.1 Training camp prepared and upgraded	100%	August – 2005
1.2.2 Training site for harvest prepared	100%	August – 2005
1.2.3 Training demonstration site prepared	100%	July – 2005
1.2.4 Access infrastructure (roads, bridges, culverts) maintained and prepared	100%	August - 2005
1.2.5 Submit harvest plan for IBAMA approval	100%	April - 2005
Output 1.3 Total of 410 people from all levels and all forest related sectors trained in the application of FM-RIL principles and practices in on- and off-site courses during project		
1.3.1 Conduct training courses	273%	August – 2005
1.3.2 Review evaluation forms and course diplomas	100%	August - 2005
1.3.3 Conduct evaluations and competency tests	100%	August - 2005
1.3.4 Process, analyze & synthesize evaluations for Final Report	100%	March - 2006
Output 1.4 Teaching and technical skills of the 13 FFT trainers improved and training repertoire expanded		
1.4.1 Plan and schedule FFT-trainer development workshops and courses	100%	June - 2005
1.4.2 FFT trainers attend technical workshops and courses	100%	April - 2005
1.4.3 FFT trainers attend courses to increase their teaching skills	100%	July - 2005
Output 1.5 FM-RIL operational manual, flip charts, and related documents refined or developed and used in training courses		
1.5.1 Peer review of training materials	100%	August - 2005
1.5.2 Revise all training materials	100%	August - 2005
1.5.3 Print all training materials	100%	August - 2005
1.5.4 Distribute manuals and other training materials to course participants	100%	August - 2005
Output 1.6 Trainer lesson plans compiled and published as FM-RIL trainer's manual		
1.6.1 Elaboration of lesson plans and lectures to be used by trainers in FFT courses	100%	February - 2006
1.6.2 Peer review and compilation of lesson plans for each training course into a trainer's manual.	100%	March - 2006
1.6.3 Publication of trainers manual	0%	Pending Funding

Activities	Percentage executed as of 31 July '06	Completion date
Output 1.7 At least 800 ha logged with FM-RIL methods during training courses		
1.7.1 Acquire & transport logging equipment for RIL training harvest	100%	August – 2005
1.7.2 Acquire & prepare materials & supplies for RIL training harvest	100%	July – 2005
1.7.3 Conduct pre-harvest operations	100%	August - 2005
1.7.4 Conduct harvest operations	100%	August – 2005
Output 1.8 Develop and test a system for monitoring the impact of the training courses on FM-RIL – including the various levels of trainees – by the end of the project period.		
1.8.1 Prepare and disseminate a TOR for a consultant	100%	January - 2005
1.8.2 Contract consultant	100%	April – 2005
1.8.3 Develop monitoring system and its indicators.	100%	July – 2005
1.8.4 Conduct field testing of system	100%	December - 2005
1.8.5 Consolidate monitoring system for use	100%	May - 2006
Output 2.1 Annual schedules (with locations) of extension activities for 2004 and 2005 elaborated		
2.1.1 Scheduling of extension program	100%	April – 2005
2.1.2 Arrange travel or logistics for extension program	100%	June - 2005
Output 2.2 Extension materials, dependent on the particular event, such as power point presentations, technical papers, posters, lectures, and folders updated or developed and used in events		
2.2.1 Revise and update graphics, presentations, slide shows, & lectures	100%	June - 2005
2.2.2 Distribute appropriate material to the participants during the extension events	100%	June – 2005
Output 2.3 Principles and benefits of FM-RIL explained to at least 400 participants in 16 extension events (seminars, workshops and lectures) during project		
2.3.1 Conduct extension events (seminars, workshops, & lectures)	150%*****	June – 2005
2.3.2 Conduct extension events evaluations.	100%	August - 2005
2.3.3 Process, analyze & synthesize evaluations for Final Report	100%	October - 2005
Steering committee meetings	100%	

**This number calculated based on the number of events (24 of 16 projected events) rather than the number of participants 1,860 compared to the projected target (400).*

