EX-POST EVALUATION REPORT

ITTO Project PD 286/04 Rev.1 (I)

Strengthening the Capacity to Promote Efficient Wood Processing Technologies in Indonesia

Prepared for the ITTO
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Acronyms

BPK	:	Bina Produksi Kehutanan or Forestry Products Development (FPD)
CIC	:	Center for International Cooperation
DG-FPD	:	Directorate General of Forestry Products Development
EA	:	Executing Agency
FIFO	:	First In First Out
GOI	:	Government of Indonesia
ISWA	:	Indonesian Sawmill and Woodworking Association
ITTA	:	International Tropical Timber Agreement
ITTC	:	International Tropical Timber Council
ITTO	:	International Tropical Timber Organization
LFM	:	Logical Framework Matrix
LUS	:	Lesser-used Species
MOF	:	Ministry of Forestry
PA	:	Project Agreement
PMT	:	Project Management Team
PSC	:	Project Steering Committee
R&D	:	Research and Development
WP	:	Work Plan
YPO	:	Yearly Plan of Operation

Part I EXECUTIVE SUMMARY

The Project PD 286/04 Rev.1 (I), entitled, "Strengthening the Capacity to Promote Efficient Wood Processing Technologies in Indonesia" was approved in the 36th Session of the International Tropical Timber Council (ITTC) Meeting at Interlaken, Switzerland on July 20-23, 2004 for implementation by the Government of Indonesia through the Indonesian Sawmill and Woodworking Association (ISWA), as the project's executing agency (EA) and the Directorate General of Forestry Products Development (DG-FPD) as the collaborating agency. The main objective of the project was to enhance national capacities and skills in wood processing through training programs to ensure efficient and diversified use of tropical timber in the country. The project strategy was anchored on the active involvement of ISWA members in implementing the training programs geared towards increasing contribution of wood processing industry to national economy and ultimately to sustainable forest management (SFM). It was carried out for 36 months or 3 years duration which started operations on August 1, 2005 to July 31, 2008, with a 12-month no-cost extension period until July 31, 2009. The total project budget was US$ 969,280.00, of which ITTO contributed US$ 765,140.00 and GOI's in-kind contribution or counterpart funding amounted to US$ 204,140.00.

The development objective of the project was to increase the contribution of the wood processing industry to national economy through the application of appropriate processing technologies.

The specific objective of the project was to improve national skills and capabilities in conducting efficient wood processing and in managing product quality to ensure the efficient and diversified use of tropical timber in Indonesia.

Cognizant of the potential value of lessons learned and best practices generated by the project, the ITTO through the Committees on Economic and Market Intelligence and the Forest Industry at their 43rd Session in November 2009 in Yokohama, Japan, has decided that a thematic ex-post evaluation of the project be undertaken to determine how well the project served its purpose and come up with best practices that can be replicated and used in similar projects in the future.

The ex-post evaluation involved consulting a range of project documents and relevant background materials and data, conducting an evaluation mission in Indonesia on May 28 to June 10, 2010 (2 weeks), cross-checking information and clarifying contextual issues or concerns, including thorough follow-up via email communications after the mission and preparing the report following the ITTO Manual for Project Monitoring, Review and Evaluation (3rd edition, 2009).

At the outset, the project was consistent with the objectives of ITTA 1994 & 2006, ITTO Yokohama Action Plan (2002-2006) & 2008-2011 Action Plan through the promotion of increased and further processing of tropical timber from sustainable sources for industrialization and thereby increasing employment opportunities and export earnings, further support R & D with a view to improving forest management and efficiency of wood utilization as well as increasing capacity to conserve and enhance forest values, promotion of increased & further processing of timber, wood marketing and exports from sustainably managed sources, transfer of technologies as well as encourage sharing of information. The actual contribution to ITTO's SFM work is on the conduct of 139 in-house trainings for 860 participants-owners, executives and supervisors on wood processing techniques, quality/industrial management and marketing aspects, far exceeding the 500 people initially planned, and its multiplier-effect towards continuous implementation of efficient wood processing techniques producing high quality wood products for much lower production costs and wood wastes by the wood processing industry.

The project employed the in-house training programs conducted in 50 mills of ISWA members, as it was found more effective mode of training compared to conventional, class room training format considering that technology transfer is transparent, effective and smoothly done through problem solving-oriented means via direct learning by doing. It allows direct observation of problems encountered, discussions between trainers and trainees as well as amongst trainees, and provide opportunities for technical demonstration to overcome existing problems and prevent potential problem from occurring.

The significant project outputs are shown below:

- 50 mills in 5 provinces conducted and hosted 139 in-house training sessions, out of 150 training sessions planned, for 860 participants trained in wood processing techniques, and a quality-testing laboratory established at ISWA headquarter in Jakarta, for use by the members; and

- 9 technical reports developed and published, including information on 43 wood species, on experimental use of 23 lesser-used species (LUS) and on 5 major export markets compiled and distributed to ISWA members. These technical information and data are uploaded at ISWA website and popularized & published at ISWA Bulletin.

The ex-post evaluation confirmed that the project strategy was sound, as it was modified during its implementation stage at the request of its direct beneficiaries. The modified strategy has been successfully achieved with its intended outcome and with the intention to increase workability and effectiveness of the strategy in achieving the objectives of the project. Such modification of strategy was followed by adjustment to LFM that allowed assessment of achievement in an objective manner. This was demonstrated by the positive impacts provided by the project to its primary beneficiaries through the provision of technical trainings through in-house sessions and that intervention generated direct financial gain to participating mills through improved processing efficiency and product quality management.

The sustainability of project impacts is secured through changing attitude of large number of mill owners and executives whom no longer act as traders seeking for short tem profit, but as investors striving for long-term business survival. The mills/companies hosting the in-house training were found interested in applying the technical and managerial advices conferred by the Project for simple reason. When properly applied the advices did generate direct financial gain through reduced production cost and increased price of processed products. Increased wood recovery by 3% as reported by training participants to the 2nd national workshop for instance, entails saving of huge amount of money through reduced production cost. This direct financial gain served as a strong incentive for the companies to continue using the advices and recommendations of the Project. As a profit making entity, indeed a company is striving to maximize profit by reducing input costs and increasing selling price of its products. And the advices of the project were proved able to contribute significantly to this strive. That is to say that the financial gain generated by the project will sustain the interest of processors in using the outputs and results of the project.

Other companies also had repeatedly indicated their interest in applying the technical recommendations of the project in their production processes. The interest was triggered by the financial gains experienced by those companies hosting the in-house training program.

Finally, it is worth mentioning that the Ministry of Forestry had also indicated its strong interest in developing and implementing in-house training program on processing efficiency and product quality management using state funds in collaboration with wood industry associations. The intention is to continue the work that has been initiated by ITTO and ISWA in view of promoting competitiveness of the national wood industry in international markets. Surely, this intention of the government, if materialized, would have contributed to sustainability of the project.

Lesson Learned

a. The project was a follow-up to a completed pre-project, thus, it was built on findings of the pre-project. However, the project intervention designed was found not feasible to implement. The primary beneficiaries, expected to support its implementation, disagreed with the design and insisted in making modification. Apparently, proponent of the project failed to review the design of the project during its formulation stage. Therefore, a full project proposal, even if it is built on pre-project findings, should be developed with active participation of primary beneficiaries and main stakeholders to ensure its workability to achieve desired objectives of the project.

b. The project strategy was modified during its implementation stage at the request of its primary beneficiaries. The modified strategy for implementation had successfully achieved the intended outcome of the project as the modification was made at the request of target beneficiaries with the intention to increase workability and effectiveness of the strategy in achieving objectives of the project. Such modification of strategy was followed by adjustment to the logical framework that allowed assessment of achievement in an objective manner.

c. The project intervention generated direct financial gain to participating mills, even before completion of the project, through improved processing efficiency and product quality management. Direct financial gain accrued to beneficiaries had served as a strong incentive for them to continue using the advices accorded by the project. Information on the gain received by non-participating mills had triggered their enthusiasm to take part in future similar training program.

d. The Executing Agency had been able to implement and complete the project successfully without any serious operational problems. This was due mainly to the full support of ISWA member companies, as the primary beneficiaries, brought about by the already established institutional and personal network between ISWA and its members, able experts and staffs and active participation of other stakeholders, especially MOF and ITTO.

e. The in-house training sessions were also attended by many owners and executives of host companies. They had gained deep understanding on the role of processing efficiency and product quality in determining competitiveness and business survival. This understanding certainly affects sustainability of the Project. Sustainability of project's impacts is secured through the changing attitude of large number of owners and executives whom no longer act as traders seeking for short-term profit, but as investors striving for long-term business survival. Participation of owners and executives in similar future training program is strongly advisable.

f. The appreciation by mill owners, executives and employees of the critical role of processing efficiency and quality management play in determining competitive advantage and business survival has been one of the most invaluable long lasting impacts of the project.

g. In-house training is a more pragmatic and effective format of training on technologies and skills as it can be tailored to solve the specific problems facing individual mills, accommodates large number of participants at minimum cost, allows for direct participation of trainees in problem identification, and discussion as well as technical demonstration.

h. It was noted that baseline information on performance of individual mills and procedures for monitoring of progress must be first developed prior to commencing the in-house training to allow quantitative assessment of actual effect of the training program. As this was not done by the Project, effect of the training could not be assessed accurately.

i. The workshops, seminars and dissemination of technical documents to relevant stakeholders were the primary vehicles used by the project for information sharing and promoting the training results as well as future training needs.

