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EX-POST EVALUATION REPORTS

EXECUTIVE SUMMARIES

ITTO Project PD 306/04 Rev.1 (I)
Improving Utilization and Value Adding of
Plantation Timbers from Sustainable Sources in Malaysia
(Malaysia)

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Improving Utilizationand Value Adding of Plantation Timbers from Sustainable Source in Malaysia

(Malaysia)

EX-POST EVALUATION REPORT [EXECUTIVE SUMMARY]

[The full report is available on request from the Secretariat]

Prepared for ITTO

by

Dr. Hiras P. Sidabutar

Executive Summary

Introduction

1. The Committee on Forest Industry during its forty-sixth session in November 2012 decided to carry out an ex-post evaluation of ITTO Project PD 306/04 Rev. 1 (I) which aims to provide an in-depth diagnosis of the project in order to point out the successful and unsuccessful outcomes, the reasons for success and failures, the contribution of the project towards the achievement of ITTO's objectives 2000, and to draw lessons that can be used to improve similar future project;
2. Project PD 306/04 Rev. 1 (I) had been implemented by the Government of Malaysia (GOM) with Forestry Research Institute Malaysia (FRIM) as the executing agency and Timber Research and Technical Training Centre (TRTTC) of Sarawak Forest Department (SFD) and Forest Research Centre of Forest Department Sabah (FDS) as the collaborating agencies; for forty-eight months starting August 2006 with a total sanctioned budget of US $ 1,446,001 comprising contributions of ITTO, GOM and the private forest sector of Malaysia;
3. The specific objectives of the project were to i) produce technical data on wood characteristics of selected grown species from Malaysia based on the harmonized set of procedures developed, and ii) develop suitable techniques for production of value added timber products from existing plantations and its technology transfer;

Evaluation scope, focus and approach

4. The primary purpose of the ex-post evaluation is to learn lessons from the project and to draw conclusion for future project that all aspects of the project, from its inception to its completion regarding administrative and financial matters, organizations, communication, consultation and cooperation need to be assessed;
5. The ex-post evaluation was carried out in May 2013, thirty-two months after project completion, and involved review of existing project documents and files, meetings with the executing agency and its collaborators, the formers PSC members and project key personnel and the main stakeholders, and visits to relevant forestry institutions and forest industries in three regions of Malaysia;
6. The key stages of the evaluation included in-depth analysis of the project design using the ITTO Manual for project formulation, second edition, as the framework with special attention to the problem tree and definition of the project elements, and assessment of project performance covering appropriateness of implementation process, achieved outputs and objectives, and impact as well as sustainability of the project;

Project facts

7. The project, stemmed from a few studies conducted in Malaysia, was urgently needed by GOM to help sustain its forestry and wood-based industry sector that had been contributing significantly to the Malaysian economy over the decades but was experiencing a growing threats to its future viability due mainly to the continuing shortfall in supply of natural timbers;
8. The establishment of forest plantations is one of the solutions to the observed growing threats but the properties and uses of the tree species that had been planted on a trial basis remained unclear, the problem that was addressed by the project through its interventions;
9. The specific objectives of the project were achieved through delivery of ten outputs for which 32 activities had been fully implemented within the sanctioned financial and time budget i.e. US $ 1,446,001 and 48 months, including 12 months of extension without additional funding, respectively;

Findings

10. The problems addressed by the project were inadequately analyzed that the consequences, main causes as well as sub causes of the problems were not clearly identified leading to a conceptually weak project design although in practice the design developed had greatly contributed to project achievements;
11. Ten defined outputs had been delivered through the full execution of 32 activities identified and achieved the specific objectives which have contributed to achievement of the development objective;

12. The visits made to and discussions held with the primary beneficiaries in three regions of Malaysia indicated that the project has generated significant positive impacts to the development of forest plantation and utilization of planted timbers in Malaysia;
13. Transfer of technology had been performed effectively through dissemination of the technical reports produced, conduct of the seminar and workshop attended by some 150 participants, execution of road-show program and technical training of primary beneficiaries at Forestry and Forest Product Research Institute of Japan (FFPRI) in Japan;
14. The overall post-project situation that prevails is encouraging in terms of raised awareness of target beneficiaries on potential economic benefits of planted timbers, strengthened policies and programmes on forest plantation development and enhanced capacity of forest research centres in utilizing the testing methodologies developed under the project;
15. Some major unexpected effects and impacts of the project found were the fast growing interest of the forest industries in forest plantation development, the restructuring of FDS organization by the Chief Minister of Sarawak to provide more emphasis on R & D of planted timbers, current wide use of the manual on harmonized testing methods and excellent support of FFPRI Japan to training on timber processing technologies;
16. The project had been effectively implemented in high compliance with the project agreement and ITTO rules and procedures and in a collaborative manner involving a multi-disciplinary group of national and foreign experts and the primary beneficiaries and forestry R & D centers with the full support of the ITTO and Project Steering Committee (PSC);
17. Among the prominent elements that are conducive to sustaining contribution of the project to a successful program on forest plantation development and future viability of the wood based industry sector are continued studies on properties and use of planted timbers using the harmonized testing methods by the forestry research centres, the formulation of a follow-up project that has been submitted to ITTO for funding consideration and enhanced communication between the primary beneficiaries;
18. Overall, the project can be rated as successful in delivering its planned outputs and achieving its intended objectives judged using the indicators defined in the logical framework of the project and the impacts that have been generated by the project;