Annex B: Training Courses

Table 1. Training Courses held from September 2003 – August 2005

Date	Course	Target Audience	Target	Location	Demand	Participants
15–26 Sep 2003	GM	University	University	FFT-Training Center	19	19
14–21 Sep 2003	TD-os	Funtac training center	Train Ctr	Sena Mad. - AC	16	16
22–28 Sep 2003	TC-os	Industry	Industry	Vista Alegre - RO	3	3
29 Sep–03 Oct 2003	TP-os	Industry	Industry	Vista Alegre - RO	5	5
29 Sep–03 Oct 2003	TD	General	General	FFT-Training Center	29	13
29 Sep–03 Oct 2003	TP	Industry	Industry	FFT-Training Center	2	2
6–10 Oct 2003	TE-os	Industry	Industry	Pacaja-PA	14	14
13–24 Oct 2003	GM	General	General	FFT-Training Center	47	6
13–17 Oct 2003	TC-os	Industry	Industry	Santarem-PA	12	14
10–21 Nov 2003	GM	General	General	FFT-Training Center	32	18
02–06 Dec 2003	TD	Community Forest Mgt.	Community	FFT-Training Center	17	18
01–06 Mar 2004	TC	Community Forest Mgt.	Community	Santarém/PA-Flona-Resex	12	12
22–27 Mar 2004	TC	Community Forest Mgt.	Community	Reserva Mamirauá	20	20
17–23 May 2004	TD	Funtac/Oliveira	Train Ctr	FFT-Training Center	16	14
31 May –05 Jun 2004	TD	Trans Amazon Community	Community	FFT-Training Center	14	14
12–20 Jun 2004	TC-TP-TO	Industry	Industry	Manicoré/AM	60	48
22–26 Jun 2004	TC-TP-TO	Industry	Industry	Paragominas/PA	16	15
28 Jun–03 Jul 2004	TC-TP-TO	Industry	Industry	Pacaja/PA	11	11
05–16 Jul 2004	MF	Technical School	Tech School	FFT-Training Center	22	22
26–31 Jul 2004	TC-TP-TO	Industry	Industry	Tailândia/PA	18	18
26 Jul–7 Aug 2004	MF	Technical School	Tech School	FFT-Training Center	20	18
02–07 Aug 2004	TP-TO	Industry	Industry	Novo Repartimento - PA	8	8
16–21 Aug 2004	TC	General	General	FFT-Training Center	6	6
24–26 Aug 2004	TC	Industry	Industry	Breu Branco - PA	6	6
30 Aug–4 Sep 2004	TP-TO	Community Forest Mgt.	Community	FFT-Training Center	12	11
30 Aug–4 Sep 2004	TC	Community Forest Mgt.	Community	FFT-Training Center	12	9
06–11 Sep 2004	TD-TA	General (Certification)	General	FFT-Training Center	20	19

Date	Course	Target Audience	Target	Location	Demand	Participants
27 Sep–1 Oct 2004	TS	General	General	FFT-Training Center	7	7
11–16 Oct 2004	TT	Training of trainers	TT	FFT-Training Center	12	8
18–30 Oct 2004	GM	General	General	FFT-Training Center	37	12
25–30 Oct 2004	TP-TO	Community Forest Mgt.	Community	Uruará - PA	12	12
01–12 Nov 2004	MF	Technical School	Tech School	FFT-Training Center	22	21
22 Nov–03 Dec 2004	GM	General	General	FFT-Training Center	37	11
28 Mar– 2 Apr 2005	TC	Community Forest Mgt.	Community	Tefé-AM	20	21
4–8 Apr 2005	TC	Flona Tapajós	Community	Santarém-PA	20	18
7–10 Apr 2005	TP-TO	Community Forest Mgt.	Community	Anapu/PA	15	17
11–15 Apr 2005	TP-TO	Community Forest Mgt.	Community	Anapu/PA	15	17
2 May 2005	TC	Industry	Industry	Monte Dourado/PA	12	12
2 May 2005	TP	Industry	Industry	Monte Dourado/PA	12	12
2 May 2005	TO	Industry	Industry	Monte Dourado/PA	12	12
16–21 May 2005	TD	University	University	FFT Training Center	12	14
7–23 May 2005	TO-Roads	Industry	Industry	FFT Training Center	2	2
23 May –3 Jun 2005	MF	Technical School	Tech School	FFT Training Center	24	21
6–18 Jun 2005	GM	General	General	FFT Training Center	59	13
17–20 Jun 2005	TC-R	Industry	Industry	FFT Training Center	6	4
17–20 Jun 2005	TP/TO-Sk-R	Industry	Industry	FFT Training Center	6	4
17–20 Jun 2005	TP/TO-Roads-R	Industry	Industry	FFT Training Center	6	1
17–20 Jun 2005	TC/TP/TO-R	Industry	Industry	FFT Training Center	6	5
21–25 Jun 2005	TC-TP-TO	Industry	Industry	Vilhena/RO	12	14
4–16 Jul 2005	MF	Technical School	Tech School	FFT Training Center	20	22
18–20 Jul 2005	TC-R	Industry	Industry	Rio Capim	4	4
18–20 Jul 2005	TO-Sk-R	Industry	Industry	Rio Capim	6	6
18–30 Jul 2005	GM	University	University	FFT Training Center	20	18
08–20 Aug 2005	MF	Technical School	Tech School	FFT Training Center	20	22
22–27 Aug 2005	TD	Government	Govt	FFT Training Center	20	16
29 Aug–7 Sep 2005	TP	Community Forest Mgt.	Community	Pacajá/PA	15	12

