INTERNATIONAL TROPICAL TIMBER ORGANIZATION

ITTO

PROJECT PROPOSAL

TITLE:	DEVELOPMENT AND TESTING OF NATIONAL FOREST STOCK MONITORING SYSTEM (FSMS) WITH IMPROVED GOVERNANCE CAPABILITIES AT ALL LEVELS OF THE FOREST ADMINISTRATION
SERIAL NUMBER:	PD 599/11 **Rev.1** (M)
COMMITTEE:	ECONOMIC INFORMATION AND MARKET INTELLIGENCE
SUBMITTED BY:	GOVERNMENT OF THE PHILIPPINES
ORIGINAL LANGUAGE:	ENGLISH

SUMMARY:

The project will see the development and piloting of additional modules to the Philippines Forest Stock Monitoring System (FSMS) providing:

(a) Chain of Custody management (including "back to stump" traceability) with improved data processing capabilities for validation and reconciliation of datasets along the supply chain;
(b) Integrated Verification of Legal Origin (VLO) features related to the issuance and control of Certificate of Timber Origin (CTO) / Certification of Lumber Origin (CLO) used for royalty declarations;
(c) An extension module to allow field data entry facilitating "on site" law-enforcement activities and auto-declaration; and
(d) An online, flexible, multi-user interface.

EXECUTING AGENCY: PHLIPPINES FOREST MANAGEMENT BUREAU (FMB)

DURATION: 18 MONTHS

BUDGET AND PROPOSED SOURCES OF FINANCING:

SOURCE	CONTRIBUTION IN US$
ITTO	497,930
GOVERNMENT	290,113
TOTAL	**788,045**

TABLE OF CONTENTS

PROJECT BRIEF

Current Situation

Over the last 15 years, the Philippines *Forest Management Bureau* (FMB) has progressively implemented, with the assistance of the ITTO, a central *Forest Information System* (FIS) to assist with national management of forest agreements, inventory and production. In its present configuration, the FIS counts six modules dealing essentially with forest agreements registration for the various tenurial instruments, while the *Forest Stock Monitoring System* (FSMS) module covers activities ranging from pre-harvest inventory, timber inventory and log marking to felling, bucking and transport to primary wood processing plant **and residual inventory**.

The current configuration of the FSMS however presents "gaps" that need to be addressed in order to insure that the system fulfills its role as a central forest information management system, as well as meets increasingly stringent national and international forest governance standards designed to tackle the issue of illegal logging.

In order to support true "back to stump" traceability, *Chain of Custody* (CoC) management and features related to *Verification of Legal Origin* (VLO), the FSMS needs:

(a) improved data validation and processing capabilities to facilitate the reconciliation of all new datasets across the supply chain with information already stored in the system;
(b) an integrated *Certificate of Timber Origin* (CTO) / *Certificate of Lumber Origin* (CLO) module performing automated royalty calculations and verifications, thus ensuring that Forest Revenues are accounted for and duly collected.

The overall environment of the system would finally also greatly benefit from technical features such as a field data collection module enabling more efficient monitoring and law enforcement activities on site, barcode reading and processing capabilities enabling to upgrade current processes using timber crayons and hatches to a more secure mode of data encoding, and a more flexible, online, multi-tiered user interface.

Development and Specific Objectives

The high level development objective of the present project is therefore to "*improve forestry governance, institutional law enforcement capacity, stakeholder coordination and forest sector competitiveness through improved data management*". This translates into three (3) more concrete specific objectives to develop and pilot *Forest Stock Monitoring System* (FSMS) modules supporting:

i. 100% "Back to Stump" traceability for wood production;
ii. *Verifications of Legal Origin* (VLO) features through automated royalty calculations based on CLO/CTO documentation; and
iii. improved system environment including field data entry capabilities and online, configurable, multi-tiered access.

Further to the development and deployment of the new features, it is envisaged to perform an operational field testing phase in Caraga region involving 2 supply chains originating from different forest agreements (such as an *Industrial Forest Management Agreement* and a *Community-Based Forest Management Agreement*).

Beneficiaries

The main beneficiaries of the project will be the Philippines public administration, and more specifically the *Forest Management Bureau* (FMB), responsible for forest policy and programs, and the field operations organization of the *Department of Environment and Natural Resources* (DENR) handling monitoring and law enforcement activities.

The project will however also contribute to making the forestry sector more competitive and hence benefit all economic agents involved in timber production and processing. Other stakeholders such as local communities, NGOs and civil society at large will also benefit from an increased access to accurate information.

Assumptions and Risks

The main assumptions behind the project are that there will be continued political and financial support for the initiative at all levels of the public administration and the industry; that all stakeholders can agree, through a transparent and inclusive process, on the details of the system technical specifications; and that the development, deployment and piloting of the system does into run into unforeseen technical difficulties.

It is felt that the main risks to the project are:

- **the possibility that stakeholders who consider stronger timber tracking and *Verification of Legal Origin* (VLO) enforcement to adversely impact on "business as usual" benefits and privileges they are enjoying to actively undermine the project's successful execution and implementation; and**
- **the possibility that the introduction of new technology proves inappropriate for the Philippines forest industry, or too costly to be extended on a national scale.**

Methodology

As the Executing Agency of the DENR, the FMB as a staff bureau will co-opt the assistance of the Field Operations department and other bureaus of the DENR to assist with the elaboration of the specifications of the system (especially those related to field operations) as well as with the coordination of activities on site at the time of the pilot phase.

From a technical standpoint, the FMB will also call upon the services of a single sub-contractor for the turnkey delivery of the system, thus greatly simplifying overall project management and coordination. The sub-contractor selection process will adhere to ITTO guidelines, and it is expected that the implementation strategy will follow classic IT system deployment methodologies involving the simultaneous development of all the features through subsequent stages such as:

(a) requirement definition and survey leading to the elaboration of detailed "*Technical and Functional Specifications*" (3 months);
(b) system configuration & user documentation (6 months);
(c) system testing and User Acceptance (UA) followed by a sign-off, training and roll-out (2 months);
(d) operational pilot phase, monitoring and evaluation (7 months).

The main milestones of the project will be the review and sign-off the detailed "*Technical and Functional Specifications*" by the project steering committee (the document being used as a blueprint for the system), as well as the User Acceptance whereby following the development stage, all the features of the systems are tested against the *Technical and Functional Specifications*. Project reports will also be collated and submitted to the ITTO every six months.

Budget

The project's total budgetary envelope is $788,043, with $290,113 to be provided by the Forest Management Bureau and a request for ITTO financing for $497,930.

LIST OF ABBREVIATIONS AND ACRONYMS

ASEAN	Association of SouthEast Asian Nations
CBFMA	Community-Based Forest Management Agreement
CENRO	Community Environment Natural Resources Office
CLO	Certificate of Lumber Origin
CoC	Chain of Custody
CTO	Certificate of Timber Origin
DAO	Department Administrative Order
DENR	Department of Environment and Natural Resources
DMC	Department Memorandum Circular
DMO	Department Memorandum Order
DR	Delivery Receipts
EO	Executive Order
FAO	Food and Agriculture Organization
FIS	Forest Information System
FLEGT	Forest Law Enforcement, Legality, and Trade
FLGMA	Forest Lands Grazing Management Agreements
FMB	Forest Management Bureau
FOD	Field Operations Department
FSMS	Forest Stock Monitoring System
IFMA	Industrial Forest Management Agreement
ISFP	Integrated Social Forestry Program
ITTA	International Tropical Timber Agency
ITTO	International Tropical Timber Organization
ITP	Industrial Tree Plantations
LCMS	Log Control Monitoring System
MH	Merchantable Height
MRV	Monitoring Reporting and Verifications
PENRO	Provincial Environment Natural Resources Office
PD	Presidential Decree
PHP	Philippine Peso
PO	People Organization
PTTS	Philippines Timber Tracking System
PWPA	Philippine Wood Producers Association
RENRO	Regional Environment Natural Resources Office
SIFMA	Socialized Integrated Forest Management Agreement
SFEMA	Sustainable Forest Ecosystems Management Act
SMF	Self Monitoring Form
SUDECOR	Surigao Development Corporation
TLA	Timber License Agreement
TLAS	Timber Legality Assurance System
UAT	User Acceptance Testing
VLO	Verification of Legal Origin
VPA	Voluntary Partnership Agreement

REFERENCES AND WEB-LINKS

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- DAO No. 1996-26, September 10, 1996, “Revised Guidelines in the Harvesting and Transport of Planted Trees and Non-Timber Products within Social Forestry Areas”;
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- DMC No. 1999-20, July 29, 1999, “Supplemental Guidelines Governing the Registration, Harvesting, Transport and Marketing of Timber By-Products coming from Private Plantations within Private Lands or Tax-Declared A&D Lands”;
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- Forest Management Bureau, “PP-39 A/39-170 Final Report”; March 31st, 2009; pages 5, 6, 9;
- Mehaffey, Darren; “Deforestation and forest management in the Philippine”, School of Agricultural and Forest Sciences, September 2004;
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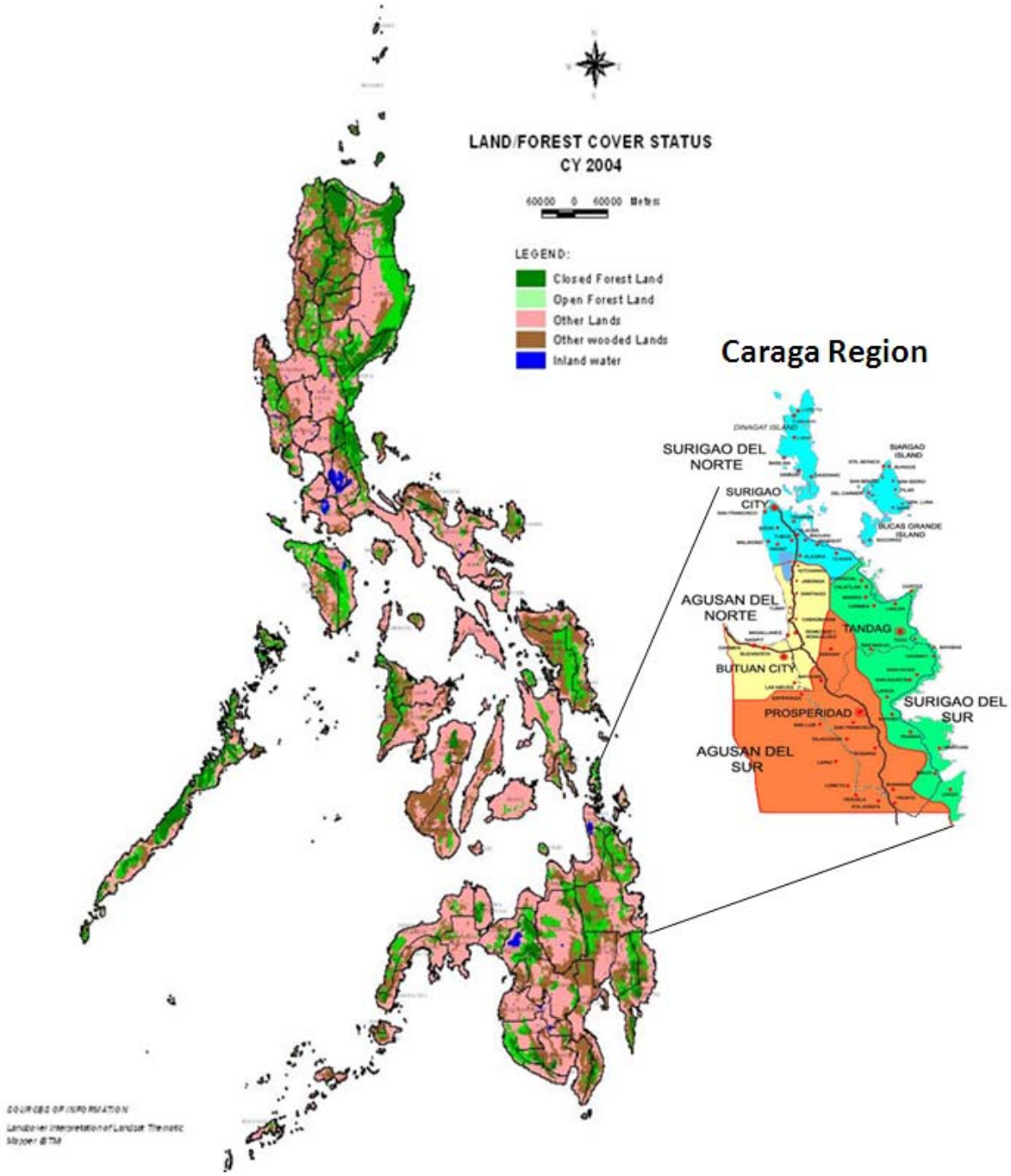
MAP OF PROJECT AREA



PART 1 PROJECT CONTEXT

1.1. Origin

In August 2009, the *Forest Management Bureau* (FMB), the *International Tropical Timber Organization* (ITTO), the *Food and Agriculture Organization* (FAO), and the *Philippine Wood Producers Association* (PWPA) held a National Forum on "*Strengthening Policies and Opportunities for Forest Investment in the Philippines*"[1]. Proposed actions were identified and recommendations formulated to strengthen policies and stimulate forest investments by appropriate mechanisms such as improved governance in the forestry sector. Item-6 of the resulting policy action plan targeting the "*institutionalization of Chain of Custody (CoC) and timber tracking*" was adopted along with a recommendation to submit a proposal to the ITTO and other potential donors in order to fund further programs.

The identification of improvements in *Chain of Custody* (CoC) management, timber tracking and *Verifications of Legal Origin* (VLO) as key to enhanced forest governance and law enforcement in the Philippines also results from past FMB projects and studies to develop, with the assistance of the ITTO, a central Forest Information System (FIS). Such projects include:

(a) PD 41/99 Rev.2 (M) – "*Development and Implementation of the Pilot Project of the Forestry Statistics Information System (FSIS) - Phase I*";
(b) PD 353/05 Rev.2 (M,F,I) – "*Adoption and Implementation of the Forestry Information System (FIS) for the Philippines*"; and
(c) PP-A/39-170 – "*Assessment of Existing Philippine Timber Tracking System (PTTS) and the Development of Chain-of-Custody Procedures*".

In that regards, the final report under **PP-A/39-170**, submitted to the ITTO in March 2009, includes a detailed assessment of the present *Forest Stock Monitoring System* (FSMS) module of the FIS as well as of associated field procedures. At a high level, some of the key issues identified include[2]:

(a) the tedious and time consuming data encoding process as well as the limited reporting capabilities of the FSMS, specifically with regards to "timber tracking", rendering full CoC monitoring practically impossible;
(b) easily erased, tampered, changed and most of the time very difficult to read alphanumeric paint based field marking procedures; and,
(c) the unavailability of automated, integrated forest charges calculations for easy evaluation and monitoring of Forest Revenues and *Verification of Legal Origin* (VLO).

The report also provides a clear path forward in order to improve, test, and implement CoC features required to put in place a full-fledged computerized *Philippines Timber Tracking System* (PTTS) based on the current FIS, and the present project proposal, as described herein, aims at implementing a number of these recommendations.

1.2. Relevance

1.2.1. Conformity with ITTO's objectives and priorities

The present project proposal is compliant with the objectives of the *International Tropical Timber Agency* (ITTA) of 2006, to promote the expansion and diversification in international trade of tropical timber originating from sustainably and legally managed forest operations.

More specifically, the project will assist the Philippines in meeting the following objectives:

- By improving the overall Philippines FIS, the project will ***(1d) enhance the capacity of the Philippines to implement strategies for achieving exports of tropical timber and timber products from sustainably managed sources*** as well as ***(1l) strengthen the capacity of the Philippines for the collection, processing and dissemination of statistics on their trade in timber and information on the sustainable management of their tropical forests****;*

[1] Forest Management Bureau, "Resolution Adopting the Action Plan to Strengthen Policies and Opportunities for Forest Investment in the Philippines", 2009, www.itto.int/direct/topics/topics_pdf_download/topics_id=2054&no=0.

[2] Forest Management Bureau, "PP-39 A/39-170; Final Report"; March 31st, 2009; pages 5, 6, 9.

- The configuration of a field handheld based computer module, the introduction of barcodes for tagging assets as well as the integration of tax verification procedures in the FIS, will also ***(1n) strengthen the capacity of the Philippines to improve forest law enforcement and governance, and address illegal logging and related trade in tropical timber****;*
- Finally, the project will ***(1p) promote access to (and transfer of) technologies as well as technical cooperation to implement the objectives of the ITTA***.

The present project broadly supports Expected Outcome 2 of the current ITTO Action Plan (2006-2011) to "improve data and knowledge, projections and competitiveness on trade in timber and timber products in international markets".

Action by the ITTO	Possible Action by Members
Outcome 2, Action C – In cooperation with relevant organizations, collate, analyse and publish information on the production of and trade in tropical and nontropical timber, trends and data discrepancies and on the management of the permanent forest estate (PFE)	**Outcome 2, Action c – Develop and improve national data gathering, reporting and disseminating mechanisms**

It however most closely complies with Expected Outcome 4 aiming at "increasing the supply of tropical timber from sustainably managed and legally harvested sources".

Action by the ITTO	Possible Action by Members
Outcome 4, Action A – Support the effective enforcement of forest laws and regulations and the development and application of good forest-sector governance, and facilitate the exchange of experiences among members	**Outcome 4, Action a1– Improve forest law enforcement and governance and address illegal activities in the forest sector** **Outcome 4, Action a2 – Develop, test, apply and disseminate functional timber-tracking systems**

1.2.2. Relevance to the submitting country's policies

The cornerstone of forest policy in the Philippines remains **Presidential Decree 705** enacted in 1975 (**PD 705**, as later amended by **PDs 865, 1559** and **1775**). While most of the provisions of **PD 705** are still considered as operational, there have been, over the last three decades, major changes in policies on sustained yield forest management, land classification and sub-classification, forest utilization by the private sector, forest products disposal through licensing and forest revenue system, integrated social forestry, industrial tree & forest plantations, etc… through a number of decrees, orders, directives, letters of instructions, circulars and memoranda.

Over and above forest policy formulation, a central problem in the Philippines has however traditionally been the lack of implementation and enforcement capacity due to weak institutional structures and mechanisms. As noted in *Trends in Forest Policy of the Philippines*[3], "*the current approach to forest policy in the Philippines continues to place particular emphasis on policy formulation with only very limited efforts being made to implement, monitor and evaluate the efficacy of such policies*".

The present project therefore focuses on implementing institutional capacity to monitor and enforce regulations relevant to the production and processing of timber along the supply chain, as well as to the issuance of transport documents, such as *Certificates of Timber Origins* (CTO) and *Certificates of Lumber Origin* (CLO), key to the forest revenue system. In that context, the following administrative policies provide the regulatory environment for timber tracking, the issuance of transport documentation and *Verification of Legal Origin* (VLO):

i. **DAO No. 2007-31, October 26th, 2007**, "*Amending Certain Provisions of DENR Administrative Order No. 07, series of 1994 and Prescribing the Use of Computer Generated Certificate of Timber Origin (CTO) and Certificate of Lumber Origin*";
ii. **DAO No. __, Drafted in 2007**, "*Adoption of the Forest Stocks Monitoring System (FSMS)*";

[3] Pulhin, Juan M.; "Trends in Forest Policy of the Philippines"; Policy Trend Report; 2002; p.29-41

iii. **DMC No. __, Drafted in 2007**, "*Guidelines on the Implementation of the Forest Stocks Monitoring System (FSMS)*";
iv. **DAO No. 2004-04, March 16th, 2004**, "*Guidelines on the Utilization and Transport of Planted Trees in Private Lands*";
v. **DMC No. 1999-20, July 29th, 1999**, "*Supplemental Guidelines Governing the Registration, Harvesting, Transport and Marketing of Timber By-Products coming from Private Plantations within Private Lands or Tax-Declared A&D Lands*";
vi. **DMO No. 1996-08, March 22nd, 1996**, "*Full Implementation of the Log Control Monitoring System (LCMS)*";
vii. **DAO No. 1996-26, September 10th, 1996**, "*Revised Guidelines in the Harvesting and Transport of Planted Trees and Non-Timber Products within Social Forestry Areas*";
viii. **DMO No. 1996-06, February 28th, 1996**, "*Guidelines on the Implementation of the Log Control Monitoring System (LCMS)*";
ix. **DAO No. 1996-04, February 13th, 1996**, "*Adoption of the Log Control Monitoring System (LCMS)*";

From a broader perspective, the project also supports long term policies and development goals such as:

(a) the current DRAFT of the *Sustainable Forest Ecosystems Management Act* (SFEMA), designed to replace the Revised Forestry Code PD 705, recently endorsed by the Committee on Natural Resources in the House of Representatives and being discussed in the Senate at the Committee level, which states that "*the DENR shall institute a forest product chain-of-custody (CoC) system to enable the tracing of transported, processed, or marketed products to their source*";
(b) the Philippines Constitution (1987) defining that access to natural resources be managed through either joint-venture, co-production or production sharing agreements and aiming at "*sustainable development of forest resources within ancestral lands and domain claims*";
(c) the Revised Master Plan for Forestry Development (2003) calling for "*sustainable management of forests*" and for the "*improvement of forest administration capacity*"; and
(d) the regional FLEGT *Voluntary Partnership Agreement* (VPA) process for which the Philippines has expressed its interest.

1.3. Target area

The Philippines Forest Information System is a central database that manages the whole forest sector, and as such, applies to the entire national territory. The current project, which will see the configuration of new "timber tracking" and *Verification of Legal Origin* (VLO) modules, as well as the definition of new procedures using barcodes as a means to encode information, is therefore inherently national in its scope. The operational field testing phase of the project is however envisaged to take place in a few supply chains in the Caraga region in order to pilot the application prior to a national roll-out.

1.3.1. Geographic location

Caraga is an administrative region of the Philippines located on the northeastern portion of the island of Mindanao. It is the Philippines' newest region (also called Region-XIII) created through **Republic Act No. 7901** of February 25th, 1995. The region encompasses four provinces (Agusan del Norte, Agusan del Sur, Surigao del Norte and Surigao del Sur), three major cities (the regional center of Butuan City, Surigao and Bislig), seventy municipalities and 1,346 "barangays" (small settlements and basic units of government in the Philippines).

Caraga is also considered the center for natural forest production and plantation in the Philippines; with close to 75% of its total land area of 1.91m hectares reserved for forest tenurial instruments like Timber License Agreements (TLA), Integrated Forest Management Agreements (IFMA) and Community Based Forest Management (CBFM)[4] (see *Section 2.1.1 - Institutional set-up and organizational issues* for details). The *Surigao Development Corporation* (SUDECOR) is the only active TLA in Caraga, and its current license (due to expire in December 2011) is expected to migrate to an IFMA in the coming months. As of 2008, there were also 19 IFMA (176k ha), 112 CBFMA (208k ha) and 72 private forest development agreements (1,610k ha) active in the region[5] and producing a total of 375k m^3 of logs from natural and planted forests. They accounted for respectively 26% of the national output for naturally grown logs and 49% of the output from plantation, making Caraga the "Timber Corridor of the Philippines" (see table next page).

[4] Rebuta, Carl Cesar C.; "Caraga Region: The center of resource conflict in the Philippines", Secretariat of Caraga Biodiversity Summit; http://www.insidemindanao.com/article140.html

[5] See map of active CBFMs, IFMAs and TLAs in Caraga region on page 13

In 2008, the bulk of Caraga's production was declared through *Self Monitoring Forms*, SMFs being the documentation used for declaring production of planted trees removed from private lands[6]. The SMF, instituted in 1999, was later replaced by a Certificate of Timber / Forest Products Ownership under **DAO 2004-04**, which was temporarily suspended before being finally re-instated in late 2010. The SMFs are therefore no longer in use.

Downstream, Caraga also counts 6 large active sawmills requiring about 100k m^3 of logs annually, and a number of "mini-sawmills" (21 of which were active in 2008), 9 veneer plants (out of 34 in the country), and 8 plywood plants (out of 41 nationally)[7]. A good portion of the regional log production is also transported to other processing centers in Northern Mindanao (4 sawmills), Metro Manila (8 sawmills), and Central Luzon (7 sawmills).

[6] Mehaffey, Darren; "Deforestation and forest management in the Philippine", School of Agricultural and Forest Sciences, September 2004.

[7] "2008 Philippines Forestry Statistics"; DENR; www.forestry.denr.gov.ph

LOG PRODUCTION BY TYPE OF TIMBER LICENSE/PERMIT: 2008 (in m^3)

Region	Total			Timber License Agreement (TLA)		Special Cutting Permit			Community Based Forest Management (CBFM)			Private Land Timber License (PLTL)		Self Monitoring Form (SMF)		Intergated Forest Managemnet Agreement (IFMA)			Others (1)		
	Total	Naturally Grown	Planted	Total	Naturally Grown	Total	Naturally Grown	Planted	Total	Naturally Grown	Planted	Total	Naturally Grown	Total	Planted	Total	Naturally Grown	Planted	Total	Naturally Grown	Planted
TOTAL	**815,225**	**103,134**	**712,090**	**13,810**	**13,810**	**680**	**106**	**574**	**20,559**	**6,919**	**13,640**	**2,998**	**2,998**	**620,471**	**620,471**	**153,100**	**78,657**	**74,443**	**3,606**	**644**	**2,962**
CAR	19,743	18,480	1,263	-	-	99	99	-	-	-	-	-	-	15	15	17,774	17,774	-	1,855	607	1,248
1	1,693	-	1,693	-	-	31	-	31	-	-	-	-	-	1,661	1,661	-	-	-	1	-	1
2	20,960	12,926	8,034	-	-	-	-	-	32	-	32	-	-	5,672	5,672	14,292	12,926	1,366	964	-	964
3	15,553	6,598	8,955	-	-	61	-	61	5	-	5	-	-	8,117	8,117	7,094	6,598	496	276	-	276
4A	4,044	-	4,044	-	-	-	-	-	-	-	-	-	-	4,044	4,044	-	-	-	-	-	-
4B	120	-	120	-	-	-	-	-	-	-	-	-	-	120	120	-	-	-	-	-	-
5	3,214	44	3,170	-	-	196	7	189	-	-	-	-	-	2,912	2,912	-	-	-	106	37	69
6	61,656	-	61,656	-	-	-	-	-	-	-	-	-	-	61,656	61,656	-	-	-	-	-	-
7	2,050	-	2,050	-	-	-	-	-	-	-	-	-	-	2,050	2,050	-	-	-	-	-	-
8	4,521	-	4,521	-	-	293	-	293	-	-	-	-	-	4,228	4,228	-	-	-	-	-	-
9	69,571	20,849	48,722	-	-	-	-	-	-	-	-	-	-	7,364	7,364	62,207	20,849	41,358	-	-	-
10	60,459	-	60,459	-	-	-	-	-	-	-	-	-	-	60,459	60,459	-	-	-	-	-	-
11	152,162	16,948	135,215	4,663	4,663	-	-	-	5,794	953	4,842	-	-	128,939	128,939	12,454	11,332	1,122	312	-	312
12	23,978	-	23,978	-	-	-	-	-	-	-	-	-	-	23,886	23,886	-	-	-	92	-	92
13	**375,499**	**27,289**	**348,210**	**9,147**	**9,147**	**-**	**-**	**-**	**14,727**	**5,966**	**8,761**	**2,998**	**2,998**	**309,348**	**309,348**	**39,279**	**9,178**	**30,101**	**-**	**-**	**-**

Details may not add up to totals due to rounding

(1) Wood Recovery Permit (WRP), Forest Land Management Agreement (FLMA), Tree Cutting Permit

At the time of piloting the system in the field, it is currently envisaged to enlist the voluntary participation of stakeholders along two (2) chains of supply representing two different types of agreements such as a CBFM and an IFMA, as well as a private plantation operation.

1.3.2. Economic, social, cultural, and environmental aspects

▪ Economic aspects

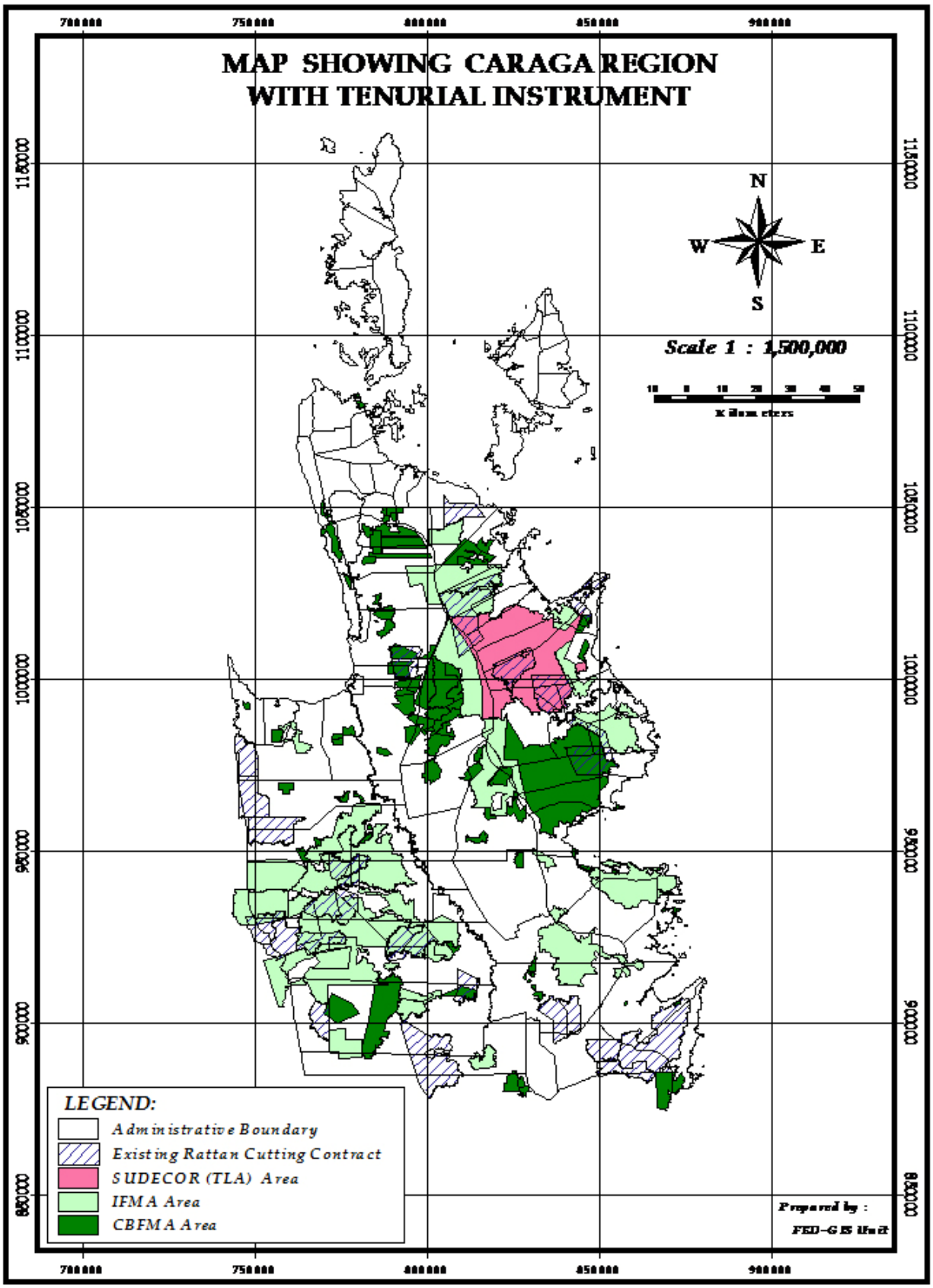
In order for the government to support and manage the forestry sector, the Forestry Code authorizes the DENR to collect charges on forest products, such as:

i. "*forest charges*" (stumpage tax or government royalty), collected for the timber cut;
ii. "*transport charges*" levied at issuance of CLO/CTO certificates;
iii. a "*government share*" for forest plantation, instituted under **DAO No. 1999-53**, under which a 30% levy (based on gross value of timber, computed "on-site" as determined by the regional DENR office) will be collected, pending policy harmonization currently under review.

In that regards, improvements in overall governance, revenue collection from forest charges and law enforcement capacity remain central to the government's ability to assist the forestry sector though policies and structural programs, crucial to the revitalization of the sector in the Philippines.

▪ Environmental and socio-cultural aspects

The current plan to introduce an enhanced FIS able to monitor the entire wood supply chain, perform VLO checks, as well as improve tree marking and log labeling procedures will greatly increase effectiveness in the control of operations upstream, payment of government dues and overall monitoring of timber movement in the Philippines.



The current project will therefore contribute to a better management of the environment as well as to the livelihood of local communities by:

(a) facilitating the efficient management of forest resources;
(b) better controlling illegal logging activities on the periphery of industrial tenurial agreements as well as in Community Based Forest Management Agreements;

(c) providing an opportunity to involve local communities in forest management and monitoring activities through improved access to information and increased transparency on social charges included in IFMA and CBFM agreements;
(d) improving private forest plantation management;
(e) providing all stakeholders with data on sustainable forest management; and
(f) increasing the number of skilled and technologically challenging jobs in the forestry sector enabling the industry to move up the value chain.