Conclusions

The following conclusions in the whole evaluation process of the project are shown below, to wit:

a. The identification of the problem to be addressed was based on the findings of a completed pre-project which revealed the problems facing the national wood industry, and the identification process was adequate.

b. The project design was derived through a thorough analysis with the aid of problem tree. However, the results of the problem analysis, especially the problem elements identified, should have been presented first to key stakeholders or direct beneficiaries in an inception

phase for their comments and favorable consideration. As such, formulated project strategy would have been directly applicable without modifications through the end of the project.

c. The project was collaboratively governed and the budget was spent within the limits through the PMT's day to day operations and the PSC's decision-making process. Close collaboration between and among key stakeholders and primary beneficiaries, e.g. ISWA members, which enabled them to build linkages and share information and updates in the interest of proper project management and sustainability aspects.

d. A stronger political leadership is needed to safeguard the positive impacts of the project in the future, especially the clear statement from the Director General of Forestry Products Management (DG-FPM) at the last PSC Meeting on the need to continue the work of the project by developing appropriate in-house training program to be implemented using government (GOI) budget.

e. The project was managed in full compliance with the ITTO rules and procedures, with four (4) YPOs seven (7) bi-annual progress reports and three (3) yearly financial audit reports submitted to ITTO during the course of project implementation. The employment of project personnel, international and national consultants and sub-contractors as well as procurement of capital items were made with the approval of ITTO.

f. Finally, the project has produced a dearth of information and data on wood processing efficiency and products quality, as documented in nine (9) technical reports and important events popularly disseminated in national workshops/seminars, in ISWA Bulletins and ISWA Website, which were all very comprehensive and impressive, however, none of them have been published in any of the international/regional journals, periodicals and newsletters for wider distribution and utility.

Recommendations

The following recommendations for future actions will further support the sustainability of project benefits and help further development of the wood industry sector in Indonesia, such as:

a. There is still significant need in Indonesia for information and trainings on wood efficiency processing and products quality considering that only 10% of ISWA members were directly involved in this project which further require continued assistance of donor community like ITTO, including dissemination of information or public awareness program, i.e. with enhanced and expanded extension services that are consistent with any agreed wood industry sector development strategy.

b. The in-house training mode is a pragmatic way of conducting training in wood efficiency and products quality, and the project beneficiaries (ISWA members) favorably adopted such training module and should therefore be encouraged to further develop and test systems for potential upscaling and replication in more mills throughout the country. It is therefore recommended that ISWA and GOI seek for the needed resources to support and implement similar training program in the future.

c. The importance of regional networking with neighboring countries in ASEAN should also be emphasized and pursued to exchange and share the wealth of wood industry information and technologies generated by this project for future marketing strategies and collaborative partnerships. For instance, the project can link with the existing networks established in ASEAN to enhance and harness the best available wood science and technologies for sustainable development of the people and the environment of the region.

Part II MAIN TEXT

1. INTRODUCTION

1.1. Rationale of the Ex-post Evaluation

The ITTO through the Committees on Economic Information and Market Intelligence and the Forest Industry at their 43rd session in November 2009 in Yokohama, Japan had decided that an ex-post evaluation for Project PD 286/04 Rev.1 (I) be carried out to establish how well the Project served its purposes and to draw up lessons and experiences gained as well as recommendations for future actions. The decision of the Committee was based on the Council Decision ITTC (XXVIII)/20 of 30 May 2000 which specifies the criteria for selection of projects to be ex-post evaluated.

The primary purpose of the ex-post evaluation is to provide an in-depth diagnosis of the Project as to point out the successful and unsuccessful outcomes, the reasons for successes and failures, and the contribution of the Project toward the achievement of ITTO's Objective 2000, and to come up with best practices that can be replicated and be used to improve similar projects in the future.

1.2. Project Identification and Context

Project serial number	:	PD 286/04 Rev.1 (I)
Project title	:	Strengthening the Capacity to Promote Efficient Wood Processing Technologies in Indonesia
Host government	:	The Government of Indonesia (GOI)
Budget	:	Total US$ 969,280 ITTO US$ 765,140 GOI US$ 204,140
Duration	:	36 months, extended for 12 months

The specific objective of the Project was to improve the national skills and capabilities in wood processing efficiency and in product quality management to ensure the efficient and diversified use of tropical timber in Indonesia. Given the specific objective, the Project was consistent with the following objectives of ITTA 1994:

(c) To contribute to the process of sustainable development through more efficient use of wood raw materials;

(f) To promote and support R&D with a view to improving forest management and efficiency of wood utilization as well as increasing the capacity to conserve and enhance other forest values;

(i) To promote increased and further processing of tropical timber from sustainable sources in Indonesia with a view to promoting industrialization and thereby increasing employment opportunities and export earnings;

(k) To improve marketing and distribution of tropical timber exports from sustainably managed sources;

(m) To promote the access to, and transfer of technologies; and

(n) To encourage information sharing on the international timber market.

The Project was also consistent and strongly linked to the ITTO Yokohama Action Plan, to the goals of the Forest Industry Division in particular, as follows:

I) Goal 1: promote increased and further processing of tropical timber from sustainable sources through promotion of measures to increase competiveness of Indonesian timber industry (Action 2), organization of workshops/seminars on the use of new/improved techniques of wood processing and undertake training related actions (Action 5).

ii) Goal 2: improve industry's efficiency of processing and utilization of tropical timber from sustainable sources through publication and dissemination of information on increasing utilization efficiency and the reduction of waste throughout the production chain (Actions 1 and 4), promotion of marketing and production skills in forest industry (Action 6) and promotion of awareness and utilization of information on wood properties and end use requirements (Action 7).

2. EVALUATION SCOPE, FOCUS AND APPROACH

2.1. Evaluation Scope and Focus

The main purpose of the ex-post evaluation is to learn lessons and draw conclusions for similar future projects. The ex-post evaluation should establish the extent to which the results, in terms of outputs, achieved objectives, impact and sustainability of the Project intervention, have been achieved and draw conclusions and recommendations for similar intervention in the future.

The Consultant assessed all aspects of Project PD 286/04 Rev.1 (I) from its inception to the situation after its completion covering administrative and financial matters, organization, communication, consultation and cooperation; technical matters, effectiveness and impact, and relevance to ITTO.

The following are the specific Terms of Reference (ToR) for the evaluation, to wit:

i. To assess the project's design and contribution to the achievement of their respective objectives;

ii. To assess the achievement of the project's outputs and specific objectives;

iii. To evaluate the impact and relevance of the Projects, detailing their impact on development and specific objectives, as stated in the project documents;

iv. To determine the effectiveness of technology transfer to target groups, if applicable;

v. To assess the overall post-project situation for the projects, including conditions of their intended direct and indirect beneficiaries;

vi. To define and assess unexpected effects and impacts, either harmful or beneficial, and present the reasons for their occurrences;

vii. To analyze and assess implementation efficiency, including the technical, financial and managerial aspects;

viii. To assess the overall sustainability of the projects after completion, and include appropriate recommendations to safeguard the continuing of their positive impacts, and enhance utilization of the technologies (if applicable) and other results developed by the projects;

ix. Taking into account the results of the evaluation, make an overall assessment of the projects' relative success or failure, to summarize the key lessons learnt; and identify any issues or problems which should be taken into account in designing and implementing similar projects in the future;

x. To assess the overall cost of the projects with original budget provisions, and their respective linkage with the overall results;

xi. To prepare the evaluation report in accordance with the references for the Project Evaluation Report, as contained in the ITTO Manual for Project Monitoring, Review and Evaluation (3rd edition, 2009);

xii. To assess the projects' contribution to the relevant ITTA objectives (1994 and 2006) and relevant ITTO Action Plan (Yokohama Action Plan and 2008-2011 Action plan); and

xiii. To prepare one or more articles for each project, for possible publication in the ITTO Tropical Forest Update, in consultation with the editor, containing an overview of the projects and summarizing the lessons learned from the evaluation work. Appropriate photographs should be provided, if possible.