Table 2. Summary of ITTO-sponsored Courses Held and Number of Participants by Location

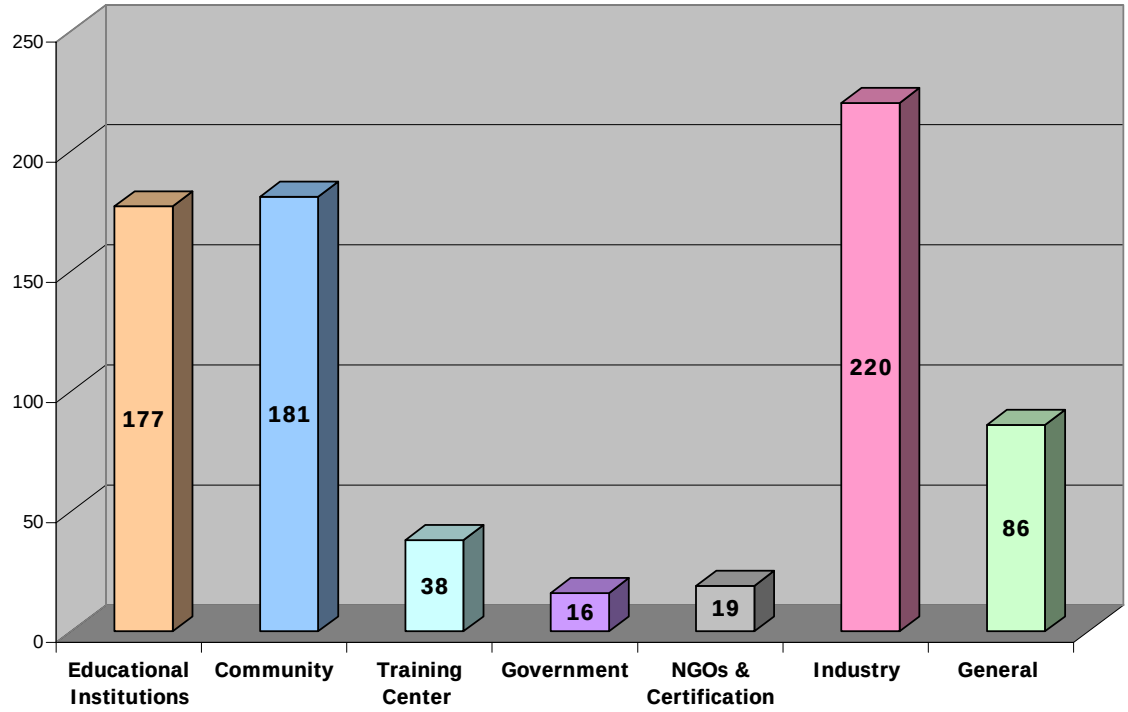
			September 2003 – August 2005	
	Courses	Participants	Demand*	Proposed Target**
Off-site	39	347		
On-site	36	390		
Total	**75**	**737**	**940**	**410**

*Refers to requests for training received by FFT without any effort by FFT to promote the courses.
**Target anticipated in Original Project Document

Table 3. Summary of Courses Held by FFT with Counterpart Funding during the ITTO Extension Period (Sept.–Dec. 2005)

	Courses	Participants
Off-site	1	15
On-site	8	80
Total	**9**	**95**

Figure 1. Participants in ITTO Courses (Sept 2003–Aug 2005) by Sector



Annex C: Workshops and courses for FFT trainer training – Sep-2003 to Aug-2005

Course description	Justification / Purpose	Date	Location	No. People
Block layout and forest inventory – The heavy equipment and chainsaw operators / instructors were trained in block layout and 100% inventory procedures	To increase flexibility in scheduling tasks of FFT technical crew / instructors, and to increase the efficient use of these instructors. Broadening the capabilities and repertoire of skills of the instructors makes the FFT crew more versatile and allows them to be assigned tasks in the various training programs	Nov-03	FFT Training Center; Paragominas, PA	9
Mapmaking – In-house training of support personnel in how to make and interpret maps	All course instructors & support personnel should be able to read maps in various scales. As above, this training increased the versatility of the FFT crew.	Feb-04	FFT Training Center; Paragominas, PA	7
Heavy equipment operations for forestry technicians – In-house training for FFT's forest technician-instructors in the safe use and operation of heavy equipment used in FM-RIL	To upgrade the forest technicians / instructors in the use of heavy equipment used in FM-RIL operations. The technicians must be very familiar with this equipment because they work together with the operator-instructors during training courses.	2/04 & 6/04	FFT Training Center; Paragominas, PA	3
Felling techniques and chainsaw maintenance – In-house basic training for supervisory and support personnel as well as for operators who do not typically use chainsaws for non-chainsaw	To ensure that the entire FFT crew is capable of safely operating a chainsaw in an emergency. Also, it is important that course participants understand that basic knowledge of chainsaw operation and maintenance is something with which all people involved in forest operations should be familiar.	Feb-04	FFT Training Center; Paragominas, PA	7