Lessons learned

a. Project identification and design

19. In order to construct a conceptually and operationally sound project design, it is essential to perform and adequate problem analysis; relevance and effectiveness of project interventions to resolve the problems at hand are ensured only by knowing the consequence as well as direct and indirect causes of the key problem addressed by the project;
20. In order to minimize adjustments to planned project activities during the course of project implementation, full participation of project beneficiaries in project identification and problem analysis is indispensable;
21. In the identification of species used for the project, one common species could have been selected for the three regions instead of one for each region to facilitate more extensive studies on the species selected and comparisons between regions of wood properties of different age groups and planting sites; selecting one species would have resulted in greater efficiency, reduced cost and more added value;
22. Disparity in manpower, expertise and facilities of regional forest research institutions should have been identified during the project development stage to allow for proper allocation of load work, otherwise to put institutional safeguards in place to ensure equivalent roles of individual institutions involved in project implementation;

b. Project implementation

23. Any unforeseen circumstances for any reasons should be made known earlier by the project secretariat so that other members in the same team could render the necessary assistance;
24. Timely disbursement of funds is essential for the smooth running of any project; to this end, all parties involved in the project must be mindful of their responsibilities for smooth disbursement process and relevant procedures for disbursement must be clearly spelt out and understood by all parties concerned;
25. Instances whereby researchers assigned to the project were over-committed to other projects and/or other official duties such arrangement must be minimized to avoid any complications and unnecessary delays in operations;

26. Option for implementation mode is best to be put in place for critical processes in order to avoid unnecessary delay; this could have been done as in the case of log supply for research material and the refractory drying nature of *A. mangium* with affected the smooth flow of selected testing activities;
27. Members of the PSC should meet more than once a year and be kept informed of the progress in implementation that any delay could receive immediate and timely attention;
28. Frequent meetings among members of the Technical Working Committee (TWC) had facilitated updating of technical progress and exchanging of views in addressing any technical obstacle faced and proved contributing meaningfully to the smooth project implementation;

Conclusions

29. The problems addressed were consistent with the issues surrounding sustainable development of Malaysian forest industry but were inadequately analyzed that the project design constructed was somewhat weak because the main causes and sub-causes of the problems addressed were not well identified; conformity of the project interventions to the actual causes was conceptually lack of clarity;
30. Despite weaknesses of the project design, the project had been succesfully implemented and completed through full execution of all planed activities, delivery of the defined outputs and achievement of its defined specific objectives;
31. The project was implemented in an effective manner in full compliance with the project agreement and established ITTO rules and procedures; the required documents had been prepared in accordance with existing ITTO manuals and timely submitted to ITTO for scrutiny and endorsement;
32. The strategy pursued in implementing the project was employment of a multi-diciplinary group of national and foreign experts, agencies and stakeholders directly or indirectly involved in the project execution with Forest Research Institute Malaysia (FRIM) acted as the national coordinating agency and TRTTC of the SFD and Forest Research Centre (FRC) of the FDS acted as the regional collaborating agencies;
33. The project has generated significant favorable impacts: attitude of the primary beneficiaries towards commercial utilization of planted timbers cum development of forest plantations is changing and encouraging; enthusiasm of the forest industries for availability of appropriate processing technologies for planted timbers is growing while policies and programmes on forest plantation development are enhancing;
34. Technology transfer had been performed effectively through wide dissemination of the project outputs and publications, conduct of the workshop and seminar on improved utilization of tropical plantation timbers, execution of the road-show program throughout the regions and training of Malaysian researchers at FFPRI of Japan;
35. Overall, sustainability of the project is promising: the forest research institutions across the regions are carrying out studies and experiments relating to planted wood properties and processing techniques using the methods developed under the project and a follow-up project proposal has been sumitted to and approved by ITTO and is currently awaiting funding for its implementation;
36. Overall, the project can be categorically rated as a succesful undertaking in terms of the positive impacts on the environment of planted timber utilization it is generating and the promising sustainability of the project;
37. The project had been implemented in a cost effective manner; the sanctioned amount of ITTO budget was prudently expended to fully execute the 32 originally planned activities as well as the outreaching activities tasked by the PSC which was signified by the approval of the final financial audit report by ITTO;

Recommendations

38. In formulating future similar projects, strict adherence by proponent to existing ITTO Manual on project formulation and full participation of the primary beneficiaries must be assured in order to arrive at a sound and workable project design;
39. In convincing the forest industries on the commercialization of planted timbers, the regional R&D institutions should continue doing intensified research on wood properties and appropriate processing techniques, independent of external fincancial assistance, in close consultation with the forest industries;
40. In speeding up the development of forest plantations, it is strongly advisable to make use of the experience of other countries in order to economize use of needed resources;
41. The consultation held with Asiaprima Resources Sdn Bhd in Pahang revealed that it has documented vast information on properties of acacia timber and its suitable processing techniques through the research work it undertook for years in collaboration with an Multi National Company (MNC); exploring possibility of sharing this information is worth considering as this information would

be very useful for purpose of developing effective R&D programs by concerned forestry research insitutions;

42. To ensure technical soundness of project design and relevance as well as effectiveness of project interventions, adherence by any proponent to existing manual on project formulation is to be fully observed by the Expert Panel in assessing any project proposal;
43. To provide funding for immediate implementation of proposed project PD 600/11 Rev. 1 (I) entitled "Life Cycle Assessment and Carbon Foot Print-Based Initiative for Process Improvement and Innovative Product Development of Sustainable Plantation-Grown *Acacia mangium* in Malaysia" that has been approved by the ITTA during its relevant Session as this project is a follow-up to the completed project that incorporates the issues on carbon emission relating to the process of value adding wood products development.