In addition to the above, the Consultant also placed particular emphasis on:

- Improvement in the efficiency of forest harvesting techniques, preservation and drying in the forest industry sector;
- How the impacts and results of the project serve to improve the forest public policy;
- Improved understanding of owners, executives, managers, supervisors and operators on the critical role processing efficiency and product quality play in determining production cost and profitability and in shaping competitiveness of a company;
- Increased wood recovery and reduced wood wastes;
- Reduced lumber defects during kiln-drying process;
- Better management of inventory, both raw material and wood products; and
- Shortened product flow time indicating higher productivity and less inputs.

2.2. Evaluation Approach

The ex-post evaluation involved:

- review of the project document annexed to the Project Agreement (PA), Yearly Plans of Operation (YPOs), minutes of the Project Steering Committee (PSC) meetings, bi-annual progress reports, technical reports, financial reports, completion report and other relevant documents;

- meeting and discussion with the Project Leader and National Expert of the Project at the headquarters of Indonesian Sawmill and Woodworking Association (ISWA) in Jakarta, the Executing Agency, as well as with selected Officials of the Ministry of Forestry of Indonesia (MOFI) particularly with those of the Directorate General of Forestry Products Development (BPK) and the Center for International Cooperation (CIC-MOFI), as the ITTO focal point; and

- visit to two wood processing mills in Jombang and Sidoardjo, East Java province, to meet with the primary beneficiaries of the Project.

The key stages of the ex-post evaluation include:

i) Clarification and analysis of the Project design
   - this was carried out through discussion with the Executing Agency, especially with Project Key Personnel. It was fortunate for the Consultant that both the Project Leader and National Expert were available for and assisted in the evaluation; and
   - the Project design was assessed using the ITTO Manual for project formulation, second edition, 1999 as the framework with special attention to the logical framework.

ii) Assessment of Project performance
- by analyzing achieved objectives and outputs in light of the Logical Framework Matrix (LFM), the original and revised ones;
- by studying the Project operational plans and associated budgets against actual implementation and spending; and
- by assessing impact and sustainability of the Project through visit to two of the beneficiaries.

The Consultant (i.e. Dr. Antonio C. Manila) was tasked by ITTO to carry out the ex-post evaluation. The national expert of the Project, Dr. Hiras P. Sidabutar was assigned by the Executing Agency to extend full assistance in the evaluation activities at ISWA's own costs.

3. PROJECT FACTS

3.1. Origin

The Project was a follow-up to a completed pre-project PPD 57/02 Rev.1 (I), entitled "Improvement of processing efficiency of tropical timber from sustainable sources in Indonesia". The pre-project had identified the gap between current competencies of individual wood processing mills with technical specification of processed wood products demanded by major international markets. The pre-project confirmed the findings of earlier studies about the weaknesses of wood processing industry, in terms of low processing efficiency and poor product quality, which was attributable mainly to the inappropriateness of processing technologies, under valuation of wood raw materials and lack of appreciation to the role of wood processing efficiency and product quality in building up competitive advantage in export markets. Therefore, Project PD 286/04 Rev.1 (I) was primarily aimed at strengthening the capacity of individual mills to perform efficient wood processing and to produce quality products through technical and managerial training on wood processing. The Project was also a direct follow-up to the recommendation of the ITTO Technical Mission to Indonesia in 2001. The Mission recommended to enhance production efficiency of those mills that are fit for production through re-tooling, diversification, improved technology, human resource development; to adopt appropriate technologies for utilizing raw material of differing quality and properties, and promote downstream value-added production for obtaining increased retained value.

3.2. Development Objective

As defined in the project document, the development objective was to increase the contribution of the wood processing industry to the national economy through application of appropriate processing technologies.

3.3. Main Problem to be Addressed

As indicated in the project document, the main problem to be addressed was the low level of wood processing efficiency and poor management of product quality in the wood industry sector. Major causes of the problem identified were:

- lack of facilities for technical training and for product quality testing;
- lack of technical information on processing technologies and quality management thus weak training program; and
- lack of training on wood processing techniques and quality management.

3.4. Specific Objective and Outputs

The specific objective defined was:
- to improve the national skills and capabilities in wood processing efficiency and in product quality management to ensure the efficient and diversified use of tropical timber in Indonesia.

Three outputs were defined as follows:

i) Four (4) wood processing trainings and one (1) product quality testing facility available for woodworking factories;
ii) Technical information on wood properties required for the planning and implementation of training programs on wood processing and product quality management and marketing are made available; and
iii) About 500 practitioners, managers, supervisors and owners of woodworking factories trained in wood processing techniques as well as product quality/industrial management and marketing.

3.5. Project Rationale

Efficiency of wood production process and product quality are among the building blocks of competitive advantage that received lack of appreciation by most wood processors in Indonesia. If contribution of the wood industry to the national economy is to increase and sustain, efficiency of wood processing and quality of products must be improved through consistent training on technical and managerial skills; training program should be developed based on available information on processing technologies, major markets' demand for wood products and properties of a number of wood species.

3.6. Project Duration

The Project commenced in August 2005, planned for 36 months. A one-year extension was granted by ITTO without additional funds in order to complete execution of all planned activities, and achieve the intended outputs and objectives.

3.7. Budget

The total budget of the Project was US$ 969,280.00, broken down into corresponding contributions of ITTO and GOI at US$ 765,140.00 and US$ 204,140.00, respectively. The amount of ITTO's contribution, disbursed to ISWA in six (6) installments, was US$625,800.00. The funds were used to pay for Project Personnel (34.25%), Sub-contracts (9.48%), Duty Travel (20.43%), Capital Items (9.72%), Consumable items (13.07%) and Miscellaneous expenditures (13.05%).

3.8. Executing Agency

ISWA (Indonesian Sawmill and Woodworking Association) was the Executing Agency of the Project. The Directorate General of Forestry Products Development (BPK) of the Ministry of Forestry was the collaborating agency in implementing the Project.

4. FINDINGS AND LESSONS LEARNED

4.1. Findings

4.1.1. Project design and contribution to achievement of the objectives

The project proposal was prepared in full adherence with ITTO's Manual for project formulation, 2nd edition of 1999. The problem to be addressed was thoroughly discussed and the intention of the project was well articulated in the proposal. The Project was built on findings of Pre-project PPD 57/02 Rev.1 (I). The identified key problem facing the wood industry was the low level of wood processing efficiency and poor product quality management. Three (3) main causes of the problem were also identified, namely: i) lack of facilities for technical training on wood processing and for quality testing; ii) lack of information on processing technologies and quality management needed for developing robust training programs; and iii) lack of training on wood processing techniques and quality management. The visible effect of the problem was the low level of competitiveness of Indonesian producers in export markets for wood processed products.

Consistent with the key problem defined, its observed effect and main causes, the objectives and outputs of the Project were defined as follows:

Development Objective : to increase contribution of the wood processing industry to national economy through application of appropriate processing technologies.

Specific Objective : to improve national skills and capabilities in conducting efficient wood processing and in managing product quality to ensure the efficient and diversified use of tropical timber in Indonesia.

Outputs:

1. Four (4) wood processing trainings conducted and one (1) product quality testing facility available for woodworking factories to use.

   Under this Output, 2 activities relating to the establishment of training facilities in four regions and 4 activities pertaining to establishment of product quality testing were identified.

2. Technical information required for developing robust training programs on wood processing and quality management as well as marketing aspects made available.

   To realize this output, 6 activities were identified, such as: compilation of technical information on Indonesian wood species (common and lesser used as well as planted species), experimental use of 20-30 lesser used species, compilation of major market requirements for importing wood products, comparative study tours to major export markets, distribution of the information, and preparation of training materials for capacity building programs.

3. About 500 practitioners, managers and supervisors of woodworking factories trained in wood processing techniques and product quality management and marketing.

   This output would be achieved through execution of 5 relevant activities including development of criteria for training participants; implementation of 8 training courses on essential wood processing techniques, 4 training courses on product quality management and 4 training workshops on marketing; and organization of 2 workshops on improvement of processing efficiency and quality management.