1.4. Expected outcomes at project completion

It is expected that at the end of the project, a "timber tracking" module, a module supporting Verifications of Legal Origin (VLO) as well as a field data capture module enabling law enforcement activities will have been integrated into the current Philippines Forest Information System (FIS).

New functionalities of the FIS will include:

(a) fully auditable, multi-tiered, configurable, online environment;
(b) "timber tracking" capabilities from inventory to factory/processing;
(c) centralized *Certificate of Timber Origin* (CTO) and *Certificate of Lumber Origin* (CLO) management tool integrating tax declaration, reconciliation and verification;
(d) forest operations handheld based field module replicating current paper based data collection processes;
(e) data entry through online interface, handheld computers and file upload;
(f) standard reporting at the various control points of the CoC;
(g) flexible, online, multi-tiered CoC and VLO reporting and data post-processing capabilities;
(h) handheld computer management capabilities;

New processes related to barcode tagging along the wood supply chain will also have been designed, implemented and piloted.

The Forest Management Bureau, local Community Environment Natural Resources Office (CENRO) field operations officers, as well as participating stakeholders (including private sector companies participating to the piloting) will have been trained on the system, and an operational ~7-month field testing phase will have been performed, data related to the pilot being available online.

PART 2 PROJECT RATIONALE AND OBJECTIVES

2.1. Rationale

2.1.1. Institutional set-up and organizational issues

After World War II, the Philippines experienced a period of extensive logging to support economic growth. Though the historical *Timber License Agreement* (TLA) system stipulated that logging operations should be conducted according selective logging prescriptions, and provided detailed guidelines for forest management, these were unfortunately not properly implemented on the ground. Many of the problems associated with large-scale forest resource destruction can be directly linked to a combination of land and concession tenure issues and lack of ability (or will) to enforce the conditions of the concessions. The legal basis of the TLA system changed under the 1987 constitution, resulting in some dramatic reductions in the awarding of concessions. Existing TLA holders, however, were allowed to continue to operate until the expiry date indicated in the original agreement, subject to certain new requirements. In order to prevent the further loss of old-growth forests, DENR Administrative Order **DAO No. 24/1991** also imposed a ban on primary-forest logging from January 1992 onwards and shifted logging to second-growth forests.

The policies implemented over the past 20 years have focused on reducing, phasing out the areas under TLAs in favor of awarding forest harvesting rights embodied in *Timber Production Sharing Arrangements* (TPSAs), an important element in the new policies being the encouragement of private-sector participation in forest plantations. TPSAs then evolved into Industrial Forest Management Agreements (IFMAs), *Socialized Integrated Forest Management Agreements* (SIFMAs) and *Community-Based Forest Management Agreements* (CBFMAs), all of which encourage investment in maintaining the forest growing stock. These new instruments take into account the provisions of the Indigenous People's Rights Act, according to which indigenous people have the legal rights over their ancestral lands, which also means that they have a say in the management of the resource. Under CBFMs, for example, organized communities operate within allowable-cut limits set by the government, but can otherwise harvest timber and other forest products to sell, use for their own needs, or process. Today, the control of illegal activities however remains a major challenge and is considered one of the remaining obstacles to overall sustainable forest management.

The *Department of Environment and Natural Resources* (DENR) is the executive department of the Philippines' government responsible for governing and supervising the exploration, development, utilization, and conservation of the country's natural resources. Given the extent of forest cover in the Philippines, the DENR has co-opted other stakeholders in the management of national forest lands and resources, and, in order to inculcate in private sector enterprises, local communities and civil society at large a sense of responsibility, the DENR must be able to monitor their performance and ensure that forest title holders are accountable for the state of forest resources under their stewardship.

At the local level, the *Community Environment Natural Resources Offices* (CENRO) are responsible for land management, forestry and protected areas, the forestry sector representing ~70% of their activities. The CENROs oversee law enforcement activities, manage the forest agreements, collect production data and forest revenues (including the issuance of Certificates of Origin), as well as operate fixed and mobile checkpoints. Each CENROs reports to one of the 76 PENROs (provincial), themselves under the supervision of a RENRO (regional). Centrally, "field operations" report to the Under Secretary for Field Operations at the DENR. The DENR manages various attached agencies and six Bureaus, namely the Environmental Management Bureau, Mines and Geosciences Bureau, Forest Management Bureau, Protected Areas and Wildlife Management Bureau, Lands Management Bureau and the Ecosystems Research and Development Bureau. The role of the FMB is mainly to:

i. recommend policies and/or programs for the effective protection, development, occupancy, management and conservation of forest lands;
ii. advise the Regional Offices in the implementation of the above policies and/or programs;
iii. assist in the monitoring and evaluation of forestry development projects to ensure efficiency and effectiveness; and
iv. undertake studies on the economics of forest-based industries, including the supply and demand trends on the local, national and international levels, identifying investment problems and opportunities in various areas.

2.1.2. Stakeholder analysis

As mentioned in *Section 1.1 – Origin*, the present project is a direct result of Item-6 of the "*National Forum to Strengthen Policies and Opportunities for Forest Investment in the Philippines*" action plan adopted in August 2009. The Forum brought together **more than 150** participants[8], and recommendations were identified to strengthen policies as well as to stimulate and enhance forest investments by appropriate financial and institutional mechanisms. **The main stakeholders in the forest sector include government institutions (in charge of planning, policies and law enforcement), upland dweller communities and indigenous people, private sector operators, non-governmental organizations, and the academe. The banks and financial institutions as well as multilateral and bilateral agencies supporting forest investments are starting to be key actors too.**

Given the extent of forest cover in the Philippines and the lack of capacity of government agencies (such as the DENR) concerned with forest management, decentralization to the private sector and people's participation was introduced in the late 80's. For example, *Peoples' Organizations* (PO) were increasingly tasked with managing forest land through *Community Based Forest Management* (CBFM), a flagship DENR program that provides a strong foundation for communities to be primary stakeholders in forest development with the special privilege of generating income from such accountability. It is to be noted that holders of CBFM agreements are however often not able to submit management plans (including inventory) within the prescribed period nor well monitored as required under tenurial regulations.

In order to inculcate in local communities, indigenous people organizations and civil society at large a sense of responsibility, the DENR must be able to monitor their performance and ensure that forest title holders are accountable for the state of forest resources under their stewardship. In that regard, stakeholders are requesting more transparent mechanisms enabling the establishment of a performance based incentive system (see *Annex 4 - National Forum on Strengthening Policies and Opportunities for Forest Investment in the Philippines*).

The table below presents the profile of the key groups involved in the consultation process and identified as stakeholders in the present project as well as their foreseen role and responsibilities:

TABLE 3: Stakeholder Analysis Table

Stakeholder Group	Characteristics	Problems, needs, interests	Potentials	Involvement in Project
Primary Stakeholders				
DENR (including CENRO and PENRO)	Department in charge of forest resources	Improve overall governance, revenue collection and law enforcement	Enforcement processes and procedures	Consultation on system configuration and participation to field testing phase
Forest Management Bureau (FMB)	Department in charge of policies, projects and programs	Insure application of current Forest Legal Standard and optimize coordination with other departments	Legal framework and policies	Consultation on system configuration and overall executing agency
Forest agreement holders (industrial and community based)	Economic agents responsible for production	Meet legal requirement and achieve value added "certification"	Simplification of processes and procedures	Input on system configuration, participation to piloting phase and self-monitoring
Secondary Stakeholders				
Local Communities, NGOs and Civil Society	Stakeholder interested in sustainable management of the resources, legal rights and transparency	Sustainable management and community rights	Independent auditors and popular education	Users of data stored in the system

[8] See attached "Directory of Participants" of National Forum to Strengthen Policies and Opportunities for Forest Investment in the Philippines.

Other government agencies	Involved in managing and monitoring aspects of the wood production supply chain	Interactions between each other and with external stakeholders	Simpler processes and access to information	Input on system configuration and users of data stored in the system
Tertiary Stakeholders				
International Commercial Partners	Buyers of Philippine timber products and sellers of own products	Timber exports/imports rules and regulations	Economic agents with economic influence	Follow-up on project within the framework of certification
International Agencies and Organizations (ITTO, FAO, CITES, …)	Global policies advisors and regulators	Policies implementation and monitoring	International policy advisors	Follow-up on the Philippines fulfillment of its international obligations

2.1.3. Problem analysis

As the Philippines tries to sustainably redevelop its forestry sector to take advantage of increasing demand for wood-based products in the local and international markets, it will need to put in place stronger monitoring and enforcement mechanisms to meet increasingly stringent international requirements placed on wood producer countries and address persistent timber smuggling issues (especially in regions such as the Sierra Madre, Palawan and Eastern Mindanao),

The control of timber poaching, illegal activities and associated trade has always been a major challenge in the Philippines and are considered the main obstacles to Sustainable Forest Management (SFM). For example, typical scenarios involve[9]:

a) **small-scale loggers equipped with a power saw cutting trees based on an agreed cutting contract with a financier based locally or outside the local community. The bulk of such illegally cut forest products usually find their way to registered wood processing plants or other transshipment points of first-class hard wood species bound for larger urban centers;**
b) **forged *Certificate of Timber Origin* (CTO) and *Certificate of Lumber Origin* (CLO) introducing illegal timber into the supply chain;**
c) **falsification of species declaration (whereby natural forest trees are falsified as plantation species) to circumvent controls on high value tropical trees as well as to lower tax and forest charges levied on production;**
d) **falsification of timber origin and transshipments in order to infringe on logging bans and restrictions in certain areas;**
e) **license holders harvesting in excess of authorized annual allowable cut (i.e. under-declaration);**

The full extent of these activities is not easy to determine, but were highlighted, for example, in discrepancies between Philippine and Japanese statistics until the late 1980's. According to Japanese import records, log imports from the Philippines were approximately 50% higher than the recorded log exports registered by the Philippines. At the time, a Philippines Senate committee estimated that the country was losing as much as USD1.8bn per year in revenues as a result of illegal logging. Following a major enforcement operation in the early 1990's, illegal activities are believed to have somewhat declined over the last 15 years, but remain commonplace in key remaining forest areas.

In response to these issues, **DAO No. 1996-04**, dated February 13th 1996, adopted the use of a ***Log Control Monitoring System* (LCMS)** as a means to systematically track logs and timber flows from source to **wood processors**, while **DMO No. 1996-06**, dated February 28th 1996, provided guidelines on the implementation of the LCMS, including procedures for pre-harvest inventory, timber inventory, felling and bucking, transport of forest products, log marking and other documentation. Finally, **DMO No. 1996-08**, dated March 22nd 1996, mandated the full Implementation of the LCMS in Region XIII (or Caraga region).

Despite these policies and procedural guidelines, the LCMS was **however never** fully implemented due to **what now appears to have been the unavailability of well designed technological enforcement and monitoring solutions as well as to** operational difficulties. For example, **the LCMS** provided very limited

[9] "Tackling Timber Smuggling; An Introductory Guide for Enforcement Officials"; Earthsight and Philippines Border Management Project (PBMP) training document funded by the European Union; 2008; page 9.

tracking of transport and shipping documents for timber, lumber, and lumber products, and the bespoke Dbase IV computer program developed was inflexible and complicated to use, especially in the field.

The government**, through the DENR**, therefore decided to formulate an enhanced version, which led to the development of the current *Forest Stocks Monitoring System* (FSMS). The FSMS was developed in early 2000 as a computer package based on FoxPro not only to address timber tracking but also other forest management objectives as such as standardization of timber data and curtailing of illegal activities. The salient features of the FSMS related to timber tracking are its use of recording and reporting forms called "Capture Forms", manually filled for each control point from the logging set-up down to the mill site or wood processing plants. It was designed as a much better tool, with improved procedures in tracking the movement of logs/timber from the cutting area (or from the initial port of discharge in the case of imported wood materials) to its final destination as lumber or veneer, including the monitoring of residual trees left after logging or cutting operations, as the case may be. The FSMS includes 6 capture forms and 6 reports on timber inventory, felling, bucking, transport, wood processing (input/output) as well as residual trees left after logging.

However, **as identified in the final report under project PP-39 A/39-170 (*Assessment of Existing Philippine Timber Tracking System and the Development of Chain-of-Custody Procedures*)** the current version of the FSMS having been developed prior to the recognition of "Chain of Custody" (CoC) and ***Timber Legality Assurance Systems* (TLAS)** concepts, and to the introduction of new methods in timber tracking, does not support true end-to-end traceability and *Verification of Legal Origin* (VLO), which (although possible in theory) remain practically extremely cumbersome.

The system also presents "gaps" and "complexities" that **quickly** need to be addressed. For example:

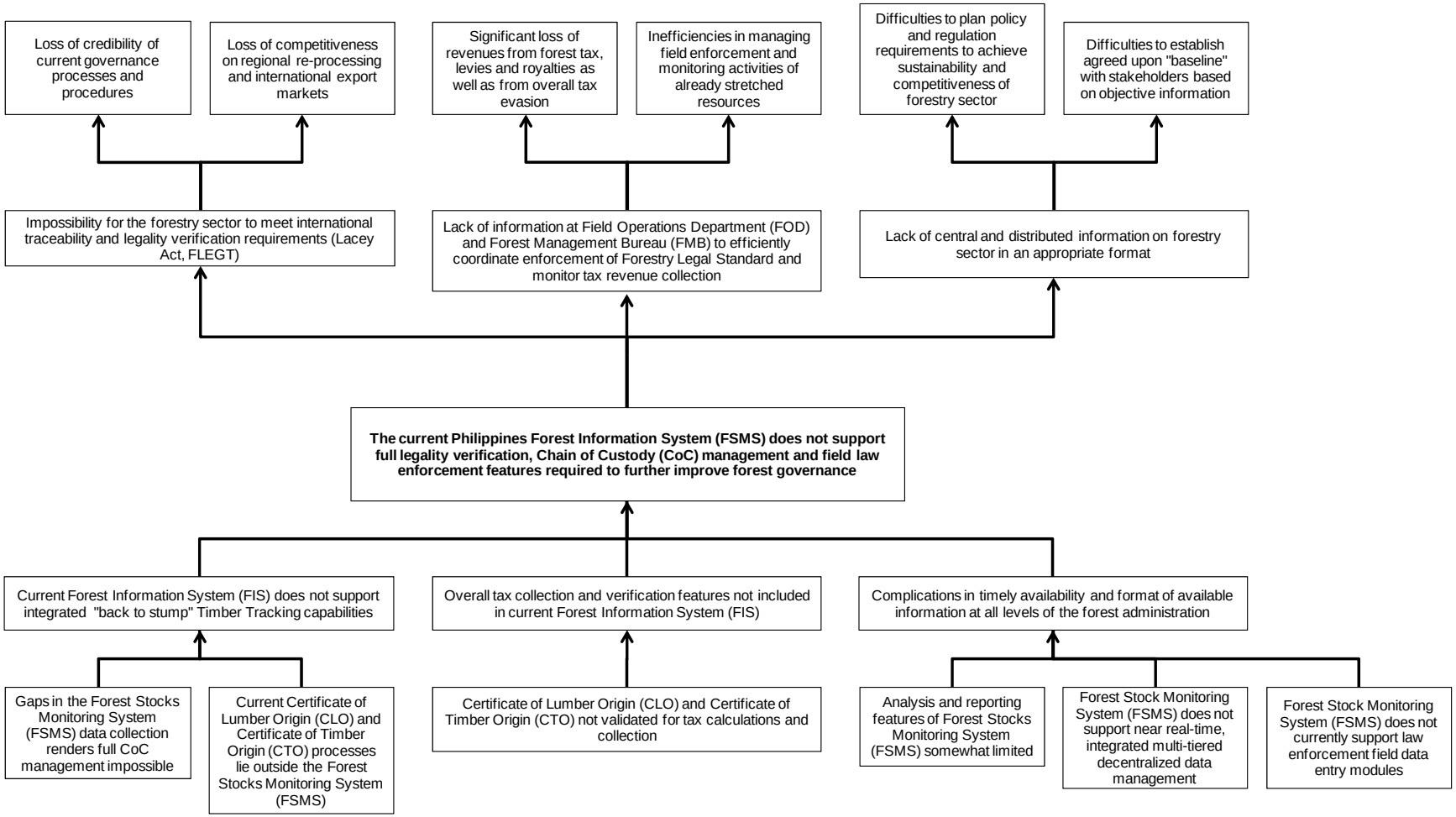
- **(a)** the current FIS and FSMS software do not link the reports generated at the control points to reconcile information held across the supply chain, nor do they support the integration of CTO/CLO transport and royalty declaration documentation. Hence, the FSMS is not sufficient in tracking data from inventory to wood processing and back nor can it automatically calculate and validate payment of forest charges and other fees;
- **(b)** the immense volume of data that can be generated from the field may not have been fully anticipated when the FSMS computer program was developed, and the existing post processing "engine" does not allow for detailed data mining and reporting, hence limiting the value of the system as a management tool;
- **(c)** the traditional marking of logs implies the use of timber crayon and hatches which can be easily erased and tampered with, hence the need to adopt new technologies (such as barcode tags).
- **(d) field operations need better tools (e.g. barcode readers, GPS, etc…) to facilitate inventory declaration and validation, CLO/CTO verification and mobile inspections; and**
- **(e)** given currently available internet facilities, wider usage and appropriation of the system would be possible by integrating the current FIS with an online, near real-time, distributed, multi-tiered platform interface, such systems being increasingly the norm for centralized forest management**, therefore enabling enhanced institutional capacity despite limited field manpower.**

These practical technical difficulties, coupled with the postponement (due to pressure from the [private sector) of the 2007 Memoranda on the "*Adoption of the Forest Stocks Monitoring System* (FSMS)" and "*Guidelines on the Implementation of the Forest Stocks Monitoring System* (FSMS)", resulted in obstacles in the development of a centralized FSMS.

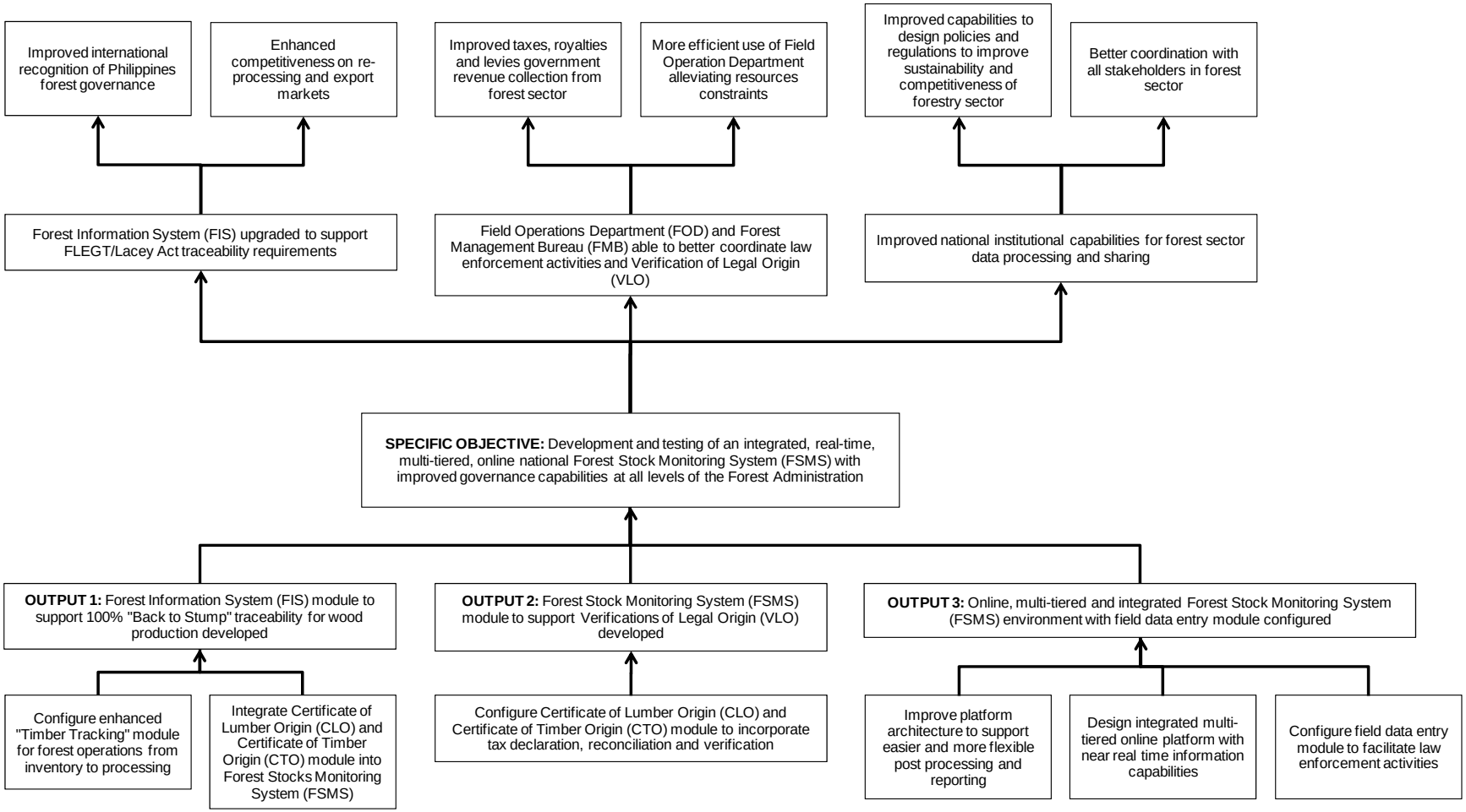
As approval of the *Sustainable Forest Ecosystems Management Act* is now close to reaching its conclusion, the single overarching and comprehensive legislation providing a strong enabling framework for the implementation of the FSMS is finally in sight. It therefore appears that recent developments in international trade requirements (such as the adaption of the Lacey Act in the US and the EU-FLEGT regulations), as well as advances in countries such as Indonesia, Malaysia, Thailand and Vietnam in developing and deploying stronger central Forest Management Systems has created a consensus in the Philippines (as evidenced by resolutions of the National Forum on "*Strengthening Policies and Opportunities for Forest Investment in the Philippines*") on the need to "*institutionalize forest certification, chain of custody and timber tracking*", put in place "*regular forest inventory program*", "*update [the] existing Information Management System*" as well as "*automate appropriation of forest charges and fees*"[10].

[10] See attached "Report on the Conduct of the National Forum to Strengthen Policies and Opportunities for Forest Investment in the Philippines"; Section IV. Agreements/Outputs; Pages 10-12.

Problem Tree:



Objectives Tree:



2.1.4. Logical framework matrix

Strategy of Intervention	Measurable Indicators	Means of Verification	Key Assumptions
Development Objective: *To improve forestry governance, institutional law enforcement capacity, stakeholder coordination and forest sector competitiveness through improved data management.*	*The Philippines FSMS is deployed nationally by 2015;* *The FSMS meets the FLEGT TLAS standard and Lacey Act VLO requirements by 2015;* *The FSMS supports a Philippines Timber Certifications Standard by 2016.*	*Regulations and Department Administrative Orders (DAO) are enacted to support the deployment of the system nationally;* *The FSMS issues Philippines internationally recognized "Timber Certifications Licenses".*	*There is maintained political will at the DENR to deploy the FSMS nationally;* *The Philippines proceeds with the definition and implementation of a Certification Standard;* *Further modules of the system are developed / improved to bridge potential remaining gaps with the TLAS standard.*
Specific Objective: *Development and testing of an integrated, real-time, multi-tiered, configurable, online national Forest Stock Monitoring System (FSMS) with improved governance capabilities at all levels of the Forest Administration.*	*The FSMS meets the "Functional and Technical Specifications" of the project;* ***Selected staff of DENR Field Operations and FMB are trained on and using the FSMS according to system user procedures;*** ***System is available online to project stakeholders including the ITTO.***	*The FSMS goes through a documented "Acceptance Testing" process by the **DENR and** FMB **to ensure the system meets the "Functional and Technical Specifications";*** ***Training course attendance list and system usage logs;*** ***Pilot data and reports can be viewed online.***	*No major technical difficulties are encountered at project deployment;* *All the stakeholders agree on a set of "Functional and Technical Specifications" for the project;* *All the required stakeholders agree to participate to the pilot phase of the project.*
Output 1: *Forest Stock Monitoring System (FSMS) module to support 100% "Back to Stump" traceability for wood production developed.*	***Output indicators:*** ***The FSMS supports timber tracking and traceability management from pre-harvest inventory to production, transport, wood product transformation and residual inventory;*** ***Field controls are facilitated through handheld computer;***	***Review of management plan, database and evidence of pertinent system generated documents;*** ***Interviews with DENR field personnel on investigation of log movements on pilot CoC[11];*** ***Enforcement and reconciliation of pre-harvest and residual inventory monitoring with production data;*** *For all logs and timber along the pilot supply chain, a report providing a CoC history and "Back to Stump" traceability can be issued by the system.*	*On-going political will to configure and test the feature;* *Private sector participation to the field testing;* *Capacity requirements at both government & private sector level to ensure data entry at each control point are met.*

[11] As per "Manual on Auditing SFM Using the Philippines Criteria and Indicators (C&I) System"; Indicator 4.7; PD-225/03 Rev.1 (F); ITTO 2003; page 71.

Strategy of Intervention	***Measurable Indicators***	Means of Verification	*Key Assumptions*
Output 2: *Forest Stock Monitoring System (FSMS) module to support Verifications of Legal Origin (VLO) developed.*	***Output indicators:*** ***Data on production volumes, species and tax rate configured in the FSMS;*** ***FSMS automatically calculates applicable tax, forest charges and fees;*** ***Origin and destination of wood production captured and monitored through CLO/CTO;***	***Review of management plan, database and evidence of pertinent system generated documents such as production and tax reports and CLO/CTO;*** ***Interviews with DENR field personnel[12];***	*Stakeholders agree to the implementation of a forest tax verification module;* *Integration of the CLO / CTO module into the FSMS does not present unforeseen technical difficulties.*
Output 3: *Online, multi-tiered and integrated FSMS environment with field data entry module configured.*	**Output indicators:** *The system environment is configured and supports online, multi-tiered access;* *The system environment features post-processing and detailed automated reporting capabilities;* ***Users are trained on the online environment.***	***Training manual and online system user guide;*** ***Review of database and evidence of pertinent system generated documents;*** *The FSMS goes through a documented "Acceptance Testing" process by the FMB;* *The "Online" system contains verifiable information from field control points and entered by stakeholders at the end of the pilot;*	*No major technical difficulties are encountered at project deployment;* *All the stakeholders agree on a set of "Functional and Technical Specifications" for the project;* *All the required stakeholders agree to participate to the pilot phase of the project.*

[12] As per "Manual on Auditing SFM Using the Philippines Criteria and Indicators (C&I) System"; Indicator 4.7; PD-225/03 Rev.1 (F); ITTO 2003; page 71.

2.2. Objectives

2.2.1. Development objective and impact indicators

Objective:	To improve forest governance, institutional law enforcement capacity, stakeholder coordination and forest sector competitiveness through improved data management.

The long term indicators are:

(a) The Philippines FSMS is operational nationwide by 2015;
(b) The FSMS meets international traceability and VLO requirements (FLEGT, Lacey Act, etc…) by 2014;
(c) The FSMS supports a Philippines Timber Certifications Standard by 2015.

2.2.2. Specific objective and outcome indicators

Objective:	Development and testing of an integrated, real-time, multi-tiered, online national Forest Stock Monitoring System (FSMS) with improved governance capabilities at all levels of the Forest Administration

The outcome indicators are:

(a) **The FSMS meets the "Functional and Technical Specifications" of the project;**
(b) **Selected staff of DENR Field Operations and FMB are trained on and using the FSMS according to system user procedures;**
(c) **System is available online to project stakeholders including the ITTO.**

PART 3 DESCRIPTION OF PROJECT INTERVENTIONS

3.1. Outputs and activities

In this section we present the outputs and activities of the project.

3.1.1. Outputs

Output 1:	Forest Stock Monitoring System (FSMS) module to support 100% "Back to Stump" traceability for wood production developed

The output indicators are:

(a) **<u>The FSMS supports timber tracking and traceability management from pre-harvest inventory to production, transport, wood product transformation and residual inventory;</u>**
(b) **<u>Field controls are facilitated through handheld computer;</u>**

Output 2:	Forest Stock Monitoring System (FSMS) module to support Verifications of Legal Origin (VLO) developed

The output indicators are:

(a) **<u>Data on production volumes, species and tax rate configured in the FSMS;</u>**
(b) **<u>FSMS automatically calculates applicable tax, forest charges and fees;</u>**
(c) **<u>Origin and destination of wood production captured and monitored through CLO / CTO;</u>**

Output 3:	Online, configurable, multi-tiered and integrated FSMS environment with field data entry module configured

The output indicators are:

(a) The system environment is configured and supports online, multi-tiered access;
(b) The system environment features post-processing and detailed automated reporting capabilities;
(c) **<u>Users are trained on the online environment</u>**.

3.1.2. Activities

Output 1:	Forest Stock Monitoring System (FSMS) module to support 100% "Back to Stump" traceability for wood production developed

Activity 1.1: "Functional and Technical Specification" of traceability module:
- **Task 1.1.1:** Selection of traceability and IT sub-contractor;
- **Task 1.1.2:** Detailed analysis of current traceability gaps in FSMS;
- **Task 1.1.3:** Survey of supply chain current data entry processes and procedures;
- **Task 1.1.4:** Meetings with stakeholders and system users;
- **Task 1.1.5:** Elaboration of "Functional and Technical Specifications" for traceability module.

Activity 1.2: Traceability module configuration:
- **Task 1.2.1:** Development of "online" data entry and file upload interfaces (i.e. input);
- **Task 1.2.2:** Development of data validation, post processing and reports;
- **Task 1.2.3:** Elaboration of user guide and system maintenance documentation.

Activity 1.3: Traceability module deployment and testing:
- **Task 1.3.1:** Deployment of software;
- **Task 1.3.2:** Integration with existing FIS;
- **Task 1.3.3:** Testing and acceptance.

Activity 1.4: Field testing of traceability module:
- **Task 1.4.1:** End user training;
- **Task 1.4.2:** Field testing;
- **Task 1.4.3:** Workshop on system performance and recommendations;
- **Task 1.4.4:** Planning for national deployment.

Output 2: Forest Stock Monitoring System (FSMS) module to support Verifications of Legal Origin (VLO) developed

Activity 2.1: "Functional and Technical Specification" of VLO module:
- **Task 2.1.1:** Detailed analysis of current VLO processes including tax declaration, CTO and CLO;
- **Task 2.1.2:** Survey of supply chain current data entry processes and procedures
- **Task 2.1.3:** Meetings with stakeholders and system users;
- **Task 2.1.4:** Elaboration of "Functional and Technical Specifications" for VLO module.

Activity 2.2: VLO module configuration:
- **Task 2.2.1:** Development of "online" data entry and CTO/CLO file upload interfaces (i.e. input);
- **Task 2.2.2:** Development of data validation, post processing and reports;
- **Task 2.2.3:** Elaboration of user guide and system maintenance documentation.

Activity 2.3: VLO module deployment and testing:
- **Task 2.3.1:** Deployment of software;
- **Task 2.3.2:** Integration with existing FIS;
- **Task 2.3.3:** Testing and acceptance.

Activity 2.4: Field testing of traceability module:
- **Task 1.4.1:** End user training;
- **Task 1.4.2:** Field testing;
- **Task 1.4.3:** Workshop on system performance and recommendations;
- **Task 1.4.4:** Planning for national deployment.

Output 3: Online, multi-tiered and integrated FSMS environment with field data entry module configured

Activity 3.1: "Functional and Technical Specification" of online, multi-tiered environment and field module:
- **Task 3.1.1:** Survey of field data entry and law enforcement data access requirements;
- **Task 3.1.2:** Meetings with stakeholders and system users;
- **Task 3.1.3:** Definition of overall system user profiles and access rights;
- **Task 3.1.4:** Elaboration of "Functional and Technical Specifications" for FSMS environment and field module.

Activity 3.2: Field module and FSMS environment configuration:
- **Task 3.2.1:** Configuration of field module data entry interfaces (i.e. input);
- **Task 3.2.2:** Configuration of Field module – FSMS interface;
- **Task 3.2.3:** Elaboration of user guide and system maintenance documentation.

Activity 3.3: Field module and FSMS environment deployment and testing:
- **Task 3.3.1:** Deployment of hardware and software;
- **Task 3.3.2:** Integration with existing FIS;
- **Task 3.3.3:** Testing and acceptance.

Activity 3.4: Field testing of field data entry and law enforcement module:
- **Task 4.4.1:** End user training;
- **Task 4.4.2:** Field testing;
- **Task 4.4.3:** Workshop on system performance and recommendations;
- **Task 4.4.4:** Planning for national deployment.

3.2. Implementation approaches and methods

As stated in *Sections 2.2.2 – Specific objectives and outcome indicators* and *Section 3.1 – Outputs and activities* above, the objective and outputs of the present project are the development and integration of new features and modules into the current Philippines *Forest Information System* (FIS). The project methodology is therefore closely related to standard software specification, configuration and deployment processes and, as can be seen in the specific activities as well as in the work plan below, the implementation strategy implies essentially grouping the 3 outputs into a single deliverable. The activities and associated methodology can therefore be better understood when grouped together in terms of their sequence, to be performed in parallel for each module.