Course description	Justification / Purpose	Date	Location	No. People
Public speaking – 4 of FFT's technicians attended a course conducted by SEBRAE in which they received critical feedback on various public speaking techniques	To improve the skills and increase the repertoire of techniques of FFT instructors (which ultimately improves the quality of the training courses) to transfer their knowledge to trainees during the courses.	Apr-04	Belém/PA	4
TREMA software – EMBRAPA experts trained FFT's technical staff in the use of *TREMA*, a computer program designed to help managers develop sustainable forest management plans	To improve the ability of FFT's technical staff to use and manipulate computer software designed to facilitate forest management operations and decisions	Apr-04	Belém/PA	4
Botanical identification course for para-botanists – The FFT tree identifier took this course offered by the Embrapa Botany department	To formalize and, in general, upgrade the dendrological skills of FFT's tree identifier	Jun-04	Embrapa Field Station; Tailândia, PA	1
Intensive 1st Aid course for new instructors	To orient FFT's new trainers to FFT's procedures, and to ensure that these trainers are fully competent in the administration of first aid. The 2 new trainers are paid by counterpart funding, but their basic training was necessary for the ITTO project in general.	Jun-04	FFT Training Center; Paragominas, PA	2
Camp activities coordination and management – The forester hired with counterpart funding received training so that he could substitute for the ITTO-funded Senior Forester if necessary	To ensure that there is backup of key personnel involved in management of field activities.	5/04 – 7/04	FFT Training Center; Paragominas, PA	1
Chainsaw special tools and maintenance procedures course –FFT's senior chainsaw operators and maintenance instructors received training from Andreas Stihl, S.A.	To refresh and bolster the skills of FFT's chainsaw operator-instructors	Jul-04	Belém/PA	2

Course description	Justification / Purpose	Date	Location	No. People
Skidder Operations – in-house course attended by FFT's roads construction instructor.	Broadening the skills of FFT's trainers is necessary to provide backup in case the principal operator instructor is unavailable.	Aug. 2004	FFT Training Center Paragominas, PA	1
Road planning – in-house course attended by the FFT technician who works most frequently with communities.	As noted above, this course was intended to diversify the skills of a technician who specializes in other topics.	Aug. 2004	FFT Training Center Paragominas, PA	1
Inventory – in-house course attended by the same technician as above.	This course bolstered the skills of the technician who participated in the Transamazon courses held immediately afterwards.	Sep. 2004	FFT Training Center Paragominas, PA	1
Communication and environment – IIEB and WWF conducted this course for environmentalists. The FFT course coordinator participated.	This course aimed to improve the communication skills of environmentalists, and in particular focused on burnishing the institutional image / message.	18-22 Oct. 2004	São Paulo, SP	1
USAID Portal Internet Training – A USAID expert gave two days of training to our course coordinator.	USAID constructed an internet portal to facilitate the exchange of information among recipients of their support. The portal allows sharing of project publications, reports, and other information, as well as communication among projects.	Nov. 2004	Manaus, AM	1
Infrastructure planning and construction – in-house training for the FFT crew given by US Forest Service experts.	This field course updated the FFT technical staff on infrastructure planning, construction, and maintenance and offered fresh ideas on how to include important elements in FFT's courses.	Dec. 2004	FFT Training Center Paragominas, PA	9
Social and environmental management seminar (GESTAR) – A group of FFT partners promoted this seminar to disseminate actions of regional development based on sustainable practices of forest management and the benefits it can bring to the Amazon.	One of the FFT technicians attended this seminar because FFT is training communities in the Transamazon (where the seminar was held) and also to participate in discussions on improving forest management.	Dec. 2004	Itaituba, PA	1
Monitoring of Amazon forest dynamic – one-day seminar held by EMBRAPA for entities engaged in forest monitoring.	One of FFT's technicians participated in this seminar that aimed to implement a monitoring system to assess forest dynamics in the Amazon.	Dec. 2004	Manaus	1
Practices of personnel department – in-house training given by a national institute to one of FFT's administrators.	To bolster FFT's administrative capacity.	Jan. 2005	Belém, PA	1
Manual on the application of national standards for management of tropical forests (CERFLOR) – seminar to disseminate the information in the manual to FM professionals	One FFT forester participated in the seminar to learn about different certification systems. This knowledge allows FFT to disseminate up-to-date and appropriate information to course participants.	Jan. 2005	Belém, PA	1