ANNEX
Executing Agency's Views

The Executing Agency and its collaborating agencies:

- are proud of the accomplishments of ITTO Project PD 306/04 Rev. 1 (I) and the enthusiasm it has generated in the value-added utilization and efficient processing of plantation timbers in the three forestry regions in Malaysia;

- greatly acknowledge the invaluable contribution of ITTO, FFPRI, and not to forget, the donor country(ies) to this meaningful undertaking;

- is thankful to the ITTO project managers, Dr. Ma and Dr. Tetra, for providing the necessary support and guidance in making this project a real success;

- appreciates the professional evaluation made by the consultant within a very tight schedule, besides providing very constructive comments throughout;

- shall take note of the recommendations provided by the consultant particularly with regards to the following:

    - In formulating future similar projects, **strict adherence** to existing ITTO Manual on project formulation and assure full participation of the primary beneficiaries in order to arrive at a sound and workable project design;

    - In convincing the forest industries on the commercialization of planted timbers, the regional R&D institutions shall **continue** doing intensified research on wood properties and appropriate processing techniques, independent of external fincancial assistance, in close consultation with the forest industries;

    - In speeding up the development of forest plantations, **make use** of the experience of other countries in order to economize use of needed resources; and

    - explores gathering of more **industrial information and experience** such as those of Asiaprima Resources Sdn Bhd in Peninsular Malaysia and others in Sabah and Sarawak which would be very useful for purpose of developing effective R&D programs by concerned forestry research insitutions.

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Ex- National Project Director
ITTO project PD 306/04 Rev. 1 (I)

ITTO Project PD 334/05 Rev.2 (I)

Demonstration and Application of Production and Utilization Technologies for Rattan Sustainable Development in the ASEAN Member Countries

(Philippines)

EX-POST EVALUATION REPORT [EXECUTIVE SUMMARY]

[The full report is available on request from the Secretariat]

Prepared for ITTO

by

Prof. Yu Yan

EXECUTIVE SUMMARY

1. Introduction

At their Forty-sixth Session, in November 2012, the Committee on Economic and Market Intelligence and the Committee on Forest Industry (CEM-CFI) decided that an ex-post evaluation of PD 334/05 Rev.2 (I) should be carried out to establish how well the project had served its purpose and to make recommendations for future action.

The ex-post evaluation was conducted from the 1st – 7th July, 2013, roughly 33 months after the closure of the project. The evaluation aims to provide an in-depth analysis of the project, which identifies what were the successful and unsuccessful outcomes, the reasons for these successes and failures, and the contribution ITTO PD 334/05 Rev. 2 (I) made towards achieving ITTO's Objective 2000. Based on the evaluation, the author summarized the lessons learned from implementing the project, suggesting how these experiences could be used to improve the outcomes of similar projects in the future.

2. The Project

ITTO PD 334/05 Rev. 2 (I) "Demonstration and application of production and utilization technologies for rattan sustainable development in the ASEAN member countries" was approved during the 38th Session of the International Tropical Timber Council, held in Brazzaville, Congo, from the 18th-22nd June, 2005.

The project, which was implemented from April 2006 to November 2010 by the Ecosystems Research and Development Bureau (ERDB), based in Laguna, Philippines, aimed to strengthen ASEAN collaboration on sustainable management and utilization of the region's rattan resources. This was to be achieved through field-applied demonstration of rattan production and utilization technologies, with the goal of improving the socio-economic status of local rattan producer communities. The project specifically aimed to: (1) apply production and utilization technologies to set up and manage rattan demonstration plots at the village level, as well as promote rattan processing for the sustainable development of rattan in ASEAN member countries; and (2) establish relevant technologies on production, utilization and socio-economic aspects of rattan and disseminate them through a newly created ASEAN Rattan Centre.

The project was initially scheduled to last 48 months, with a total budget of USD899,873, of which ITTO contributed USD629,873, with the Government of the Philippines providing the rest of the funding. The final project lasted for 54 months, with one approved 6-month no-cost extension.

The main tangible project outputs were: (1) twenty trainings conducted on rattan production and utilization technologies in ASEAN member countries (Cambodia, Indonesia, Lao PDR, Myanmar, Philippines, Thailand and Vietnam), with 500 participants and five training modules prepared and distributed during the different workshops; (2) eight small research projects completed on topics and relevant results were presented in the Project Technical Reports and in a regional rattan conference; (3) 222 hectares of rattan plantation plots established and maintained (versus 200 hectares as originally planned); (4) seven Rattan Newsletter issues published; (5) a Regional Conference on production and utilization technologies for rattan (an additional output from the original proposal) held in the Philippines from the 29th August to 1st September, 2010, where two publications were launched entitled "A Field Guide to Philippine Rattans", and "The ASEAN Rattans"; and (6) a project website (www.aseanrattan.com) and database on rattans launched.

3. Findings

(1) In general, the evaluation found that the project's main success was attributable to good problem definition at the start of the project, as well as selection of relevant stakeholders, who were well consulted during formulation of the project design. The concept for this project was borne out of suggestions raised at an Experts' Consultation on Rattan Development held in Rome in December 2000, which emphasized the economic, socio-cultural and ecological importance of rattan. Based on this consultation, ERDB conducted a pre-project on rattan [Pre-project Document 51/02 Rev. 1 (I)] with funding from ITTO. As a result of this project, a Regional Conference on Sustainable Development of Rattan in Asia was held in Manila, Philippines in 2004, where representatives or contact persons (CPs) from each ASEAN member country identified their own countries technology gaps and needs with regards to rattan production, processing and utilization. Once gaps/issues

had been identified, a project framework was formed. Furthermore, each participating country was able to select project beneficiaries based on this framework. Therefore, the formulation of the project ensured that it had legitimacy across the region, with clearly defined, achievable and mutually agreed objectives and management structures enabling for efficient project implementation.

This project aimed to strengthen ASEAN collaboration and reduce poverty at the community level by establishing a network that supports and prioritizes the urgent development needs and concerns of the rattan industry. To achieve the project's development objectives, five work components, namely training, pilot site demonstration, research, networking, and database development, were identified and included in the implementation framework.