By carefully examining defined project elements, the vertical logic of the project design was quite strong. The key problem to be addressed, its effect and main causes as well as sub-causes were analyzed in-depth and summarized in the form of a well structured problem tree. Despite the absence of an objective tree, the proponent was able to define project elements satisfactorily based on the problem analysis and problem tree. The activities identified, if fully executed, should be sufficient to deliver the outputs. The outputs, if fully delivered, should be sufficient to achieve the specific objective which would contribute to the national economy through improved competitiveness in export markets, the development of objective of the project.

The logical framework, however, was not fully developed; while most of the indicators were measurable, time bound was generally missing. The logical framework was refined following the modification of implementation strategy endorsed by the PSC. Indeed, as will be discussed later on in appropriate section of this report, the specific objective of the Project has been claimed by the Executing Agency as “achieved”. However, the outcome was achieved through a modified strategy, not through the intervention originally designed. While the project strategy had been modified, the fact remains that the specific objective of the project was achieved thus the key problem was resolved.

4.1.2. Achievement of the Project's outputs and specific objective

At this juncture, it is critical to first review the strategy actually adopted by the Project prior to assessing the achievement of the Project's outputs and specific objective. As has been touched upon in the previous section, the intervention originally designed had been modified.

Upon close consultation with ISWA members, as the primary beneficiaries, during the first months of project operations, it was found by the Executing Agency that Output 1 "four wood processing trainings and one product quality testing facility available for woodworking factories to use" was not feasible, thus, not deliverable for both the technical and non-technical reasons, as summarized below:

- Establishing four wood processing training facilities on existing woodworking factories in Java, Sumatera, Kalimantan and Eastern Region was considered very difficult and costly to realize and operate sustainably. Establishing training centers would mean that training would be conducted in pooled or class-room lecturing format that must be complemented with field observation and demonstration at the factory hosting the training facilities. It was evident during the consultation process that the Project failed to identify any existing factories that were willing to host the envisaged training facilities. The main reason was evidently business confidentiality. During a field observation and demonstration session, processing facilities and the technologies employed by a host factory would have been exposed to all trainees that were not in the interest of any companies.

  ISWA millers further argued that class-room training format would not be effective in improving skills on wood processing and quality management for the following reasons:

  - class lecturing requires comparable occupational and educational background of trainees;
  - participants will be limited in number for financial reason and confined only to lower level employees; and
  - individual mills are facing different technical and managerial problems some of which are company specific that require special treatment.

  ISWA millers therefore urged the Project to employ in-house training format, which offers several advantages over class-room training as follows:

  - it allows direct examination or on the spot diagnosis of technical and managerial problems;
  - the treatments necessary to overcome any observed problems can be directly discussed and demonstrated on the ground;
  - it accommodates large number of participants including owners, executives, managers, supervisors and operators, at minimum cost; and
  - as participants are all "insiders", business confidentiality is, to a greater extent, secured.

  Based on the above argument, the Executing Agency had proposed to the PSC at its first meeting in October 2005 to employ an in-house training format. This proposal was endorsed by the PSC.

- As regards the establishment of one product quality testing laboratory that initially planned to be located in Central Java, ISWA members strongly proposed to establish the laboratory at ISWA headquarters in Jakarta for the following reasons:

  - to ease access to all ISWA members operating in Java and the Outer Islands;
  - to minimize construction cost by making use of existing facilities of ISWA, e.g. meeting room, mailing services and other communication facilities; and
  - to ensure a good safety level as ISWA headquarters is equipped with facilities of high risk security standards.

The proposal to locate quality testing facilities in Jakarta was also approved by the PSC. Consequently, Output 1 "four wood processing training and one product quality testing facilities available for woodworking factories" had been redefined as "fifty wood processing mills in five provinces selected to host in-house training on wood processing techniques, product quality/industrial management and marketing, and one product quality testing laboratory established at ISWA's headquarters in Jakarta". Accordingly, the activities under Output 1 had been redefined. As the mode of training had been changed from a centralized to in-house training format, the activities under Output 3 had also been redefined.

Had modification of the strategy through redefinition of Output 1 and adjustment to activities under Outputs 1 and 3 compromised achievement of the outputs and objectives of the Project? The answer is definitely not ! The original Output 1 was to establish four training facilities at four existing factories in four regions that would be functioning as the training centers for employees of different companies. The redefined Output 1 was to select fifty mills in five provinces to serve as training sites for in-house employees of the respective mills. That is to say that if redefined Output 1 was delivered, it should contribute to achievement of the specific objective.

The original logical framework matrix had also been adjusted to accommodate the modification of project strategy. Using the newly defined LFM, it can be concluded that:

- Output 1 had been delivered as the 50 mills selected in 5 provinces had hosted 139 in-house training sessions out of 150 sessions planned while the quality testing laboratory had been established at ISWA headquarters in Jakarta.

- Output 2 had been fully delivered as all the indicators specified in the LFM had been met: information on 43 wood species, on experimental use of 23 LUS, and on 5 major export markets had been compiled, published and distributed to main stakeholders, ISWA website was operational and ISWA Bulletin was periodically published.

- Output 3 had been fully delivered: through the 139 in-house training sessions, 860 owners, executives and employees of different levels had been trained on wood processing techniques, quality/industrial management and marketing, far exceeding the 500 people initially planned; two workshops on processing efficiency and quality management and one seminar on marketing had been conducted.

The full information pertaining to the outputs was well documented and published as Technical Reports of the Project, as enumerated below:

- Technical Report No. 1: Implementation of in-house training on wood processing techniques,
- Technical Report No. 2: Standard Operating Procedures for the efficient wood processing,
- Technical Report No. 3: A handbook of Selected Indonesian Wood Species,
- Technical Report No. 4: Experimental Use of 23 Indonesian Lesser Used Wood Species,
- Technical Report No. 5: Establishment of ISWA Wood Product Quality Testing Laboratory: Resources and Sustainability of Operation,
- Technical Report No. 6: In-house Training on Product Quality and Industrial Management,
- Technical Report No. 7: *Pelaksanaan In-house Training Pemasaran dan Seminar Nasional tentang Peningkatan Ekspor Produk-produk Kayu Indonesia*,
- Technical Report No. 8: *Informasi Pasar: Standard Produk Kayu, Persyaratan Mutu dan Peraturan Impor di Negara-negara Tujuan Ekspor Produk Kayu Indonesia*, and
- Technical Report No. 9: National Workshops on the Improvement of Wood Processing Efficiency and Product Quality.

With all three outputs delivered, the specific objective had also been achieved. The indicators of the specific objective listed in the modified LFM had undoubtedly been satisfied. Indeed, the project was built on findings of completed pre-project which was implemented with full support of the primary beneficiaries, ISWA member companies. Apparently, the Executing Agency had failed to discuss with primary beneficiaries the project design of the full project that had been built on the pre-project's findings. The result was the necessity to modify the project strategy as discussed above.

The project has certainly contributed to achievement of the development objective through its realized outcome. The improvement in processing efficiency in terms of increased wood recovery by as much as 3% had been reported by the Project and satisfied the defined indicator. However, contribution of the Project to export value of sawn timber cannot be properly measured using the defined indicator as export of sawn timber had been banned by GOI since September 2006, prior to completing the Project.

4.1.3. Impact and relevance of the Project

The specific objective of the Project was to improve national skills and capabilities in wood processing and product quality management to ensure an efficient and diversified use of tropical timber. The specific objective was achieved through conduct of 139 in-house training sessions at 50 processing mills and through provision of relevant information on wood properties, and market requirements for processed products.

There were 860 participants of the in-house training comprising owners, executives, managers, supervisors and operators. They took part in identifying and diagnosing the operational problems they were facing; they were shown on how to overcome the problems both through curative and preventive actions. The participants also had the opportunity to see how product quality is affected by technology and processing techniques. Furthermore, the participants had the understanding on the link between processing efficiency and cost of production as well as product quality and price; that profit margin of the company they work with or owned is, to a large extent, determined by the level of processing efficiency and product quality.

The participants of the training had also appreciated the critical role information plays in wood processing business. Those sawing techniques, kiln drying schedules, jointing, and painting for instance, are all affected by properties of the wood in question. Moreover, the participants had come to understand that each importing market has its own requirements for processed products in terms of technical specifications, origin of wood raw materials and product quality.

In short, the 860 participants had improved their skills and capabilities in wood processing and product quality management. The improvement was revealed by participating mills during the second workshop, though at varying degrees, as the level of improvement was certainly affected by several factors including:

- Involvement of owners and executives
  Those companies whose owners and executives took part in the in-house training had, in general, improved efficiency of processing significantly. This is understandable as owners and executives had witnessed themselves of the operational weaknesses that had to be removed and what resources were needed to do so. Allocation of needed resources was simply dependent on business orientation of the owners. Involvement of executives in implementing those recommendations of Project Experts and in monitoring of progress also contributed substantially to the improvement made.