Course description	Justification / Purpose	Date	Location	No. People
Transamazon Region Pro-Ambient Seminar – Seminar attended by the FFT technician who works with communities.	The seminar aimed to evaluate progress of the Pro-Ambient project. One FFT technician participated because FFT is working with some of the communities targeted in this project.	Jan. 2005	Altamira, PA	1
Community forestry activities refresher course – workshop attended by the FFT technician who works most frequently with communities.	This course was intended to diversify the repertoire of skills and update the technician in forest activities of people in traditional communities.	Feb. 2005	Belém, PA	1
Arc GIS – in-house course attended by FFT's technicians and foresters.	This course bolstered the skills of instructors in mapmaking (and planning in general).	Apr. 2005	FFT Office Belém, PA	6
Timber volume estimation – in-house course attended by two technicians and two foresters.	This course bolstered and updated instructors' skills in this topic.	Jul. 2005	FFT Training Center Cauaxi, Paragominas/PA	4
Driver practices – in house course attended by 2 laborers	This activity aimed to expand the number of people who can drive to increase options in case of emergencies.	Jul. 2005	FFT Training Center Cauaxi, Paragominas/PA	2
Skidder Operations – in-house course attended by FFT's tractor operator.	This course aimed to diversify the skills FFT's tractor operator and thereby also provide backup instruction in this area.	Jul. 2005	FFT Training Center Cauaxi, Paragominas/PA	1
	TOTAL 26 EVENTS			**73**

Annex D: FM-RIL Extension Events

Date	Event	Activity	Description / Purpose / Assessment	Location	Participants
23-27 Sep 2003	6th Annual Forestry Exposition in Belém	Exposition booth with video, posters and power point presentations	FFT constructed and manned a booth sponsored by counterpart funding in which 2 technicians and a senior FFT representative were available at all time. The booth included visual aids including a training film (continuously playing) on FM-RIL practices and a data show for presentations. Also available were training aids and maps. Although overall attendance at the first event was in the thousands, 280 people directly attended FFT's booth during the five-day program	Belém/PA	280
Sep 2003	VI International Tropical Timber and Plywood Congress	Lecture	The FFT assistant director and operations manager made a presentation entitled, *Overview of Forest Management Training in Brazil*, which was attended by 102 participants	Belém/PA	102
05 Apr 2004	Seminar for the Association of Lumberman on Costs and Benefits of FM-RIL	Lecture with power point presentation	UNIFLOR - The Union of Forest Products Associations in Pará organized a seminar on the costs and benefits of FM-RIL for the Association of Lumberman. FFT's Senior Forester and an instructor technician de-mystified FM-RIL principles and practices and clarified doubts its feasible implementation	Jacundá/PA	42
08 Apr 2004	Seminar for the Association of Lumberman on Costs and Benefits of FM-RIL	Lecture with power point presentation	Also in collaboration with UNIFLOR, but this event was held in Tailandia/PA. This kind of activity is very important for our work because it sparks interest and healthy debate regarding various aspects of FM-RIL.	Tailândia/PA	34

Date	Event	Activity	Description / Purpose / Assessment	Location	Participants
15-17 Apr 2004	Certified Products Exposition and Conference on FSC-Brazil	Exposition booth with video, posters and power point presentations	This event was held in São Paulo, with 500 expositors and 2,000 participants from Latin America, Europe and the USA. There were discussions and workshops regarding the business aspects of forestry certification on Brazil. FFT displayed its projects and showed the impacts of its training and extension program on the public in a booth sponsored by Caterpillar. Nearly 270 people visited our booth. FFT allowed Cenaflor and other Amazon training centers to share part its space to display their activities and promote FM-RIL.	São Paulo/SP	270
27 Apr 2004	Lecture and discussion on the technical challenges facing the adoption of FM-RIL in the Amazon	Lecture with power point presentation	Two FFT trainers gave lectures at the Juscelino Kubstchek Technical School on (i) the technical challenges facing forestry in the Amazon and (ii) the principles and challenges of adopting FM-RIL. The lectures stimulated many questions and a lively discussion and debate with active participation from the students interested in Forest Management	Marituba/PA	56
30 Apr 2004	Lecture and discussion on the technical challenges facing the adoption of FM-RIL in the Amazon	Lecture with power point presentation	The same lecture given at Juscelino Kubstchek was given at the Technical School of Castanhal/PA. The theme was the same and just like in JK, the students in Castanhal asked many questions and participated in lively discussions with the 2 FFT trainers.	Castanhal/PA	34