(a) Requirement Definition and Survey

Further to the selection of the sub-contractor, the development phase of the project starts with an important stage of survey, requirement gathering and workshops, in view of defining detailed specifications the system should support. This phase runs roughly for 3 months and is primarily concerned with the review of current systems, a detailed analysis of the legal standard applicable and the various forest and institutional procedures in use and a survey of system users. The project team will then produce a detailed system Functional and Technical Specifications document to be signed-off by the project steering committee, thereby validating it as the blueprint from which the configuration will be produced.

(b) System Configuration / Documentation

The development phase goes on with the actual implementation of the system's previously defined features and functionalities. This phase, lasting another 5-6 months sees the 3 modules configured in parallel and programmed into the FSMS. The platform configuration is split into three broad categories; system environment, system inputs and system outputs (reports). The system inputs themselves consist of handheld computers input modes (for field data collection and verification), Web input modes (for office based work) and file transfer input mechanisms (for batch data uploads). System outputs are anticipated to be a major part of the overall configuration/programming work, as it is through the reporting that much of the operational intelligence is derived. Detailed documentation of the system will also be drafted during that stage, including system and report generation User Guides.

(c) System Testing / UAT & System Sign-Off / Roll-Out

At this point, the system has been implemented and is about to be deployed at the central and regional levels for the few selected supply chains participating in the pilot program. User Acceptance Testing (UAT) procedures are performed in order to validate that all the features and functionalities work as per the specifications. Upon successful UAT, the steering committee signs-off on the system development phase and the field piloting of the system can start with the "roll-out" phase.

During the roll-out, the local administration is heavily involved in all aspect of the trial, making sure that all users get trained following a "Train the Trainer" methodology and that periodic project review meetings and workshops are held to address any "teething" issues. Provisions are also made for system optimization and adjustments that might result from the actual deployment. A help desk and technical support structure are also put in place.

(d) Pilot Phase, Monitoring & Evaluation

After completion of the system testing, training, and roll-out, all the stakeholders have been trained to use the system and its various modules along the whole chain of custody. The system is "live" and working in parallel to usual paper based processes allowing for comparisons and monitoring of the datasets. Success criteria will have been defined and agreed by the parties, and an ongoing measurement and optimization plan will be undertaken.

3.3. Work plan

3.4. Budget

3.4.1. Master budget schedule

Outputs & Activities Description	Budget Component	Quantiry		Units	Unit Costs	Total Costs	Source (I or E)	ITTO		Executing Agency
		Y1	Y2					Y1	Y2	
Activity 1.4: Field testing of traceability module (7 months):										
FMB Project Coordinator	11.1	0.14	0.86	per month	$1,500	$1,500	(E)	$0	$0	$1,500
FMB IT Administrator	11.2	0.14	0.86	per month	$1,500	$1,500	(E)	$0	$0	$1,500
FOD Field Officer	12.1	1	6	per month	$1,000	$7,000	(E)	$0	$0	$7,000
Traceability & VLO System Specialist	21	0.05	0.29	per month	$13,500	$4,500	(I)	$643	$3,857	$0
System Trainer (Users & System Admin.)	15.1	0.07	0.86	per month	$13,500	$12,536	(I)	$964	$11,571	$0
IT Project Manager	22	0.05	0.29	per month	$10,500	$3,500	(I)	$500	$3,000	$0
System Suport and Maintenance	24	0.33	2.00	per month	$5,200	$12,133	(I)	$1,733	$10,400	$0
Workshop	56	1		per workshop	$2,500	$2,500	(I)	$2,500	$0	$0
International Airfare (Economy)	32.2		2	per trip	$2,500	$5,000	(I)	$0	$5,000	$0
Local Transportation	33.3	1	6	per month	$1,500	$10,500	(E)	$0	$0	$10,500
Per Diem (International Consultant)	31.2		2	per month	$5,500	$11,000	(I)	$0	$11,000	$0
Output 2: Forest Information System (FIS) module to support Verifications of Legal Origin (VLO) developed (6 months)										
Activity 2.1: "Functional and Technical Specification" of VLO module (3 months):										
FMB Project Coordinator	11.1	1		per month	$1,500	$1,500	(E)	$0	$0	$1,500
FMB IT Administrator	11.2	0.33		per month	$1,500	$500	(E)	$0	$0	$500
FOD Field Officer	12.1	0.33		per month	$1,000	$333	(E)	$0	$0	$333
Traceability & VLO System Specialist	21	1		per month	$13,500	$13,500	(I)	$13,500	$0	$0
IT Project Manager	22	0.333		per month	$10,500	$3,500	(I)	$3,500	$0	$0
Activity 2.2: VLO module configuration (6 months):										
FMB Project Coordinator	11.1	0.5		per month	$1,500	$750	(E)	$0	$0	$750
FMB IT Administrator	11.2	0.5		per month	$1,500	$750	(E)	$0	$0	$750
Traceability & VLO System Specialist	21	0.5		per month	$13,500	$6,750	(I)	$6,750	$0	$0
IT Application Specialist	23	2.667		per month	$13,500	$36,000	(I)	$36,000	$0	$0
IT Project Manager	22	0.333		per month	$10,500	$3,500	(I)	$3,500	$0	$0
Activity 2.3: VLO module deployment and testing (2 months):										
FMB Project Coordinator	11.1	1		per month	$1,500	$1,500	(E)	$0	$0	$1,500
FMB IT Administrator	11.2	1		per month	$1,500	$1,500	(E)	$0	$0	$1,500
Traceability & VLO System Specialist	21	0.33		per month	$13,500	$4,500	(I)	$4,500	$0	$0
IT Project Manager	22	0.333		per month	$10,500	$3,500	(I)	$3,500	$0	$0
Activity 2.4: Field testing of traceability module (7 months):										
FMB Project Coordinator	11.1	0.14	0.86	per month	$1,500	$1,500	(E)	$0	$0	$1,500
FMB IT Administrator	11.2	0.14	0.86	per month	$1,500	$1,500	(E)	$0	$0	$1,500
FOD Field Officer	12.1	1	6	per month	$1,000	$7,000	(E)	$0	$0	$7,000
Traceability & VLO System Specialist	21	0.05	0.29	per month	$13,500	$4,500	(I)	$643	$3,857	$0
IT Project Manager	22	0.05	0.29	per month	$10,500	$3,500	(I)	$500	$3,000	$0
System Support and Maintenance	24	0.33	2.00	per month	$5,200	$12,133	(I)	$1,733	$10,400	$0

Outputs & Activities Description	Budget Component	Quantiry Y1	Quantiry Y2	Units	Unit Costs	Total Costs	Source (I or E)	ITTO Y1	ITTO Y2	Executing Agency
Output 3: Online, multi-tiered and integrated FIS environment with field data entry module configured										
Activity 3.1: "Functional and Technical Specification" of online, multi-tiered environment and field module (3 months):										
FMB Project Coordinator	11.1	1		per month	$1,500	$1,500	(E)	$0	$0	$1,500
FMB IT Administrator	11.2	0.33		per month	$1,500	$500	(E)	$0	$0	$500
FOD Field Officer	12.1	0.33		per month	$1,000	$333	(E)	$0	$0	$333
Traceability & VLO System Specialist	21	1		per month	$13,500	$13,500	(I)	$13,500	$0	$0
IT Project Manager	22	0.333		per month	$10,500	$3,500	(I)	$3,500	$0	$0
Activity 3.2: Field module and FIS environment configuration (6 month):										
FMB Project Coordinator	11.1	0.5		per month	$1,500	$750	(E)	$0	$0	$750
FMB IT Administrator	11.2	0.5		per month	$1,500	$750	(E)	$0	$0	$750
Traceability & VLO System Specialist	21	0.5		per month	$13,500	$6,750	(I)	$6,750	$0	$0
IT Application Specialist	23	2.667		per month	$13,500	$36,000	(I)	$36,000	$0	$0
IT Project Manager	22	0.333		per month	$10,500	$3,500	(I)	$3,500	$0	$0
Handheld Computers (with s/w)	44.2	12		per unit	$2,650	$31,800	(I)	$31,800	$0	$0
Activity 3.3: Field module and FIS environment deployment and testing (2 months):										
FMB Project Coordinator	11.1	1		per month	$1,500	$1,500	(E)	$0	$0	$1,500
FMB IT Administrator	11.2	1		per month	$1,500	$1,500	(E)	$0	$0	$1,500
Traceability & VLO System Specialist	21	0.33		per month	$13,500	$4,500	(I)	$4,500	$0	$0
IT Project Manager	22	0.333		per month	$10,500	$3,500	(I)	$3,500	$0	$0
Activity 3.4: Field testing of field data entry and law enforcement module (7 months):										
FMB Project Coordinator	11.1	0.14	0.86	per month	$1,500	$1,500	(E)	$0	$0	$1,500
FMB IT Administrator	11.2	0.14	0.86	per month	$1,500	$1,500	(E)	$0	$0	$1,500
FOD Field Officer	12.1	1	6	per month	$1,000	$7,000	(E)	$0	$0	$7,000
Traceability & VLO System Specialist	21	0.05	0.29	per month	$13,500	$4,500	(I)	$643	$3,857	$0
IT Project Manager	22	0.05	0.29	per month	$10,500	$3,500	(I)	$500	$3,000	$0
System Support and Maintenance	24	0.33	2.00	per month	$5,200	$12,133	(I)	$1,733	$10,400	$0
ACTIVITIES TOTAL						**$635,419**		**$342,215**	**$79,342**	**$213,863**
Executing Agency Management Costs @ 12%										
										$76,250
ITTO Monitoring, Evaluation and Administration										
Monitoring and Review Costs					$8,000			$4,000	$4,000	
Evaluation Costs					$10,000			$5,000	$5,000	
Programme Support Costs (@ 8%)					$58,374			$29,187	$29,187	
TOTAL								**$380,401**	**$117,528**	**$290,113**
GRAND TOTAL									**$788,043**	

3.4.2. Consolidated budget by component

Consolidated budget by component

(including unit prices)

	Budget Components	Input	Unit Costs	TOTAL	YEAR 1	YEAR 2
10	**PROJECT PERSONEL**					
	11. National Experts (Long-Term)					
	11.1. FMB Project Coordinator	10.50	$1,500	$15,750	$11,893	$3,857
	11.2. FMB IT Administrator	8.50	$1,500	$12,750	$8,893	$3,857
	12. Others (Short-Term)					
	12.1. FOD Field Officers	22.00	$1,000	$22,000	$4,000	$18,000
	13. National Consultants (Long-Term)					
	14. International Consultant (Long-Term)					
	15. Fellowships et Formations					
	15.1. System Trainer (Users & System Administration)	0.93	$13,500	$12,536	$964	$11,571
	19. TOTAL			**$63,036**	**$25,750**	**$37,286**
20	**SUB-CONTRACTS**					
	21. Traceability & VLO System Specialist	6.50	$13,500	$87,750	$76,179	$11,571
	22. IT Project Manager	4.00	$10,500	$41,996	$32,997	$8,999
	23. IT Application Specialist	8.00	$13,500	$108,000	$108,000	$0
	24. System Support and Maintenance	7.00	$5,200	$36,400	$5,200	$31,200
	29. TOTAL			**$274,145**	**$222,375**	**$51,770**
30	**TRAVEL**					
	31. Daily Subsistence Allowance					
	31.1. National Experts / Consultants	0.00	$0	$0	$0	$0
	31.2. Per Diems International Consultants	7.00	$5,500	$38,500	27,500.00	$11,000
	32. International travel					
	32.1. National expert(s)/consultant(s)	0.00	$0	$0	$0	$0
	32.2. International consultant(s)	5.00	$2,500	$12,500	$7,500	$5,000
	33. Transport Locaux					
	33.1. Local Transport	9.00	$1,500	$13,500	$4,500	$9,000
	39. TOTAL			**$64,500**	**$39,500**	**$25,000**
40	**CAPITAL ITEMS**					
	41. Offices	0.00	$0	$0	$0	$0
	42. Land	0.00	$0	$0	$0	$0
	43. Vehicles	0.00	$0	$0	$0	$0
	44. Equipments					
	44.1. Pilot Software License	1.00	$149,863	$149,863	$149,863	$0
	44.2. Handheld Computers	12.00	$2,650	$31,800	$31,800	$0
	44.3. Database & Application Servers Infrastructure	1.00	$41,000	$41,000	$41,000	$0
	49. TOTAL			**$222,663**	**$222,663**	**$0**
50	**CONSUMABLE ITEMS**					
	51. BarcodeTags	1.00	$1,575	$1,575	$1,575	$0
	54. Office Supplies					
	54.1. Documentation	1.00	$2,000	$2,000	$2,000	$0
	55. Office Space	0.00	$0	$0	$0	$0
	56. Workshop	3.00	$2,500	$7,500	$7,500	$0
	59. Component Total			**$11,075**	**$11,075**	**$0**
60	**MISCELLEANEOUS**					
	61. Sundry	0.00	$0	$0	$0	$0
	62. Auditing	0.00	$0	$0	$0	$0
	63. Contingencies	0.00	$0	$0	$0	$0
	69. Component Total			**$0**	**$0**	**$0**
70	**National Managment Costs**					
	71. Executing Agency Management Costs			$76,250	$38,125	$38,125
	72. Focal Point Monitoring			$0	$0	$0
	79. Component Total			**$76,250**	**$38,125**	**$38,125**
	SUBTOTAL			**$711,669**	**$559,488**	**$152,181**
80	**Project Monitoring and Administration**					
	81. ITTO Monitoring and Review			$8,000	$4,000	$4,000
	82. ITTO midterm, final, ex-post Evaluation Costs			$10,000	$5,000	$5,000
	83. ITTO Programme Support Costs (8% on items 10 to 82)			$58,374	$29,187	$29,187
	89. Component Total			**$76,374**	**$38,187**	**$38,187**
90	**Refund of Pre-Project Costs (Pre-project budget)**					
100	**TOTAL**			**$788,043**		

3.4.3. ITTO budget by component

Yearly Project Budget By Source - ITTO

Budget Components	Total	Year 1	Year 2
10. Project personnel			
15.1. System Trainer (Users & System Administration)	$12,536	$964	$11,571
Sub-Total	**$12,536**	**$964**	**$11,571**
20. Sub-contracts			
21. Traceability & VLO System Specialist	$87,750	$76,179	$11,571
22. IT Project Manager	$41,996	$32,997	$8,999
23. IT Application Specialist	$108,000	$108,000	$0
24. System Support and Maintenance	$36,400	$5,200	$31,200
Sub-Total	**$274,145**	**$222,375**	**$51,770**
30. Duty travel			
31.2. Per Diems International Consultants	$38,500	$27,500	$11,000
32.2. International consultant(s)	$12,500	$7,500	$5,000
Sub-Total	**$51,000**	**$35,000**	**$16,000**
40. Capital items			
44.2. Handheld Computers	$31,800	$31,800	$0
44.3. Database & Application Servers Infrastructure	$41,000	$41,000	$0
Sub-Total	**$72,800**	$72,800	$0
50. Consumable items			
51. BarcodeTags	**$1,575**	**$1,575**	**$0**
54.1. Documentation	**$2,000**	**$2,000**	**$0**
56. Workshop	**$7,500**	**$7,500**	**$0**
Sub-Total	**$11,075**	**$11,075**	**$0**
60. Miscellaneous	**$0**	$0	$0
Subtotal 1	**$421,556**	**$342,215**	**$79,342**
80. ITTO Monitor. Evaluation. Costs	**$8,000**		
81. Monitoring and Review Costs (effective estimation)	**$10,000**		
82. Evaluation Costs (effective estimation)	**$0**		
Subtotal 2	**$18,000**		
83. Program Support Costs (8% of Overall Budget)	**$58,374**		
90. Refund of Pre-Project Costs			
ITTO TOTAL	**$497,930**		

3.4.4. Executing agency budget by component

Yearly Project Budget By Source - E. Agency/Host Government

Budget Components	Total	Year 1	Year 2
10. Project personnel			
11.1. FMB Project Coordinator	$15,750	$11,893	$3,857
11.2. FMB IT Administrator	$12,750	$8,893	$3,857
12.1. FOD Field Officers	$22,000	$4,000	$18,000
Sub-Total	**$50,500**	**$24,786**	**$25,714**
20. Sub-contracts	**$0**	$0	$0
30. Duty travel			
33.1. Local Transport	$13,500	$4,500	$9,000
Sub-Total	**$13,500**	**$4,500**	**$9,000**
40. Capital items			
44.1. Pilot Software License	$149,863	$149,863	$149,863
Sub-Total	**$149,863**	**$149,863**	**$149,863**
50. Consumable items	**$0**	$0	$0
60. Miscellaneous	**$0**	$0	$0
70. Executing Agency Management Costs	**$76,250**	$38,125	$38,125
EXECUTING AGENCY/HOST GOVT. TOTAL	**$290,113**	**$217,274**	**$222,702**

3.5. Assumptions, risks, sustainability

3.5.1. Assumptions and risks

It is felt that the main risks to the project are:

- **the possibility that stakeholders who consider stronger timber tracking and *Verification of Legal Origin* (VLO) enforcement to adversely impact on "business as usual" benefits and privileges they are enjoying to actively undermine the project's successful execution and implementation; and**
- **the possibility that the introduction of new technology proves inappropriate for the Philippines forest industry, or too costly to be extended on a national scale.**

Regarding the first risk, key stakeholders have been consulted in the elaboration of new guidelines for forest sector policies, and have expressed their agreement with the broad objectives of the project. In addition, the execution of the project will be done in close collaboration with these key stakeholders.

In developing the project, recent available technological solutions available for addressing illegal activities such as timber flow control and product tracking have been briefly reviewed. During the project's implementation, further reviews will be undertaken in collaboration with the major stakeholders (including the ITTO), to ensure that past experience in the region as well as in countries such Ghana, Cameroun and Gabon where technological solutions have been deployed are also taken into account. This approach will minimize the risk of introducing inappropriate technologies or systems for the country and the industry.

Other related elements of risk also include:

(a) the possibility that the FMB or the DENR decides to no longer pursue the project for budgetary or political reasons and withdraws its support for the initiative;
(b) **the possibility that a new timber tracking framework entails additional costs deemed too burdensome by the industry;**
(c) the possibility that the chosen IT sub-contractor fails to deliver a working solution within the budgetary envelope and timeline set for the project;
(d) the possibility that the various stakeholders cannot agree on a set of Functional and Technical Specifications required for the system modules; and
(e) **the possibility that the use of barcodes to mark logs and timber products necessitate the introduction of difficult to implement changes to field processes and procedures;**
(f) the possibility that the FMB and the DENR do not have the required institutional capacity to **execute the project** and/or appropriate **and maintain** the system in the mid to long term.

Given the recent adoption, in August 2009, of the *Action Plan to Strengthen Policies and Opportunities in the Forestry Sector in the Philippines* and in light of the new *Sustainable Forest Ecosystems Management Act* (SFEMA) to be adopted later this year, it is however believed that there is wide support for a range of changes in the forestry sector, including improved CoC management.

3.5.2. Sustainability

One of the key drivers for the project remains the ability for the DENR and the FMB to improve revenue collection from forest taxes, royalties and levies, as well as to demonstrably meet its commitments to actively combat illegal logging. Given the current revenue shortfall, especially with regards to the collection of the "government share" (see *Section 1.3.2 - Economic, social, cultural, and environmental aspects*) from plantations, it is expected that over time, increasing forest revenues will provide additional funds to support on-going system operations and maintenance.

Also, as part of the workshops and consultation process, alternative mechanisms will be explored as means to insure the long term viability and appropriation of the system by the forest administration. Such mechanisms could include:

(a) the possibility to sell barcodes to economic operators for a nominal fee in order to generate extra revenues;
(b) linking the FSMS to other national initiatives such as the *Monitoring, Reporting and Verifications* (MRV) system required under the national REDD+ strategy, thus providing continued support for the development and extension of the application;
(c) linking the FSMS to systems from other administrative departments (such as customs, finance, etc…) in order to maximize the benefits of the system and thus entrench its usage.

Given the present international requirement for increased transparency and improved governance in the forestry sector (as demonstrated by the adoption of the Lacey Act in the US, the FLEGT process in Europe and the REDD+ framework at the COP-15 in Copenhagen), it appears that national forest information management system with “back to stump” traceability and VLO capabilities are quickly becoming required tools to engage in the international wood trade, and that pressure on producer countries to put in place such systems shall be maintained in the future.

PART 4 IMPLEMENTATION ARRANGEMENTS

4.1. Organization structure and stakeholder involvement mechanisms

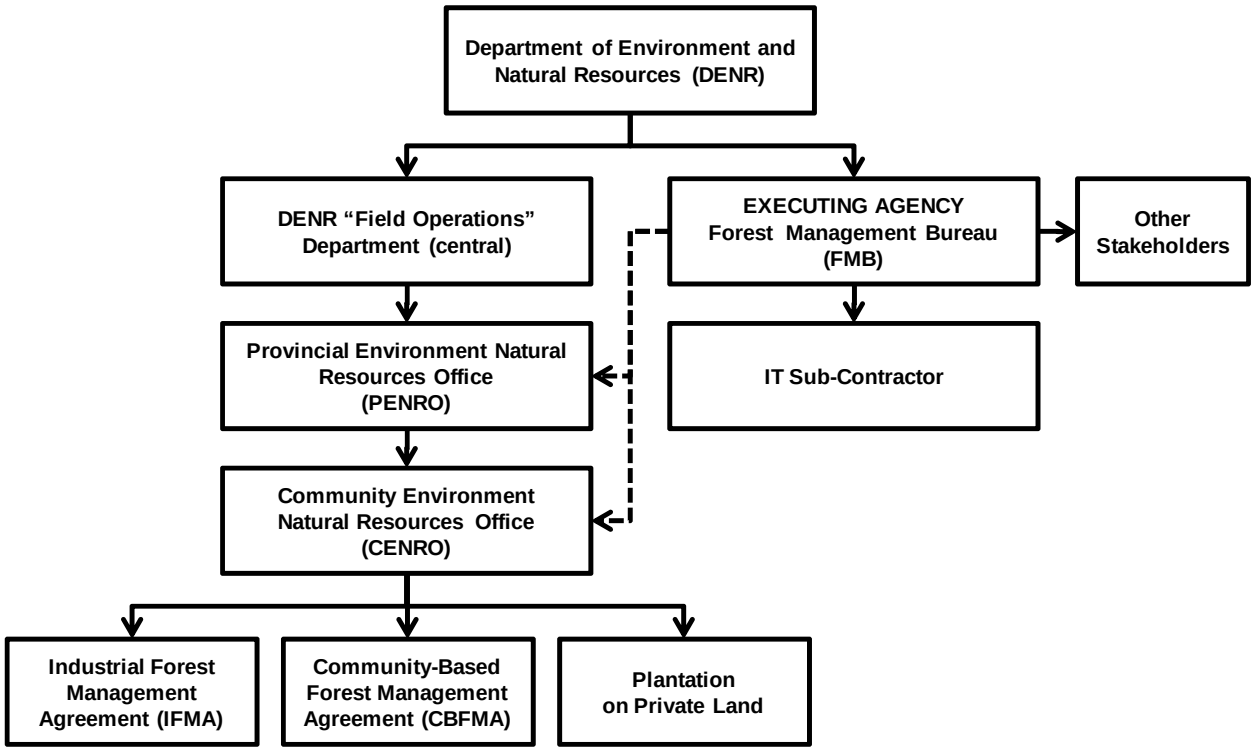
4.1.1. Executing agency and partners

The proposed executing agency for the project is the Philippines' Forest Management Bureau (FMB). As a "staff bureau" of the Department of Environment and Natural Resources (DENR), the FMB is mainly responsible for recommending and implementing policies and programs to improve forest management (see *ANNEX 1. Profiles of the Executing and Collaborating Agencies*).

Forest law enforcement, monitoring and agreement management however fall under the DENR "field operations" department, which oversees a distributed network of Provincial Environment Natural Resources Offices (PENRO) and Community Environment Natural Resources Offices (CENRO) at the local level. The FMB will therefore interface with designated representative of the DENR both at the central and local level in order to coordinate activities related to processes and procedures to be integrated in the FSMS, as well as with regards to stakeholder consultation and the implementation of the pilot phase of the project.

The regional DENR offices, in turn, will liaise with the holders of IFMA, CBFMA and private plantation operations in order to insure their active participation to the project as well as to provide institutional support in the field.

PROJECT ORGANIZATION STRUCTURE



As of 2008, the DENR in Caraga had an approximate total workforce of 1,080, with ~260 working at the regional office located in Butuan City. The DENR Caraga region is composed of four (4) Provincial Environment and Natural Resources Offices (PENROs) and thirteen (13) Community Environment and Natural Resources Offices (CENROs).

4.1.2. Project management team

The project management team will be comprised of;

- **(a)** an overall project coordinator (FMB);
- **(b)** an IT system administrator (FMB);
- **(c)** an appointed representative from the Field Operation Department of the DENR;
- **(d)** a project manager of the technical sub-contractor.

The project team will be responsible mainly for the day to day coordination of activities.

4.1.3. Project steering committee

The steering committee, responsible for the high level project guidelines and contractual arrangements will include:

(a) **an appointed representative by the Secretary of the DENR**
(b) the overall project coordinator (FMB);
(c) the project manager of the technical subcontractor;
(d) a representative of the ITTO.

4.1.4. Stakeholder involvement mechanisms

The stakeholders will be directly involved in the project via three (3) distinct mechanisms:

i. Consultation Process:
   At the time of the initial survey, stakeholder workshops and meetings, both in small groups and individual working sessions, will be organized to present and discuss the project. Input will be sought on the configuration of the system, as well as on current processes and procedures optimization. A technical and functional specifications document will be written by the consultant and approved by the project management team before the project can move to the configuration phase.
ii. Trial Phase:
   During the field testing phase, stakeholders (including DENR officers, private operators, community-based agreement holders and local NGOs) will be involved in the actual use of the system, and responsible for field data entry. In order to be able to achieve such tasks, the different stakeholders will have to undergo detailed user training on the application.
iii. Online access:
   Finally, selected stakeholders will be able to access the system online to view datasets, reports, graph, etc…

4.2. Reporting, review, monitoring and evaluation

Over and above the reports already mentioned in the present proposal (such as the Functional and Technical Specifications, or the User Acceptance Test documents), the FMB project coordinator and the sub-contractor will prepare and submit six monthly progress reports to the steering committee and the ITTO, based on the work plan. The first report shall be submitted no later than 6 months after project start and a Project Completion Report will also be submitted to the ITTO no later than a month after the end of the project.

Reporting	
Progress Reports	Every 6 months
Technical and Functional Specifications	After Activities 1.1, 2.1 and 3.1
User Acceptance Test (UAT)	After Activities 1.4, 2.4 and 3.4
System generated reports	On-going during pilot phase

The project will be subject to periodic monitoring by representatives of the ITTO, with potential visits every six months during the life of the project. Monitoring and evaluation by the ITTO could coincide with the submission of progress reports and steering committee meetings. The dates of evaluation visits will be agreed between the ITTO and the Project Management team, and its Terms of Reference will be formulated jointly by the monitoring mission and the Project staff, for approval by the ITTO. Monitoring and evaluation activities will be based on the well documented Functional and Technical Specifications describing in details the features of the project and signed off by the Executing Agency.

The project will be subject to ex-post evaluation in accordance with Guidelines established by the ITTO Manual of Project Monitoring, Review and Evaluation.

4.3. Dissemination and mainstreaming of project learning

4.3.1. Dissemination of project results

At the national and international level, the fact that the forest information system is an “online” tool greatly facilitates the dissemination of information with regards to the project. A clear process will be jointly defined with the FMB and the project stakeholders in order to present the project and its results online as well as to grant multi-tiered access to the system to any stakeholder wishing to better understand the scope of the system. The funding of the ITTO will also be clearly indicated on the interface of the system, and links to the ITTO and other relevant sites could be configured on the system dashboard.

The FMB will actively promote presentations of the results of the project (clearly presented as an ITTO initiative) at various national and international events potentially including, but not limited to:

i. regional Voluntary Partnership Agreements (VPA) FLEGT conferences;
ii. the APEC Forestry summit;
iii. any other appropriate regional and national forestry event;
iv. the annual ITTC

4.3.2. Mainstreaming project learning

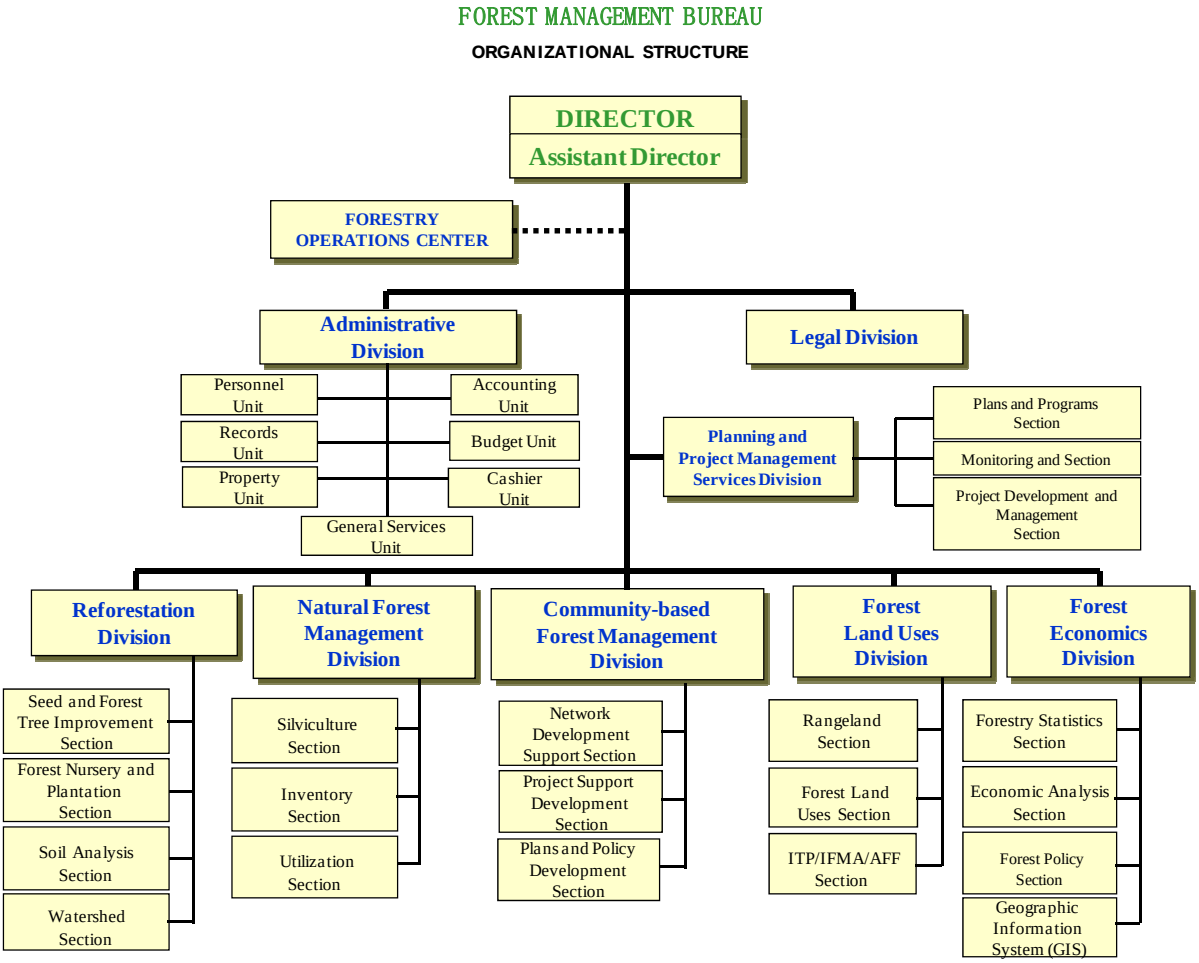
As mentioned in *Section 1.2.2. - Relevance to the submitting country's policies*, the present project will provide the DENR and FMB with an efficient Forest Stock Monitoring System, which shall be translated into policy through various Department Administrative Orders (DAO), Department Memorandum Circular (DMC) and Department Memorandum Order (DMO), many of which are already drafted and under review, but not yet operational. With improved CoC management also explicitly targeted in the pending Sustainable Forest Ecosystems Management Act and thus endorsed at the highest political level, the FMB has a clear mandate to mainstream the adoption of the system throughout the forest administration.

The main innovations introduced through the project are however a lot more technically than policy driven. The field data collection module, for example, will provide opportunity to introduce barcode tagging processes, facilitate field law enforcement, as well as enable participatory mapping as a means of actively involving local communities in sustainable forest management.

The online interface, making the platform accessible to a much wider audience, will also prove an ideal vehicle to disseminate project learning and stimulate exchanges on the institutional framework necessary for the efficient deployment of such systems.

ANNEX 1. PROFILES OF THE EXECUTING AND COLLABORATING AGENCIES

The central executing agency of the project is the Philippines Forest Management Bureau (FMB). As briefly discussed in *Section 2.1.1 - Institutional set-up and organizational issues*, the FMB is a "staff bureau" of the Department of Environment and Natural Resources (DENR) created in 1987 and providing support for the effective protection, development, management and conservation of forest lands and watersheds in the Philippines.