(2) For the training component, although only twelve training sessions were included in the initial project design, a total of twenty trainings on production and utilization of rattan (nine on production technologies and eleven on utilization technologies respectively) were actually performed in six ASEAN countries (excluding Thailand and Malaysia). The trainings reached 500 participants composed of farmers, researchers, and manufacturers (Output 1.1). The success in exceeding the targeted number of trainings can be attributed to the strong networking linkages established by the project across the region, which were allied to an excellently organized Project Management Team (PMT). These training courses were performed by rattan experts from university and research institutes in the Philippines with extensive experience on rattan research and development. Five training modules and technology guides were prepared by these experts and presented in English or local languages to enhance dissemination (Output 1.2). The project also hosted a seven-day Regional Training Program on Rattan Taxonomy and Resource Inventory in Bangkok, Thailand from the 7th - 13th Sep, 2008, in collaboration with the ASEAN Centre for Biodiversity (ACB), the Asia Pacific Association of Forestry Research Institutions (APAFRI), and DNP. This training event, which was one of the major activities of the project, had an excellent attendance, with 17 participants coming from the eight (8) ASEAN member countries present.

(3) The project also established and maintained over 222 hectares (the planned area in the project document was 200 hectares) of rattan pilot plantations in seven ASEAN countries, Cambodia, Indonesia, Lao PDR, Myanmar, Philippines, Thailand and Vietnam (Output 1.3). The additionally 22 hectares were incorporated from a related research activity conducted in the Philippines. Importantly, local communities, whom were trained on production and utilization of rattan prior to plantation establishment, were directly involved in setting up the demonstration plots. Although the land ownership of these pilot plantations belongs to the governments of each participating country, the local communities, whom are responsible for their maintenance and management, have clearly defined tenure and access user rights to the plots. Therefore, it is anticipated that communities will obtain direct and continuous incomes from the plots after plantations reach maturity.

(4) Besides the training and demonstration components that are generally indispensable in an ITTO project, a small grant research program was also integrated as part of this project. A relatively fair and reasonable procedure for proposal selection, review and evaluation was designed by the PMT, based on which a call for research proposals was issued and opened to all potential applicants in ASEAN member countries. Twenty-eight research proposals from four ASEAN countries were reviewed and eight of them received funding. Although the selected research topics were highly relevant to the research gaps identified during the 2004 Regional Rattan Conference, their actual contribution to the sustainable development of the ASEAN rattan industries hard to evaluate as no full technical reports or formal publications in academic journals were available at the time of this evaluation. However, several significant results and outputs from the studies summarized in the Project Technical Reports suggest these research studies did yield important results for the sustainable development of the regional rattan sector.

(5) As this project involved eight countries, the networking component was also especially important for achieving the desired goals and objectives. The network was not only a vital link among the various project components, but also a bridge for coordination, communication and collaboration across the eight countries. A large number of wide-ranging network activities were successfully conducted during the project, both at the local, national and regional level. These included regular communication with ASEAN contact persons, annual project meetings, preparation and circulation of a project newsletter (RATTANewsletter), attendance at conference/symposia/meetings, organization of meetings and conferences, creation of an ITTO group discussion and project rattan

museum, and conduct of study tours. Within the project period, networking activities helped to facilitate more collaborative cooperation on rattan production and utilization at the regional level.

(6) An innovative measure to ensure the sustainability of the network after completion of the project was the establishment of a data/information network on rattan in the ASEAN region (www.aseanrattan.org). This now allows network participants to gain access information, while providing a continuous means for future exchange at national, regional and international levels. The website features the main accomplishments of the project together with other important information on rattan, which is available for wider access and use by the public. Furthermore, an on-line database of rattans found in Southeast Asia was created and launched during the Regional Rattan Conference in 2010. The database includes information of 601 species of rattan, consisting of scientific names, local names in ASEAN countries, distinguishing characters, brief descriptions on habitat, elevation, distribution, characteristics of stem, leaves, inflorescence, fruits and seeds, uses, illustrations and pictures. From 2008-2010, a total of 126,331 web visitors accessed the website, with 12,612 pages requested according to the Project Technical Report. However, at present, this website is inaccessible. The international consultant has tried to visit the website dozens of times both in the Philippines and in China, but was always unsuccessful. The PMT attributed this problem to the terrible internet service in ERDB.

(7) At 33 months after project completion, the rattan demonstration plantation in the Philippines was found to be well maintained and managed. The rattans in the plantation located in Barangay San Jose, Lupi Camarines Sur, Bicol Natural Park (Protected Area) have grown very well. The villagers, who were interviewed still showed enthusiasm for rattan plantations and were starting to get incomes from selling rattan seedlings while they wait a further 5-8 years for canes to reach mature harvestable age. Due to the time limitation of this evaluation, the demonstration sites located in the other six ASEAN countries were not visited. However, interviews were conducted with members of the PMT in ERDB, who all reported that the other rattan plantations were being well managed by local famers or government agencies.

(8) The sustainability of the project is evident from the following facts:

- Financial support in the amount of USD 2000/per year was provided by ERDB for monitoring the growth of rattan in the established plantations in Philippines. This activity should further improve the knowledge on rattan sustainable management and result in higher productivity;
- For the pilot demonstration in BNP, Philippines, a resolution regarding the mainstreaming of the pilot demonstration into the programs of PAMB was formulated during the Protected Area Management Board (PAMB) meeting in March 2010. This resolution has already been signed by the Regional Executive Director of DENR Region 5. With technical assistance for the PMT, Camarines Norte State College in the Philippines has now also established its own two hectare rattan research plantation for research purpose on forest land located within its campus. The rattan plantations located in other participating countries are also reported to be well managed as most of them are located in protected areas and, or, on the experimental forests plots of collaborating agencies.
- A follow-up project proposal for the continued industrial development and marketing of rattan has been submitted to ITTO by ERDB. This proposed project aims to developing rattan-based enterprises to efficiently utilize rattans for livelihood improvement at community level in ASEAN countries.
- The peoples' organization in the Barangay San Jose are now gaining its first income of 2000 USD by selling about 20000 rattan seedlings in 2013. More purchases from individuals or government agencies are expected as the Philippines government includes rattan species in the National Greening Program for the first time;
- The project website and rattan database containing project reports, books, proceedings and digital outputs are being maintained in ERDB indicating the continuity of information dissemination. ERDB are now becoming a center of knowledge for rattan propagation and extension services, with about 300 people from universities, government agencies and enterprises, visiting the institution over the last three years according to the records in a notebook for guest visiting.
- The expertise of several key project participants is improved. They will possibly grow to the leading figures in the rattan research and development field.