- State of the art of the technology in use
  Mills operating with obsolete machines and equipment made slower progress in improving performance compared to those using modern technologies. The former mills might require big investment in re-engineering and re-tooling for which owners might ready to do fully or partially only after a time lapse.

- Level of professionalism
  Those mills employing large number of skillful and experienced executives, managers and operators made much better and faster progress in improving performance than those with only a few skillful executives and employees.

It is, therefore, safe to conclude that, the specific objective of the Project had been fully achieved. That all the indicators pertaining to the specific objective as specified in the LFM had been met, confirms this conclusion. The outputs and outcome of the Project had also generated impacts to the wood processing mills; directly to participating mills and indirectly to non-participating mills through the workshop and seminars, through the publications and, more importantly, through peers discussions. The overall impacts of the Project were reported by participants of the second national workshop which encompassed various aspects of wood processing including increased wood recovery, reduced lumber defects in kiln-drying, reduced production cost, shortened product flow time, reduced wood waste, improved maintenance of machines and equipment, enhanced human resource management and changing attitude of owners, executives and employees. The most striking impact of the Project is probably that of changing attitude. The report of the second workshop indicated that large number of owners and executives have come to appreciate the role of processing efficiency plays in determining the level of production cost, the role of quality in product pricing by buyers thus the role of efficiency and quality in business profitability and survival. Many operators and employees have also come to understand that any technical errors, how tiny it might be, will lead to additional cost thus must be avoided to the extent possible by performing their job in a more disciplined, careful and professional manner.

Considering the outputs, outcome and impacts of the Project, it is not exaggerating to conclude that the Project is relevant for Indonesia and ITTO. Improving processing efficiency and product quality is essential for building up competitive advantage of the national wood processing sector. A competitive wood industry shall eventually contribute to the national economy.

4.1.4. Effectiveness of technology transfer to target groups

The primary beneficiaries of the Project were Indonesian wood processors in general, ISWA member processors in particular, numbering over three hundred (300) of small, medium and large-scale mills. The Project targeted directly on 50 mills of different scales of operation located in five provinces of the country. As reported in appropriate technical documents, in-house training was found as a more effective mode of training compared to conventional, class room training format. Under the in-house training mode, technology transfer from Project's Team of Experts to participants went on smoothly, transparently and effectively due mainly to the fact that in-house training is problem solving oriented through direct learning by doing. The strategy adopted in conducting every single session of the in-house training can be outlined as follows:

- A technical auditing was first carried out by the Experts and the participants wherein a visit was paid to individual chains of process. The purpose was to see how the process was performed, using what machine and equipment and by whom. During the visit, any deviating procedures and techniques were identified;
- The appropriate procedures and techniques were then elucidated and demonstrated on the spot;
- Advice on the necessary follow-up actions was provided by the Experts and discussed with the participants;
- During each of the second and third session, the steps were repeated to see if the technical demonstration and advices given at the preceding session were practiced and brought improvement about. Any remaining weaknesses or irregularities were then discussed followed by technical demonstration as needed; and
- As regards product quality management, the Experts identified yielded products of low or sub-standard quality and explained why such quality exists and how product of such quality can be prevented from occurring.

It is not surprising that in-house training is an effective means for transferring technology due to the fact that it allows direct observation of problem, discussion between trainers and trainees as well as amongst trainees and provide opportunity for technical demonstration to overcome existing problem and to prevent potential problem from occurring.

Technology transfer to processors that were not participants of the Project had been taking place through the workshops and seminars and dissemination of technical documents. Peers informal discussions between participants and non-participants, have also been reported taking place during implementation and after completion of the Project.

4.1.5. Overall post-project situation of the beneficiaries

Technical Reports no. 1 and no. 6 presented detailed information on weaknesses of the Indonesian wood processing sector as regards processing efficiency and quality/industrial management. Generally speaking, processing was performed inappropriately in terms of the technologies and techniques applied throughout the processing chains and the management of processing which had led to wastage of raw material, defected products, low recovery, etc. Inappropriate techniques of processing implied inefficiency and low product quality which entailed unnecessary high production cost and low pricing of processed products thus low competitiveness of the wood processing industry. In fact, Indonesian producers and exporters were losing market share in major markets through end of the last century due mainly to competition from other such exporting countries as Malaysia and China.

As was discussed in the previous section, 860 people consisting of owners, executives, managers, supervisors and operators of 50 wood processing mills had taken part in 139 in-house training sessions under the Project. It was reported somewhere that the mills hosting the in-house training have made improvement in their processing efficiency and product quality management as evidenced by reduced wood waste, production cost and lumber defects; increased wood recovery, improved maintenance of machinery and equipment as well as enhanced management of human resource. Most important however, was the changing attitude of owners and executives.

After taking part in the in-house training sessions, larger number of owners and executives have appreciated the role of efficiency and quality in determining level of profit margin and competitiveness thus business survival. The key success factor of improving efficiency and quality is for owners and executives to change their business mind-set and orientation, from a trader seeking for short-term financial return to become a sincere investor striving for long term profit by building up competitive advantage in a consistent manner. If larger number of owners is willing to change their business orientation from trader to sincere investor, it is reasonable to expect that the wood industry will be growing even more stronger over time.

It should be noted, however, that there were more than 500 processing mills in Indonesia, ISWA member and non-member companies, during the Project era thus the Project covered only less than ten (10) percent of them. It is therefore necessary to continue implementing in-house training program to include larger number of processing mills. Initiative of the wood industry and the government in this direction is strongly expected.

4.1.6. Unexpected effects and impacts

The Project did have unexpected effects and impacts as follows:

i) The in-house training program had brought about positive effects to many participating companies in terms of financial gain resulting from improved processing techniques and product quality as reported to the second national workshop by a number of training participants. That is to say that even during the implementation phase, the Project was able to generate financial gain. Information on the financial gain brought about by the in-house training program had made the Project more attractive. Larger number of processing mills had indicated their interest in becoming participants of future training program through their request to ISWA. The effect in terms of financial gain had

generated impact in terms of interest in improving performance through in-house training program.

ii) Information on improved performance of participating mills in terms of processing efficiency and quality management had caught the attention of the Ministry of Forestry. Director General of Forestry Products Development (BPK) had formally expressed his appreciation to the achievement of the Project and indicated interest in assisting promotion of in-house training program using state funds. This is indeed an important but unexpected impact brought about by the project. The statement made by the Director General was recorded in the minutes of the fifth meeting of the PSC.

iii) Publication and dissemination of technical report on properties of 43 wood species and experimental use of 23 lesser used species had been appreciated by wood processors in general and further strengthened the already existing interest in utilizing unpopular, natural as well as planted wood species. Expected impact of this growing interest is increasing demand for unpopular species and concomitant decreasing pressure on natural forests in the long-run.

4.1.7. Efficiency of project implementation

The project commenced in August 2005, planned for 36 months. A one-year extension in time without additional funding was granted by ITTO. The extension was needed to complete execution of the activities experienced delay in their implementation. The conduct of training experienced delay due to the necessity to modify the project strategy, as has been discussed in the previous section, to ensure support by beneficiaries. The establishment of quality testing laboratory experienced delay as the time needed for importing equipment was much longer than expected. Also, compilation of information on wood properties and experimental utilization of lesser used species (LUS) had been lingered due to the long selection process of competent partner at reasonable cost. With the extension granted, the project was fully completed in July 2009.

The project management team (PMT) comprised five people, headed by a Project Leader, Mr. Jimmy Purwonegoro, and a Vice Leader, Mr. Jimmy Chandra. The Leaders were assisted by three professional staffs. Therefore, the management team was a small one yet able to successfully implement a project of the size and nature. As the focus of the project was to conduct training on processing techniques and quality management, a Team of Experts was formed to assist in. The Team was headed by an international expert with two national experts as the assistant. Preparation of training materials, procurement of tools and instruments, selection of in-house training hosts, scheduling of training sessions and conduct of the training were carried out by the Team of Experts in close consultation with the Project Leaders. Out of 150 planned training sessions, 139 were actually executed.

The PMT had submitted to ITTO 4 YPOs, 7 bi-annual progress reports, 7 financial audit reports, 9 technical reports and a completion report; it had successfully organized two national workshops and one national seminar on marketing; beside, it also had organized the publication of ISWA Bulletins periodically and continued operation of ISWA website.

In general, the Project was implemented with high compliance to existing ITTO rules and procedures. Employment of the project personnel and consultants, purchase of equipment and tools, conduct of the workshops and seminar had been made with prior written approval by ITTO.