The Bureau has the following functions:

- **(a)** to recommend policies and/or programs for the effective protection, development, occupancy, management and conservation of forest lands and watersheds;
- **(b)** reforestation and rehabilitation of critically denuded/degraded forest reservations,
- **(c)** improvement of water resource use and development, ancestral lands, wilderness areas and other natural reserves;
- **(d)** development of forest plantations, including rattan, bamboo and other valuable non-timber forest resources;
- **(e)** rationalization of the wood-based industries and regulation of utilization and exploitation of forest resources including wildlife, to ensure continued supply of forest goods and services;
- **(f)** develop plans, programs, operating standards and administrative measures to promote the Bureau's objectives and functions;
- **(g)** assist in the monitoring and evaluation of forestry development projects to ensure efficiency and effectiveness; and
- **(h)** undertake studies on the economics of forest-based industries, including the supply and demand trends on the local, national and international levels, identifying investment problems and opportunities in various areas.

As illustrated in the above organizational chart, the FMB operates with five (5) technical divisions namely (i) Reforestation Division; (ii) Natural Forest Management Division; (iii) Community-based Forest Management Division (iv) Forest Land Uses Division and (v) Forest Economics Division. Likewise, three (3) support services, the Planning and Project Management Services, the Administrative Services and Legal Division have been maintained by the Bureau.

The FMB employs 189 “regular” staff and 22 casuals. 3 of its employees have undertaken doctoral level qualifications (1 having already completed), while 65 have pursued post-graduate studies (35 having graduated).

ANNEX 2. TASKS AND RESPONSIBILITIES OF KEY EXPERTS PROVIDED BY THE EXECUTING AGENCY

(c) FMB Project Coordinator

The FMB project coordinator will be the overall overseer of the project, coordinating all aspects with other government agencies as well as with the sub-contractor. Responsibilities will involve:

- ‡ Contract management;
- ‡ Work plan and travel coordination;
- ‡ Reporting;
- ‡ Workshop logistical coordination with stakeholders;
- ‡ Interface with participating pilot agreement holders and other agencies;
- ‡ Budget allocation and disbursement;
- ‡ Interface to steering committee;
- ‡ Training coordination; etc…

(d) FMB IT Administrator

The FMB IT system administrator will actively participate to the design of the system in order to insure its integration into the current FIS platform, as well as to specify in details the hardware and software requirement for the new modules. Responsibilities will involve:

- ‡ Coordination of survey and technical requirement gathering;
- ‡ Specifications of hardware requirement with sub-contractor;
- ‡ Definition of integration strategy and input/output modes;
- ‡ Definition of “Train the Trainers” program;
- ‡ Coordination of routine support and maintenance process and procedures;
- ‡ Custodian of user processes;
- ‡ System administration;

ANNEX 3. TERMS OF REFERENCE OF PERSONNEL AND CONSULTANTS AND SUB-CONTRACTS FUNDED BY ITTO

(a) IT Project Manager

The IT project manager the focal point responsible for the overall coordination of technical activities with the executing agency, including:

- ‡ Requesting and coordinating deliverables to be provided by the FMB;
- ‡ Managing resources allocations as per work plan and budget;
- ‡ Programming of survey, field trips and review meetings;
- ‡ Coordinating all logistical aspects;
- ‡ Ordering of hardware and accessories;
- ‡ Managing reporting activities;
- ‡ Tracking expenditures against budget;
- ‡ Backstopping all configuration and deployment activities;

(b) Traceability and VLO System Specialist

The Traceability and VLO System Consultant is responsible for the survey and requirements gathering process as well as for the elaboration of the functional and technical specifications against which the system will be configured. The process involves travelling to site, facilitating workshops and roundtables, conducting interviews, putting together process flow diagrams, report templates, etc…

Key deliverables:

- ‡ Establish, develop and maintain relationship with all project stakeholders;
- ‡ Review existing FIS modules as well as legal and operations requirement;
- ‡ Review the technological capacity of the FMB to support and maintain the FIS and advise on additional capacity is requirement;
- ‡ Survey forest operations processes related to harvesting, scaling and transportation of timber products;
- ‡ Review applicable Forest Legal Standard as well as relevant international trade regulations in the forestry sector;
- ‡ Provide technical institutional support on traceability and VLO applications as required by the FMB;
- ‡ Facilitate technical discussions at stakeholders workshops and roundtables;
- ‡ Write detailed technical and functional specifications for the system.

(c) IT Application Specialist

An IT Application Specialist is responsible for the delivery of a system configuration meeting the technical and functional specifications, as well as for system implementation and testing. This includes the configuration of input and output modes, database structure, data processing logic; reports, system integration, online interface; etc…

Key deliverables:

- ‡ Hardware and software configuration (including input and output modes, online environment, reports, system integration, etc…) according to system specifications;
- ‡ Configure handheld units;
- ‡ Develop guidelines/operating manual for the new FIS modules;
- ‡ Translate technical specifications into working systems;
- ‡ Deploy hardware and software on site;
- ‡ Perform acceptance test procedures.

ANNEX 4. NATIONAL FORUM ON STRENGHTENING POLICIES AND OPPORTUNITIES FOR FOREST INVESTMENT IN THE PHILIPPINES

The suggestions/recommendations categorized into 3 groups (policy/institutional reforms, strengthening and development; traditional financing mechanisms; and innovative financing mechanisms). The highlights of recommendsations are enumerated below:

a) **Policy / Institutional Reforms:**
   - **Planted trees in private lands should be considered agricultural crops and consequently simplified any requirements;**
   - **Provide long-term tenure instrument for agroforestry (for 25 years and renewable for another 25 years;**
   - **Provide a special adjudication body to determine fairness of cancellation/ suspension existing tenure instruments of DENR including moratorium of harvesting rights;**
   - **Get away from unilateral suspension/cancellation existing instruments due to natural calamities or violation of certain regulations in specific areas**
   - **Rationalization of processing plants**
   - **Institutionalization of forest certification, chain of custody and timber tracking (i.e. C&I, PTTS) within the context of ASEAN;**
   - **Create a Forest Industry Investment and Development Board;**
   - **Provide incentives to good performers from the industry through the establishment of a performance based incentive system.**
   - **Delegate issuance of clearance of harvesting of tree plantations in public land at the regional level;**
   - **Clarify ownership of resources in CADT/CALC/CLOA and other relevant areas such as titled lands in reservations;**
   - **Finalize IRR of and implement E.O. 318 (Omnibus Forestry Code).**

b) **Traditional Financing Mechanisms:**
   - **FMB in coordination with the Regional Offices to conduct a rapid assessment on the potential areas and update investment portfolio with data coming from Regional Offices and Philforest;**
   - **Regular forest inventory program;**
   - **Investment on human capital to support forest investments;**
   - **Update of existing Information Management System Review past records on appropriateness of having tenurial agreement as collateral;**
   - **Consider increase of repayment period to FOSLA/SLAI for tree plantation development project;**
   - **Create Office to help private investors (administrative) i.e. Philippine Forest Corporation;**
   - **Assess if trees and products within properly managed forests can serve as collateral for commercial banks;**
   - **Give banks economic information on the profitability of tree plantation (CBA, criteria for management) collaboration between the government and private sector;**
   - **Look at plantation establishment as a social and environmental services – to be able to negotiate with appropriate institutions for lowering rates;**
   - **Department of Finance shall provide guarantee to the loans extended to investors, with a lower interest rates (6 – 9%);**
   - **Make tenure agreement serve as collateral for bank loans;**
   - **Look at how ODA are being programmed relative to other sources of funding;**
   - **FASPO to assess if ODA can directly give loan to tree farmers;**
   - **Develop mechanisms to harmonize and incorporate Forestry Plans with CLUPs;**
   - **Fees collected should be put into a Trust Fund;**
   - **Automatic appropriation of forest charges and fees for specific forestry projects;**
   - **FMS to update collection of fees and charges and evaluate how they are being used.**

c) **Innovative Financing Mechanisms:**
   - **Establish a Forest Development Fund to coordinate generation of funds from various sources to be reinvested or plough back to forest development and other related projects;**
   - **Operate a National Forest Certification System and a National Forest Certification Organization;**
   - **Operate a Forest Valuation System;**
   - **Promote an open market for forest products and provide market information services;**
   - **Promote contract tree growing.**

Also see attached documents:
- **"Directory of Participants"**
- **"Report on the Conduct of the National Forum to Strengthen Policies and Opportunities for Forest Investment in the Philippines"**
- **"*Resolution Adopting the Action Plan to Strengthen Policies and Opportunities for Forest Investment in the Philippines*"**

REPORT ON THE CONDUCT OF THE NATIONAL FORUM TO STRENGHTEN POLICIES AND OPPORTUNITIES FOR FOREST INVESTMENT IN THE PHILIPPINES

Asian Institute of Management Conference Center
Makati City, Metro Manila
12-14 August 2009

I. INTRODUCTION

The continued and fast declining contribution of the forestry sector to the country's Gross Domestic Product (GDP) which at present stands at less than 0.1% despite the country's advantage in terms of available tracts of land suitable for establishing plantations and presence of skilled forestry personnel, among others, reflects the dwindling interest of forest investors and financiers. This is despite the increasing demand for forestry products especially wood-based products in the local as well as in the international markets. This clearly indicates the presence of investment-related problems in the forestry sector. It demonstrates that problems holding back forest investors far outweigh the competitive advantages of the sector. This was not the case several decades back when the country's forests covered about more than half of the total land area. With the ensuing accelerating deforestation, forest-based industries and enterprises shrunk with the forestry sector's relevance as major contributor to the country's economy. This was aggravated by the unstable and incoherent forest policies of the government which further alienated private forest investments.

The foregoing problems prompted the Forest Management Bureau (FMB) with financing support from the International Tropical Timber Organization (ITTO) to organize a "National Forum to Strengthen Policies and Opportunities for Forest Investment in the Philippines (The Forum)." This undertaking was formalized through a Memorandum of Understanding (MOU) [PP-A/43-206] between the ITTO and FMB. The Forum was held on 12-14 August 2009. The Food and Agricultural Organization (FAO) of the UN, and the Philippine Wood Producers Association (PWPA) also provided technical and financial assistance to help delve into the root causes of the problems as well as to help identify opportunities that could restore the vigor of the forestry sector's ability to contribute to the country's economic development.

The Forum helped convene other individuals and groups (a total of 143 participants) from the government and private sectors composed of government agencies, academe, business sector, banking and financial institutions, local and foreign funding agencies, and members of civil society groups to help analyze the country's forestry sector's underlying predicaments and constraints that induce indifference among investors and impeding its further development. It is expected that at the end of the forum, specific recommendations and suggestions to address the identified gaps and an action plan towards its realization will be formulated, presented and agreed upon by the participants.

II. FOREST INVESTMENTS IN THE PHILIPPINES: CONSTRAINTS AND OPPORTUNITIES

The major constraints that hinder investment growth in the forestry sector in the Philippines could be broadly categorized as follows: 1) rapid decline of the country's forests; 2) unstable, inadequate and outdated policies in some instances; 3) lack of political will and indifference in implementing sustainable forest management; and 4) widespread corruption. Compounding the problem is the dominance of traditional over innovative financing mechanism. Traditional financing mechanism (banks and government budget as main source of forest development capital) limits the role of private forest investors restricting investment growth. If this one area could only be improved through resolute application of appropriate and innovative financing mechanisms which gives adequate and reasonable incentives to private investors, problems such as lack of investment and investor indifference could still be worked out and improved. Coupled with enough political will, sustainable forestry in the country could still be achieved. The country is not really short on opportunities for forest investors to take advantage off. The country's forestry sector has enough competitive advantages but which has been overshadowed by negative impressions of the general public.

Unfavorable policies which create the negative environment on forest investment involve constantly shifting forest policies due, sometimes, on unreasonable whims or narrow appreciation of forestry issues among top management. Instability and unpredictability are among the enemies of investment. Also, the wholesale cancellation of harvesting rights even by legitimate tenure holders in good standings due to indiscriminate actions of few people creates undue risk to investor capital. Forestry investment involves large amount, sometimes borrowed money. Suspension of harvesting rights if arbitrarily and unreasonably done could result to financial ruin of legitimate small and medium investors. No investor would risk his hard earned capital with such kind of investment environment. The current policy of over-regulation, burdensome taxation and requirements, and the generally lack of incentives to investors could likewise be a contributor to the present problems. Finally, the total log ban policy being insisted by some sectors could be the last straw to break the camel's (investor's) back.

The decreasing supply of wood due to growing indifference of forest plantation investors and the increasing local demand for wood supply put a lot of pressure to the natural and old growth forests as source of wood supply. The potential for profit due to the combination of huge demand and scarce supply is a natural magnet for illegal loggers and poachers to increase their activities. This creates a distortion in local prices of wood detrimental to the legitimate producers of logs.

Current government support and protection is currently deemed by forest investors as not adequate. Investors are overburdened by too much requirements such as permits and clearances by different offices such as the Forest Management Bureau, Environmental Management Bureau, National Commission on Indigenous People, (Free and Prior Informed Consent), Department of Agriculture (Certificate of Land Ownership Agreements), and LGUs. These different offices/agencies should find a way to combine overlapping and eliminate unnecessary requirements. But even when complied with, there is still no assurance that the government will not change its mind

on rights issued when pressured by certain sectors. Information and data on available areas for investment are also lacking. Prices of local forest products are also not adequately protected against imported products. Inadequate forest certification also reduces competitiveness of local forest products in the international market. There is also inadequate government support for better access to credit.

On the other hand, competitive advantages for the country's forest investor and entrepreneurs also exist and could be taken advantage of. The Philippines, for instance, have plenty of available areas suitable for plantations and its labor cost is one of the cheapest available even though they are composed of one of the most technically skilled personnel in the region. Several legislations granting fiscal incentives to investors are also available especially in pioneering enterprises or businesses in preferred areas. The country, in addition, possesses vital technologies in operating plantations. Lastly, the country requires selective logging to ensure sustainable forest production.

Currently, developments in policy reform are also slowly ushering in. Just years back, the country was able to formulate and adopt the Criteria and Indicators for Sustainable Forest Management (C&I for SFM) and were able to train selected personnel and staff nationwide on its implementation. Just recently, the DENR launched a comprehensive upland development program with the aim of developing the watersheds and protected areas and improve the economic well-being of the upland communities, among others. In addition, the technical and funding assistance from foreign donors such as the ITTO and FAO, FMB was able to upgrade forest statistics and management information system (MIS), and timber tracking systems to improve forestry information and data. The survey and mapping of the protected areas and forestlands, identification of water resources, inventory of flora and fauna as major activities of the recently created Presidential Task Force on Climate Change (PTFCC) will also support improvement of the country's forest management and information system. Another positive policy development is the issuance of new guidelines to strengthened security and management of protected area management and biodiversity conservation. ITTO is also of much help in the effort to integrate forest management units (FMUs) into sustainable development units (SDUs). The scheme integrated and simplified planning and implementation of forest management in a from-mountain-to-coast basis.

With the problems, issues, constraints and hindrances discussed above, it was envisioned that the forest investment forum have provided the country with specific suggestions and recommendations that would strengthen and stimulate a more robust forest investment and ultimately the attainment of fully responsible and sustainable forestry in the Philippines. The Forum also yielded an Action Plan especially on policy areas and refined implementation of traditional and innovative financing mechanisms.

III. THE FORUM

Keynote Address

After the preliminary opening ceremonies, the forum was keynoted by the Hon. DENR Secretary Jose L. Atienza, Jr. The DENR Secretary was introduced by FMB

Director, Marlo D. Mendoza. Secretary Atienza conveyed full support to the call to review existing forest policies in order to a revitalized the forestry sector and attract more private investors especially in plantation development and sustainable forest management. The DENR Secretary articulated full support over investments in forest plantations but cautioned that such investment should not be limited to big players but should likewise be available to small and medium investors.

Among other important policies he mentioned include the institutionalization of a national forest certification system and the establishment of a forest-based Forest Industries Board to support and sustain DENR's efforts for an enabling policy for investment. He also expressed support to the concept that forestry could be a legitimate investment and a source of economic benefit especially at a time when we are looking for better approaches to improve the economy. He also acknowledged and welcomed the crucial role of the country's wood-based industry in the development of policies that would provide appropriate incentives to forest investors. The DENR Secretary expressed his wish that at the end of the forum, a definitive action plan that would embrace economic, social and environmental developments could be drafted and presented.

Message from the Organizers

Mr. Ramon Carrilo of the ITTO and Mr. Kazuyuki Tsurumi, representative from FAO-UN, delivered their respective messages. Both expressed their support to the current efforts of the country especially the forestry sector to attract more investments in the forestry sector to help it regain its status as major contributor to the country's economic progress. Both gentlemen asserted that their respective organization's aims and objectives in the Philippines are both aligned with the country's environmental and economic aspirations. They also assured support to any agreement reached at the forum and subsequent actions that needs to be undertaken.

Background on the Philippine Forum

The background paper was delivered by Mr. Ricardo M. Umali, the ITTO National Consultant. The content of the background paper was already discussed in item II, "Forest Investments in the Philippines: Constraints and Opportunities." *The Background Paper is attached as Annex A.*

International Perspectives on Tropical Forest Investment

Mr. Patrick Durst, FAO Representative and Mr. Ramon Carillo, ITTO Representative, presented the paper, "International Perspectives on Tropical Forest Investment." They cited the need of forest managers to generate sufficient return on their investment implementing forest developmental activities and challenged everyone to make forest management competitive with other land uses reminding that investment in forestry involves a number of risks; high risk therefore requires higher return. The government, they averred, needs to constantly identify constraints such as unstable and shifting policies and poorly functioning political institutions and legal frameworks which hinder private sector investment in forestry. They also cited possible investment and financing alternatives that could be availed of by the country. To make investment in forestry work, they recommended certain course of actions for

the government to undertake. *Mr. Patrick Durst's presentation is attached as Annex B.*

Investment in Vietnam: Experiences and Lessons

Dr. Nguyen Nghia, Deputy Director-General of the Ministry of Planning, Ministry of Agriculture and Rural Development, Vietnam, presented the "Forestry Investment in Vietnam: Experiences and Lessons." Dr. Nghia explained how Vietnam is trying to compensate for the shortcomings of the forestry sector of the previous years and turn it into success in terms of increase in forestland area, increase in timber and forest product processing industry and exports while meeting domestic demand for wood, and dramatic increase in the creation of jobs and other livelihood opportunities. He cited how mobilization of smallholder resources; offering investment opportunities for all products offered by domestic and international markets, creation of strong domestic private (micro, small and medium enterprises) sector and adoption of value-chain concept to make best use of market opportunities and scarce land created opportunities and contributed to the present status of forestry in Vietnam. Since the Philippines and Vietnam share many things in common, Dr. Nghia commented that they could regularly exchange notes on forestry developments of their respective countries especially on resolutions of forestry issues including investment concerns. *Dr. Nguyen Nghia's presentation is attached as Annex C.*

Financing Forest Investments: Traditional and Innovative Financing Mechanisms

The following papers were presented by officials from various agencies and institutions representing the government, funding and financial agencies and institutions.

1. **Financing and Banking Instruments for Forestry Investments** – *presented by B. Brillo L. Reynes, Senior Vice-President of the Development Bank of the Philippines (DBP)*

   Mr. Reynes cited the DBP as biased for micro, small and medium enterprise and has priority thrust in providing funding assistance to environmental projects such as waste management and pollution prevention projects. On DBP forest program, Mr. Reynes said that DBP finances upland forest projects that specifically prevents soil erosion, conserves water, provides habitat for wildlife, and creates rural livelihood opportunities. Among their priority areas, he explained, include critical watershed areas that support national irrigation systems. *Mr. Reynes' presentation is attached as Annex D.*

2. **Policies and Incentives on Forest Investments** – *presented by Dir. Eriberto C. Argete of the Planning and Policy Studies Office of the DENR*

   Dir. Argete cited the important roles of the government, private sector and the communities and civil society groups in forming a symbiotic force towards the attainment of social, economic and ecological objectives of the country. The attainment of these objectives, he explained, necessitated an integrated and participatory among the three sectors. He further explained that unlike before, the approach now does not focus on economic development alone but gives equal

importance on the social and ecological concerns. The government, he stressed, could not do it alone but needs the help of the other sectors in pursuing sustainable forestry in the Philippines. He also cited the previous and current development efforts of the government towards the development of the forestry sector. *Dir. Argete's presentation is attached as Annex E.*

3. **Investments and Financing Mechanisms in Furniture and Non-Timber Forest Products** – *presented by Dr. Cecille Zamora, Chief Technical Services Staff, Forest Products Research and Development Institute (FPRDI)*

   Dr. Zamora explained forest investment which refers to financial resources made available to support economically and sustainable forest sector activities such as plantation establishment, production forest projects, wood processing, furniture and handicraft making and environmental services. *Dr. Zamora's presentation is attached as Annex F.*

4. **Financing and Investments Mechanisms in Community-Based Forest Management Program: "The Maasin Watershed Experience"** – *presented by Mr. Rubenie C. Castellanes, Chairman, KAPAWA-Maasin*

   Mr. Castellanes presented the experience of KAPAWA in managing the Maasin Watershed which provides potable water to half a million residents of Iloilo City and irrigation water to 1,276 farmers irrigating about 2,900 hectares of farm lands. He narrated how they rehabilitated Maasin Watershed through the efforts of Peoples Organizations (POs), volunteers, NGOs, industries, academe, and private and government sectors. *Mr. Castellanes' presentation is attached as Annex G.*

5. **Investment and Financing in Timber Production and Processing in the Philippines** – *presented by Mr. Antonio C. Olizon, President, Philippine Wood Producers Association (PWPA)*

   Mr. Olizon expounded on the following key points:

   a) That the Philippines still has vast tracts of land---in areas with year-round favorable climate---which can be developed as industrial tree plantations;
   b) That working with indigenous people with their right to ancestral domain has been one of our biggest challenges, but one which could translate to greater productivity for the industry and of greater benefit to communities;
   c) That a large demand for wood products exists---bigger even today, mainly because wood comes from renewable resources and because it is more environment friendly compared to other raw materials like plastic, metal and other non-wood materials; and
   d) That to attract investors to this sector, the government, particularly the DENR must be able to put together a package of services which will make it easier for investors to come in.

   Mr. Olizon's presentation is attached as Annex H.

6. **Investments and Financing Mechanisms in Commercial Forest Plantations** – *presented by Mr. Oscar Gendrano, Consultant, Commercial Forest Operations*

Mr. Gendrano presented a matrix showing activities and costs of planting gmelina arborea / eucapyptus deglupta / acacia mangium on a 1,000 hectares plantation demonstrating the potential of yielding an IRR of 38% for potential investors. To attract forest investments, he recommended the following initiatives:

a) official directive (either from the Central Bank or Department of Finance) for commercial banks to recognize and evaluate land given under long-term lease or awarded to indigenous cultural minorities, as collateral for loans to tree plantations projects;
b) a similar directive for banks to accept growing trees (properly evaluated) also as collateral for loans;
c) grant of tax holiday for at least 8-10 years to investment in commercial plantations;
d) Grant of tax holiday for at least 8-10 years to investment in commercial plantations;
e) Grant of tax exemptions to import of equipment and machineries to be used in plantations;
f) Require insurance cover at a reasonable premium for planted trees;
g) Allow the declaration of stock dividends based on the estimated growth in volume and value of trees in plantations;
h) Establish a system of monitoring and certification of coppice re-growth in the plantations for the purpose of imposing on the plantations substantially reduced taxes.

Mr. Gendrano's presentation is attached as Annex I.

7. **Official Development Assistance (ODA) for Forestry Investments in the Philippines** – *presented by Atty. Analiza R. Teh, Assistant Secretary for Foreign-Assisted and Special Projects (FASPs), DENR*

Assistant Secretary Teh cited the importance of ODAs as important source of financing and as useful catalyst for developing sustainable financing mechanisms. She cautioned though that ODAs should not be seen as long-term solution to financing constraints to current financing challenges. She also identified constraints and opportunities in financing investments for forestry which include the following:

a) The benefits of sustainable forest management do not generate revenue for forest owners and managers. As such, they have no incentive to produce the full range of benefits from forests and continue to focus on production of timber and a few other marketed products;
b) Complexity and generally higher costs and perceived risks of sustainable forest management compared to other land uses, including unsustainable forest practices; and
c) These constraints are compounded by policy, legal and institutional constraints such as weak institutions, lack of policy, unresolved land tenure issues and weak governance, and lack of technical capacity.

The following are her recommendations for increasing investments in the forestry sector:

a) Ensuring stability and consistency of policies and laws
b) Clarifying tenure rights and access to resources
c) Increasing availability of and access to forest sector information
d) Involvement of private sector and CSOs
e) Pursuing innovative schemes to support forestry sector
f) International Advocacy

Atty. Teh's presentation is attached as Annex J.

8. **Integrated Natural Resources and Environmental Management (INREM)** – *presented by Mr. Pavit Ramachandran, Environment Specialist, Asian Development Bank (ADB), South East Asia Department*

Mr. Ramachandran presented the institutional challenges currently facing watersheds in priority river basins/critical watersheds:

a) Insufficient capacity of concerned agencies to place critical watershed and forest reservations under sustainable management
b) Inadequate ground demarcation of forest land boundaries making forest protection and management difficult
c) Ineffective implementation of forest laws and regulations
d) Fragmented institutional linkages and roles/ responsibilities of different agencies with respect to particular watersheds

To face these challenges squarely, certain key policy issues should be resolved:

a) Absent of effective enforcement over critical watersheds - a de facto open access situation prevails
b) Marginalization of IPs and local communities
c) LGU counterpart funding constraints
d) *Enabling policy frameworks/capacity building required at national and local levels to*
    - institute payments for environmental services (PES)
    - Provide institutional mechanisms to collect payments, reinvest in conservation, and monitor impacts on LGUs

Mr. Ramachandran also strategic investment options tailored to particular river basin characteristics, to wit:

a) Investments dictated by intrinsic characteristics of each river basin
b) Options for investments determined through science-based assessment of land capability and production/conservation potentials
c) Appropriate environmental protection and mitigation integral to the design of such investment
d) Ensure stability of watersheds in the upper river basins

Mr. Ramachandran's presentation is attached as Annex K.

9. **Investments and Financing Mechanisms in Forest Environmental Services** – *presented by Ms. Leonor C. Cleofas, Deputy Administrator for Operation, Metropolitan Waterworks and Sewerage System (MWSS)*

Ms. Cleofas explained how water flows from the watershed to dams and finally to farms and households. She also cited the current issues and concerns besetting MWSS such as kaingin (slash-and-burn), poaching, influx of settlers, encroachment of communities, illegal harvesting of forest products, overlapping policies and guidelines, and lack of funding. She also presented the major challenges now facing the water sector and how, through partnership (building relationship) with other stakeholders, they were able to implement projects that would mitigate the effects of the problems.

Mr. Cleofas' presentation is attached as Annex L.

10. **Investments and Financing Mechanisms in Forest Environmental Services (Managing the Environmental Charge for Watershed Rehabilitation)** – *presented by Mr. Emmanuel A. Umali, Manager, Watershed Management Department, NAPOCOR*

Mr. Umali delved on the role of NAPOCOR in providing environmental services (rehabilitating and protecting the watersheds, conserving biodiversity and community development). Their efforts resulted in the reduction of sedimentation and soil erosion inside NAPOCOR reforestation areas (about 17,000 tons), improved hydrologic regime (rainfall interception for irrigation, power generation and potable water supply), and carbon ($C0_2$-e) sequestration of about 75,000 tons per year. He also informed of increased forest cover within NAPOCOR-assisted watersheds.

Mr. Umali's presentation is attached as Annex M

Closing Remarks

DENR Undersecretary and Chief of Staff Ramon J.P. Paje gave the closing remarks. Undersecretary Paje cautioned that expecting the creation of forest fund through legislation could take about five years. He suggested other possible innovative ways of sourcing funds i.e. by allowing the Philippine Forest Corporation (Philforest) to manage certain non-forest uses such as the more than 2,000 towers of communication companies, e.g. Smart, Globe, Piltel, Islacom, etc. constructed in forestlands. Rent/lease collection from these companies at present could amount to about half a billion pesos a year. He mentioned also that for plantation forest to prosper, DENR has to do some retrofitting such as completely deregulating production/plantation forests (treating forest products like rice and corn) so that Philforest, as a corporation, could govern them effectively. This way, he added, the DENR forestry sector could focus its full attention on protection forest. Undersecretary Paje also stressed the need to consider the rights of the indigenous peoples (IPs) as we do our business. One way of doing this, he said, is by transacting directly with the IPs rather than with middlemen.

Undersecretary Paje mentioned that the Department of Science and Technology (DOST) had recently bought an earth station that has the capability to download substantial amount of satellite data daily. The earth station, he informed, is underperforming since it is used only for weather monitoring when, in fact, it has the capability to determine, as an example, the pollution level or red tide content of a certain river or could even monitor changes in forest cover everyday. The private sector could tap this equipment instead of yearly taking aerial photo of their forest cover.

Closing Messages

DENR Undersecretary for Policy and Planning Demetrio L. Ignacio delivered the closing messages. Undersecretary Ignacio remarked that in all the sectors of the DENR, forestry is the most unstable in terms of policy environment and program development. He explained that this is caused by two things. The first is that DENR is totally being misunderstood by the public. For example, he said, the DENR keeps getting the blame however unjustly every time a natural calamity hits the country; or every single cutting of tree gets landed on the front page of every newspaper. The DENR, he explained, is saddled with a lot of impediments because the political bosses will naturally make the sometimes technically wrong but politically right decisions. The solution, he stressed, is to change the mind of the public. The second cause of instability, he explained, is that no single national forestry project has been successful. Every Secretary, therefore, will experiment, change existing projects, replace existing policies, trying to find the best way to be successful. Undersecretary Ignacio expressed hope that what the forum had accomplished will helped the Department in finding the right solutions. Finally, he urged the group to think out of the box.

IV. AGREEMENTS/OUTPUTS

Each presentation with the identified opportunities and constraints to forest investment environment were further explored/analyzed and refined in open fora and group discussions. On the last part of the program, participants were grouped into three (3) to thresh out specific constraints and available opportunities on three critical areas: 1) policy/institutional reforms, strengthening and development; 2) traditional financing mechanisms; and 3) innovative financing mechanisms.

The recommended measures for each constraints or opportunities were later integrated into an Action Plan with responsible lead persons/agencies and timeframe to complete the planned task. Policy constraints were mostly contained in existing DENR departmental orders, circulars or memoranda which could be straightened out through appropriate action of the DENR Secretary. Some more complex problems would necessarily involve assistance/cooperation from other offices/agencies such as the PWPA, LGUs, Department of Finance, etc. Some policy reforms especially those seeking to neutralize long-term consequential negative effect (such as prohibition on arbitrary or even whimsical cancellation of tenurial agreements/permits) could be made stronger through issuance of Executive Order (E.O.) from the President of the Philippines.

The participants also recognized the importance of investing in human capital; they suggested the conduct of a training need assessment with the assistance of HRD. Importance of information and data especially on timber inventory and available area for private plantations in assessing investment alternatives and decisions for private investors were also discussed. Stability of tenure and dependability of agreements with the DENR are now also becoming crucial factors in gaining the trust and interests of potential investors. It was also emphasized that forest-derived revenues and charges should be reinvested in forest development project. The participants identified a number of forest or environmental revenues, charges, fines, royalties, etc. that could be ploughed back to forestry development operations including charges collected by MERALCO (EPIRA/environmental charges), LUWA, PTFCF, etc. The timeframe to complete the identified tasks range from 3 months to 2 years.

The suggestions/recommendations categorized into 3 groups (policy/institutional reforms, strengthening and development; traditional financing mechanisms; and innovative financing mechanisms). The highlights of recommendsations are enumerated below:

Policy / Institutional Reforms:

a) Planted trees in private lands should be considered agricultural crops and consequently simplified any requirements;
b) Provide long-term tenure instrument for agroforestry (for 25 years and renewable for another 25 years;
c) Provide a special adjudication body to determine fairness of cancellation/ suspension existing tenure instruments of DENR including moratorium of harvesting rights;
d) Get away from unilateral suspension/cancellation existing instruments due to natural calamities or violation of certain regulations in specific areas
e) Rationalization of processing plants
f) Institutionalization of forest certification, chain of custody and timber tracking (i.e. C&I, PTTS) within the context of ASEAN;
g) Create a Forest Industry Investment and Development Board;
h) Provide incentives to good performers from the industry through the establishment of a performance based incentive system.
i) Delegate issuance of clearance of harvesting of tree plantations in public lands at the regional level;
j) Clarify ownership of resources in CADT/CALC/CLOA and other relevant areas such as titled lands in reservations;
k) Finalize IRR of and implement E.O. 318 (Omnibus Forestry Code).

Note: Issue on “clear cutting of inadequate stock forest in IFMA areas for plantation development” will be subject for further discussion.