(9) The Project was extended from 31 March 2010 to November 1, 2010 under the approval of ITTO with no additional cost to give ample time to some participating countries to complete their end of

project reports. An examination of the project documents and face-to-face interviews with the members of PMT revealed that the delays in completing the final project outputs were partly due to factors beyond the control of the ERDB. For example, political unrest in Myanmar and Thailand during the initial stage of the project resulted in the delay of funds being transferred to these countries. The weak financial institutions in Myanmar also contributed to the difficulty in processing financial assistance for project implementation. The inactive involvement of Cambodian CP at a later, critical period of the project also meant that no final report was submitted for Cambodia.

4. Lessons learned

- For a complicated project, which will involve several countries, face-to-face communication and discussion was necessary and highly important for correctly identifying key national and regional problems that needed to be addressed, as well as for selecting suitable implementing agencies in each participating country.
- A comprehensive project design must sufficiently define all internal and external risks to the project and identify contingencies to ensure that the outputs are achieved on time. This includes making sure to develop activities, outputs and expected outcomes that while being ambitious are also realistic and achievable with the resources available.
- The involvement of local communities in the project as active participants and direct beneficiaries plays a crucial role in the successful implementation of training and demonstration components of the project. This is also fundamental to ensuring long-term sustainability and subsequent impact after completion of the project.
- The project should be designed in such a way that minor modification or adjustment could be allowed, without affecting the overall framework and specific objectives.
- Linking with local and international agencies helps considerably to achieve a project's planned activities, while also supporting sustainability.
- Heads of implementing agencies should be required to have direct participation and active intervention in managing the project.
- A sustainability plan for the project must be prepared before the project ends, and ideally during the formulation process. This should include a satisfactory exit strategy that ensures targeted beneficiaries have the required capacity and resources to continue and up-scale project activities after the completion of funding. Furthermore, the plan must include not only one component of the project, but all components, covering all participating countries.
- The implementing agency in the participating countries should be given autonomy to select local beneficiaries of the project, using mutually agreed criteria developed during the project formulation process.

5. Conclusions

5.1 Conclusions

(1) The project PD 334/05 Rev. 2 (I) satisfactorily achieved its development objective and two specific objectives. Due to the adequate identification of the problem to be addressed and the relevant participating stakeholder, this project was well-designed with five interconnected components. Of the five components of the project, the training and demonstration components produced many more outputs than originally planned. The networking component also achieved its objective with an additional important output being the Regional Rattan Conference conducted in Makati City, Philippines in August 2010. This conference might form a strong basis for the formulation of a new ITTO project. The research component dealt with the research gaps that were identified during the 2004 Regional Rattan Conference, but its actual contributions to the sustainable development of rattan industry in ASEAN is hard to be evaluated as no full technical reports or formal publications in academic journals are currently available. Furthermore, eight research topics are too many for a demonstration and application project. The database component was designed to be part of an information center of rattan that can function at regionally and even internationally. As no such previous database was available this could potentially be very important for the sustainable development of rattan industry. However the terrible accessibility of the website will seriously damage the reputation of this information platform if the internet service and database maintenance are not improved.

(2) The delays encountered by the project were due partly to reasons beyond the Executing Agency's control, such as the political disorders in Myanmar and Thailand and the weak financial institutions in Myanmar. The inactive involvement of the Cambodian CP at the later period of the project was the most important reason.

(3) At 33 months after project closure, the sustainability of project outcomes and emerging impacts were evidenced by several indicators. Firstly, ERDB are providing continued financial support of USD 2000/per year to for monitoring and evaluation of the growth of rattan in the established pilot plantations in Philippines. Secondly local communities in some pilot sites, notably in the Philippines, are now starting to earn additional income from selling of rattan seedlings. Thirdly, the project website and rattan database containing project reports, books, proceedings and digital outputs are being maintained in ERDB indicating the continuity of information dissemination. ERDB is now becoming a recognized center of knowledge for rattan propagation and extension service provision, with roughly 300 rattan-related stakeholders from universities, government agencies and enterprises visiting the institution within the last three years. Finally, a follow-up project to commercialize and market rattan across the region has be developed and submitted to ITTO by ERDB, which aims to develop rattan-based enterprises that utilize raw materials from the established rattan plantations.

(4) In the future, it is vital that ERDB continues to strengthen collaboration with the project's implementing agencies from other participating countries, as well as with international organizations such as INBAR, FAO and WWF. Such an approach could help to contribute towards a global strategy for sustainable rattan sector development as part of an integrated approach to sustainable forest management.

5.2 Recommendations

For the Executing Agency

- Secure funding to further improve the quality of project-developed training manuals and conduct regular follow-up trainings in the participating countries to ensure beneficiaries gain from the most recent state of the art technologies on rattan production and utilization;
- Continue to monitor the growth and management of the established rattan plantations and provide trainings on harvesting technologies that could improve the quality of rattan canes and ensure the economic sustainability of these plantations. Furthermore, ERDB should also publish results on the pilot sites in academic and open access publications to promote wider dissemination and uptake of best practices;
- Maintain and even strengthen the communication with collaborating agencies across the network to promote the sustainability of the established rattan demonstration plantations in each participating country;
- Consult with relevant government agencies to advocate for and promote supportive policies, which could promote the sustainability of rattan resources in the Philippines. In addition, examples of successful policies should be shared across the network;
- Formulate a grading regulation or standard for rattan poles and by-products applicable to all ASEAN member countries;
- Enhance financial and human resource support to research and development of rattan production and utilization within ERDB;
- The project network of various international and local institutions, government agencies, and rattan manufacturers should be maintained and, if possible, expanded;
- The quality of the rattan database and the accessibility of project website should be significantly improved. Furthermore, more effort should be made to make sure information is of a practical nature, relevant for commercial utilization of rattan resources;
- The project website and database should be linked to ITTTO's website to get more access.
- The management framework and experience of this project should be extended to other similar international projects.