In addition, the PMT had conducted 5 PSC meetings and a number of technical meetings to evaluate progress in implementation and discuss any operational problems facing the project. A Project Steering Committee was established by the Ministry of Forestry to advise and supervise implementation of the project. The PSC was chaired by Director General of Forestry Products Development (BPK) with membership comprising representatives of the Ministries of Trade, Industry and Forestry, donor countries, the Executing Agency and wood industry associations.

The training program was implemented efficiently. Each of the training sessions simultaneously covered the different aspects of wood industry namely processing techniques, quality as well as industrial management and marketing of products. In this manner, training participants could improve skills and at the same time gain perspective on the link between processing efficiency, product quality and market requirements for products. The in-house training format was also proved as an effective means for technology transfer.

The collaborating agency was the Directorate General of Forestry Products Development of the Ministry of Forestry (BPK) while the major partners were the Forestry Research and Development Agency and ISWA member companies. The efficiency in implementation was experienced through strong coordination with collaborator and partners, frequent technical meetings of PMT, and Team of Experts, timely disbursement of funds by ITTO at the request of the Executing Agency with proper supporting documents. Efficiency in implementation could have been improved if the original project design could be implemented without modification. Strictly speaking, the extension in time for one year granted by ITTO indicates weakness in project formulation stage and, inevitably inefficiency in terms of time consumed. It should be noted, however, that the modification made to the project design had, in fact, contributed meaningfully to achievement of the project objectives.

Project monitoring and evaluation was done both internally through regular meetings among the project staffs and Experts and externally through the PSC meetings. The meetings were an effective mechanism to discuss progress in work, identify areas of coordination, address problems and issues and thus ensure that activities are well in line with the work plans. The mechanism put in place had contributed to efficiency in project implementation.

Overall, the project was implemented efficiently despite the extension of time for one year. Active participation of target beneficiaries and support of collaborator as well as partner institutions had significantly contributed to the efficient implementation operations. The stakeholders had involved in implementation of the project in various ways as follows:

- The fifty mills selected to host in-house training provided full support to Team of Experts;
- The wood industry associations, the Ministries of Forestry, Trade and Industry were actively involved in discussions during the workshops, seminars and meetings of the PSC;
- In fact, the Ministry of Forestry paid a great attention to the project by assigning Director General of FPD to chair the PSC; and
- ITTO had also contributed substantially to the efficient project operations by timely installing the funds, through continued participation in the monitoring and effective communication between the PMT and ITTO Projects Manager in charge.

It should be emphasized that one of the critical success factor of project implementation was the full support accorded by ISWA member companies in general, hosts of the in-house training in particular. The full support was granted was not surprising due to the established institutional and personal networking between ISWA and its members for decades.

4.1.8. Sustainability

As had been indicated in the previous section, the companies hosting the in-house training were interested in applying the technical and managerial advices conferred by the Project for simple reason. When properly applied the advices did generate direct financial gain through reduced production cost and increased price of processed products. Increased wood recovery by 3% as reported by training participants to the second national workshop for instance, entails saving of huge amount of money through reduced production cost. This direct financial gain will serve as a strong incentive for the companies to continue using the advices and recommendations of the Project. As a profit making entity, indeed a company is striving to maximize profit by reducing input costs and increasing selling price of its products. And the advices of the project were proved able to contribute significantly to this strive. That is to say that the financial gain generated by the project will sustain the interest of processors in using the outputs and results of the project.

Other companies also had repeatedly indicated their interest in applying the technical recommendations of the project in their production processes. The interest was triggered by the financial gains experienced by those companies hosting the in-house training program.

The Ministry of Forestry had also indicated its strong interest in developing and implementing in-house training program on processing efficiency and product quality management using state funds in collaboration with wood industry associations. The intention is to continue the work that has been initiated by ITTO and ISWA in view of promoting competitiveness of the national wood industry in international markets. Surely, this intention of the government, if materialized, would have contributed to sustainability of the project.

Two processing mills in East Java that hosted the in-house training were visited, namely PT. Panca Wana Indonesia and UD. Karya Jati in the towns of Sidoardjo and Jombang, respectively. The purpose of the visit was to obtain first hand information on impact and sustainability of the Project.

PT. Panca Wana Indonesia is a large scale company producing a wide range of finished products using modern, computerized technologies throughout its processing chains. Its monthly export volume is around 80-90 containers, made of locally purchased and imported timber, mostly planted species. The quick tour made throughout the production chains immediately gave the impression that the mill is operating efficiently. This was evident from the small volume of wood waste, cleanliness of the floor and neat piling of raw material, intermediate and finished products.

Mr. Sarwono Siswanto, the Executive Director, informed the Consultant of the impact of the in-house trainings on the performance of its factory, especially in the area of inventory management which is improving over time. The improvement is achieved through untiring efforts of the executives, managers, supervisors, operators and employees. At the mill, every single piece of wood raw material is labeled or bar-coded. The bar-code corresponds to the information on wood species, dimension and properties stored in the computer/system. Applied processing techniques and desired finished products are determined strictly based on this information. In this manner, efficient use of raw material and quality products can be assured. The company also has been encouraged by the Project to diversify use of wood species through its publications on wood properties and experimental use of lesser wood species. Today, the company is utilizing 50-60 species, mostly planted trees.

UD. Karya Jati is a medium scale company specializing in in-door furniture products making. The owner and operations manager met both expressed their appreciation to the conduct of the in-house training. Through three training sessions, the company has been able to substantially improve its performance. The Consultant had the opportunity to observe how improved technique of laminating and edging demonstrated during the training has resulted in savings over ten thousand US dollars per year through use of less vitcon sheet. The Consultant also was shown the production chains of wood waste utilization that has generated additional income in significant amount to the company. Admittedly, the direct financial gain through improved processing techniques and quality management has served as the strong incentive for the company to continue practicing the processing techniques drilled by the Project. Frequent briefing of employees on appropriate processing techniques as trained by the Project has been consistently undertaken by the Owner and Executive and contributed to improved performance of UD. Karya Jati.

Moreover, it is worth mentioning the concrete follow-up action on the application of In-house training module being piloted now by ITTO under its Biennial Work Programme 2010-2011 in selected producing member countries in Africa, Asia Pacific and Latin America and the Caribbean Regions to further improve the capacity to promote efficient wood processing technology to help reduce wood wastes and improve quality of wood products.

4.1.9. The project's relative success/failure

Overall, it can be categorically concluded that the project had been implemented and completed successfully when judged using the refined logical framework as appeared in the Completion Report as follows:

- 50 mills of different scales of operation in 5 provinces had hosted 139 out of 150 planned, in-house training sessions on processing technique, quality/industrial management and marketing of processed wood products;
- one product quality testing laboratory was established at ISWA headquarters in Jakarta;
- information on 43 Indonesian wood species and on experimental use of 23 LUS and market information on 5 major export markets had been produced/compiled, published and distributed to main stakeholders;
- ISWA bulletin had been periodically published and distributed while ISWA website has been operational;
- 860 owners, executives, managers, supervisors and operators had been trained in wood processing, quality/industrial management and marketing, far exceeding 500 people initially planned to train;
- the specific objective of the project had been achieved through deliverance of all three outputs;
- the project has generated the desired impact which is improved performance of individual mills in processing and product quality management at varying degrees;
- participants of the in-house training are continuously making improvement in performance by applying the measures and means recommended and demonstrated by the project; and
- Beside the improvement in performance of participating mills, the more invaluable impacts of the project are: i) the changing attitude of owners and executives from a trader seeking for short-term profit to a long-term investor striving for profit and business survival; ii) the growing interest of processing mills in hosting similar training; iii) the expressed interest in promoting similar training by the government using state funds.

Among the weaknesses observed by the Consultant were:

- The necessity to modify the project strategy due mainly to the absence of consultation with partners, the beneficiaries, on the project design. Although the design was built on pre-project findings, it should have been deeply reviewed with the beneficiaries to ensure workability and feasibility for achieving desired objectives of the project;
- The Executing Agency did not immediately apply for budget revision following modification of the project strategy; budget revision was only proposed to ITTO for approval at the beginning of the fourth year of operation; and
- The effect of the in-house training cannot be measured quantitatively due to the weak baseline data developed by the Team of Experts as well as poor monitoring methods and procedures, as discussed in Technical Report No. 1.

4.1.10. Overall cost of the project

The total cost of the project was US$ 969,280 consisted of ITTO's and GOI's contributions in the amount of US$ 765,140 and US$ 204,140, respectively. Re-examination of budget figures in the project document indicated that the correct figure of ITTO's contribution is US$ 769,140. Apparently, there was a mistake in summing the budget figures. However, the incorrect summation did not affect implementation of the project. The figure, US$ 765,140, was consistently used in the project agreement, in the disbursements and in final auditing of project statements.