Traditional Financing Mechanisms:

a) FMB in coordination with the Regional Offices to conduct a rapid assessment on the potential areas and update investment portfolio with data coming from Regional Offices and Philforest;
b) Regular forest inventory program;

c) Investment on human capital to support forest investments;
d) Update of existing Information Management System
e) Review past records on appropriateness of having tenurial agreement as collateral;
f) Consider increase of repayment period to FOSLA/SLAI for tree plantation development project;
g) Create Office to help private investors (administrative) i.e. Philippine Forest Corporation;
h) Assess if trees and products within properly managed forests can serve as collateral for commercial banks;
i) Give banks economic information on the profitability of tree plantation (CBA, criteria for management) collaboration between the government and private sector;
j) Look at plantation establishment as a social and environmental services – to be able to negotiate with appropriate institutions for lowering rates;
k) Department of Finance shall provide guarantee to the loans extended to investors, with a lower interest rates (6 – 9%);
l) Make tenure agreement serve as collateral for bank loans;
m) Look at how ODA are being programmed relative to other sources of funding;
n) FASPO to assess if ODA can directly give loan to tree farmers;
o) Develop mechanisms to harmonize and incorporate Forestry Plans with CLUPs;
p) Fees collected should be put into a Trust Fund;
q) Automatic appropriation of forest charges and fees for specific forestry projects;
r) FMS to update collection of fees and charges and evaluate how they are being used.

Innovative Financing Mechanisms:

a) Establish a Forest Development Fund to coordinate generation of funds from various sources to be reinvested or plough back to forest development and other related projects;
b) Operate a National Forest Certification System and a National Forest Certification Organization;
c) Operate a Forest Valuation System;
d) Promote an open market for forest products and provide market information services;
e) Promote contract tree growing.

Copies of the Action Plan for Political/Institutional Reforms, Traditional and Innovative Financing Mechanisms as well as the Resolution Adopting the Action Plan are attached as Annexes N, O and P.

A small continuing committee shall be established, headed by FMB Director Marlo D. Mendoza, to ensure that all the tasks in the Action Plan and other commitments made will be worked out by assigned responsible persons/agencies within the agreed timeframes.

National Forum to Strengthen Policies and Opportunities for Forest Investment in the Philippines

Asian Institute of Management Conference Center
Makati City, Metro Manila
12-14 August 2009

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RESOLUTION ADOPTING THE ACTION PLAN TO STRENGTHEN POLICIES AND OPPORTUNITIES FOR FOREST INVESTMENT IN THE PHILIPPINES

WHEREAS, the Forest Management Bureau (FMB), the International Tropical Timber Organization (ITTO), the Food and Agriculture Organization (FAO) of the UN, and the Philippine Wood Producers Association (PWPA) held a National Forum to Strengthen Policies and Opportunities for Forest Investment in the Philippines on 12-14 August, 2009 in Makati City, Philippines:

WHEREAS, the Forum brought together 143 participants from government agencies, private and community investors, banking and financial institutions, multilateral and bilateral funding agencies including academic institutions and non-governmental organizations;

WHEREAS, the Forum participants presented and discussed opportunities and constraints in forest investment and how these can be addressed, the various traditional and innovative financing mechanism available to investors and how these can be availed of by investors;

WHEREAS, recommendations and proposed actions were identified to strengthen policies relating to forest investments, and to stimulate and enhance forest investments by appropriate financial mechanisms;

WHEREAS, the recommendations and proposed actions have been evaluated and consolidated unto an Action Plan by the participants of the Forum (Annex A, Action Plan) which provides details on what action needs to be done, who will do the actions, and the time for implementation;

WHEREAS, the implementation of the Action Plan can provide the necessary financing for forest investments and enhance the growth of forest - based industries including community medium and small-scale enterprises;

WHEREFORE, the participants in the Forum hereby adopt the Action Plan resulting from the Forum for immediate implementation.

Done in the City of Makati, Philippines, this 14th day of August 2009.

ANNEX A. ACTION PLAN TO STRENGTHEN POLICIES AND OPPORTUNITIES FOR FOREST INVESTMENT IN THE PHILIPPINES

POLICY / INSTITUTIONAL				
SPECIFIC POLICIES	**RECOMMENDATION**	**ACTION PLAN**	**RESPONSIBLE AGENCY**	**TIME FRAME**
1. Requirement on plantation in private lands* · registration - 100% inventory · transport permit ***** *referring to DOJ opinion (planted trees in private lands are consider agricultural crops)*	Farmer to inform CENRO of the location, area, species planted, number of trees for monitoring purposes. KRAs for CENRO (number of tree farmers registered and area planted) DENR to issue certification (only at the CENRO level) **SMF to be issued by a registered Forester or** deputized forest officer to accompany transport **COV** in areas where there is no Reg. Forester Formulation of safety nets for tree growers vis-à-vis harvesting of trees planted	Amend existing policies (DAO 2004-04, DAO 99-20 and other relevant issuances)	FMB/DENR	3 months (endorsed to the Office of the Secretary by PTWG)

POLICY / INSTITUTIONAL				
SPECIFIC POLICIES	**RECOMMENDATION**	**ACTION PLAN**	**RESPONSIBLE AGENCY**	**TIME FRAME**
	within their private lands			
2. Absence of tenure instrument for agroforestry Note: consider areas with SAPA & PACBRMA	Provide tenure instrument of 25 years renewable for another 25 years for agroforestry areas	Prepare relevant tenure instrument Amend existing MOA (DAO 2005-25)	FMB/DENR	3 months (endorsed to the Office of the Secretary by PTWG)
3. Arbitrary cancellation/suspension of existing tenure instruments including moratorium of harvesting rights	Need adjudication between government and tenure holder (special body to tackle the issue of cancellation) Need to educate relevant personnel	Establish/organize an adjudication system (i.e PAB- EMB)	FMB/PWPA	15 months (systems in placed)
4. Unilateral suspension/cancellation existing instruments due to natural calamities or violation of certain regulations in specific areas	Suspension of activities should be site specific with duration No suspension/cancellation of agreements without direct cause	Provide guidelines for the action of the Secretary For longer term, work for an EO	FMB/DENR/PWPA	2 months (draft guidelines endorsed by the FMB Director to the Secretary)
5. Rationalization of	Government to verify the	Immediate approval of	FMB/PWPA/CFI	1 month

POLICY / INSTITUTIONAL				
SPECIFIC POLICIES	**RECOMMENDATION**	**ACTION PLAN**	**RESPONSIBLE AGENCY**	**TIME FRAME**
processing plants	source from the veneer/sawmill operator Remove regulatory portion of the plan. Make it a plan that guide the investor	pending regional rationalization plan - Representation with the Secretary Dialogue with concerned industries and DILG re: ways on how they can help DENR and private sector police it s ranks	P/DILG	3 months (private sector initiated)
6. Institutionalization of forest certification, chain of custody and timber tracking (i.e C&I, PTTS) Note: Do it within the context of ASEAN	Submit proposal to ITTO and other potential donors	Endorsement of the proposal by the National ITTO Focal point to ITTO for possible funding	FMB Director	3 months
7. Forest Industry Investment and Development Board	Revive and resubmit the proposal for the creation of the **Forest Based Industries Board** (currently at the Office of the President)	Endorsement of the DENR Secretary for the approval of the President Revisit the draft EO Prepare instrument for	FMB/DENR/PWPA FMB/DENR/PWP	2 months 6 months

POLICY / INSTITUTIONAL				
SPECIFIC POLICIES	**RECOMMENDATION**	**ACTION PLAN**	**RESPONSIBLE AGENCY**	**TIME FRAME**
	Establishment of an Interim FIDB	interim FIDB (designate 1 Undersecretary)	A	
8. Incentives to good performers from the industry	Establish a performance based incentive system	Prepare the mechanics	FMB/PWPA/CFIP/PCHI	6 months (government initiated)
9. Harvesting of tree plantations in public lands	Approve it at Regional Level Remove clearance from National Level IEE as part of plan	Amend the existing instruments	FMB/DENR/PWPA	3 months (endorsed by FMB Director to the Secretary)
10. Ownership of resources in CADT/CALC/CLOA and other relevant areas such as titled lands in reservations.	Issuance of reiteration of the state ownership of natural resources in ancestral lands.	Issue a joint clarificatory DAO, MC etc. on the ownership of natural resources	FMB/DENR/NCIP/DAR	4 months
11. Implementation of EO 318 (Omnibus Forestry Code)	Finalize and issue the IRR	Finalize the Forestry Omnibus Code	FMB/DENR/Eco GOV/ Academe/FDC	6 months

TRADITIONAL FINANCING MECHANISMS				
Traditional Financing Mechanism	**RECOMMENDATION**	**ACTION PLAN**	**RESPONSIBLE AGENCY**	**TIME FRAME**
1, Private Investment	• FMB in coordination with the Regional Offices to conduct a rapid assessment on the potential areas and update investment portfolio.	• Regional offices to submit to FMB the potential areas for investment in accordance with the prescribed format • Philforest to provide data to FMB	FMB, Regional Offices & PhilForest	3 months
	• To have a regular forest inventory program.	• Incorporate the activity in the regular budget of DENR	FMS	More than 1 year
	• Investment on human capital to support forest investments. (Development Training Module)	• Conduct training need assessment • Design a training module in coordination with HRDS • Develop proposal for funding	FMB & DENR HRDS	3 months
	• Update existing Information Management System	• Identify necessary information for bioenergy and plantation establishment and incorporate in the DENR-MIS Program	FMB & PHILFOREST	6 months

		and later include in the regular budget • FMB and PhilForest meantime will initially handle the information management		
	• Tenure agreement as collateral	FMB should review past experiences on the Memorandum of Understanding between the DENR and Land Bank of the Philippines accepting the ISF Certificate as collateral	FMB	3 months
	• FOSLA / SLAI – increase repayment period	Prepare a project proposal for FOSLA Board to consider the extension payment period for tree plantation devt project	FOSLA	6 months
	• Creation of Office to help private investors (administrative) i.e. Philippine Forest Corporation	Create a team represented by FMB, PFC & NRDC to prepare proposal	FMB, PFC, NRDC	More than 1 year
	• Assess if trees and products within properly managed forests can serve as collateral for commercial banks	Check any appropriate legislation which can be used to make trees as collateral	FMB & PWPA	3 months
2. ODA	• Give banks economic information on the profitability of tree plantation (CBA, criteria for management)	FMB to prepare documents needed for the dialogue with banking institutions	FMB	3 months

	collaboration between the government and private sector.			
	• Look at plantation establishment as a social and environmental services – to be able to negotiate with appropriate institutions for lowering rates.	Dialogue with banking institutions	FMB	6 months
	• Department of Finance shall provide guarantee to the loans extended to investors, with a lower interest rates (6 – 9%)	FMB to prepare needed materials Meeting with Dept of Finance	FMB	6 months
	• Tenure agreement to serve as collateral for bank loans	Dialogue with banking institutions	FMB	3 months
	• Look at how ODA are being programmed relative to other sources of funding	• FMB to review Vietnam experience wherein regular inventory is being conducted which is every 5 years) • Review the past & current ODA budget allocation for the Forestry sector	FMB	3 months
	• FASPO should assess if ODA can directly give loan to tree farmers	FASPO to coordinate with ODA to evaluate options FASPO to review international experiences that have improved	FASPO	3 months

		provision of credit to farmers (eg Vietnam)		
3. Public Sector	• Forestry Plans to be harmonized with CLUPs	Develop a mechanism on how the Forestry Master Plan can be incorporated in the CLUPs	CENRO & Sangguniang Bayan	More than 1 year
4. Forest charges and fees	• Fees collected should be put into a Trust Fund	Make presentation with appropriate agencies Lobby for the approval of SFM Act	FMB/Philforest	More than 1 year
	• Automatic appropriation of forest charges and fees for specific forestry projects	Make presentation with appropriate agencies To expand the function of Philforest to collect fees/charges	FMS & PHILFOREST	3 months
	• FMS to update collection of fees and charges. And evaluate how they are being used	Regional Offices to submit report	FMS	3 months

INNOVATIVE FINANCING MECHANISMS

RECOMMENDATION	RATIONALE	TASK/ACTIVITY	INSTITUTIONS	TIME FRAME
1. Establish a **Forest Development Fund** with the following functions: *a. Fund generation from various sources (annual appropriations; EPIRA/environmental charges collected by MERALCO, LTO, irrigation, LUWA, forest charges, fees from registrations and fines, sales of confiscated logs & other forest*	For increased and coordinated generation of funds that can be used for identified forestry development and related support projects	1.1 Establishment of legal mechanism (Act or Executive Order) 1.2 Mobilization of Fund institutions 1.3 Develop potential fund generating mechanisms 1.4 Set up the mechanisms to actually	Inter-agency Board chaired by DENR with representation from various collecting agencies to provide policy and management oversight; DENR to lead in mobilizing studies and	Establishment of the Fund within 1-2 years; simultaneous conduct of exploratory studies organized by

products, royalties; PES; PTFCF and FPE; CDM, REDD, and voluntary carbon trading; portion of EVAT for petroleum and taxation of idle lands; products, CDF of congressmen; selling of Forestry Bonds (including promotion of individual investments); aggregation of equity from small investors in trust operations; operation of sister city concept; donations; etc.) or coordination for funds like PES that are collected and used by other agencies in watershed management and forest restoration (NPC, MWSS concessionaires, etc.) *b. Fund allocation to forest development and related R&D projects* *c. Providing guarantee for non-collateralized loans for forest development* *d. M&E and IEC*		realize the generation of targeted financing sources	resources for exploring potential financing sources; actual Fund management to be handed by professional fund managers taking directions from the Board	DENR followed by setting up of the implementing mechanisms
2. Operate a **National Forest Certification System**	Not only to access markets and premium prices for certified forest products, but also to provide guarantees for loans of forest development projects thereby reducing or transferring the risk from banks	2.1 Transform existing C&I into a forest certification standards 2.2 Develop a national forest certification organization 2.3 Develop third-party certifiers from the academe, NGOs, and other organizations 2.4 Operation 2.5 Align with ASEAN initiative or with FSC	1. DENR as the national forest certification organization 2. Academe, NGOs, and other organizations third-party certifiers 3. NGOs and civil society as countercheck of forest certification organizations and third-party certifiers	Operation of a national forest certification system is doable within 2 years

	that provide loans for forest development projects			
3. Operate a **Forest Valuation System**	To provide standardized valuation of projects that change ownership	3.1 Formulate the methodology 3.2 Provide training 3.3 Operation	1. DENR as the valuation issuer 2. Pool of trained experts as valuation estimators	Doable within 2 years
4. Promote an open market for forest products and provide market information services	To assist forest development projects in accessing markets so that they can pay for loans and plough back the financing for forest development	4.1 Establish a unit within DENR 4.2 Develop a forest products market information system 4.3 Develop links with markets such as through the internet	Options: Based at DENR; MOA with DTI in market promotion of forest products; contract professional marketing groups for market promotion and operation of marketing systems	Task 4.1 within 1 year Tasks 4.2 and 4.3 after another 1-2 years
5. Promote contract tree growing	To link contract tree growers with institutions responsible for forest restoration which provide the financing	5.1 Formulate a system for accrediting tree growers 5.2 Train certifiers 5.3 Link accredited tree growers with their market	DENR	Within 2 years
6. Use of SSS pension funds for forest plantations	To use SSS funds to provide loans for plantation development by private sector	Formulate mechanism and guidelines for use of SSS pension funds	SSS-FMB-DENR	Within 1 year
7. Promote knowledge sharing and information exchange on innovative financing mechanisms	Exchange of successful experiences and	Draft document on successful experiences and lessons learned in	FMB-GFIs-Commercial banks, ODA	Within 1 year With ODA funding

	lessons learned in financing forest investments in the country and from other tropical countries	innovative financing of forest investments in the country and abroad for replication Conduct of interactive forum		

ANNEX 5. RECOMMENDATIONS OF ITTO EXPERT PANEL

(a) Overall Assessment:

The Panel acknowledged that the project aimed to improve forest governance, institutional law enforcement capacity, stakeholder coordination and forest sector competitiveness through improved data management. The Panel recognized that the project will develop and test an integrated, real time, multi-tiered, configurable, on-line national Forest Stock Monitoring System (FSMS) with improved governance capabilities at all levels of the Forest Administration.

The Panel noted that the lessons learned from the completed ITTO projects PD 41/99 Rev.2(M), PD 353/05 Rev.2 (M,F,I), PP-A/39-170 should be considered in the project context in a more comprehensive manner. By incorporating the key results, developments and stakeholder interviews from the previous projects, the description of the current situation could be improved to define measurable baselines and indicators for the objectives.

The Panel observed that the project proposal could be further improved by reformulating the stakeholder analysis, the problem analysis and the assumptions, risks and sustainability.

Considering the stakeholder analysis, there is a lack of information on the specific roles of the various stakeholders. In addition, the problem analysis does not include real practical and technical obstacles to the development of FSMS faced by the operators under the current system. The defined risks for the intended project were recognized to be easily avoided by organizing a stakeholder meeting on the completed projects.

The panel recognized that there is growing demand for timber with such traceability systems. There are also other similar ITTO projects which provide lessons and valuable information for the implementation of timber traceability systems, e.g. ITTO project in Gabon "Enhancement of the Forest Statistics Information & Management System (STATFOR) Through the Integration of Two Computer Modules: 1) Compilation of Management Inventory Data; 2) Management of Export Log Lumberyards" (PD056/00 Rev.3 (M)).

(b) Modifications:

Specific Recommendations	Revisions
1. Revise the Conformity with ITTO's objectives and priorities by including operational activities specified in the current ITTO Action Plan.	Analysis of the current project against Expected Outcomes and Actions specified in the ITTO Action Plan (2006-2011) provided at the end of *Section 1.2.1. Conformity with ITTO's Objectives and Priorities*
2. As the indicators were recognized to be difficult to measure, improve the indicators and accordingly the logical framework.	See revised *Section 2.1.4. Logical framework matrix; Section 2.2.1. Development objective and impact indicators; Section 2.2.2. Specific objective and outcome indicators and Section 3.1.1. Outputs*
3. Add the report and list of participants from the previous meeting held in August 2009 to the Annex. Incorporate the main findings to the stakeholder analysis.	See Annex 4 and attached documents for the report and list of participants, as well as updated *Section 2.1.2. Stakeholder Analysis*
4. Both the problem analysis and the defined risks are lacking comprehensive analysis and inclusion of practical obstacles.	See revised *Section 2.1.3. Problem analysis and Section 3.5.1. Assumptions and risks*
5. Reformulate the ITTO budget component and Executing Agency budget component according to formats recommended in the Project Manual.	See amended tables in *Section 3.4.3. ITTO budget by Components* and *Section 3.4.4. Executing Agency Budget by Components*
6. For the project organization structure, the Department of Environment and Natural resources should be included in the Steering Committee.	See *Section 4.1.3. Project Steering Committee*
7. Include an Annex that shows the overall assessment and specific recommendations of the 41st Expert Panel and respective modifications in tabular form. Modifications should also be highlighted (bold and underline) in the text.	See present Annex 5.

Assessment of Existing Philippine Timber Tracking System and the Development of Chain-of-Custody Procedures

PP-A/39-170

FINAL REPORT

FOREST MANAGEMENT BUREAU
DEPARTMENT OF ENVIRONMENT & NATURAL RESOURCES

INTERNATIONAL TROPICAL TIMBER ORGANIZATION

ITTO

PROJECT IDENTIFICATION:

Title:	**Assessment of Existing Philippine Timber Tracking System and the Development of Chain-of-Custody Procedures**
Serial Number:	**PP-A/39-170**
Executing Agency:	**Forest Management Bureau, Department of Environment and Natural Resources**
Host Government:	**Republic of the Philippines**
Starting date of the project:	**December 2007**
Actual Duration (months):	**Six Months (extended up to March 2009)**
Actual Project costs (US $):	**ITTO - US$ 42,478** **FMB - US$ 5,000 (In-Kind)**
Place and Date of Report:	**Philippines, 31 March 2009**

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF ANNEXES

LIST OF ACRONYMS

A&D	Alienable and Disposable
AAC	Annual Allowable Cut
BSP	Bangko Sentral ng Pilipinas (Central Bank of the Philippines)
CBFMA	Community Based Forest Management Agreement
CLO	Certificate of Lumber Origin
CTO	Certificate of Timber Origin
CENRO	Community Environment and Natural Resource Officer
CDMP	Comprehensive Development and Management Plan
DAO	Department Administrative Order
DBH	Diameter at Breast Height
DENR	Department of Environment and Natural Resources
DMC	Department Memorandum Circular
DMO	Department Memorandum Order
DR	Delivery Receipt
DTI	Department of Trade and Industry
EEC	Environmental Compliance Certificate
FGDs	Focus Group Discussions
FGI	Furniture Group Inc.
FMB	Forest Management Bureau
FMU	Forest Management Unit
FSMS	Forest Stock Monitoring System
GIS	Geographic Information System
IFMA	Industrial Forest Management Agreement
ITTO	International Tropical Timber Organization
LCMS	Log Control Monitoring System
MH	Merchantable Height
MOU	Memorandum of Understanding
PAWB	Protected Areas and Wildlife Bureau
PD	Presidential Decree
PENRO	Provincial Environment and Natural Resource Officer
PTTS	Philippine Timber Tracking System
PWPA	Philippine Wood Producers Association
RED	Regional Executive Director
SUDECOR	Surigao Development Corporation
SVMC	Star Veneer Manufacturing Company
TLA	Timber License Agreement
TOR	Terms of Reference
UTM	Universal Transverse Mercator

ASSESSMENT OF EXISTING PHILIPPINE TIMBER TRACKING SYSTEM AND THE DEVELOPMENT OF CHAIN-OF-CUSTODY PROCEDURES (PP-A/39-170)

FINAL REPORT

1. INTRODUCTION

The Forest Management Bureau (FMB) of the Department of Environment & Natural Resources (DENR) was granted by the International Tropical Timber Organization (ITTO) funding support to implement the project on Assessment of Existing Philippine Timber Tracking System and the Development of Chain-of-Custody Procedures. The ITTO funding was provided to meet part of the costs of implementing the wood products tracking system for the Philippine government. The overall activity of the wood product tracking system is to be carried out within six months for the purpose of enhancing forest management and law compliance in the forest sector of the Philippines.

The objectives of the project are: a) To assess the impacts of the current Log Control Monitoring System (LCMS) and the Forest Stock Management System (FSMS) as pilot tested in selected regions in the Philippines to determine gaps for tracking timber and other products; and, b) To develop an improved and expanded FSMS to include chain of custody systems. Thus the project built upon and enhanced existing traditional procedures in timber tracking and the computer systems developed in the country, to assist particularly in identifying and quantifying illegal timber and other forest products.

For this project the *chain of custody* refers to the path which wood products take from the forest to the consumer, including all manufacturing, transformation and distribution links. Each of the nodes of the chain can be considered as control points for data verification and evaluation. *Timber tracking*, on the other hand, is the monitoring and evaluation of timber and forest products as it moves in the chain of custody. It can deal on both legality and sustainability aspects.

This project has produced an integrated chain of custody and timber tracking procedures and systems appropriate to the country by enhancing current government efforts and methodologies being implemented. These can be supplemented later by innovative methods by forest management units and operators to facilitate compliance with government procedures and policies produced in this project.

2. DESCRIPTION OF OUTPUTS COMPLETED FOR ITTO ACTIVITY (PP-A/39-170)

Considerable progress was made after the ITTO's approval / grant of an extension, and the project was able to keep on track and catch-up with the original workplan and activities. The project was able to document and evaluate existing policies and procedures on log control monitoring system and forest stocks monitoring system. It conducted field consultation with implementers and stakeholders to provide inputs to an enhanced timber tracking system. It formulated lessons learned in implementing the existing systems. A design for chain of custody and enhanced procedures and supporting systems for timber tracking were developed. After project extension, several consultations with key FMB Officials were conducted to further refine the design for chain of custody and the procedures & support systems for timber tracking, including the developed software as a pre-requisite to the pilot testing that was conducted thereafter, in the selected pilot site to test the effectiveness and workability of the enhanced procedures / systems.

The pilot testing was conducted in one IFMA operation and the results were integrated with other inputs from assessment of current systems, consultations, policy analysis, and the resulting proposed enhancements for both field procedures and the software data base.

While not part of the project TOR, the FMB designed and published a web site for the PTTS. This will not only be used for communication and information but for real time updating of the PTTS data base which has been incorporated in the web site.

2.1 Documentation of existing policies and procedures on log control monitoring system and FSMS

Log control and timber tracking have been implemented by government pursuant to Presidential Decree No. 705 (PD 705), as amended, Executive Orders No. 192 and 318 and other existing DENR policies.

Relevant policies to the transport of timber and timber products were gathered, collated, and evaluated. Such policies involved the issuance of cutting permits, self-monitoring forms and transport documents e.g. Certificate of Timber Origins (CTO), Certificate of Lumber Origin (CLO), Delivery Receipts (DRs), etc. The major policies that provide enabling environment for timber tracking include the following:

1. **DAO No. 2007-31,** October 26, 2007. Amending Certain Provisions of DENR Administrative Order No. 07, series of 1994 and Prescribing the Use of Computer Generated Certificate of Timber Origin (CTO) and Certificate of Lumber Origin
2. **DAO No. __**, *Drafted in 2007*. Adoption of the Forest Stocks Monitoring System (FSMS)
3. **DMC No. __**, *Drafted in 2007*. Guidelines on the Implementation of the Forest Stocks Monitoring System (FSMS)
4. **DMC No. 99-20,** July 29, 1999. Supplemental Guidelines Governing the Registration, Harvesting, Transport and Marketing of Timber By-Products coming from Private Plantations within Private Lands or Tax-Declared A&D Lands
5. **DMO No. 96-08,** March 22, 1996. Full Implementation of the Log Control Monitoring System (LCMS)
6. **DAO No. 96-26**, September 10, 1996. Revised Guidelines in the Harvesting and Transport of Planted Trees and Non-Timber Products within Social Forestry Areas
7. **DMO No. 96-06,** February 28, 1996. Guidelines on the Implementation of the Log Control Monitoring System (LCMS)
8. **DAO No. 96-04,** February 13, 1996. Adoption of the Log Control Monitoring System (LCMS)
9. **DAO No. 94-07,** February 17, 1994. Revised Guidelines Governing the Issuance of Certificate of Origin of Logs, Timber, Lumber, and Non-Timber Forest Products
10. **DMC No. 90-13,** July 20, 1990, Prescribed DENR Log Marking Procedures
11. **Administrative Order 54**, Oct. 18, 1991- rules and regulations governing the exportation of finished and semi-finished wood products
12. **DAO No. 33**, May 6, 1988- regulations governing the exportation of Lumber and plantation logs
13. **DMC No. 33**, Sept. 10, 1993- policy on the exportation of logs, lumber, boles, finished and semi finished wood products from tree plantations

The log control monitoring system, as can be deduced from the above policies, have been adopted by government as early as 1996 complete with implementing rules, guidelines, and procedures. **DAO No. 96-04,** February 13, 1996, adopted the Log Control Monitoring System (LCMS) to systematize the tracking of logs and timber flows from source to end-users. This provides very limited tracking system of transport and shipping documents for timber, lumber, and lumber products using computer and similar state of the art technologies.

DMO No. 96-06, February 28, 1996, provided guidelines on the implementation of the Log Control Monitoring System (LCMS). It provides procedures for pre-harvest inventory, timber inventory, felling and bucking, transport of forest products, log marking and other documentation. **DMO No. 96-08,** March 22, 1996, mandated the full Implementation of the Log Control Monitoring System (LCMS) in Region XIII or Caraga region.

Despite these policies and procedural guidelines the LCMS was not implemented due to operational difficulties and the government decided to formulate an enhanced version called FSMS. The original LCMS was supported by a computer program developed using Dbase IV to suit the limited computer hardware and skills of operators in the field offices of DENR.

The Forest Stocks Monitoring System (FSMS) was developed as an enhanced version of the LCMS. It was designed as a better tool with improved procedures in tracking the movement of logs/timber from the cutting area, or from the initial port of discharge, in the case of imported wood materials, to its final destination as lumber or veneer including the monitoring of residual trees left after logging or cutting operations, as the case may be.

The FSMS was developed as a complete computer package using FoxPro window version not only to address timber tracking but other forest management objectives as residual inventory, standardization of timber data, curtail illegal activities, and collection of forest charges. The salient features of FSMS related to timber tracking are the use of recording and reporting of forms called Capture Forms. The Capture Forms are filled up manually from the logging set-up down to the mill site or wood processing plants and back to the cutting area for residual inventory. The use of the Capture Forms are important in order to complete the process of recording the reporting the various data needed in determining the source of a particular timber down to the wood processing plants. The data entered in the capture forms will generate summary reports that may be useful for timber tracking.

The FSMS as a system addressing timber tracking as a module generates 6 capture forms and 6 reports on timber inventory, felling, bucking, transport, and wood processing input and output. These are important elements for developing a chain of custody and timber tracking procedures and computer systems for the government.

Just like LCMS the FSMS was never adopted nor used by the government. The policies and implementing guidelines for FSMS remain a proposal for the DENR to adopt and implement. The FSMS software program and the field procedures remained difficult to operate especially the timber tracking module.

However, the experiences and lessons learned in trying to implement the LCMS and the FSMS can provide significant inputs to the ITTO project to enhance and improve government regulations and procedures on timber tracking. These

systems were developed prior to the recognition of chain of custody and new methods in timber tracking.

It should be highlighted too that the government continues with its traditional way of timber tracking especially for illegal forest products. Policies are being implemented to apprehend illegal logs, timber, and others at designated check points and by ad-hoc evaluation at cutting areas and performance evaluations. The main documents inspected are legal papers to support cutting, transport, and export. These will be considered too in the new enhanced timber tracking system.

2.2 Field consultations as basis to enhance the LCMS /FSMS

Several field consultations were conducted by FMB officials last February-March 2008 with DENR Regional personnel particularly the Community Environment Natural Resources Officers (CENROs) and representatives of private forest operators on implementing the FSMS in the Caraga Region. The consulted personnel pointed to the difficulty in operating the complex computerized system of the FSMS and some gaps in the operational procedures involved. (Please refer to *Annex 1* for highlights of the Field Consultations).

2.2.1 Specific problems and concerns identified

a) Lack of logistical support

DENR field offices, i.e. the CENROs have very minimal budget that do not include funds for logistical support procurement of computers and hiring of additional personnel. Due to this, the CENROs cannot catch up with the needs of FSMS. This has substantial repercussion in the non-implementation of FSMS in the field.

b) Strict Procedure of FSMS

The encoding of data in the FSMS Capture Forms is sequential, and requires confirmation from the encoder at the time of encoding in order to move to the next set of data. When the data is confirmed, the encoded data becomes a “read-only file” and cannot be edited. This process is repeated in every set of data until full encoding of all data for a given cutting unit is completed. In this process, an encoder cannot open as he wishes if a Capture Form is closed. The absence of an editing option as programmed in the FSMS for an unfinished Capture Form resulted in the lost of substantial data.

The same problem is true for Capture Form No. 2. The encoder cannot proceed with Capture Form No. 2 without first completing or exiting or closing Capture Form No. 1. Hence, data entry for succeeding Capture Forms Nos. 3, 4a, 4b, 5, 5a, and 6 are affected.

Another crucial problem affected by this rigorous procedure is that, not all logs bucked can be included in FSMS Capture Form No. 2, even of the Tree No. where the bucked log came from are indicated in FSMS Capture Form No. 1. since the diameters are taken at DBH of the trees inventoried while the MH is set at the first branch. As such, for trees that have large branches with recoverable wood or lumber to maximize production, there is no way for logs bucked from above the first branch or MH of these trees to be included.

c) Large volume of data generated in the field

The immense volume of data that can be generated from the field may not have been fully anticipated when the computer program of FSMS was developed. There was no alternative way to add non-encoded raw data. In Capture Form No. 1, encoding of all data must be completed first before the program can be closed, and in order move to the next Capture Form. Once closed, remaining non-coded data inadvertently not included in Capture Form No. 1 can no longer be accommodated or added. Re-encoding of all data would have to be done. This is crucial since complete data for FSMS Capture Form No.1 is required in Capture Form No. 2 and the succeeding Capture Forms.

The same problem occurs for Capture Form No. 2. One cannot proceed with Capture Form No. 3 without existing or closing Capture Form No.2, these hold true with the rest of the Capture Forms Nos. 4, 5 & 6.

d) Tedious and time consuming in data encoding

Time was not given due consideration in the encoding process. The voluminous data coming in, requires professional encoders to complete accurately the encoding of all data in the Capture forma within a reasonable period of time.

e) Lost of data encoded during power interruptions

Power interruptions in remote rural areas are fairly common occurrence, and often happens unannounced. When power failure occurs while encoding is on-going, especially when computers are not hooked-up to Uninterrupted Power Supply devices, encoded data are lost immediately. This will require re-encoding, taking up additional time, effort and resources.

2.2.2 Other related Problems Identified

a) Inaccurate measurement technique of tree height

Forestry field personnel practice estimation technique in measuring the height of a tree including the merchantable height (MH). Since it is only an estimate, the margin of error is always greater than it true value, either more than or less than the correct measurement if an instrument is used. This can be validated when the tree is finally felled and bucked. With the application of FSMS, when the estimates fell short or over the actual measurements, there will be problems in encoding the data in the next Capture Form of FSMS (Capture Form No. 2) and the rest of the Capture Forms will not be filled up either.

b) First branch as the basis for Merchantable Height (MH)

The first branch of a standing tree is used as basis for measuring the Merchantable Height (MH). There is no problem if the diameter of the tree above the first branch is smaller than 15 cm. and there are no branches bigger than 15cm. Therefore in two instances: a) If the diameter of the tree above the first branch is at least 15 cm or bigger, and if the tree feller will further buck the timber into a recoverable length e.g. small sawlogs; and, b) If there are branches having diameters of at least 15 cm or bigger, the tree feller will also buck the branches into recoverable length as small sawlogs.