Date	Event	Activity	Description / Purpose / Assessment	Location	Participants
12-13 May 2004	1st Workshop on Forest Management Indicators	Workshop / Lecture	The first of three workshops organized by CIFOR, EMBRAPA, IMAZON and FFT to (i) evaluate and demonstrate the impacts of FM research; (ii) promote the adoption of FM in the region; and (iii) compile information to support and promote sound FM in the Amazon. Representatives of many forest sector stakeholders participated. Mr. Johan Zweede, FFT's Executive Director, just like the representatives of others entities, gave a lecture about actions needed to promote sustainable FM in the region.	Belém/PA	45
10-11 Jun 2004	Symposium on the business aspects of FM and the wood trade including costs and benefits of FM-RIL	Lecture and power point presentation	This event, organized by WWF-Perú,USAID, and Prompex aimed to update forest owners in Peru with information regarding forestry markets and thereby foment discussion about the business of forestry. A senior FFT trainer gave a talk explaining the costs and benefits of applying FM-RIL in managed forests. About 300 people took part of the event and 110 attended the FFT's presentation. This event was very positive for FFT because it established contacts with potential new partners that promote FM in Peru; these contacts will likely lead to new training activities in that country.	Lima/Peru	110
01-02 Jul 2004	2nd Workshop on Forest Management Indicators	Lecture	The second workshop about FM organized by CIFOR, EMBRAPA, IMAZON and FFT. This time, Mr. Roncoletta, operational manager of FFT discussed challenges facing the adoption of FM-RIL including how to improve the effectiveness of people involved; he also proposed some solutions to some of these problems especially in regard to training.	Cuiabá/MT	35
01–07 Aug 2004	5 FM-RIL outreach seminars for Transamazon communities (in Pará)	Lectures with power point presentations and videos	FFT was one of 3 institutions that conducted these events, which targeted community woods-workers, farmers, and association leaders in five cities along the Transamazon highway. FFT's lectures served to de-mystify the principles and practices of forest management and to answer participant questions regarding forestry law and forest management.	Pacajá Anapú Brasil Nov Medicilândia Uruará Total	65 73 67 55 78 338

Date	Event	Activity	Description / Purpose / Assessment	Location	Participants
27 Oct 2004	Evaluation and strategic planning of Forest Management Technical Course to Agro-technical School of Amazonas	Workshop	FFT participated in the Directors' meeting of the Agro-technical School of Amazonas to evaluate the forestry course FFT offers as part of their curriculum.	Manaus/AM	30
03-07 Nov 2004	2 FM-RIL outreach seminars for Transamazon communities (in Pará)	Lectures with power point presentations and videos	FFT was one of 3 institutions conducting these events. FFT sent 3 technicians and 1 senior forester. Many woods-workers and association leaders attended FFT's lectures. The main objective was to build a better relationship between them and with the wood purchasers who also attended	Altamira Anapu Total	35 15 50
14-19 Nov 2004	IUFRO International Workshop	Workshop	Many forestry sector stakeholders attended this seminar to share their experiences and opinions regarding the challenge of improving forest management practices in order to achieve sustainability. FFT was a co-organizer of the Workshop and most of its technical staff was involved in some capacity. The senior foresters participated in the working groups and discussions.	Belém/PA	48
06 Apr 2005	Lecture and discussion on the challenges forest technicians face in the application of FM-RIL in the Amazon	Lecture with Power Point presentation	One FFT forester with 1 technician-instructor gave a lecture at the Technical School of Castanhal on the challenges and difficulties forest technicians face in the Amazon with a focus on the application of FM-RIL. These lectures, just like in the previous years, stimulate debate and discussion; the students always participate actively with many questions.	Castanhal, PA	37
07 Apr 2005	Lecture and discussion on the challenges forest technicians face in the application of FM-RIL in the Amazon	Lecture with Power Point presentation	At Juscelino Kubitscheck School, in Marituba/PA, the same FFT forester with another technician-instructor gave 2 lectures with the same theme. The students asked may questions, and the discussion and debate was lively.	Marituba, PA	97
06-08 Apr 2005	Workshop to promote the sustainable use of timber and non-timber	Lecture with Power Point presentation	FFT's senior forester and camp coordinator gave a lecture on Forest Management Activities to timber industries association and communities. In this event he highlighted too the costs and benefits of FM-RIL contributing to	Altamira, PA	70

Date	Event	Activity	Description / Purpose / Assessment	Location	Participants
	species		timber industries do sound forest management.		
06-07 Apr 2005	Workshop to discuss training and capacity-building methods for courses in forest management in the Amazon	Presentation	FFT's senior forester with representatives of the other training centers in the Brazilian Amazon participated in this event to discuss methods of capacity building during FM-RIL courses. The event was convened by CENAFLOR to identify possible adaptations to improve the quality of instruction and define the didactic structure of instructors and technicians.	Brasília, DF	32
02 Jun 2005	Lectures on Forest Management and Certification	Lecture with Power Point presentation	FFT's operational manager was invited to give a lecture on FM-RIL in this event, which was promoted by the timber industries association of Acre, as a means to achieve socio-economic and environmental goals for the Brazilian Amazon.	Rio Branco, AC	150
			TOTAL		**1.860**