For ITTO

- In future demonstration and applied research projects, research activities, especially basic research, should be minimized so as to increase the availability of funds for demonstration, training and transfer of technology activities;
- Including a visiting scholar program as part of demonstration and capacity building activities, could help to strengthen networks and improve the sustainability of future projects;
- To improve management of complex multi-country projects, it is suggested that project steering committee meetings should take place twice rather than once per year;
- More considerations should be given to the political stability of the executing and collaborating agencies during the formulation of a project. The agencies, including the collaborating agencies which

are responsible for the project delay should be more strictly examined if they want to apply projects from ITTO.

- The evaluated project actually mainly focused on the demonstration and application of rattan production, which will contribute to an improved supply of rattan raw materials in the participating countries. Therefore, a follow-up project on the demonstration and application of rattan utilization that has been submitted to ITTO by ERDB should be under full consideration by ITTO.

ANNEX
Executing Agency's Views

The Ecosystems Research and Development Bureau (ERDB) is truly grateful to ITTO for funding this project, which has helped to strengthen ASEAN collaboration on the promotion of sustainable rattan resource management. Through demonstration and application of rattan production and utilization technologies, the project has the potential to improve and enhance the socio-economic status of poor, rattan producing communities across the region. ERDB also acknowledges all the stakeholders involved in the project. Their cooperation and contributions have been fundamental to the success of this project.

ERDB is in agreement with the findings and conclusions drawn from this ex-post evaluation, and sincerely appreciates the shared lessons and recommendations.

Based on the lessons learned from the implementation of the project, ERDB will further improve the quality of its training manuals developed during the project and try our best to conduct more training in participating countries to update our stakeholders on the most recent state of the art technologies related to rattan production and utilization.

ERDB will continue to monitor the growth and management of the established rattan plantations and provide trainings on the harvesting technologies that could improve the quality of rattan canes, thus ensuring the economic sustainability of the sites.

ERDB will also consult with relevant government agencies to promote new policies, which could improve the sustainability of rattan resources in the Philippines.

Furthermore, as soon as possible, ERDB will formulate a grading regulation or standard for rattan poles and by-products, which could be applied to all ASEAN member countries

The quality of the rattan database and the accessibility of the project website will be maintained and improved by ERDB to make it the most valuable information center for all the individuals, agencies and enterprises, who are interested in the development of the rattan industry.

Dr. Aida Lapis
Ex-Project Coordinator, PD 334/05 Rev.2 (I)
Ecosystems Research and Development Bureau (ERDB)

ITTO Project PD 425/06 Rev.1 (I)

Production and Utilization Technology for Sustainable Development of Eaglewood (Gaharu) in Indonesia

(Indonesia)

EX-POST EVALUATION REPORT
[EXECUTIVE SUMMARY]

[The full report is available on request from the Secretariat]

Prepared for ITTO

by

Dr. Florence P. Soriano

EXECUTIVE SUMMARY

1. Introduction

The Committee on Economic and Market Intelligence and the Committee on Forest Industry (CEM-CFI), decided during their Forty-Sixth Session (held in Yokohama, Japan in November 2012) that the project ITTO PD 425/06 Rev.1 (I) be subjected to an ex-post evaluation. The main objective of the evaluation is to determine if the project served its purpose, and draw recommendations for future action.

This ex-post evaluation report provides an in-depth diagnosis of the project, identifying its successful and unsuccessful outcomes, the reasons for the successes and failures, the sustainability of the project's outcomes, and their contribution towards the achievement of ITTA Objectives (1994 and 2006) and ITTOStrategic Action Plan 2008-2011. Lessons that can be used to improve similar projects in the future are also presented.

2. Evaluation scope, focus and approach

ITTO provided the following project documents and reports for review in preparation for the evaluation:

- Project Document
- Experts Panel's Appraisal
- Project Agreement
- Project Inception Report
- Yearly Plans of Operations
- Bi-Annual Progress Reports
- Minutes of the Project Steering Committee meetings
- Technical Reports
- Workshop Proceedings
- Financial Audit Reports
- Project Completion Report

The above documents were reviewed mainly in reference to the project's logical framework matrix, the effectiveness of technology transfer activities, and the project's overall contribution to the higher order objectives of ITTO. Interview guide questions were formulated for key staff, national experts, consultants, industry participants and forest farmers.

The ex-post evaluation was carried out on 3-10 June 2013 or twenty-five months after project completion. On the first day, an opening meeting was held in Bogor (West Java) with the Executing Agency's representatives, the project's key staff, national experts, and invited industry collaborators. During this meeting, the consultant briefed the participants on the purpose of the ex-post evaluation and how it will be conducted. The consultant requested the Project Coordinator to provide information on recent developments on the project outputs. The final destinations and schedule of field visits were agreed upon.

A small eaglewood and essential oil processing plant in Bogor was visited in the afternoon of 3 June 2013. The business owner and his client – an eaglewood trader based in Qatar, were interviewed. From 4-10 June 2013, interviews with forest farmers, regulators and researchers were conducted at the plantation sites and offices of collaborating organizations in Bogor, Banjarmasin (South Kalimantan) and Denpasar (Bali). A backyard eaglewood tea and wine production site and a university laboratory used for eaglewood research in Bali were also visited.

Finally, the consultant's findings and preliminary report were presented to the Executing Agency's representatives during the evaluation exit conference held in Denpasar on 10 June 2013.