In both instance, the FSMS Capture Forms specifically Capture Form 2 will not accept such data.

A timber company as a business oriented sector would always want to maximize the recoverable volume of every tree cut obviously for profit, bring down overhead cost and also due to the scarcity of timber resources. Thus, even branches and tree trunks with a diameter of at least 15 cm will be bucked and taken to the wood processing plants. These can be manufactured into wood chips, sticks, planks, and small sized lumber for general use such as wooden pallet and likes.

c) Log Marks and Government Marking Hatchet

The marking of logs for scaling using timber crayon is easily erased, tampered, changed and most of the time very difficult to read during inclement weather. Sometimes, the marks left by government marking hatches are not visible and not readable. Hence, there must be short change in the payment of forest charges since scaling is process and log markings poorly done. Because of these limitations and difficulties, some timber companies have developed ways and means to facilitate the marking of logs by using an ordinary chisel. They employ several people whose primary task is to chisel log markings at the log ends of all logs harvested while still at the cutting area or at the log landing. This is accordance with existing DENR guidelines. In this manner, all marked logs can be scaled and facilitate transport to the wood processing plants. Thus, the current log marking system requires total revision of the hatchet itself including the policy. It was further acknowledged that an unreliable current log marking system of the DENR contributes for FSMS not to be workable on the ground

2.2.3 Lessons Learned and Experiences in using FSMS

The Private Sector (tenure holders operating a particular forest management unit) consulted finds the FSMS very useful. But due to the non-flexibility of FSMS, they have developed a similar system that is more suitable to their needs and requirement and most of all very flexible in terms of use. This is described as a simple system because it is based on spreadsheets using Microsoft Excel.

Based from consultations with FSMS users and the evaluation of ITTO-FMB project personnel, there is immense difficulty in using the system for nation-wide timber tracking and chain of custody evaluation at present. The lessons learned in trying to use FSMS are elaborated as follows:

a) The software package to utilize FSMS is complex and not user-friendly, and hard to operate. It is designed for other objectives aside from timber tracking and has to draw on other menu modules to generate reports from inventory to wood processing. The computer program uses the old version of FoxPro for Windows, and DENR personnel lack the skills to follow the Users' Guide. The computer software needs to be enhanced and perfected as well as the accompanying field procedures.

b) The entry of data is done manually on the designed capture forms and such data is voluminous and time-consuming for entry operators.

c) The current software does not link the 6 reports generated, and hence not useful to track data from inventory to wood processing and back.

d) The generated reports are not supported by valid legal documents except for the Certificate of Timber Origin which are also needed to track down illegal logs and other forest products.

e) The FSMS is not designed and programmed as an integrated chain of custody and timber tracking system. It is more of a general forest management system. There is a need to have a separate system just for this which can be linked as a module to other bigger forestry management systems in the future.

f) The FSMS concentrates more on the software package rather than the field procedures involved in timber tracking. It assumes that computerization has facilitated / enabled everything.

g) The policies & operational guidelines for FSMS have yet to be formally approved by government, even though already tested at the Caraga Region.

h) Certain technical procedures have to be improved on log marking and the use of government hatchets, and in determining the volume of merchantable trees and tree heights.

i) The identified nodes used in timber tracking are only up to wood products processing and cannot be used at the export and consumer levels.

j) Lack of appropriate computers & trained encoders / software operators, absence of electricity in the cutting areas, and the lack of telephones / communication systems, are operational issues that have to be addressed to utilize the system and introduce innovative methods in the future.

k) The FSMS did not consider present systems developed by the private sector which use simpler programs for entry and generating reports.

2.3 Enhancement/Improvement of FSMS as an effective Timber Tracking System

The enhancement of the FSMS incorporated the aforementioned lessons learned from earlier consultations with DENR field personnel and private sector operators, experts' evaluation and the initial attempt to use the system in the DENR's Caraga Region. These were complemented by a series of consultations with key FMB Officials/Staff following project extension. The resulting enhanced FSMS is now termed as the Philippine Timber Tracking System (PTTS), which have the following design and features:

1. The PTTS is an integrated chain of custody & timber tracking system supported by field procedures w/computerized software for data entry, report generation & linking nodes. It includes new nodes on wood processing outputs to local consumers and the export market to complete the chain. Figure 1 on the following page, show the proposed chain of custody. Figure 2 depicts the framework for operating the enhanced system in the field including procedures, software, and custody flows.

Figure 1.

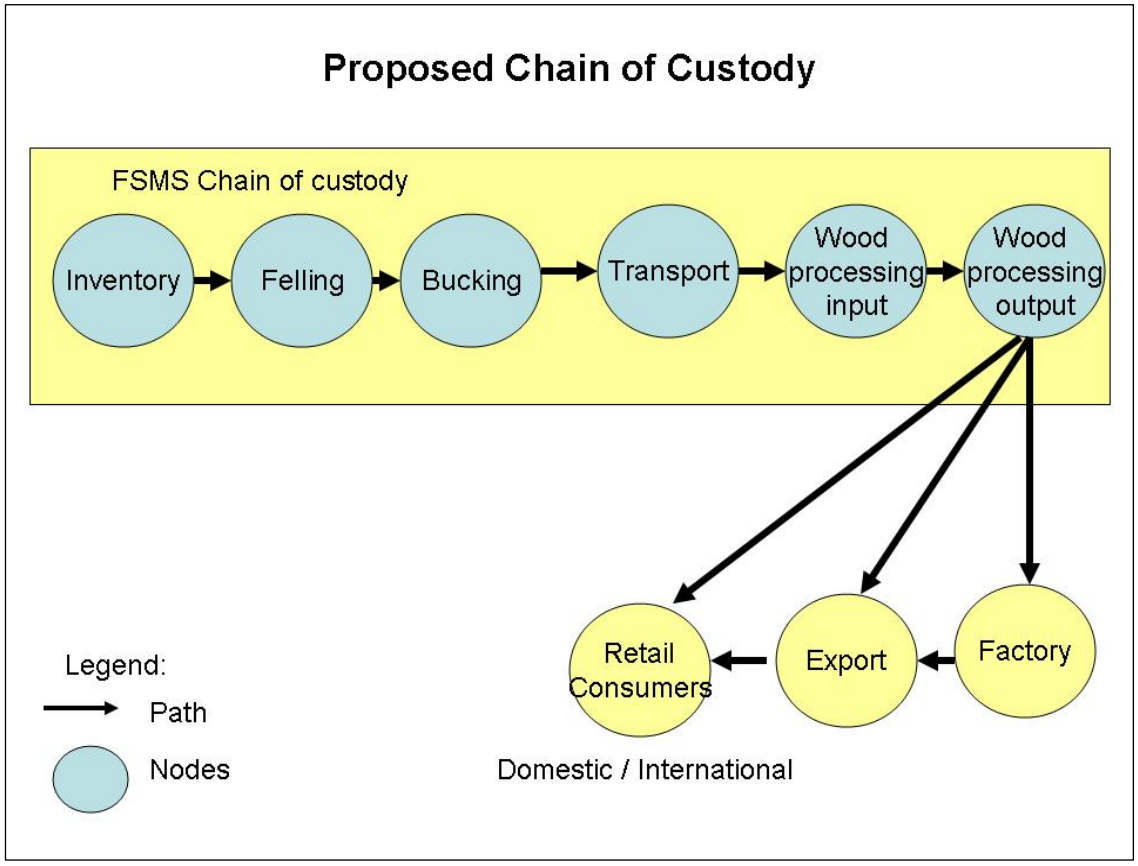
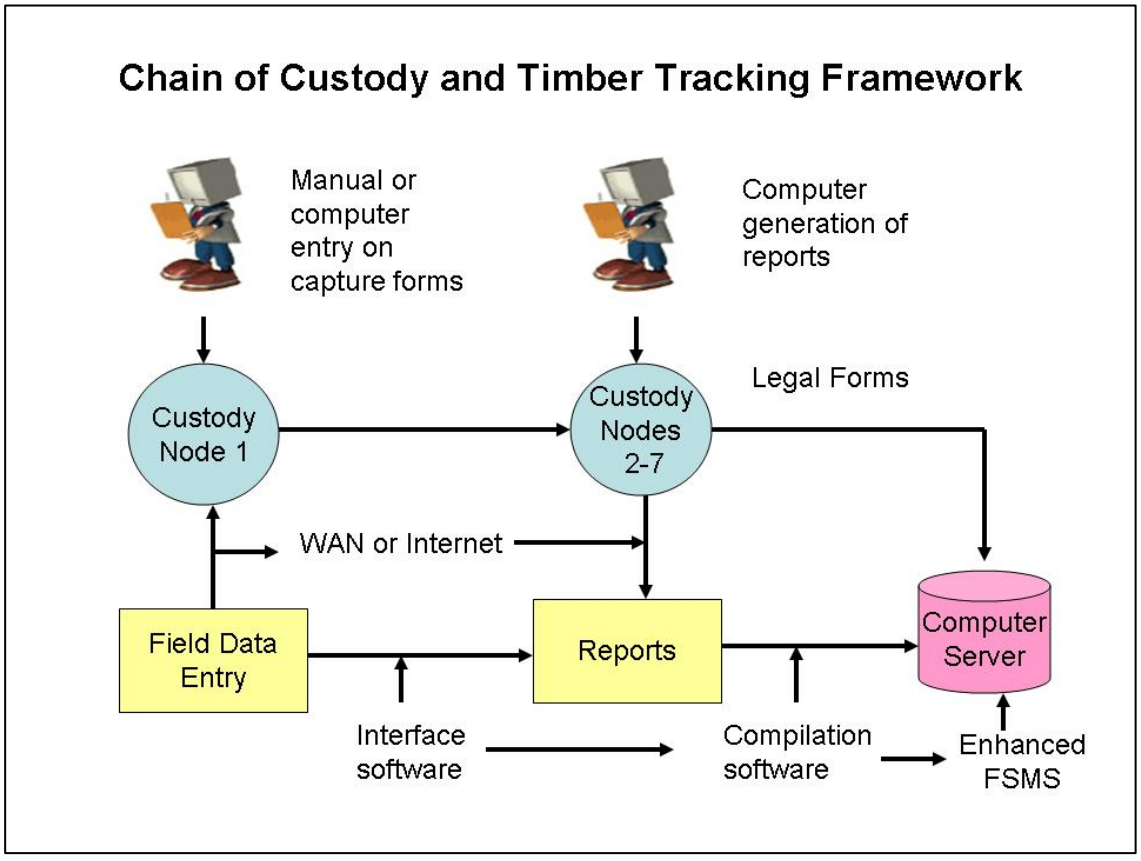


Figure 2.



2. The software program (M.S. Access is now used instead of the cumbersome old version of Windows FoxPro) is separate from the current FSMS -- a complex general forest management system with complicated operations and menus. The software now specifies the entry forms at each node and the reports to be generated. The reports are linked to track the movements of logs and other forest products from the inventory source to consumers and back.

3. The reports generated for each node are accompanied by valid legal documents (electronically scanned & attached) such as the Certificate of Timber Origin in transporting, with details in the reports reflected in the legal documents or vice-versa as a counter-check mechanism for tracking.

4. The current capture or entry forms as well as the generated reports, cover more details necessary for timber tracking, and each log has a Unique Number / Identification to facilitate tracking.

5. Manual operations can be used in areas of nodes where there are no or unreliable electric power supply, computer & telecommunications facilities. As much as possible, computers and the software program will be utilized as appropriate for the conditions, with a central server located at the CENRO / PENRO levels to store all compiled data entry and reports, unto a master report to facilitate timber tracking.

6. The new system is flexible enough to accommodate innovative methods that maybe introduced by private and community forest operators in the future. It is compatible and can be linked with other forest management and information systems, and geographic data generated by GIS from various satellite or aircraft borne remote sensing.

7. The new export node follows the provisions of DENR DAO No. 54, October 18, 1991 on rules and regulations governing the exportation of finished and semi-finished wood products including all legal permits and documents. It also follows DAO No. 33, May 6, 1988, on the exportation of lumber and plantation logs

8. It considers and builds upon current government policies and procedures associated with activities on timber tracking such as in timber inventory, marking and use of government approved hatchets, transporting forest products, wood processing, and procedures for exporting.

9. The PTTS must be supported by an approved policy for implementation, complete with operational guidelines.

2.4 Field testing of the Philippine Timber Tracking System and the Chain of Custody procedure

2.4.1 Pilot Test Area for Timber Tracking

The project area selected to pilot test the proposed Philippine Timber Tracking System (PTTS) and the proposed chain of custody procedure is the Industrial Forest Management Agreement (IFMA) No. 2002-01 area of Star Veneer Manufacturing Corporation (SVMC) in Luna, Apayao since it is actively operating, with an approved Comprehensive Development Management Plan (CDMP).

The IFMA of SVMC (formerly Nagan Agro-Forest Development Corporation) was perfected on July 03, 2002 and approved for twenty-five (25) year period until July 02, 2027. It has a total area of 13,658 hectares more or less, located within Barangays Salvacion, Cagandungan and Bucao (Marag); Municipality of Luna; Province of Apayao. Likewise, a Comprehensive Development and Management Plan (CDMP) was approved by then Secretary Alvarez on December 09, 2002.

2.4.2 Pilot Testing

Pilot testing of the PTTS is necessary to test the workability and effectiveness of the field procedures and the software system developed. The lessons learned from this test operation will refine pending problems and issues in implementation of the PTTS. The objectives of the pilot test are the following:

- Evaluate adequacy of field procedures to generate data per node
- Assess the computerized system for entry, report generation, and server compilation
- Test timber tracking forward and backward
- Determine any illegal timber flowing in system
- Check custody and origin
- Evaluate legal documents
- Conclude lessons learned
- Recommend changes and refinements

As illustrated in Figure 3 below, and Figure 4 & Figure 5 in the following page, actual pilot testing by was conducted first week of March with the above stated objectives achieved as elaborated on in the report. It was not possible to pilot test earlier because of inclement weather, as the rainy season normally ends around mid-March in operable forest areas of Luzon & Mindanao.

Figure 3. **Philippine Timber Tracking System**

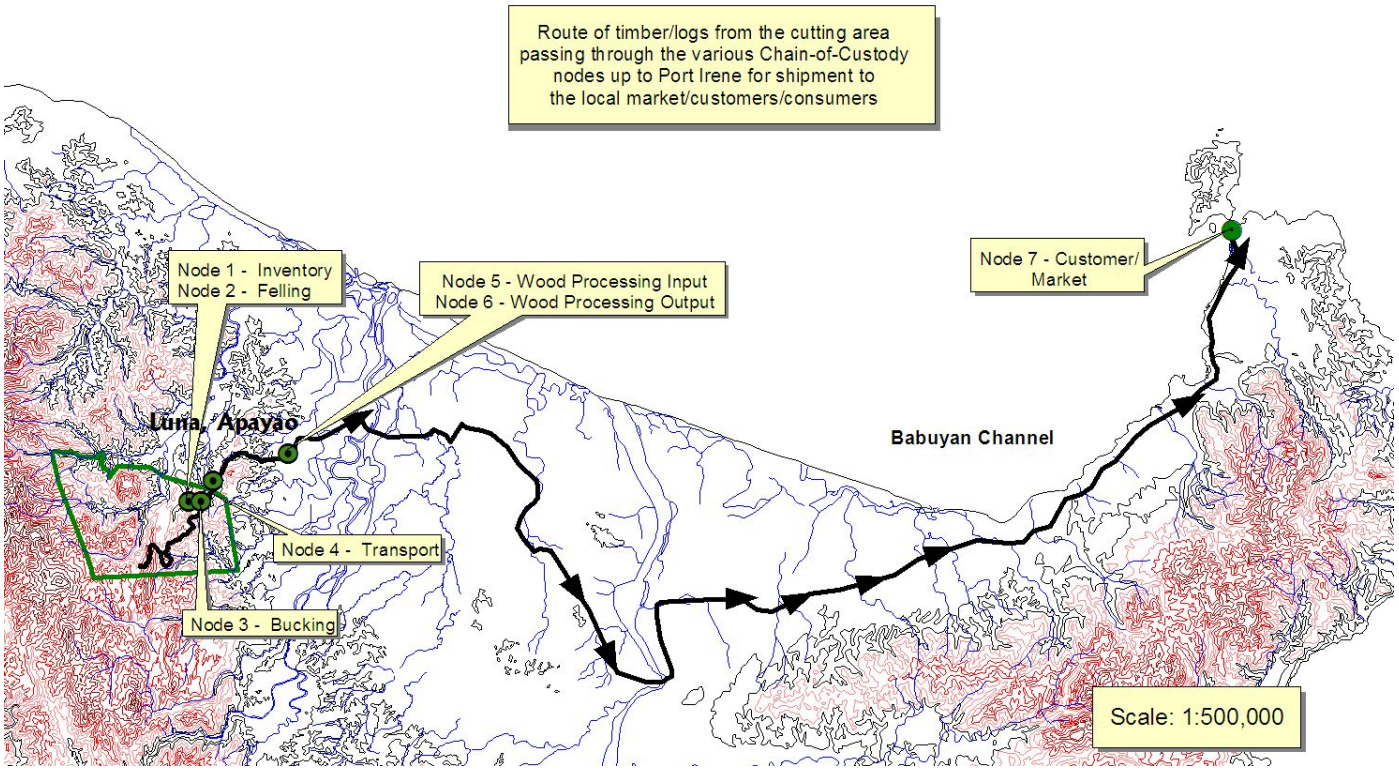


Figure 4. Data Entry Form for Node 1 "Inventory of Standing Trees"

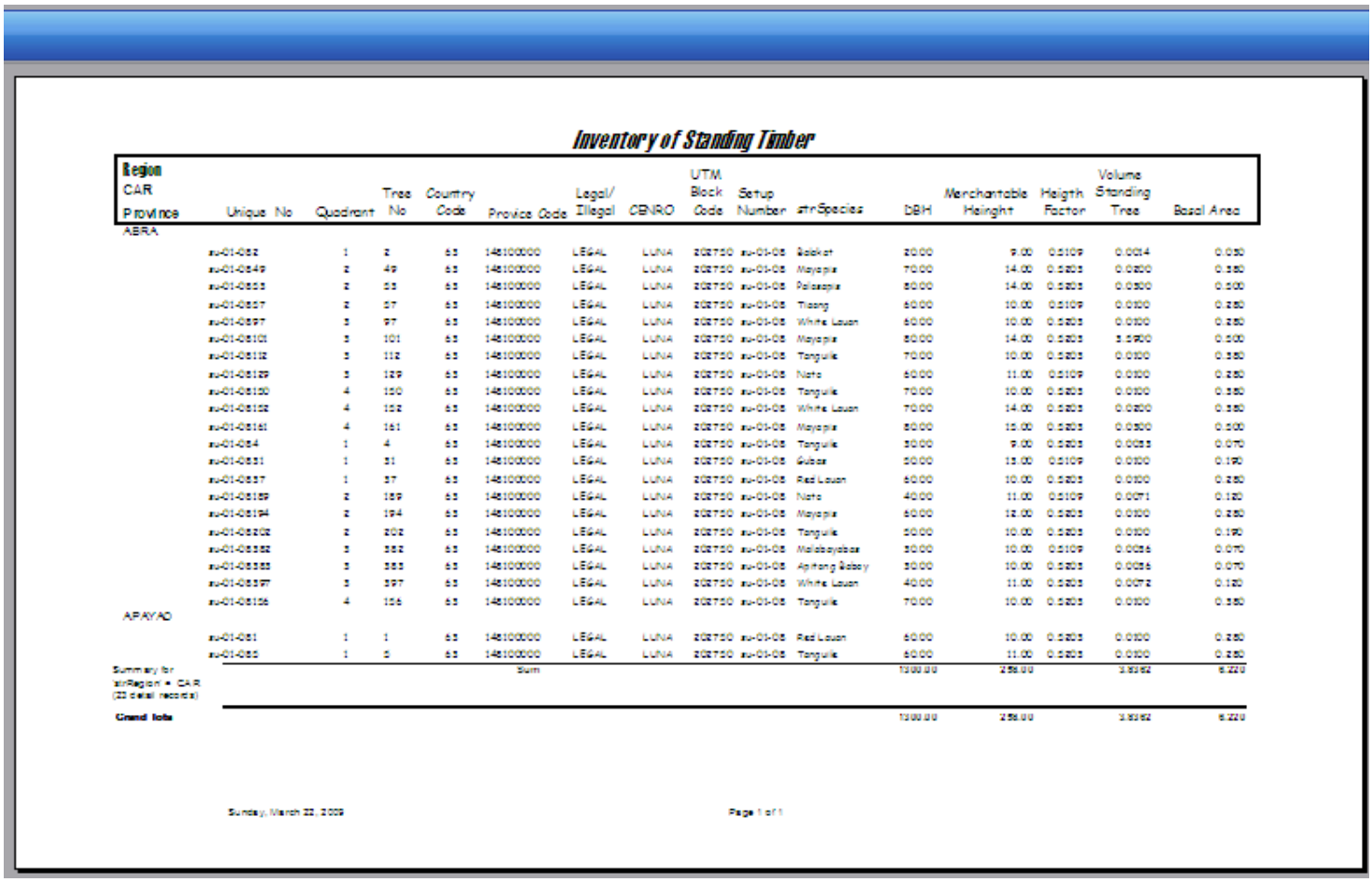
NODE 1 — INVENTORY OF STANDING TREES

Region: CAR | CENRO: LUNA | Province: APAYAO | Log Source: IFMA | Backup | Retrieved | Standing Timber | STOP

Country Code	Province Code	Unique Identifier	UTM Block Code	Setup Number	Tree Number	Quadrant Number:	Species Code	Species	Height Factor	DBH (cm)	Merch. Height	Volume StandingTree	Basal Area	LEGAL/ ILLEGAL	Remarks
63	148100000	su-01-085	202750	su-01-08	5	1		Tanguile	0.5203	60.00	11.00	0.0100	0.2800	LEGAL	
63	148100000	su-01-0849	202750	su-01-08	49	2		Mayapis	0.5203	70.00	14.00	0.0200	0.3800	LEGAL	
63	148100000	su-01-0853	202750	su-01-08	53	2		Palosapis	0.5203	80.00	14.00	0.0300	0.5000	LEGAL	
63	148100000	su-01-0857	202750	su-01-08	57	2		Tiaong	0.5109	60.00	10.00	0.0100	0.2800	LEGAL	
63	148100000	su-01-0897	202750	su-01-08	97	3		White Lauan	0.5203	60.00	10.00	0.0100	0.2800	LEGAL	
63	148100000	su-01-08101	202750	su-01-08	101	3		Mayapis	0.5203	80.00	14.00	3.5900	0.5000	LEGAL	
63	148100000	su-01-08112	202750	su-01-08	112	3		Tanguile	0.5203	70.00	10.00	0.0100	0.3800	LEGAL	

Record: 1 of 23 (Filtered)

Figure 5. Report generated by the Software for Node 1



Inventory of Standing Timber

Region: CAR

Province	Unique No	Quadrant	Tree No	Country Code	Provice Code	Legal/ Illegal	CENRO	UTM Block Code	Setup Number	strSpecies	DBH	Merchantable Heighth	Heigth Factor	Volume Standing Tree	Basal Area
ABRA															
	su-01-052	1	2	63	148100000	LEGAL	LUNA	202750	su-01-08	Balakat	20.00	9.00	0.5109	0.0014	0.030
	su-01-0849	2	49	63	148100000	LEGAL	LUNA	202750	su-01-08	Mayapis	70.00	14.00	0.5203	0.0200	0.380
	su-01-0853	2	53	63	148100000	LEGAL	LUNA	202750	su-01-08	Palosapis	80.00	14.00	0.5203	0.0300	0.500
	su-01-0857	2	57	63	148100000	LEGAL	LUNA	202750	su-01-08	Tiaong	60.00	10.00	0.5109	0.0100	0.280
	su-01-0897	3	97	63	148100000	LEGAL	LUNA	202750	su-01-08	White Lauan	60.00	10.00	0.5203	0.0100	0.280
	su-01-08101	3	101	63	148100000	LEGAL	LUNA	202750	su-01-08	Mayapis	80.00	14.00	0.5203	3.5900	0.500
	su-01-08112	3	112	63	148100000	LEGAL	LUNA	202750	su-01-08	Tanguile	70.00	10.00	0.5203	0.0100	0.380
	su-01-08129	3	129	63	148100000	LEGAL	LUNA	202750	su-01-08	Nato	60.00	11.00	0.5109	0.0100	0.280
	su-01-08130	4	130	63	148100000	LEGAL	LUNA	202750	su-01-08	Tanguile	70.00	10.00	0.5203	0.0100	0.380
	su-01-08132	4	132	63	148100000	LEGAL	LUNA	202750	su-01-08	White Lauan	70.00	14.00	0.5203	0.0200	0.380
	su-01-08161	4	161	63	148100000	LEGAL	LUNA	202750	su-01-08	Mayapis	80.00	15.00	0.5203	0.0300	0.500
	su-01-084	1	4	63	148100000	LEGAL	LUNA	202750	su-01-08	Tanguile	30.00	9.00	0.5203	0.0033	0.070
	su-01-0851	1	51	63	148100000	LEGAL	LUNA	202750	su-01-08	Guisoc	50.00	15.00	0.5109	0.0100	0.190
	su-01-0857	1	57	63	148100000	LEGAL	LUNA	202750	su-01-08	Red Lauan	60.00	10.00	0.5203	0.0100	0.280
	su-01-08189	2	189	63	148100000	LEGAL	LUNA	202750	su-01-08	Nato	40.00	11.00	0.5109	0.0071	0.120
	su-01-08194	2	194	63	148100000	LEGAL	LUNA	202750	su-01-08	Mayapis	60.00	12.00	0.5203	0.0100	0.280
	su-01-08202	2	202	63	148100000	LEGAL	LUNA	202750	su-01-08	Tanguile	50.00	10.00	0.5203	0.0100	0.190
	su-01-08382	3	382	63	148100000	LEGAL	LUNA	202750	su-01-08	Malabayabas	30.00	10.00	0.5109	0.0036	0.070
	su-01-08383	3	383	63	148100000	LEGAL	LUNA	202750	su-01-08	Apitong Bideo	30.00	10.00	0.5203	0.0036	0.070
	su-01-08397	3	397	63	148100000	LEGAL	LUNA	202750	su-01-08	White Lauan	40.00	11.00	0.5203	0.0072	0.120
	su-01-08126	4	126	63	148100000	LEGAL	LUNA	202750	su-01-08	Tanguile	70.00	10.00	0.5203	0.0100	0.380
APAYAO															
	su-01-051	1	1	63	148100000	LEGAL	LUNA	202750	su-01-08	Red Lauan	60.00	10.00	0.5203	0.0100	0.280
	su-01-055	1	5	63	148100000	LEGAL	LUNA	202750	su-01-08	Tanguile	60.00	11.00	0.5203	0.0100	0.280
Summary for strRegion = CAR (23 detail records)						Sum					1300.00	256.00		3.9392	6.220
Grand Total											1300.00	256.00		3.9392	6.220

Sunday, March 22, 2009 — Page 1 of 1

While the current procedural guidelines are practicable, several enhancements were made to make PTTS more effective as a result of pilot testing and include the following:

- For timber inventory node, timber inventory records of concerned CENRO and that of licensee are gathered and compared for integrity of the data and information. Marking of harvestable and residual trees include tree species, tree #, set up #, quadrant #, UTM block code,

- The node on felling was supplemented by additional data. Actual inventory and tracking of felled logs in the cutting set up with additional information as to tree species, tree number, set up number, quadrant number, UTM block code

- For bucking operations actual inventory and tracking of felled/bucked logs are done either in the cutting set up or in the temporary log landing where trees should have information as tree species, tree number, set up number, quadrant number, and UTM block code.

- In transporting logs actual count, identification and tracking of logs loaded on trucks with information as to tree species, tree number, set up number, quadrant number , UTM block code are made.

- Actual count, identification and tracking of logs loaded on trucks with information as to tree species, tree number, set up number, quadrant number, UTM block code are made on log processing input node.
- Actual inventory and measurement of lumber / veneer and other finished products in the processing plant/sawmill/veneer plant will be conducted for log processing output node.

- In the market /consumer node the actual inventory and tracking of products, either in the form of logs, lumber, veneer, and other forms of products will be done.

Annex 2 summarizes in matrix form, the procedural guidelines for implementing the enhanced PTTS in the field and the data entry enhancements of the PTTS software,

The software developed using Microsoft Access program was tested and yielded results on the following main features:

- Computerized 7 tracking nodes
- Manual or computer entry
- Automatic computer generation of 7 reports
- Pull down menu for entry
- Forward and backward tracking
- Compilation program per node and total for server
- Conversion to volume in cubic meter and board feet
- GIS, photo capability, legal forms
- Menu for tracking in TLA, IFMA, CBFMA, PLTP, CADC
- Use as module for bigger systems

Annex 3 shows the actual data entry forms & reports during the pilot test.

Please refer to *Annex 4* for the detailed report and photos on the conduct of field pilot testing.

2.4.3 Experiences / Lessons Learned from the Field Testing

Most of the attendees of the briefing/lecture conducted by the FMB Team during filed testing, have either: a) undergone training, b) attended workshops and/or c) are aware of the earlier LCMS and its enhanced version the FSMS. All were in agreement that the proposed system is very much better, more user-friendly & flexible. That there are more computers in the field offices and many of the field personnel are now computer literate (but not all), although the internet is not yet a standard facility in the PENRO/CENRO.

There was the usual concern about the lack of internet facilities, power failures. Also the lack of man-power in both the DENR & the Private sector during the timber harvesting season in the Apayao IFMA area, where there is a very short window of only 3 months to harvest and haul the logs (during actual operations, there are many set-ups, but very few tree markers/scalers). The need for hands on training in the use of the system as very important, was pointed out, also the need for additional man-power for both the DENR and the Forest Operator during the short harvest season, to effectively implement the PTTS. The private sector representative also pointed out that the use of the Computer Generated CTO/CLO Forms under DAO 2007-31 takes a lot of time and causes delay, and adversely affecting operators in areas where the harvest season is short.

The private sector representative also mentioned that he understands the Timber Tracking System well having experienced its implementation together with the strict SGS implementors when he worked in Papua New Guinea for several years, and he is aware that *the system is an initial step towards Timber Certification, and the PTTS could also be used by them as a management tool to measure the efficiency of their harvesting & processing operations & their personnel as well, among others*.

During data entry into the system, it became quite apparent that further improvement /enhancement of the proposed system would have to be done. These include the module for data entry in each node, and the interfacing and compiling of all the nodes in the chain of custody in order to produce an integrated report that will provide the necessary / required information to track timber along the chain.

It was suggested that the system should consider inputting the net volume of logs (that is after scaling) so that appropriate forest charges would be computed automatically for easy monitoring and evaluation of forest charges and other fees paid / to be paid by concerned permitees / licensees.

The PTTS could also be used to “sanitize” the timber harvesting operations. The proposed PTTS should incorporate safeguards to avoid this possibility.

Given the general lack of internet access at the operations area, it is important to devise a cost-effective mechanism to transmit data in Nodes 2 & 3, since these nodes are very crucial in the tracking system, where errors in log marking and encoding/recording of data could easily take place. It is crucial that data in these nodes are current / up-to-date and should be passed on to the next Node/s (if possible) before any further movement of the tracked logs to other nodes in the chain of custody.

In the encoding of data: UTM Block Code, Set-up No., Timber / Log Tracking Codes and Timber / Log dimensions, should be reduced to the barest minimum in

order to reduce data entry errors and encoding time. Repetitious data should also be provided with key board shortcuts or pull down selection.

2.5 Refinement, Finalization & Presentation of the PTTS

2.5.1 Final Consultations / Workshop

A presentation to key FMB Officials/Staff on the results of the Field Testing of the PTTS was conducted shortly after the field work, to further improve and enhance the PTTS based on the experiences/lessons learned from the field. The salient comments /suggestions include the following:

a) *Node 1. Inventory Record*. This should contain the *100% inventory of all trees to be cut* in a particular logging or cutting set-up. Prior to the 100% inventory, it is presumed that the trees must be properly marked based on existing guidelines.

b) *Node 2. Felled Logs.* After felling, all trees and logs that are skidded to the landing site shall be immediately marked (chiseled or painted) on both ends. Their corresponding *Species Group Code*, *Tree Number*, *Set-up Number* and *UTM Code* shall be marked and painted on both ends of the harvested trees.

c) *Node 3. Bucking.* If the felled trees are bucked right in the cutting area, all trees that have been bucked must have log marks i.e. *Species Group Code*, *Tree Number*, *Set-up Number*, *UTM Code* and the *Log Number.*

d) *Node 4. Log Transport.* Logs being transported within the province must be at all times be covered by a Trip Ticket or Delivery Receipt if transported by the timber company i.e. the TLA, IFMA or other tenure holders. Logs transported outside of the province must be at all times accompanied by a Certificate of Timber Origin (CTO). All logs being transported going to any Wood processing Plant (WPP) must have already been scaled and the corresponding Forest Charges must already be fully paid.

e) *Node 5. Wood Processing – Input.* All logs being brought into a WPP, aside from the Trip Ticket or Delivery Receipts or CTO, must be accompanied by a Scaling Report and a proof that the corresponding Forest Charges have been fully paid. At the same time, the WPP holder must maintain Stocked Logs Records that will show all deliveries of round logs into their Wood Processing Plants.

f) *Node 6. Wood Processing – Output.* All Wood Processing Plant (WPP) permittees shall be required to prepare and maintain a Daily Log Milling Tally at the end of the milling operation of the day.

g) *Node 7. Market / Customers.* All deliveries of lumber from the WPPs to the intended market or customers or retailers, i.e. lumber dealers and hardware stores, all shipment must always be covered with the corresponding Delivery Receipts and Sales Invoices.

h) There is a need to further evaluate and analyze salient provisions of existing forestry policies pertaining to procedures and documents that should always accompany all shipments of round logs from the and lumber

i) There is also a need to remind and insist upon DENR Field Offices (Region, PENROs, & CENROs) Offices that existing guidelines must be religiously implemented, to ensure that forest operators / timber harvesting firms are indeed cutting trees within the designated and approved cutting areas based on existing development plans; and that the correct forest charges, as well as surcharges are collected and in a timely.