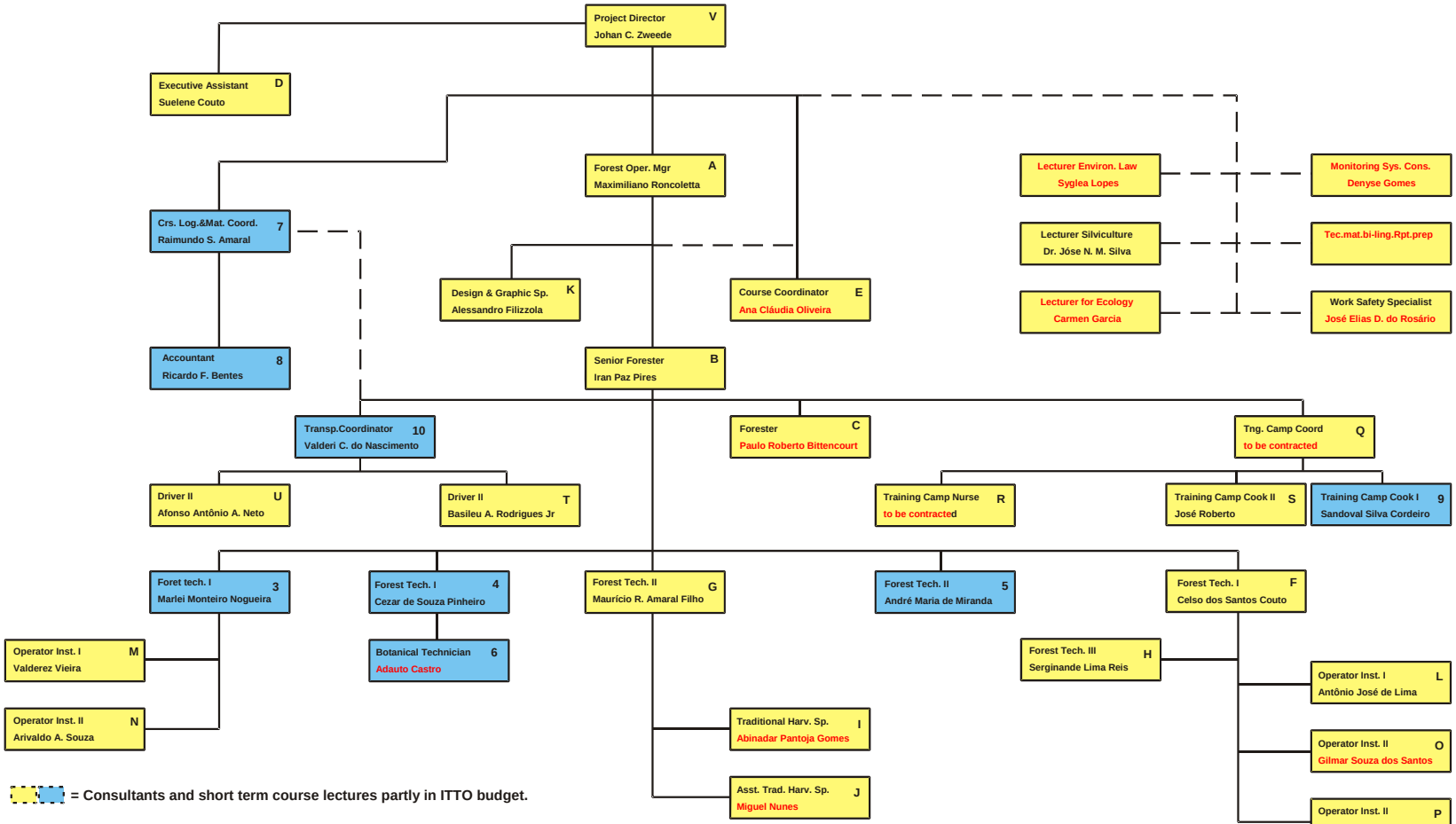
Annex E: Work Plan Review

OUTPUTS / ACTIVITIES	Responsible	Year and Project Month																							
		2003				2004												2005							
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Output 1.1 Course schedules for 2003 and 2004 developed in response to demand for training																									
1.1.1 Schedule and promote courses	FFT/TFF																								
1.1.2 Screen applications; select course participants	FFT/TFF																								
1.1.3 Arrange travel, lodging, etc. of participants, trainers & consultants	FFT/TFF																								
1.1.4 Arrange for training consultants (scheduling, objectives, etc.)	FFT/TFF																								
Output 1.2 Two 1,000 ha forest areas prepared for training courses (including 400 ha / year for harvesting and 600 ha / year for demonstration) during the project																									
1.2.1 Training camp prepared upgraded	FFT/TFF																								
1.2.2 Training site for harvest prepared	FFT/TFF																								
1.2.3 Training demonstration site prepared	FFT/TFF																								
1.2.4 Access infrastructure (roads, bridges, culverts) maintained and prepared	FFT/TFF																								
1.2.5 Submit harvest plan for IBAMA approval	CIKEL/IBAMA																								
Output 1.3 Total of 410 people from all levels and all forest related sectors trained in the application of FM-RIL principles and practices in on- and off-site courses during project																									
1.3.1 Conduct training courses	FFT/TFF																								
1.3.2 Review evaluation forms and course diplomas	FFT/TFF																								
1.3.3 Conduct evaluations and competency tests	FFT/TFF																								
1.3.4 Process, analyze & synthesize evaluations for Final Report	FFT/TFF																					Completed March 2006			
Output 1.4 Teaching and technical skills of the 13 FFT trainers improved and training repertoire expanded																									
1.4.1 Plan and schedule FFT-trainer development workshops and courses	FFT/TFF																								

OUTPUTS / ACTIVITIES	Responsible	Year and Project Month																							
		2003				2004												2005							
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1.4.2 FFT trainers attend technical workshops and courses	FFT/TFF																								
1.4.3 FFT trainers attend courses to increase their teaching skills	FFT/TFF																								
Output 1.5 FM-RIL operational manual, flip charts, and related documents refined or developed and used in training courses																									
1.5.1 Peer review of training materials	FFT/TFF - Consultants																								
1.5.2 Revise all training materials	FFT/TFF - Consultants																								
1.5.3 Print all training materials	FFT/TFF																								
1.5.4 Distribute manuals and other training materials to course participants	FFT/TFF																								
Output 1.6 Trainer lesson plans compiled and published as FM-RIL trainer's manual																									
1.6.1 Elaboration of lesson plans & lectures for trainer use in courses	FFT/TFF																								
1.6.2 Peer review & compilation of lesson plans for each training course into a trainer's manual.	FFT/TFF - Consultants																								