3. Projects facts

ITTO PD 425/06 Rev.1 (I) titled "Production and Utilization Technology for Sustainable Development of Eaglewood (Gaharu) in Indonesia" aimed to promote sustainable production of eaglewood in production natural forests and privately owned lands in order to support the eaglewood-based industries toward sustainable forest management and forest communities' welfare in Indonesia.

This project is aligned with the following ITTA Objectives and ITTO Strategic Action Plans:

- ITTA 1994: Objectives c and f; and ITTO Action Plan 1998-2001 (Libreville Action Plan) and ITTO Action Plan 2002-2006 (Yokohama Action Plan); and

- ITTA 2006 and ITTO Action Plan 2008-2011.

The total approved budget for this project is USD 619,225 with ITTO contributing USD 499,975, and the Government of Indonesia's in kind contribution amounting to USD 119,250.

The specific objectives of this project were to (i) introduce the inoculation technology for increasing eaglewood production, and (ii) to disseminate the technology to communities living in and around the forest.

To attain these objectives, the project team delivered the following outputs:

- Identified eight tree species suitable for plantation establishment based on an assessment in at least 40 regencies where about 2 million trees are planted in farmer-owned lands. The species identified were *Aquilaria malaccensis*, *A. microcarpa*, *A. beccariana*, *A. hirta*, *A. cumingiana*, *A. filaria*, *A. crassna*, and *Gyrinops versteegii*. The *Aquilaria spp* were found suitable for cultivation in many soil types, especially in upland marginal soil. Eaglewood-producing trees found in the natural forests were reserved for seed production.
- Identified *Fusarium solani*, particularly sourced from Gorontalo and Jambi provinces, as the most effective pathogen in inducing eaglewood formation in susceptible trees. Inoculation of susceptible *Aquilaria and Gyrinops* tree species with this pathogen had 90-100% success rate. The chemical analysis of eaglewood produced revealed the presence of components highly sought by the perfumes and incense industries.
- Developed a laboratory-scale method of mass-producing the inoculum from *Fusarium solani*
- Prepared a standard operating procedure for inoculating trees starting from instrument preparation, inoculum dosage and method of application – including depth of drilling, vertical and horizontal distances between holes, recognizing physical characteristics of trees that indicate successful eaglewood formation, and determining which trees are ready for harvesting.
- Established two plots covering 72 hectares to demonstrate best practice plantation management to forest farmers in the provinces of Banten and South Kalimantan. Around 2,000 trees were inoculated in the provinces of Banten, South Kalimantan, West Kalimantan Barat, Bali, Lombok, East Nusa Tenggara, South Sulawesi, Maluku Provinces, and others.
- Conducted trainers training courses on the inoculation technology in Bogor; and later on, the trainers conducted training courses at the plantation sites for almost 1000 forest farmers – which is ten-fold the number targeted.
- Conducted three workshops focused on plantation management, proper use of the technology and standardization of inoculums.

4. Findings and lessons learned

4.1 Findings

The Executing Agency complied with all ITTO administrative, monitoring and technical reporting requirements. The Final Technical and Project Completion Reports were submitted to ITTO two months after the targeted completion date. Project acquittal occurred two months later - upon ITTO's approval of the project completion and final technical reports, the Executing Agency's plan for the disposal of project equipment purchased using ITTO funds, and the final audit report.

The project outputs described in Section 3 of this report are in accordance with the approved project document. The project team satisfactorily delivered the outputs within the planned timeframe, some exceeding targets. A few deviations from the planned activities and additional activities were noted. However, the minutes of PSC meetings revealed that these changes were aimed at improving project delivery, and did not require additional financial support from ITTO.

The Ministry of Forestry's ongoing national program on tree seedling production for forest communities has included in its priority species the gaharu-producing trees identified in this project, ensuring a sustainable supply for future plantations. As of May 2013, the project database showed that the number of planted eaglewood producing trees had increased to about 11.4 million trees from about 2.2 million in 2010. The database also shows that more than five thousand trees have been inoculated since the project exit in 2011.

Participants brought up the problem of insect infestation during this evaluation. For example, the owner of a private plantation reported that all trees in his seven-year old plantation were severely affected by the leaf-eating caterpillar *Heortia vitessoides* in 2010. At the project demonstration site in Banten, about

20 trees were also destroyed due to insect infestation. The Executing Agency and National Experts implemented mitigating measures but to a limited extent.

Based on a review of the project document, the risk of insect infestation was not assessed during project planning. Although the extent of damage caused by insect infestation seems to have little effect on the delivery of outputs in this project, it is recommended that future projects purposely manage this risk. Uncontrolled insect infestation can be difficult to mitigate and can cause huge economic losses.

The effects of project outputs were assessed in relation to the project's intended situation. The following post project developments and specific observations best describe the outcomes twenty-five months after project completion.

- Training courses on tree inoculation and the project-developed inoculum are made available to forest farmers all over the country through field offices of the Ministry of Forestry, and other interested agencies.
- Indonesia's Intellectual Property Office granted a patent to an inventory for the project-developed inoculum on 11 August 2012. Farmers have reported 'imitation' inoculums being offered to them on more attractive terms than that provided by local providers.
- Local governments, government regulators, rural communities and investors, including agro-forestry landowners are increasingly becoming interested in eaglewood plantations.
- There is intensified interest in R&D on better eaglewood processing, value adding, and product development.
- The need for improved pricing and a more reliable gaharu grading system have become more apparent due to an increase in eaglewood supply and sales competition.
- Eaglewood plantations have been established in buffer zones of some protected areas (Tanjung Puting National Park, Central Kalimantan Province and Ujung Kulon National Park, Banten Province). The aim of this strategy is to provide accessible resources for the livelihood of the surrounding forest community, thereby relieving pressure on the National Park.

It is noteworthy that the Government of Indonesia has approved the Ten-Year Gaharu R&D Master Plan (2013-2023) prepared by the Executing Agency in 2012. Aside from more focused R&D studies on tree production, this Master Plan gives top priority to science and technology-based interventions that would enhance the capabilities of small and medium industries engaged in gaharu processing, value adding and product development.