2.5.2 Finalization & Presentation of the PTTS

The PPTS was further refined & finalized by the FMB Team as a result of the successful field Pilot testing and the consultations that followed, and the results presented & discussed in a general workshop with the FMB Executive Committee composed of the FMB Director, Assistant Director, all Division Heads. Key representatives of the DENR Field Operations (Regional Technical Director, DENR-CAR), the Protected Areas & Wildlife Bureau (PAWB) and the Philippine Wood Producers Association (PWPA) were also active participants.

As a result of the presentation / workshop, the lessons learned, conclusions and recommendations were finalized & agreed upon by all participants. These now serve as the framework and guidelines for the eventual implementation of the PTTS nationwide.

3. EXECUTION OF THE WORK PLAN

Annex 5 shows that all activities and sub-activities in the approved workplan have been completed 100%. ITTO's grant of the project extension allowed for the completion of Activities 4 & 5, including the design and guidelines for the new enhanced chain of custody and timber tracking system, with refinements of the required software and procedures, and pilot testing in the selected Forest Management Unit.

4. GENERAL LESSONS LEARNED

The proposed system is much better, more user-friendly & flexible. That there are more computers in the field offices and many of the field personnel are now computer literate (but not all), although the internet is not yet a standard facility in the PENRO / CENRO, it must be assumed that internet access in all field offices of the DENR is only a matter of time and must be anticipated this early.

Timber harvested from any Forest Management Unit can be tracked from harvest node up to the node of delivery to consumers. In the process of timber tracking illegally sourced timber can also be easily detected by system given its present design and capability to go forward and backward in the chain of custody. Each log entering the PTTS will have its own unique identifier, and un-identified logs in the system would be readily spotted. The Species Group Code, Tree Number, Set-up Number, UTM Code and the Log Number & volume calculation in each node etc. can easily be cross-checked with required legal documentation in each Node, especially when attached, as part of the encoded data.

The General Lessons Learned include the following:

The PTTS has been shown to be much better, more user-friendly & flexible than the current FSMS.

Consultations with both Government and the Private Sector have resulted in enhancements in field procedures with the incorporation of valuable suggestions as shown in the matrix (*Annex 2*).

1) Consultations and Pilot testing have identified and resolved software bugs.

2) One software for both operation and data base has simplified operations.

3) There is still need for hands on training for the technical personnel who will use the system

4) Additional manpower need to be considered to implement the system during the harvest season

5) The PTTS is also a management tool to measure the efficiency of the harvesting & processing operations of the private sector

6) With the lack of internet access at the operations area, a cost-effective mechanism to transmit data in Nodes 2 & 3 need to be devised.

7) The absence / lack of electricity and communication facilities constrain operations

8) Adaptive approaches can be resorted to in dealing with various existing field conditions.

5. CONCLUSIONS

The PTTS has been proven workable as pilot tested. The enhanced field procedures can now be used in the field along with the software and data base system to facilitate data entry and report generation for timber tracking. Timber can be tracked from nodes 1 – 7 and backwards. The chain in custody are determined and integrated with the tracking system.

The simple software and data base developed is user friendly and users can easily be trained.

The PTTS can now be recommended for approval (subject to future refinements during actual implementation) and implementation nationwide. Procedures are adequate and compatible with the software, and the PTTS can now effectively track timber in all nodes and detect illegal timber entering the system. The limitations on training, additional personnel & internet access for real-time reporting, data-compilation & monitoring, among other constraints are temporary in nature, and can be readily addressed in the near future.

Given available resources, satellite based internet facilities is now possible in any remote area nationwide, and it is only a matter of time when the entire country and practically all DENR Central, Regional, Provincial & Community Offices would be inter-connected given the ever growing network of ISPs, advances in Information & Communications Technology (ICT), and the downward trend in the cost of these services & attendant hardware /software. Implementation of the PTTS will surely generate additional refinements, to take advantage of the advances in ICT, the readily availability of software & hardware, and the downward trend in the costs of attendant services, software & hardware.

6. RECOMMENDATIONS

The PTTS is recommended for national application to all Forest Management Units in the country. This should be supported by the following specific recommendations hereunder:

1. The PTTS can still be pilot tested in other forest management units such as CBFMA, PLTP, and a remaining TLA license. This will refine appropriate analysis on specific conditions and variability of situations. Timber tracking nodes and chain of custody may change or decrease compared to the pilot IFMA.

2. Draft government implementing guidelines using the enhanced field procedures and the software and database developed.

3. Strengthen government, private sector, and community partnerships in understanding and implementing the PTTS.

4. Assess the implementing capability of field officers and concerned staff of DENR – FMB.

5. Provide hardware and software operation support to DENR implementing units.

6. Conduct training for government implementers and FMU users.

7. Encourage FMUs to use innovative tools following the PTTS developed by government.

8. Link the PTTS software and data base with current existing MIS system such as the Forest Information System.

9. Use the global Internet for real time data entry and reporting in areas with facilities.

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ANNEX 1. Summary of Consultation Meetings / Workshops

A. COMMUNITY ENVIRONMENT AND NATURAL RESOURCE OFFICERS IN LIANGA, TANDAG AND CANTILAN, PROVINCE OF SURIGAO DEL SUR

Attendance:

For. Romy Luengas	- CENR Officer, Lianga
For. Leonardo Aya-ay, Sr.	- CENR Officer, Tandag
For. Iniego Collantes, Jr.	- CENR Officer, Cantilan
For. Arnulfo Climaco	- CENR Office, Lianga
For. Hernan Ramirez	- CENR Office, Tandag
For. Leovino Constantino	- CENR Office, Cantilan
For. Genesis Francisco	- FMB
For. Raul Briz	- FMB
For. Ernesto Alibo	- FMS

Highlights:

Brief introduction and discussion on the implementation of Log Control Monitoring System (LCMS) and the Forest Stock Monitoring System (FSMS) was conducted highlighting some provisions, limitations of the said systems and the specific provisions that need to be amended or improved for FSMS.

Although the CENROs are aware of the LCMS and FSMS, problems were encountered during implementation in the field level particularly on the use of the software program – of not being user friendly. One of which is the data entry which cannot be edited once the computer program is closed. Such precautionary measures gave rise to a major problem that completely affected the full implementation of FSMS in the field. Since the requirement of FSMS includes computer hardware and other logistical support, the entire system failed to function as designed and as expected.

It was also pointed out that the logistical requirements of both LCMS and FSMS simply rendered the two systems not implemented. Hence, some CENR Officers decided to devise a system in a spreadsheet format (EXCEL), which is an exact copy of the FSMS which temporarily gilled the gaps and shortcomings of FSMS.

Problems Encountered in the Implementation of FSMS in the Field

1. Lack of logistical support - DENR field offices, particularly the CENROs have very minimal budget that do not include funds for logistical support procurement of computers and hiring of additional personnel. Hence, CENROs cannot cope up with the needs of FSMS.

2. Strict Procedure of FSMS - The encoding of data in the FSMS Capture Forms, requires confirmation from the encoder at the time of encoding in order to move to the next set of data. When the data is confirmed, the encoded data becomes a “read-only file” and cannot be edited. This process is repeated in every set of data until full encoding of all data within its cutting unit is completed. In this process, an encoder cannot open as he wishes if a Capture Form is closed. The absence of editing option as programmed in the FSMS for unfinished Capture Form resulted in the lost of substantial data. The same problem occurs for Capture Form No. 2. The encoder cannot

3. Large branches and with recoverable wood or lumber cannot be included in the various capture forms, hence, there is a problem when concessionaires include such branches beyond the measured merchantable height

4. Large volume of data generated in the field - The volume of data that can be generated from the field may not have been fully anticipated when the computer program of FSMS was developed. Thus, there was no alternative way to add un-encoded raw data. Such problem holds true for other capture forms of FSMS.

5. Tedious and time consuming in data encoding - With voluminous data, encoding becomes tedious and time consuming.

6. Lost of data encoded during power interruptions- When power failure occurs, encoded data are lost and not recoverable.

Other Problems Identified

1. Inaccurate measurement of tree height - Forestry field personnel practiced estimation technique in measuring the merchantable height. Hence, margin of error is unavoidable. This can be validated when the tree is finally felled and bucked. With the application of FSMS, when the estimate fell short or over the actual measurements, there will be problem on encoding the data in the next Capture Form of FSMS (Capture Form No. 2). Other Capture Forms will not be filled up either.

2. Log Marks and Government Marking Hatchet - The marking of logs for scaling using timber crayon is easily erased, tampered, changed and most of the time very difficult to read during rainy weather. Hence, recording and tracking becomes difficult.

3. On a related issue on transport of forest products, it was raised that confusion and conflict arises caused by the guidelines in the Harvesting and transport of planted trees and non-timber products within Integrated Social Forestry Areas while there is also existing guidelines for all forest products.

B. REGIONAL OFFICE NO. 13 (CARAGA) FOREST MANAGEMENT SECTOR DEPARTMENT OF ENVIRONMENT & NATURAL RESOURCES BUTUAN CITY

Attendance:

For. Consolador C. Mantilla	- Chief, FRDD
For. Michael E. Montalban	- Chief, FRCD
For. Raul Rosales	- CENR Officer, Cabadbaran, ADS
For. Genesis Francisco	- FMB
For. Raul Briz	- FMB
For. Ernesto Alibo	- FMS

Highlights:

The discussion focused on the FSMS as a timber tracking system in the Philippines. It was explained by For. Francisco that with FSMS, the DENR must be able to trace the origin or source of logs where it was harvested and being transported down to the primary wood processing plants. However, when the logs or lumber are being transported, there was no assurance that the said logs covered by the transport documents are still the same as described in the FSMS capture forms.

Though the DENR Region 13 are ware of the LCMS and FSMS, problems are encountered the field that limits its application and implementation.

Limitations of the FSMS

- Some features of FSMS are not user friendly.
- Too strict on software access and manipulation, hence, difficult for data entry and editing and fully affected the application and implementation of the program in the field

Problems identified

Lack of logistical support i.e. personnel & computers – lack of sufficient funds for hardware and software purchase

Stringent procedure of FSMS - When encoding data in the FSMS Capture Forms, the encoder has to confirm one data at a time in order to move to the next. This is required until its completion. An encoder cannot close and open one capture form as he wishes. Therefore, there is no editing option as programmed in the FSMS for unfinished Capture Form.

Large volume of data generated in the field - The immense volume of data that can be generated from the field was not fully anticipated when the computer program of FSMS was developed. Thus, there was no alternative way to accommodate additional data even if it is true. For example under Capture Form No. 1, encoding of all data must be completed before the program can be closed and eventually move to the next Capture Form. Or else, the remaining un-encoded data supposed to be included in Capture Form No. 1 will no longer be accommodated or added. This holds try for all capture forms.

Tedious and time consuming in data encoding - With voluminous data coming in, perhaps time was not given weight in the encoding process. This requires professional encoders to finish encoding such voluminous data.

Lost of data encoded when there is power failure -Power failure in the remote rural areas is fairly common Hence, data encoded will be lost. Retrieving them will take additional time and efforts.

Other Problems Identified

- Inaccurate measurement technique of tree height
- First branch as the basis for Merchantable Height (MH)
- Log Marks and the Use of Government Marking Hatchet

C. EMCO PLYWOOD COMPANY, CABADBARAN, AGUSAN DEL SUR AND SURIGAO DEVELOPMENT CORP., FIELD OFFICE, CARMEN, SURIGAO DEL SUR

Attendance

Mr. Antonio Tansipek	- Manager, EMCO Plywood Co.
Engr. Benigno Paracueles	- Resident Manager, SUDECOR
For. Raul Rosales	- CENR Officer, Cabadbaran, ADS
For. Inego Collantes, Jr.	- CENR Officer, Cantilan, SDS
For. Genesis Francisco	- FMB
For. Raul Briz	- FMB
For. Ernesto Alibo	- FMS

Highlights:

EMCO Plywood Company

Brief introduction and discussion on the application and implementation of FSMS was conducted and the manager of EMCO, Mr. Tansipek was briefed that the meeting aims to get feedback from the private sector of the forestry industry regarding the compliance of wood processing plants to process logs that must be covered by valid documents at all times in order to be traceable. Such documents must include tree cutting permits for natural grown trees from private lands, and Self Monitoring Form if planted trees coming from private lands, log supply contracts, etc. As such this must be indicated in the FSMS Forms. Accordingly, such documents are kept in the vault of the Company.

Mr. Tansipek assured the group that all the logs being processed by EMCO at Cabadbaran, ADS are from legal sources having been covered by legal and valid documents. This was also confirmed by CENRO Rosales and his technical staff. In fact to ensure EMCO's compliance, DENR-CENRO Cabadbaran maintains a skeletal staff within EMCO Compound on a twenty four hour basis primarily to check and monitor the incoming (arrival of logs) and outgoing finished products (e.g. veneer, core, plywood) to intended market outlets or retailers. In this manner, all log deliveries into EMCO are properly checked and allowed to be stored for processing. Moreover, outgoing semi-finish and finish products are processed from legitimate logs.

Mr. Tansipek further elaborated that all logs arriving in the plant are fully checked individually and compared with the accompanying supporting documents, recorded and eventually allowed for stock piling in the log yard. Then, the stockpiled of logs are scheduled for milling or processing. Logs are being process into veneer and plywood on a" first come first stockpiled basis." This means that older stockpiled of logs are processed ahead or first before the newly stocked logs late arrivals.

When it comes to knowing the source of the logs being processed by the EMCO, they are traceable to its origin, reiterated Mr. Tansipek. They have supply contracts with private land owners and tree plantation owners who are registered with the DENR. All their logs arriving in the wood processing plant are properly marked and authenticated by DENR field offices including DENR checkpoints.

Unfortunately, the group was unable to see the company's log yard where the stockpiled of logs are kept. The group was thinking of doing selective inspections of

the stockpiled logs. Moreover, the group was not able to observe the actual operations of the veneer and plywood plant. At the time of the visit, the plant was accordingly operating on a very minimum level due to small supply of logs stockpiled at the yard.

Surigao Development Corporation (SUDECOR)

There was also a brief introduction and discussion about the salient features of FSMS as a tool to track the timber flow coming out of the concession area going to the sawmill site and/or to the market.

Similarly, the field management of SUDECOR was informed that the purpose of the meeting/consultation is to get feedback on the application and implementation of the FSMS.

SUDECOR made an assurance that all the logs being processed by their plywood and veneer plants at Lanuza, Surigao Del Sur are legally sourced within their licensed area. But, its wood processing plant in Lanuza processed logs that were both plantation and natural growing trees species in their approved operable area.

It was pointed that SUDECOR follows the same forms prescribed for FSMS beginning from forest stocks inventory of trees to be cut down to the forest residuals to be left after logging. But it does not used the FSMS software program but instead adopted and replicated the capture forms in MS Excel format due to tedious data entry, editing and hard to use software program. It was assured further that the results are the same table that contains all the field data as required under FSMS guidelines. With voluminous raw field data, they cannot finish encoding them using FSMS program. They said that under FSMS program, the encoders have to sit down continuously for long hours till night in order to finish the encoding which could be translated into additional cost to the company.

SUDECOR made an assurance that it complied with the requirements of the DENR under existing guidelines when it comes to the source of their logs, transporting forest logs, and their supporting documents. He further elaborated that all logs arriving in the plant are fully checked for its accompanying supporting documents, recorded and eventually allowed for stock piling in the log yard. He even pointed that all deliveries of logs into the wood processing plant are properly marked and authenticated by DENR field offices including DENR checkpoints. Then, the stockpiled of logs are scheduled for milling or processing.

D. PROVINCIAL ENVIRONMENT & NATURAL RESOURCES OFFICE (PENRO), DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCESPROVINCE OF APAYAO, CORDILLERA ADMINISTRATIVE REGION (CAR) MAR. 4, 2009

Brief introduction and discussion on the purpose of the team in going to Apayao was conducted with the presence of the PENR Officer and other technical staff. Salient features of the proposed PTTS was explained and discussed.

It was pointed out that the PTTS builds upon a Project started by former FMB Director R.T. Acosta, the LCMS which was followed by FSMS and it made use of existing DENR procedures and guidelines with respect to timber inventory, tree and log marking, felling, bucking log transport, wood processing and disposal of products to the market or to the consumers.

It was also highlighted that PTTS incorporates the use of personal computers, software and advances in Information, Communication Technology where applicable and it allows forward and backward tracking of the flow of timber/logs within the chain of custody

E. COMMUNITY ENVIRONMENT AND NATURAL RESOURCES (CENRO) MUNICIPALITY OF LUNA, PROVINCE OF APAYAO, CORDILLERA ADMINISTRATIVE REGION MAR. 5, 2009

The team conducted an orientation with the officials and staff of CENRO Luna, where the project objectives were presented and that is on the assessment of LCMS/FSMS as previously pilot tested to determine gaps on tracking timber, to develop an improved/expanded FSMS to include chain of custody, to build upon and enhance existing traditional procedures in timber tracking and the computer systems already developed.

It was pointed out that PTTS includes the proposed chain of custody and it has 7 nodes which include the Inventory, Felling, Bucking, Transport, Wood Processing Input, Wood Processing Output including the new nodes on Export/Consumers to complete the chain.

Long discussions on the proposed PTTS including its database and the proposed web site with its database was conducted where issues and concerns were raised particularly on mode of conveyances, computation of volume of logs for purposes of calculating the forest charges, among others.

Summary Comments/Clarifications/Issues/Points raised during/after the orientation:

General: Many of the attendees have undergone training / attended workshops / are aware of the earlier LCMS and its enhanced version the FSMS. All were in agreement that the proposed system is very much better, more user-friendly & flexible. That there are more computers in the field offices and many of the field personnel are now computer literate (but not all), the internet though is not a standard facility in the PENRO/CENRO[1]**.** There was the usual concern about the lack of internet facilities, power failures. Also the lack of man-power in both the DENR & the Private sector during the timber harvesting season in the Apayao IFMA area, where there is a very short window of only 3 months to harvest and haul the logs (during actual operations, there are many set-ups, but very few tree markers/scalers). The need for hands on training in the use of the system as very important, was pointed out, also additional man-power during the short harvest season. The private sector representative also pointed out that the use of the Computer Generated CTO/CLO Forms under DAO 2007-31 takes a lot of time and causes delay, and adversely affecting operators in areas where the harvest season is short. The private sector representative also mentioned that he understands the Timber Tracking System well having experienced its implementation together with the strict SGS implementors when he worked in Papua New Guinea for several years, and he is aware that the system is an initial

[1] Given available resources, satellite based internet facilities can now be made available in any remote area nationwide, and it is only a matter of time when the entire country and practically all DENR Central, Regional, Provincial & Community Offices would be inter-connected given the ever growing network of ISPs, advances in Information & Communications Technology, and the downward trend in the cost of these services & attendant hardware /software.

step towards Timber Certification, and the PTTS could also be used by them as a management tool to measure the efficiency of their harvesting & processing operations & their personnel as well, among others. *Floated questions:* Is the recording system accurate? What documents are to be scanned /attached after data entry in each Node?

Node 1: Timber Inventory. On marking goal (trees to be cut/ trees to be left), existing guidelines should be considered and not 100% inventory.

Node 2: Felling. What about tops & branches, and the inclusion of damaged residuals & trees cut during road construction/ rehabilitation? On computation of Forest Charges -- in what node, gross or net volume, how do you allow for defects, how to consider defective trees found only during bucking, what policy guidelines exist on these? To maximize recovery, even defective trees are harvested, and trees are cut as close to the ground as possible which does away with "DBH" What is breast height now, under present circumstances. How does the system help in the computation of Forest Charges and in what Node is this facilitated? What happens when some trees to be cut are not felled when defects are found by the feller? What about trees to be left which are accidentally damaged & felled? What about trees felled during road construction/ rehabilitation, and in allowable clearings, skid-ways etc.?

Node 3: Bucking In practice logs not always bucked in 5-m lengths. Software considers a perfectly round log, in reality logs are oblong, squared etc., is the use of average diameter fair & accurate? Does the program factor in defects in its volume computation? The full length of the tree / log is not maximized on actual practice.

Node 4: Transport Can you use body# instead of Plate# of the truck/hauler? How do you address double-hauling? In actual practice depending on area, Nodes 2 to 3, and even 4 done in sequence & scaling done at the log-pond/log-depot.

Node 5: Wood Processing Input. Depending on the logs, recovery factor is from 75-90%. For the FGI Sawmill, grading is not a factor as all logs are sawn regardless of quality/species.

Node 6: Wood Processing Output. Where a truckload of lumber brought to a buyer in Manila from Apayao is not accepted by the buyer due to the sudden lack of funds, can the shipper look for another buyer in Manila so as not to truck the lumber back to Apayao (14 hours travel by land)? How will this be recorded and what documentation will be needed under existing rules & regulations?

F. CONSULTATIONS/ WORKSHOP FOREST MANAGEMENT BUREAU, DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES, MARCH 12, 2009

A presentation to key FMB Officials/Staff on the results of the Field Testing of the PTTS was conducted shortly after the field work, to further improve and enhance the PTTS based on the experiences/lessons learned from the field. The salient comments /suggestions include the following:

a) *Node 1. Inventory Record*. This should contain the *100% inventory of all trees to be cut* in a particular logging or cutting set-up. Prior to the 100%

b) *Node 2. Felled Logs.* After felling, all trees and logs that are skidded to the landing site shall be immediately marked (chiseled or painted) on both ends. Their corresponding *Species Group Code*, *Tree Number*, *Set-up Number* and *UTM Code* shall be marked and painted on both ends of the harvested trees.

c) *Node 3. Bucking.* If the felled trees are bucked right in the cutting area, all trees that have been bucked must have log marks i.e. *Species Group Code*, *Tree Number*, *Set-up Number*, *UTM Code* and the *Log Number.*

d) *Node 4. Log Transport.* Logs being transported within the province must be at all times be covered by a Trip Ticket or Delivery Receipt if transported by the timber company i.e. the TLA, IFMA or other tenure holders. Logs transported outside of the province must be at all times accompanied by a Certificate of Timber Origin (CTO). All logs being transported going to any Wood processing Plant (WPP) must have already been scaled and the corresponding Forest Charges must already be fully paid.

e) *Node 5. Wood Processing – Input.* All logs being brought into a WPP, aside from the Trip Ticket or Delivery Receipts or CTO, must be accompanied by a Scaling Report and a proof that the corresponding Forest Charges have been fully paid. At the same time, the WPP holder must maintain Stocked Logs Records that will show all deliveries of round logs into their Wood Processing Plants.

f) *Node 6. Wood Processing – Output.* All Wood Processing Plant (WPP) permittees shall be required to prepare and maintain a Daily Log Milling Tally at the end of the milling operation of the day.

g) *Node 7. Market / Customers.* All deliveries of lumber from the WPPs to the intended market or customers or retailers, i.e. lumber dealers and hardware stores, all shipment must always be covered with the corresponding Delivery Receipts and Sales Invoices.

h) There is a need to further evaluate and analyze salient provisions of existing forestry policies pertaining to procedures and documents that should always accompany all shipments of round logs from the and lumber

i) There is also a need to remind and insist upon DENR Field Offices (Region, PENROs, & CENROs) Offices that existing guidelines must be religiously implemented, to ensure that forest operators / timber harvesting firms are indeed cutting trees within the designated and approved cutting areas based on existing development plans; and that the correct forest charges, as well as surcharges are collected and in a timely.

j. It was suggested and agreed that a general whole day workshop with concerned FMB / DENR personnel and Private Sector representatives shall be conducted to finalize the PTTS based on the results of the Pilot Testing.

G. CONSULTATION MEETING/WORKSHOP, FOREST MANAGEMENT BUREAU, DEPARTMENT OF ENVIRONMENT & NATURAL RESOURCES MAR. 26, 2009

A whole day workshop was conducted at the conference room of the Forest Management Bureau, with the results of the pilot testing of PTTS in the field and the refined final version presented & discussed in a general workshop with the FMB Executive Committee composed of the FMB Director, Assistant Director, all Division Heads. Key representatives of the DENR Field Operations (Regional Technical Director, DENR-CAR), the Protected Areas & Wildlife Bureau and the Philippine Wood products Association were also active participants.

The presentation focused on the global and national context of timber tracking, the realities in the field. The presentation further highlights the objectives of designing the Philippine Timber tracking System (PTTS) and its new features compared to the existing FSMS.

Main lessons learned from FSMS were highlighted which were used as basis in the design of the PTTS.

The main framework of PTTS and its database was discussed including the design of the software (MS Access).

The results of the pilot testing in the SVMC IFMA area was also highlighted including the field procedures that were followed in testing the PTTS from examining the timber inventory records, felling, bucking, transport to the sawmill site, processing, and eventually to the market.

Based on the results of field testing the PTTS, lessons learned were drawn which are listed as follows:

- PTTS is much better, more user-friendly & flexible.
- Enhancements in field procedures suggested and incorporated shown in matrix
- Bugs in software identified and resolved
- Simple operation with one software for operation and data base
- The need for hands on training in the use of the system
- Need additional manpower to implement during harvest season
- The PTTS is management tool to measure the efficiency of their harvesting & processing operations
- Lack of internet access at the operations area, devise a cost-effective mechanism to transmit data in Nodes 2 & 3,
- Absence / lack of electricity and communication facilities constraint operations
- Adoptive approaches per existing situation

After considering the results of all consultations in the field and in various offices of DENR and with the private sector, conclusions were drawn which are listed below

- The PTTS is workable as pilot tested
- Field procedures can still be enhanced
- Timber tracked from nodes 1 – 7 and backwards
- Legal documents need some improvements
- Software and data base facilitate entry and generation of reports
- Enabling policy to implement PTTS
- Absence / lack of electricity and communication facilities constraint innovative tools
- PTTS easy to transfer to users

All participants in the workshop arrived with a common recommendations which are enumerated below:

- Government /private partnership
- Pilot PTTS in other FMUs
- Draft implementing guidelines
- Approval for national implementation
- Provide hardware and software support
- Link data base with comprehensive MIS such as FIS
- Training of users / implementers
- Encourage FMUs to use innovative tools

ANNEX 2. A) Pilot Testing Matrix, Current & Enhanced Field Procedure for Data Gathering & Timber Tracking per Custody Node

Custody Nodes	Current Field Procedures for Data Gathering and Tracking	Enhancement of Field Procedures for Data Gathering and Tracking	Policy and Guidelines	Required Legal Document(s)
Node 1. Inventory Records	Timber inventory and marking of harvestable trees and residual trees indicating the tree species, tree number, set up number, quadrant number	Timber inventory records of concerned CENRO and that of licensee are gathered and compared for integrity of the data and information. Marking of harvestable and residual trees include tree species, tree #, set up #, quadrant #, UTM block code,	DAO No. 12, Series of 1992	License, Annual Operations Plan; Cutting Permit, Cutting set-up, AAC, ECC
Node 2. Felling	After felling, the tree number, set-up number and the UTM Code are marked and painted on both ends of the harvested trees.	Actual inventory and tracking of felled logs in the cutting set up with information as to tree species, tree number, set up number, quadrant number, UTM block code		License, Annual Operations Plan; Cutting Permit, Cutting set-up, AAC
Node 3. Bucking	Felled trees are cut or bucked into desired log length at the stump site, a log number is marked and painted in addition to tree #, set up #, UTM block code Records of all trees and logs skidded to the landing site with marked/chiseled on both ends with their corresponding tree species, species group code, tree number, log number, UTM code and the set-up number.	Actual Inventory and tracking of felled/bucked logs either in the cutting set up or in the temporary log landing where trees should have information as tree species, tree number, set up number, quadrant number, UTM block code		AAC

ANNEX 2. A) Pilot Testing Matrix, Current & Enhanced Field Procedure for Data Gathering & Timber Tracking per Custody Node

Node 4. Transport of Logs	Scaling Report of CENRO	Actual count, identification and tracking of logs loaded on trucks with information as to tree species, tree number, set up number, quadrant number , UTM block code	DENR Memo Circular N0. 1999-20 (for logs from Private lands)	License; Annual Operations Plan; Cutting Permit; Cutting set-up; AAC; Certificate of log origin (CLO) or Certificate of Timber Origin (CTO); Auxiliary Invoice and proof of payment of Forest Charges
Node 5. Wood Processing Input	Inventory of stocked logs/ Scaling Report Inventory of imported logs			Wood Processing Plant Permit; ECC; DTI and BSP clearance to import Quarantine certificate from country of Origin Tariff payment from Bureau of Customs Transport permit from pier to destination (consignee) Certificate of verification issued by DENR

ANNEX 2. A) Pilot Testing Matrix, Current & Enhanced Field Procedure for Data Gathering & Timber Tracking per Custody Node

Node 6. Wood Processing Output	Inventory and Scaling/measuring of lumber/veneer and other form of products			Wood Processing Plant Permit; ECC
Node 7. Market / Customer / Consumers	Inventory and Scaling/measuring of lumber/veneer and other form of products. Scaling report (of finished products) Inventory of Sales	Actual inventory and tracking of products, either in the form of logs, lumber, veneer, and other forms of products	DENR Memo Circular 33, Series of 1993 (Sept. 30, 1993); DAO No. 33. May 6, 1988	Export Authority signed by RED; Export Compliance Certificate issued by concerned CENRO License; Delivery receipts, receipts of payments; log supply contract; lumber supply contract

ANNEX 2 B) Pilot Testing Matrix, Software Component: FSMS compared to PTTS)

SOFTWARE							
	FSMS			PTTS			
CUSTODY NODES	**Current Data Entry (Inputs) for FSMS**	**Link Interface Program**	**Reports (Output)**	**Enhancement on Data Entry (Inputs) for PTTS**	**Link Interface Program**	**Reports (Output)**	**Master Server**
Node 1. Inventory of Standing Trees	Licensee/Permitee, Area location, UTM block code, Set Up #, Area (ha) of set up, License #, Region, PENRO, CENRO, Date accomplished	Not known	Not known	Timber Inventory Records from CENRO, Country code, Region, Province, Province Code, CENRO, Source of Timber (licensee/ permitee), Tree Number, Set up number, Quadrant number, Species name, Species code, Diameter breast height (DBH in cm), Merchantable Height, UTM block code, Height factor, Unique tree/log identifier,	Volume computation in cubic meters, Basal area computation,	Summary of tress to be cut and tress to be left (residuals) indicating the Tree number; Country code, Province code, Source (legal/illegal), CENRO, UTM block code, Set up number, Species name; DBH (in cm), Merchantable height, Volume of individual standing tree, Basal area of individual standing tree	Compilation data on node
Node 2. Felling of Trees	Licensee/Permitee, Area location, UTM block code, Set up #, Area (ha.) of set up, License No, Region, PENRO, CENRO, Date Accomplished, Tree #,	Not known	Not known	Country code, Region, Province, Province Code, CENRO Office, Source of Timber (licensee/ permitee Unique Identifier (number), Quadrant #, check mark if to be cut or not, Set up #, Species name, Diameter (large end and small end), Log length, ; logging set-up number; Diameter (big and small ends); log length.	Volume computation in cubic meters and corresponding volume expressed in board feet	Summary of trees felled indicating the Region, Province, Unique tree number, Tree #, check mark if form legal or illegal, CENRO, Set up #,	Compilation data on node
Node 3. Bucking	Licensee/Permitee, Permit #, Area location, Region, PENRO, CENRO, Date accomplished, UTM code, Set-up #,	Not known	Not known	Country code, Region, Province, Province Code, CENRO Office, Source of Log (licensee/ permitee), PENRO, Unique Identifier (number), Set up #, Tree	Volume computation in cubic meters and the corresponding volume	Summary of Bucked logs indicating the unique number identifier, Tree #, Country code, CENRO, UTM block code, Set up #, Species, No, of logs produced, Log #, Diameter (big	Compilation data on node

ANNEX 2 B) Pilot Testing Matrix, Software Component: FSMS compared to PTTS)