1.6.3 Publication of trainers manual	FFT/TFF																		Pending Funding						
Output 1.7 At least 800 ha logged with FM-RIL methods during training courses																									
1.7.1 Acquire & transport logging equipment for RIL training harvest	FFT/TFF																								
1.7.2 Acquire & prepare materials & supplies for RIL training harvest	FFT/TFF																								
1.7.3 Conduct pre-harvest operations	FFT/TFF																								
1.7.4 Conduct harvest operations	FFT/TFF																								
Output 1.8 Develop and test a system for monitoring the impact of the training courses on FM-RIL – including the various levels of trainees – by the end of the project period.																									
1.8.1 Prepare and disseminate a TOR for a consultant	FFT/TFF																								
1.8.2 Contract consultant	FFT/TFF - Consultant																								
1.8.3 Develop monitoring system and its indicators.	FFT/TFF - Consultant																								

OUTPUTS / ACTIVITIES	Responsible	Year and Project Month																							
		2003				2004												2005							
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1.8.4 Conduct field testing of system	FFT/TFF - Consultant																					Completed 12/05			
1.8.5 Consolidate monitoring system for use	FFT/TFF - Consultant																				Completed 3/06				
Output 2.1 Annual schedules (with locations) of extension activities for 2004 and 2005 elaborated																									
2.1.1 Scheduling of extension program	FFT/TFF																								
2.1.2 Arrange travel or logistics for extension program	FFT/TFF																								
Output 2.2 Extension materials, dependent on the particular event, such as power point presentations, technical papers, posters, lectures, and folders updated or developed and used in events																									
2.2.1 Revise and update graphics, presentations, slide shows, & lectures	FFT/TFF																								
2.2.2 Distribute appropriate material to extension event participants	FFT/TFF																								
Output 2.3 Principles and benefits of FM-RIL explained to at least 400 participants in 16 extension events (seminars, workshops and lectures) during project																									
2.3.1 Conduct extension events (seminars, workshops, & lectures)	FFT/TFF																								
2.3.2 Conduct extension events evaluations.	FFT/TFF																								
2.3.3 Process, analyze & synthesize evaluations for Final Report	FFT/TFF																					Completed 10/05			
Steering committee meetings	Steering committee																								

Annex F: Project Organizational Chart (updated 03-25-06*)



= Consultants and short term course lectures partly in ITTO budget.

= Project staff in ITTO Budget (right number indicates TOR No.).

= Project staff international Experts ITTO and counterpart funding.

= Project staff IFT counterpart funds - no TOR included but letters used for reference.

NOTE: field support and rural laborers (Cikel counterpart) for training program are not included. The personnel released such as the Sr. Accountant, Comptroller, receptionist, purchasing agent, And cleaning lady, are not shown on this chart. Those in RED were released in 2006.

Annex G: Chart of Public and Private Sector Project Partners