The final financial audit report indicated that:

- The amount of ITTO contribution that remained unspent at completion period of the project was US$ 290.15.

- The ITTO contribution was used mostly for project personnel, US$ 227,730 or 30.00% and for duty travel, US$ 134,913 or 18.00%.
- Compared to the original budget plan, actual spending for personnel and duty travel increased by US$ 13,380 and US$ 7,043, respectively which is only reasonable due mainly to the modification of the project strategy that required larger number of travel and extension in time duration as discussed in the previous sections.

The amount of budget sanctioned to the project was sufficient to procure the necessary inputs for planned activities in terms of quantity and quality of human resource, notably the international and national consultants, equipment and facilities for the quality testing laboratory as well as tools and instruments for the trainings. On average, the cost of training was approximately US$ 1,127 per trainee of which US$ 890 or 79% was contributed by ITTO.

It was noted by the Consultant that no budget revision was made following the modification of the project strategy approved by the PSC in its meeting in October 2005. A budget revision was only applied by the Executing Agency at the beginning of year four following the approval for extension of the project for one year without additional funding. Indeed, this delayed budget revision is a form of contravention to the common rules and procedures applying to ITTO projects.

4.1.11. Contribution of the project to the objectives of ITTA 1994 and 2006, Yokohama Action Plan and 2008-2011 Action Plan

To ITTA 1994 and ITTA 2006

- Improved wood processing efficiency and product quality management should strengthen the competitive advantage of the forest industry sector of Indonesia thus contribute to industrialization and sustainable development of the country, thereby increasing employment opportunities and export earnings (Objectives a and i of ITTA 1994; Objectives c and i of ITTA 2006);

- Compilation, publication and dissemination of information on wood properties of lesser used species (LUS) and their experimental use had encouraged a diversified and more efficient use of wood raw materials thus optimizing forest values (Objectives f and i of ITTA 1994; Objectives f and i of ITTA 2006);

- Compilation, publication and dissemination of information on major export markets had improved the marketing and distribution system of Indonesian wood products (Objectives k and n of ITTA 1994; Objectives h and k of ITTA 2006);

- Implementation of in-house training at fifty processing mills of different scales of operation had promoted the access to and transfer of technologies on wood processing (Objective m of ITTA 2004; Objective p of ITTA 2006); and

- Publication and dissemination of the technical documents produced under the Project had facilitated information sharing amongst ITTO member countries (Objective n of ITTA 1994; Objective m of ITTA 2006).

To ITTO Yokohama Action Plan and ITTO 2008-2011 Action Plan

The Project had successfully promoted a diversified use of timber species as raw material, improved processing efficiency, product quality management and marketing system of processed wood products. This achievement is a significant contribution to the Goals of Forest Industry Division defined in ITTO Yokohama Action Plan (Goal 1 Actions 2 and 5; Goal 2 Actions 1, 4, 6 and 7) which were essentially to promote increased and further processing of tropical timber and improve efficiency of processing and utilization of tropical timber from sustainable sources.

Results of the project documented have contributed to ITTO Action Plan 2008-2011 as they are consistent with the Expected Outcomes of the Forest Industry Division, particularly with Actions D, E and I of Expected Outcome 1 and Actions A, D and E of Expected Outcome 2.

4.1.12. Actual intended situation after project completion

This section addresses specific results of the project as required by the terms of reference:

Improvement in the efficiency of harvesting, preservation and drying

The Project did not deal with forest harvesting technologies and techniques. The production chain it dealt with started only from log pond/log yard where logs were stock-piled. Wood preservation techniques were not also specifically included in the project intervention. Some recommendations on the protection of logs at log yard/log pond in order to avoid quality downgrading were made by the Project but they only limited to the use of pesticide and insecticide materials. Wood drying, kiln-drying process in particular, was one of the production chains that was included in the training program. As reported in the subsequent section below, the training on kiln-drying had yielded significant positive result.

Impacts and results of the project vs forest public policy

Two national workshops on wood processing were conducted under the project. The workshops were attended by high-ranking officials of the Ministries of Forestry, Industry and Trade whom are all responsible for promoting forest industry development. Results and impacts of the project and the resulting economic gains were exposed to these officials directly by the processors that took part in the in-house training. The information disseminated during the workshops is indeed useful for decision making. In particular, it had caught the attention of the Ministry of Forestry and expressed its interest in promoting in-house training on efficient wood processing and quality management using state funds. While the Ministries of Trade and Industry have not taken any follow up policy measures to date, it is only a matter of time that such motion will come to fore.

Improved understanding on processing efficiency and product quality

The discussions held with the owners and executives of the processing mills visited in Jombang and Sidoardjo indicated that:

- At the end of every single in-house training session, a briefing session attended by all training participants including owners, executives, managers, supervisors, and operators was always held.

- The ITTO Experts briefed the participants on the links between processing efficiency and production cost and between product quality and price; that efficiency and quality are the two most important building blocks of competitive advantage thus business survival.

- It was noted during the discussions that understanding on efficiency and quality has brought about changes in business orientation of owners and executives as well as in work attitude of employees; they have come to realize that any operational blunder made will subsequently entail cost.

Improved wood recovery and reduced wood wastes

- Improved wood recovery shall result in reduced wood wastes. This was attained through application of appropriate techniques throughout the processing chains, adequate supervision, diversification of products, better maintenance of equipment and processing facilities as well as re-tooling and re-engineering.

- Supervisors have now used wood waste as a tool for assessing level of wood recovery. Type and quantity of wood waste observed at the mill site is a good indicator of efficiency of processing. The larger the quantity of waste, the smaller wood recovery and the less

efficient processing is. The types of wood waste also are evidential of non-performing production chains.

Reduced lumber defects during kiln-drying process

A kiln-drying schedule must be based on the properties and quantity of the timber under treatment. As properties of wood vary between species, kiln-drying process should be more species specific. Mixing several species in one chamber is certainly not advisable. The in-house training had taught processors on the basic principles of wood drying that must be adhered to, and the desired construction of chamber for an effective drying process. Those mills that have followed the technical advices of the project reported to the second workshop on the reduction of defected lumber in kiln-drying process.

Better inventory management

The project had taught the processors, to the extent possible, to follow first-in-first-out (FIFO) principles in inventory management, in order to reduce inventory cost. In the pre-project situation, a log arriving earlier at log yard was not always sawn ahead of the logs arriving behind mainly for reason of preferences of operators in charge. This had resulted in degrading quality of logs and reduced wood recovery and increased production cost. Before the training, many processors held large quantity of inventory, which was not handled properly. Cost of inventory was higher than necessary due to cost of money, damages of products and security. Inventory management, as reported by participants of the second workshop, has been improving. Reduced inventory cost must have contributed to lowering of production cost.

Shortened products flow time

Product flow time mirrors efficiency of processing. It reflects the length of time consumed by individual process chains, idle time due to breakdowns, skillfulness of operators and workers, mill layout design, energy consumption, etc. Shortened product flow time as reported by participants of the in-house training undoubtedly indicates improved processing efficiency.

4.2. Lesson Learned

a. The project was a follow-up to a completed pre-project, thus, it was built on findings of the pre-project. However, the project intervention designed was found not feasible to implement. The primary beneficiaries, expected to support its implementation, disagreed with the design and insisted in making modification. Apparently, proponent of the project failed to review the design of the project during its formulation stage. Therefore, a full project proposal, even if it is built on pre-project findings, should be developed with active participation of primary beneficiaries and main stakeholders to ensure its workability to achieve desired objectives of the project.

b. The project strategy was modified during its implementation stage at the request of its primary beneficiaries. The modified strategy for implementation had successfully achieved the intended outcome of the project as the modification was made at the request of target beneficiaries with the intention to increase workability and effectiveness of the strategy in achieving objectives of the project. Such modification of strategy was followed by adjustment to the logical framework that allowed assessment of achievement in an objective manner.

c. The project intervention generated direct financial gain to participating mills, even before completion of the project, through improved processing efficiency and product quality management. Direct financial gain accrued to beneficiaries had served as a strong incentive for them to continue using the advices accorded by the project. Information on the gain received by non-participating mills had triggered their enthusiasm to take part in future similar training program.

d. The Executing Agency had been able to implement and complete the project successfully without any serious operational problems. This was due mainly to the full support of ISWA

member companies, as the primary beneficiaries, brought about by the already established institutional and personal network between ISWA and its members, able experts and staffs and active participation of other stakeholders, especially MOF and ITTO.

e. The in-house training sessions were also attended by many owners and executives of host companies. They had gained deep understanding on the role of processing efficiency and product quality in determining competitiveness and business survival. This understanding certainly affects sustainability of the Project. Sustainability of project's impacts is secured through the changing attitude of large number of owners and executives whom no longer act as traders seeking for short-term profit, but as investors striving for long-term business survival. Participation of owners and executives in similar future training program is strongly advisable.

f. Appreciation by owners, executives and employees of the critical role processing efficiency and quality management play in determining competitive advantage and business survival has been one of the most invaluable long lasting impacts of the project.

g. In-house training is a more pragmatic and effective format of training on technologies and skills as it can be tailored to solve the specific problems facing individual mills, accommodates large number of participants at minimum cost, allows for direct participation of trainees in problem identification, and discussion as well as technical demonstration.

h. It was noted that baseline information on performance of individual mills and procedures for monitoring of progress must be first developed prior to commencing the in-house training to allow quantitative assessment of actual effect of the training program. As this was not done by the Project, effect of the training could not be assessed accurately.

i. Workshops, seminars and dissemination of technical documents to relevant stakeholders were the primary vehicles used by the project for information sharing and promoting the training results as well as future training needs.

5. CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

The following conclusions in the whole evaluation process of the project are shown below, to wit:

a. The identification of the problem to be addressed was based on the findings of a completed pre-project which revealed the problems facing the national wood industry, and the identification process was adequate.

b. The project design was derived through a thorough analysis with the aid of problem tree. However, the results of the problem analysis, especially the problem elements identified, should have been presented first to key stakeholders or direct beneficiaries in an inception phase for their comments and favorable consideration. As such, formulated project strategy would have been directly applicable without modifications through the end of the project.

c. The project was collaboratively governed and the budget was spent within the limits through the PMT's day to day operations and the PSC's decision-making process. Close collaboration between and among key stakeholders and primary beneficiaries, e.g. ISWA members, which enabled them to build linkages and share information and updates in the interest of proper project management and sustainability aspects.

d. A stronger political leadership is needed to safeguard the positive impacts of the project in the future, especially the clear statement from the Director General of Forestry Products Management at the last PSC Meeting on the need to continue the work of the project by developing appropriate in-house training program to be implemented using government (GOI) budget.

e. The project was managed in full compliance with the ITTO rules and procedures, with four (4) YPOs seven (7) bi-annual progress reports and three (3) yearly financial audit reports submitted to ITTO during the course of project implementation. The employment of project personnel, international and national consultants and sub-contractors as well as procurement of capital items were made with the approval of ITTO.

f. Finally, the project has produced a dearth of information and data on wood processing efficiency and products quality, as documented in nine (9) technical reports and important events popularly disseminated in national workshops/seminars, in ISWA Bulletins and ISWA Website, which were all very comprehensive and impressive, however, none of them have been published in any of the international/regional journals, periodicals and newsletters for wider distribution and utility.

5.2 Recommendations

The following recommendations for future actions will further support the sustainability of project benefits and help further development of the wood industry sector in Indonesia, such as:

a. There is still significant need in Indonesia for information and trainings on wood efficiency processing and products quality considering that only 10% of ISWA members were directly involved in this project which further require continued assistance of donor community like ITTO, including dissemination of information or public awareness program, i.e. with enhanced and expanded extension services that are consistent with any agreed wood industry sector development strategy.

b. The in-house training mode is a pragmatic way of conducting training in wood efficiency and products quality, and the project beneficiaries (ISWA members) favorably adopted such training module and should therefore be encouraged to further develop and test systems for potential upscaling and replication in more mills throughout the country. It is therefore recommended that ISWA and GOI seek for the needed resources to support and implement similar training program in the future.

c. The importance of regional networking with neighboring countries in ASEAN should also be emphasized and pursued to exchange and share the wealth of wood industry information and technologies generated by this project for future marketing strategies and collaborative partnerships. For instance, the project can link with the existing networks established in ASEAN to enhance and harness the best available wood science and technologies for sustainable development of the people and the environment of the region.

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Photo Documentation

a. Upper Left: Visit to PT PANCA WANA mill, with VP Sarwono Siswanto
b. Lower Left: Finishing touches on round tables before packaging
c. Lower Center: Finished furnitures displayed at UD. KARYA JATI, Jombang
d. Upper Center: "Bar-coding" on lumber/panels for efficiency in inventory of raw materials (with species, sizes, weight, density, etc.)
e. Lower Right: Packaged & finished wood products for the market outlets
f. Upper Right: Wood-working skills of workers at PT PANCA WANA mill

Annex A

Adopted Itinerary for Dr. Antonio Manila ITTO Consultant for the Ex-post Evaluation of Projects PD 286/04, PD 277/04 and PD 108/01

28 May (Fri)
Arriving at Sukarno Hatta International Airport by PR 0535 ETA 11.55 pm
(**met by Project PD 286/04**)

29–30 May (Sat - Sun)
Studying the project documents handed over by the EAs at the hotel

31 May (Mon)
Morning :
Attending entry conference at the Center for International Cooperation (CIC), MOF
(**the conference is to be arranged by CIC**)

Afternoon:
Visiting Projects PD 286/04 and PD 108/01 in Jakarta

1 Jun (Tue)
- Visiting PD 277/04 in Bogor
- Departing for Jakarta by road and for Surabaya by JT506 at 10.20 pm **accompanied by PD 286/04** (ETA Surabaya 12.40 pm)

2 Jun (Wed)
Visiting ISWA Project sites at Jombang (UD. Karya Jati) and Surabaya (PT. Satya Sentama)
(Overnight Surabaya)

3 Jun (Thu)
- Departing Surabaya for Balikpapan by Lion Air JT360 at 06.15 am (ETA Balikpapan 08.40 am) (to be met by Project PD 277/04 at Balikpapan Airport)
- Traveling from the airport to the Project site
- Visiting the Project site in the afternoon
(Overnight at the Project site/Bangkirai)

4 Jun (Fri)
Morning:
- Visiting the Project site (continued as needed)
- Departing Balikpapan for Jakarta by Mandala RI 395 at 12.30 – 14.30
- Departing Jakarta for Palangkaraya by GA 552 at 14.45
- Arriving at Palangkaraya Airport at 16.25 pm, to be met by PD 108/01
(Overnight Palangkaraya)

5 Jun (Sat)
- Visiting the Project site(s)
(Overnight at the Project site)

6 Jun (Sun)

- Visiting the Project site (continued as needed)
- Traveling from the Project site to Palangkaraya Airport
- Departing Palangkaraya for Jakarta by GA 553 at 17.00 pm
- Arriving at Jakarta Airport at 18.35 pm
- Traveling from the Airport to the hotel accompanied by Project PD 108/01

7 Jun (Mon)
Drafting Report on field visit findings at the hotel

8 Jun (Tue)
Visiting the EAs' Offices in Jakarta and Bogor for final consultation

9 Jun (Wed)
Attending exit conference at CIC Office in Jakarta
(the conference is to be arranged by CIC)

10 Jun (Thu)

- Leaving for Sukarno Hatta Airport, to be accompanied by PD286/04
- Departing Jakarta for Manila by PR 0504 ETD 01.35 pm

Developed in : Jakarta
Date : 31 May 2010
Center for International Cooperation (CIC),
Ministry of Forestry

Annex B

PERSONS/OFFICIALS MET DURING EX-POST EVALUATION OF PD 286/04 Rev.1 (I) IN INDONESIA

A. Center for International Cooperation, Ministry of Forestry-Indonesia (MOFI)

1.	Dr. Agus Sarsito	-	Director, CIC-MOFI
2.	Ms. Laksmi Banowati	-	Deputy Director, CIC-MOFI

B. Indonesian Sawmill and Woodworking Association (ISWA)

1.	Dr. Hiras P. Sidabutar	-	National Expert, PD 286/04-ISWA
2.	Mr. Jimmy Chandra	-	Project Coordinator, PD 286/04-ISWA
3.	Ms. Diah Herlinawati	-	Secretary, PD 286/04-ISWA

C. Directorate-General of Forestry Products Development (DG-FPD)

1.	Mr. Imam Mulyo S.	-	Senior Staff, DG-FPD

D. Private Sector

1.	Mr. Sarwono Siswanto	-	V.P. Director, PT PANCA WANA Indonesia
2.	Mr. Muhammad Usman	-	Owner, UD. KARYA JATI, Jombang
3.	Mr. Hasan Al Amudi	-	General Manager, UD. KARYA JATI, Jombang

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