Indonesia's Gaharu Forum, which was established by this project, continues to hold meetings primarily to disseminate information and exchange views on technical and trade issues. Recently, stakeholders sought government intervention to have the inclusion of eaglewood-producing tree species in CITES Appendix II re-assessed, and possibly removed. This entails a concerted effort among eaglewood producing countries to assess in a timely manner the impact of intensified plantation establishment and increased eaglewood production on trade and on the sustainability of eaglewood-producing trees in the wild.

4.2 Lesson learned

The following insights are worth considering in designing similar projects.

- Having a forum for communicating project objectives to the broader community, as well as gathering feedback, is critical to the project's success and the sustainability of its outcomes.
- In projects involving plantation establishment aimed at enhancing production and relieving pressure on trees in the wild, baseline data should be established at the start of project implementation. Monitoring the effects of project interventions is meaningless if baseline data is not available.
- Risk assessment is critical to project planning. The project logical framework matrix must accurately reflect the conditions outside the influence and control of the project sphere that pose risks to the project.
- Managing the risk of insect infestation is critical in projects involving plantation establishment.
- The risk of invasive pathogens must be assessed in projects involving 'new' pathogens for bio-induction methods

5 Conclusions and recommendations

5.1 Conclusions

This evaluation found that the Executing Agency satisfactorily completed all outputs within the 36-month duration as planned, and complied with all ITTO administrative, monitoring and technical reporting requirements. Adequate management and monitoring of activities were critical to the success of this project.

The PSC recommended additional activities and slight deviations that markedly improved project delivery. The changes implemented did not require additional ITTO financial support.

Although the problem of insect infestation seems to have little effect on the delivery of outputs in this project, it is recommended that future projects seriously assess this risk during project planning.

Several post project developments showed positive indications of sustained project outcomes in the longer term. As of May 2013, the project database showed that the number of planted eaglewood producing trees had increased to about 11.4 million trees from about 2.2 million in 2010. An additional five thousand trees have also been inoculated since the project exit in 2011. Eaglewood plantations have been established in buffer zones of at least two national parks in order to provide resources for the livelihood of surrounding forest communities, thereby relieving pressure on the protected zones.

This project's successful outcomes, including the recent implementation of Indonesia's Ten-Year Gaharu R&D Master Plan (2013-2023), are providing impetus for Indonesia's Gaharu Forum's continued information dissemination and exchange, and more active stakeholder participation.

5.2 Recommendations

For the Executing Agency

- Recommend to the Ministry of Forestry the immediate preparation of a national management plan for eaglewood producing tree species in the wild and in plantations.
- Continue supporting the pro-active dissemination of project results and spearhead timely discussions among ITTO member countries on the formulation of a global strategy to assess the impact of intensified plantation establishment and increased eaglewood production on trade and the sustainability of eaglewood-producing trees in the wild.
- Put in place institutional mechanisms and guidelines to support the wider use of the patented inoculum formulation, and consider forging partnerships with private enterprises for more efficient and cost-effective commercial production, promotion and distribution of the inoculum.
- Recommend to the appropriate government body, monitoring and regulating the distribution of inoculums, including those that are produced in other countries. Inoculum end-users, especially farmers, must be made aware of the economic and environmental risks involved in using inoculums that have not been scientifically validated.
- Conduct training courses on the local gaharu visual grading system especially for farmers and traders, while conducting studies to improve this system
- Ensure that the gaps identified in this project are adequately addressed and in a timely manner. Some of the gaps are:

    - Measures to prevent and mitigate insect infestation in eaglewood-producing tree plantations
    - Assessment of the risks of introducing invasive pathogens through emerging inoculum formulations, including imported ones
    - Development of an improved gaharu grading system, including advance technology-based grading tools
    - End use optimization of gaharu resources

For ITTO

- Support information sharing among eaglewood-producing countries, and the immediate formulation of a global strategy to assess the impact of intensified plantation establishment and increased eaglewood production on trade and the sustainability of eaglewood-producing trees in the wild.
- In project appraisals, ensure that the project logical framework matrix accurately reflects conditions outside the influence and control of the project sphere that pose risks to the project.

- Strengthen the process of risk assessment during project planning by requiring proponents to indicate the likelihood (e.g. possible, probable, certain), consequences (e.g. minor, moderate, major, severe) and the proposed mitigating strategy for each identified risk factor.

ANNEX
Executing Agency's Views

The Executing Agency
is proud of the accomplishments of ITTO PD 425/06 Rev.1 (I) and the impact that it has started to deliver on the sustainable forest management in Indonesia.
greatly acknowledges the invaluable contribution of ITTO to this worthwhile undertaking.
is thankful to the ITTO project managers for providing the guidance and full support that brought this project to a very timely and successful completion.
appreciates the very detailed, accurate and objective evaluation made by the consultant in a such a very tight schedule.
shall constitute a task force to look into the findings, constructive criticisms and recommendations put forward, and initiate immediate actions to actualize the following:

- plan for a regional project aimed at sharing trade information and marketing system, and the immediate formulation of a collective strategy to assess the impacts of intensified plantation establishment, especially on controling pest and deseases, and increased eaglewood production on trade and the sustainability of eaglewood-producing trees in the wild;
- call for international support (ITTO) to formulate " incentive policy " for eaglewood from plantations and protection systems for illegal trade of eaglewood
- develop simple methodology applied by farmers for grading of agarwood and formulate a trainers course on gaharu grading specifically for farmers and traders;
- formulation of a national management plan for gaharu plantations;
- monitor and exchange information on the distribution of inoculums regionally with the view of preventing the adverse effects of invasive pathogen;
- forge partnerships for the commercial production and marketing of eaglewood , with a view to sustaining eaglewood production and increasing income for farmers .

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