	Tree #, Log #, Species, Diameter (big and small ends), Log length			#, Species name, Number o logs produced, Log #, Diameter (big and small ends), Log length, Driver name, Plate/Body # of conveyance, Destination, Remarks, Documents attached	expressed in board feet	and small ends), Log length, Volume in cubic meters and the corresponding volume expressed in board feet and remarks	
Node 4. Transport of Logs	Licensee/Permitee, Permit #, Area location, Region, PENRO, CENRO, Consignee, Date of transport, UTM code, Set up #, Tree #, Log #, Species, Diameter (big and small ends), Log length, Trip ticket #, CTO #.	Not known	Not known	Country code, Region, Province, CENRO Office, Unique Identifier (number), Tree #, Set up #, Species name, Number o logs produced, Log #, Diameter (big and small ends), Log length, Driver name, Plate/Body # of conveyance, Destination, Name of Miller, Remarks, Documents attached	Volume computation in cubic meters and the corresponding volume expressed in board feet	Summary of logs being transported/ for transport indicating the Region, Province, unique # identifier, Tree #, Country code, CENRO, Set up #, Species, No. of logs produced, Log length, Diameter (big and small ends), Volume in cubic meters and the corresponding volume expressed in board feet, Plate #/Body # of conveyance, Driver name, Destination and Remarks and Documents attached.	Compilation data on node
Node 5. Wood Processing Input/Milled Logs	Licensee/Permitee, Permit #, Area location, Region, PENRO, CENRO, Consignee, Date of transport, UTM code, Set up #, Tree #, Log #, Species, Diameter (big and small ends), Log length, Gross volume and Net volume in cubic meters	Not known	Not known	Country code, Region, Province, Province code, PENRO, CENRO, Source of Logs, Unique number Identifier; Set up #, Tree #, Species, No. of logs produced, Log #, Diameter (big and small ends), Log length, Plate #/Body # of conveyance, Destination, Name of Driver, Name of Miller, No of logs milled (for lumber/veneer/other products)	Volume computation in cubic meters and the corresponding volume expressed in board feet	Summary of logs in the Stockyard/Sawmill site indicating the Region, Province, Source of Logs, Unique # identifier, Tree #, Country code, Province code, CENRO, Set up #, Species, No. of logs Produced, Log #, Diameter (big and small ends), Volume in cubic meters and in board feet, Plate #/Body # of conveyance, Destination, Remarks	Compilation data on node

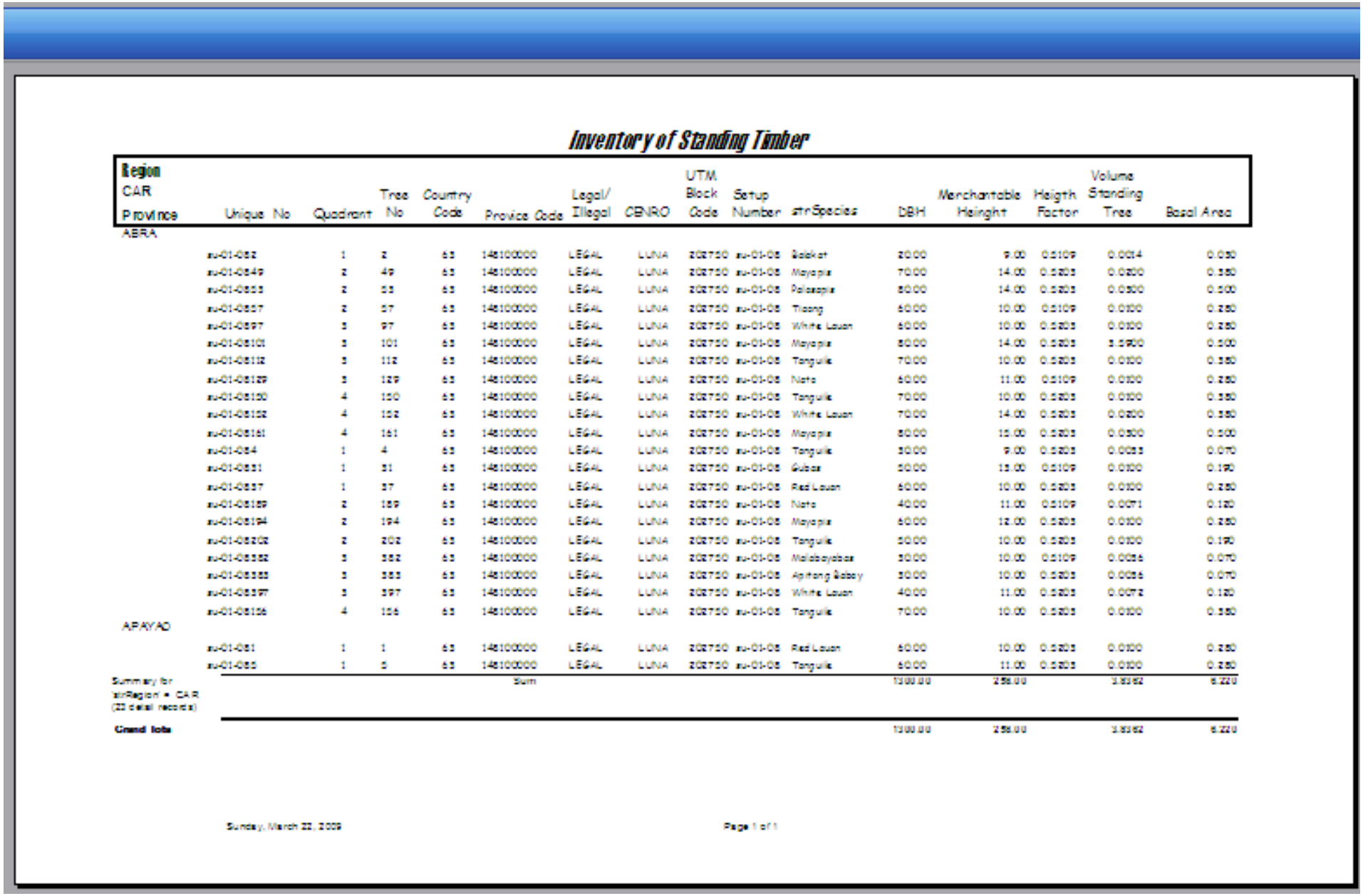
ANNEX 2 B) Pilot Testing Matrix, Software Component: FSMS compared to PTTS)

Node 6. Wood Processing Output	Not applicable to FSMS	Not applicable to FSMS	Not applicable to FSMS	Country code, Region, Province, Province code, PENRO, CENRO, Source of Logs, Unique number Identifier; Set up #, Tree #, Species, No. of logs produced, Log #, Diameter (big and small ends), Log length, Plate #/Body # of conveyance, Destination, Name of Miller, No. of logs milled (for lumber/veneer/other products), Recovery factor of the Mill, Destination,	Volume computation in cubic meters and the corresponding volume expressed in board feet (either for lumber/ veneer/other products)	Summary of logs milled (into lumber/veneer, etc.) and other forms (finished and semi-finished wood products) indicating the Country code, Region, CENRO, Province code, Source of logs, Plate No of conveyance, Unique # identifier, set up #, Tree#, Species, Log #, Diameter (big & small ends), Volume of products (lumber/veneer/other products), Mill Recovery Factor	Compilation data on node
Node 7. Market / Customer / Consumers	Not applicable to FSMS	Not applicable to FSMS	Not applicable to FSMS	Country code, Region, Province, Province code, PENRO, CENRO, Source of Logs, Unique number Identifier; Set up #, Tree #, Species, No. of logs produced, Log #, Diameter (big and small ends), Log length, Plate #/Body # of conveyance, Destination, Name of Driver, Documents attached	Volume computation in cubic meters and the corresponding volume expressed in board feet (either for lumber/ veneer/other products)	Summary of finished products (lumber/veneer/other products) to be brought to the market/customers or export indicating the country code, Province, Province code, CENRO, Log source, Unique # identifier, Set up #, Tree #, Species, Plate # of conveyance, Name of Driver, Name of Miller, Remarks, Destination and Documents attached	Compilation data on node

ANNEX 3. Screenshots of the Data Entry Forms & Reports Generated for each of the 7 Nodes of the Philippine Timber Tracking System during the Pilot Testing

Figure 1. Initial Data Entry Form

<u>Figure 2</u>. Data Entry Form for Node 1 "Inventory of Standing Trees"

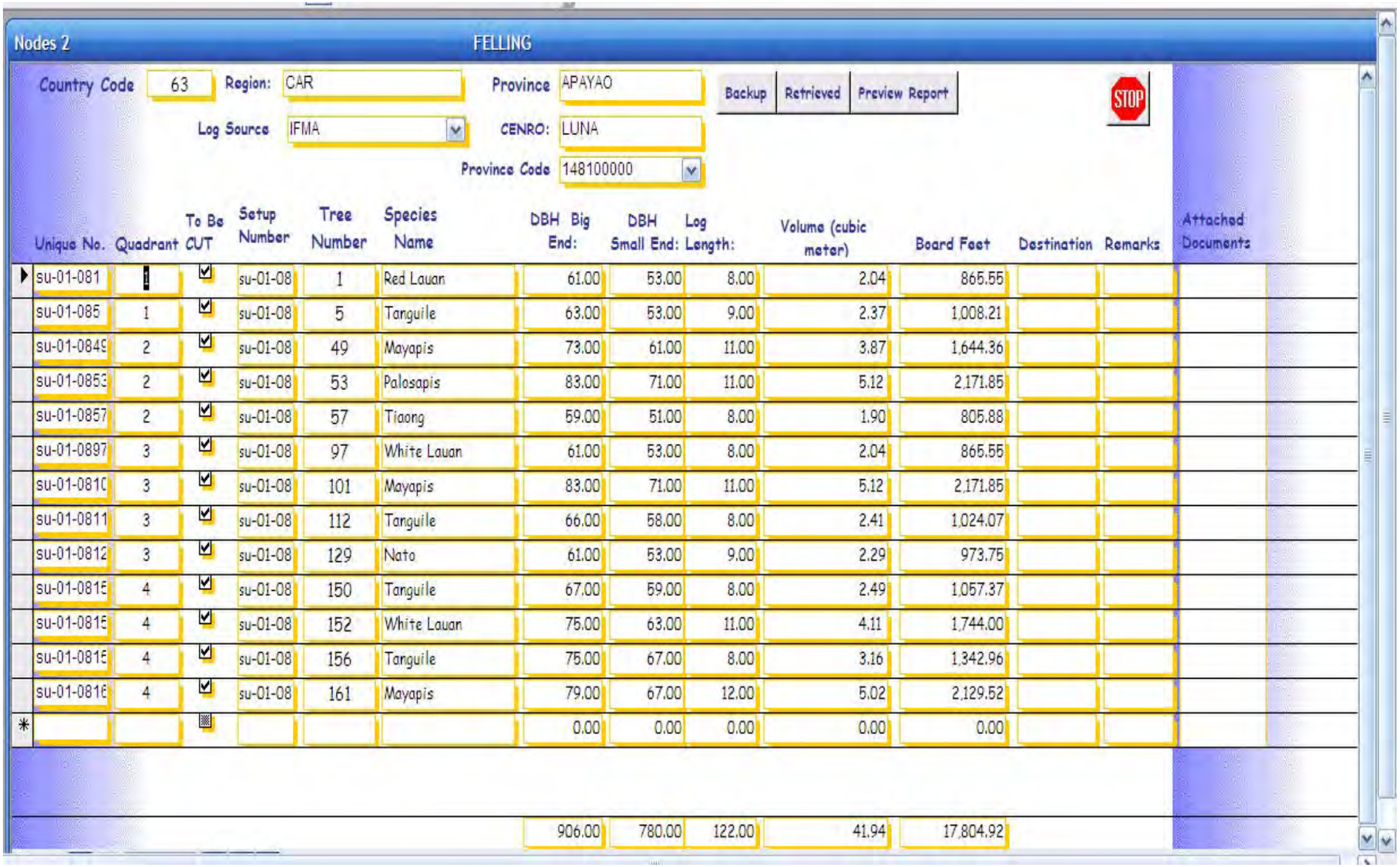


Inventory of Standing Timber

Region / CAR / Province	Unique No	Quadrant	Tree No	Country Code	Provice Code	Legal/ Illegal	CENRO	UTM Block Code	Setup Number	strSpecies	DBH	Merchantable Heirght	Heigth Factor	Volume Standing Tree	Basal Area
ABRA															
	au-01-052	1	2	63	146100000	LEGAL	LUNA	202750	au-01-05	Bolokat	20.00	9.00	0.5109	0.0014	0.050
	au-01-0549	2	49	63	146100000	LEGAL	LUNA	202750	au-01-05	Mayapis	70.00	14.00	0.5303	0.0300	0.380
	au-01-0553	2	53	63	146100000	LEGAL	LUNA	202750	au-01-05	Palosapis	60.00	14.00	0.5303	0.0300	0.300
	au-01-0557	2	57	63	146100000	LEGAL	LUNA	202750	au-01-05	Tiaong	60.00	10.00	0.5109	0.0100	0.250
	au-01-0597	3	97	63	146100000	LEGAL	LUNA	202750	au-01-05	White Lauan	60.00	10.00	0.5303	0.0100	0.250
	au-01-05101	3	101	63	146100000	LEGAL	LUNA	202750	au-01-05	Mayapis	80.00	14.00	0.5303	0.0500	0.500
	au-01-05112	3	112	63	146100000	LEGAL	LUNA	202750	au-01-05	Tanguile	70.00	10.00	0.5303	0.0100	0.380
	au-01-05129	3	129	63	146100000	LEGAL	LUNA	202750	au-01-05	Nato	60.00	11.00	0.5109	0.0100	0.250
	au-01-05150	4	150	63	146100000	LEGAL	LUNA	202750	au-01-05	Tanguile	70.00	10.00	0.5303	0.0100	0.380
	au-01-05152	4	152	63	146100000	LEGAL	LUNA	202750	au-01-05	White Lauan	70.00	14.00	0.5303	0.0300	0.380
	au-01-05161	4	161	63	146100000	LEGAL	LUNA	202750	au-01-05	Mayapis	80.00	15.00	0.5303	0.0500	0.500
	au-01-054	1	4	63	146100000	LEGAL	LUNA	202750	au-01-05	Tanguile	50.00	9.00	0.5303	0.0053	0.070
	au-01-0551	1	51	63	146100000	LEGAL	LUNA	202750	au-01-05	Gubas	50.00	13.00	0.5109	0.0100	0.190
	au-01-0557	1	57	63	146100000	LEGAL	LUNA	202750	au-01-05	Red Lauan	60.00	10.00	0.5303	0.0100	0.250
	au-01-05189	2	189	63	146100000	LEGAL	LUNA	202750	au-01-05	Nato	40.00	11.00	0.5109	0.0071	0.120
	au-01-05194	2	194	63	146100000	LEGAL	LUNA	202750	au-01-05	Mayapis	60.00	12.00	0.5303	0.0300	0.250
	au-01-05202	2	202	63	146100000	LEGAL	LUNA	202750	au-01-05	Tanguile	50.00	10.00	0.5303	0.0100	0.190
	au-01-05382	3	382	63	146100000	LEGAL	LUNA	202750	au-01-05	Malakayabas	50.00	10.00	0.5109	0.0056	0.070
	au-01-05383	3	383	63	146100000	LEGAL	LUNA	202750	au-01-05	Apitong Baloy	50.00	10.00	0.5303	0.0056	0.070
	au-01-05397	3	397	63	146100000	LEGAL	LUNA	202750	au-01-05	White Lauan	40.00	11.00	0.5303	0.0072	0.120
	au-01-05156	4	156	63	146100000	LEGAL	LUNA	202750	au-01-05	Tanguile	70.00	10.00	0.5303	0.0100	0.380
APAYAO															
	au-01-051	1	1	63	146100000	LEGAL	LUNA	202750	au-01-05	Red Lauan	60.00	10.00	0.5303	0.0100	0.250
	au-01-055	1	5	63	146100000	LEGAL	LUNA	202750	au-01-05	Tanguile	60.00	11.00	0.5303	0.0100	0.250
Summary for strRegion = CAR (22 detail records)					Sum						1300.00	256.00		3.0362	6.220
Grand Total											1300.00	256.00		3.0362	6.220

Sunday, March 22, 2009 Page 1 of 1

Figure 3. Report Generated from Node 1 "Inventory of Standing Trees"



Unique No.	Quadrant	To Be CUT	Setup Number	Tree Number	Species Name	DBH Big End:	DBH Small End:	Log Length:	Volume (cubic meter)	Board Feet	Destination	Remarks	Attached Documents
su-01-081	1	☑	su-01-08	1	Red Lauan	61.00	53.00	8.00	2.04	865.55			
su-01-085	1	☑	su-01-08	5	Tanguile	63.00	53.00	9.00	2.37	1,008.21			
su-01-0849	2	☑	su-01-08	49	Mayapis	73.00	61.00	11.00	3.87	1,644.36			
su-01-0853	2	☑	su-01-08	53	Palosapis	83.00	71.00	11.00	5.12	2,171.85			
su-01-0857	2	☑	su-01-08	57	Tiaong	59.00	51.00	8.00	1.90	805.88			
su-01-0897	3	☑	su-01-08	97	White Lauan	61.00	53.00	8.00	2.04	865.55			
su-01-0810	3	☑	su-01-08	101	Mayapis	83.00	71.00	11.00	5.12	2,171.85			
su-01-0811	3	☑	su-01-08	112	Tanguile	66.00	58.00	8.00	2.41	1,024.07			
su-01-0812	3	☑	su-01-08	129	Nato	61.00	53.00	9.00	2.29	973.75			
su-01-0815	4	☑	su-01-08	150	Tanguile	67.00	59.00	8.00	2.49	1,057.37			
su-01-0815	4	☑	su-01-08	152	White Lauan	75.00	63.00	11.00	4.11	1,744.00			
su-01-0815	4	☑	su-01-08	156	Tanguile	75.00	67.00	8.00	3.16	1,342.96			
su-01-0816	4	☑	su-01-08	161	Mayapis	79.00	67.00	12.00	5.02	2,129.52			
*		☐				0.00	0.00	0.00	0.00	0.00			
						906.00	780.00	122.00	41.94	17,804.92			

Figure 4. Data Entry Form for Node 2 "Felling"

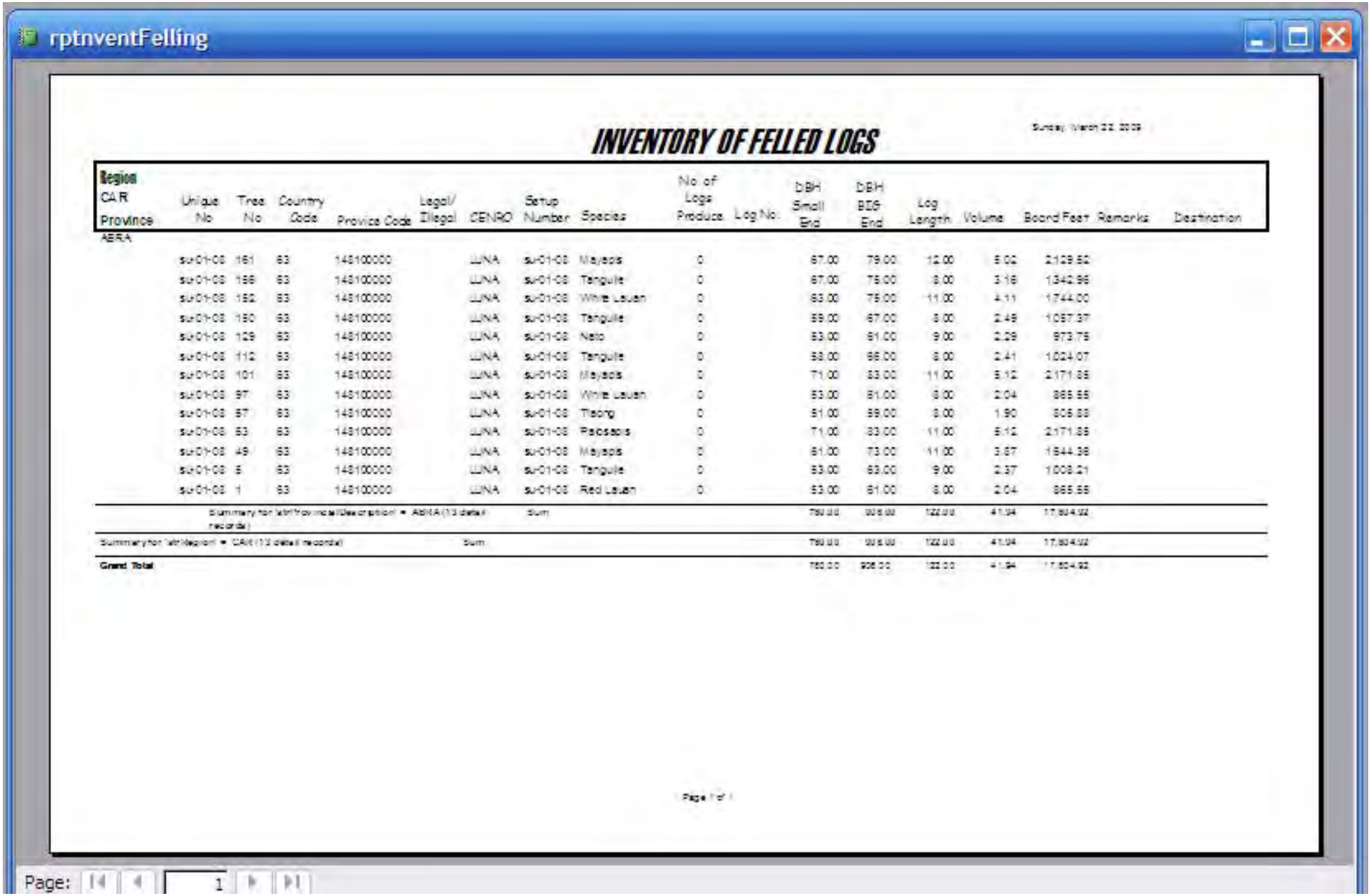


Figure 5. Report Generated from Node 2 "Felling"

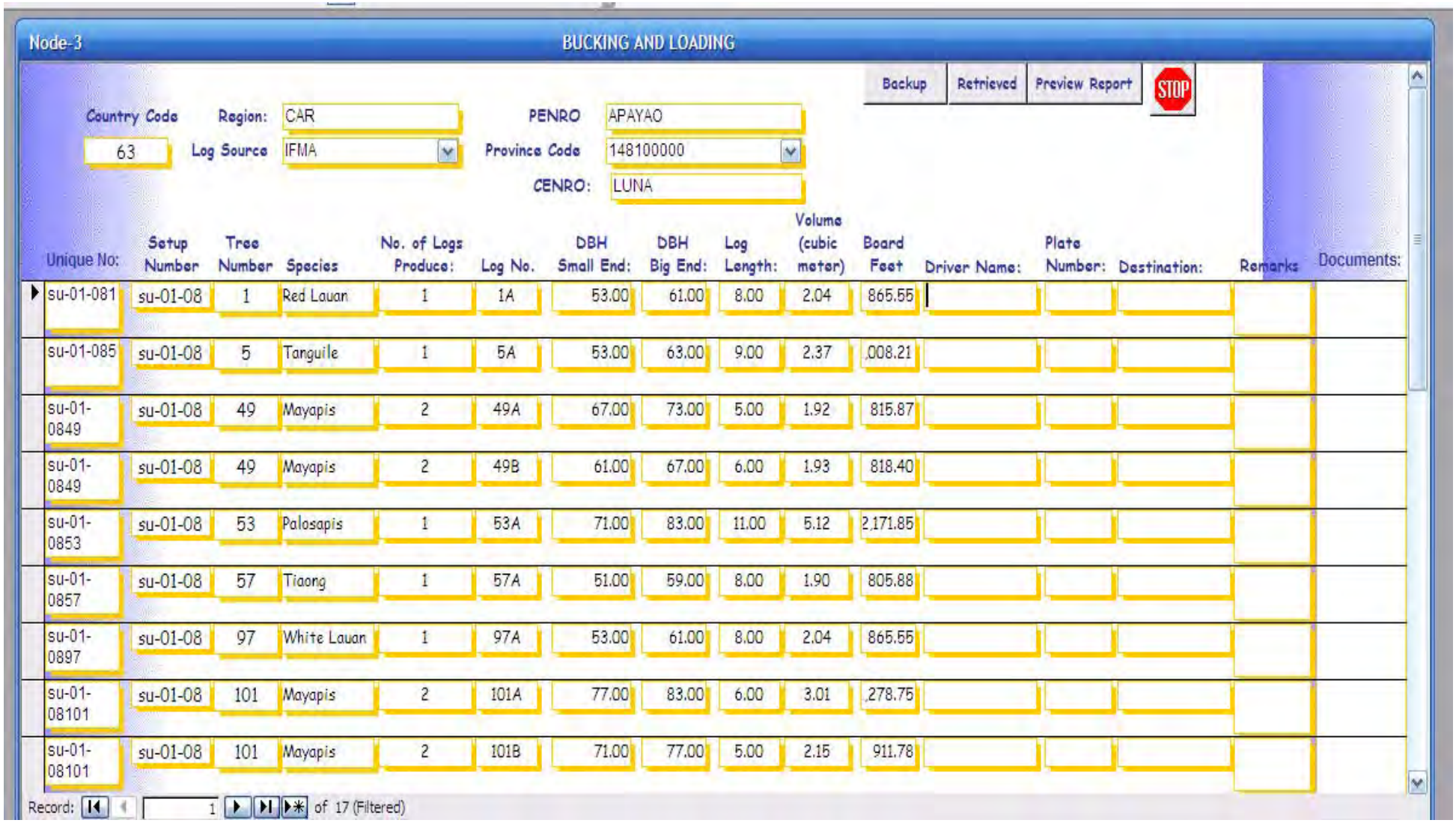


Figure 6. Data Entry Form for Node 3 "Bucking & Loading"

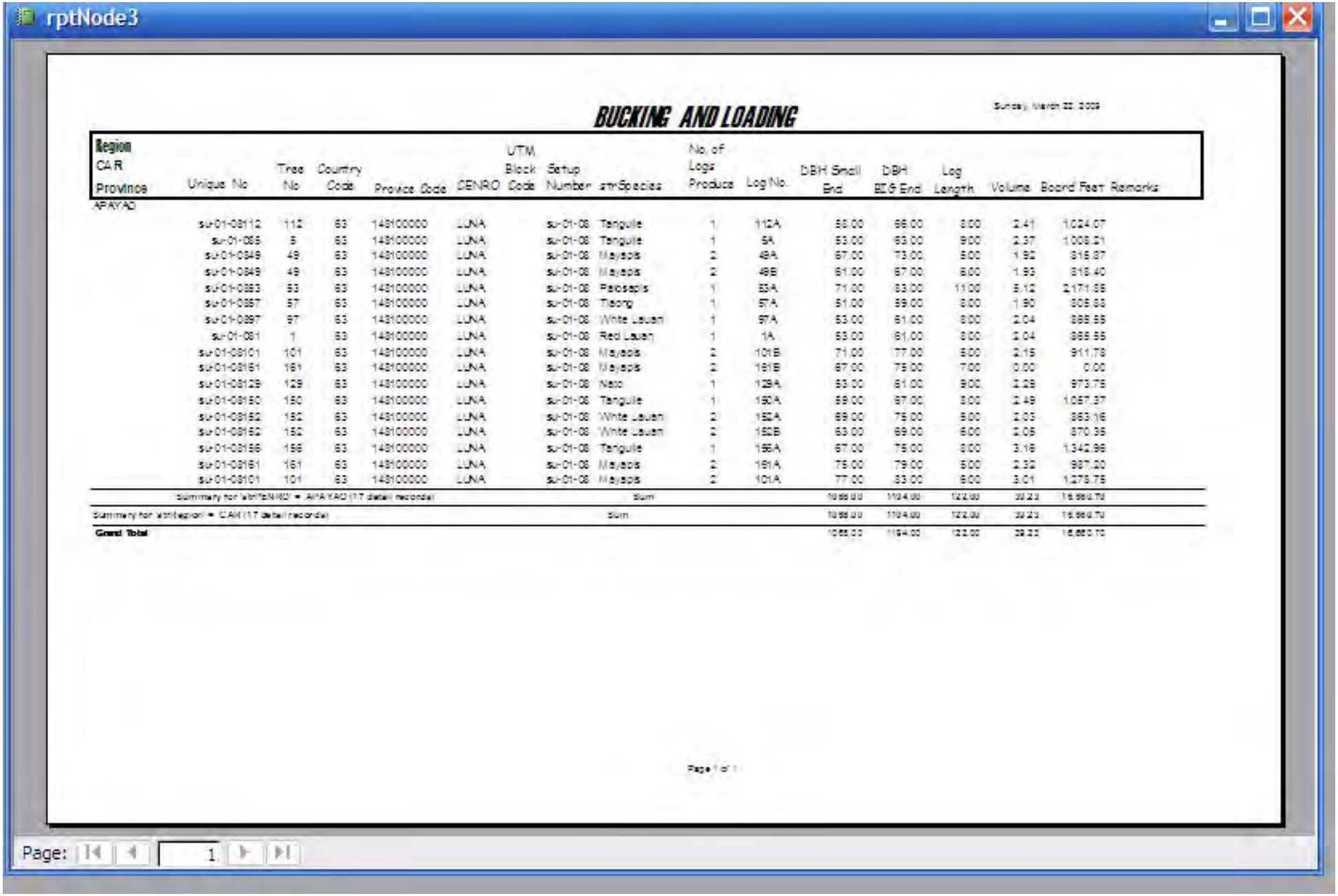


Figure 7. Report Generated from Node 3 "Bucking & Loading"

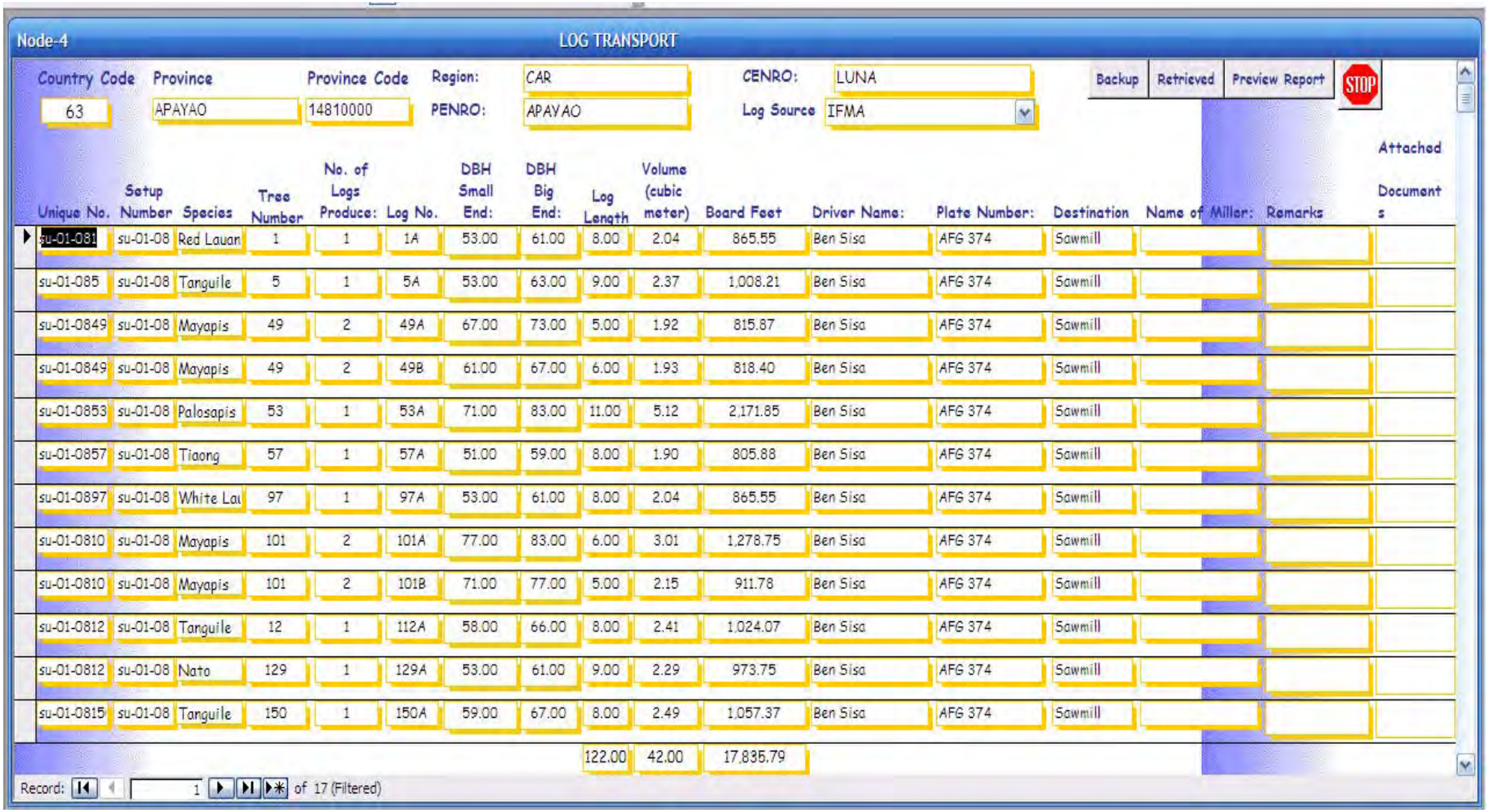


Figure 8. Data Entry Form for Node 4 "Log Transport"

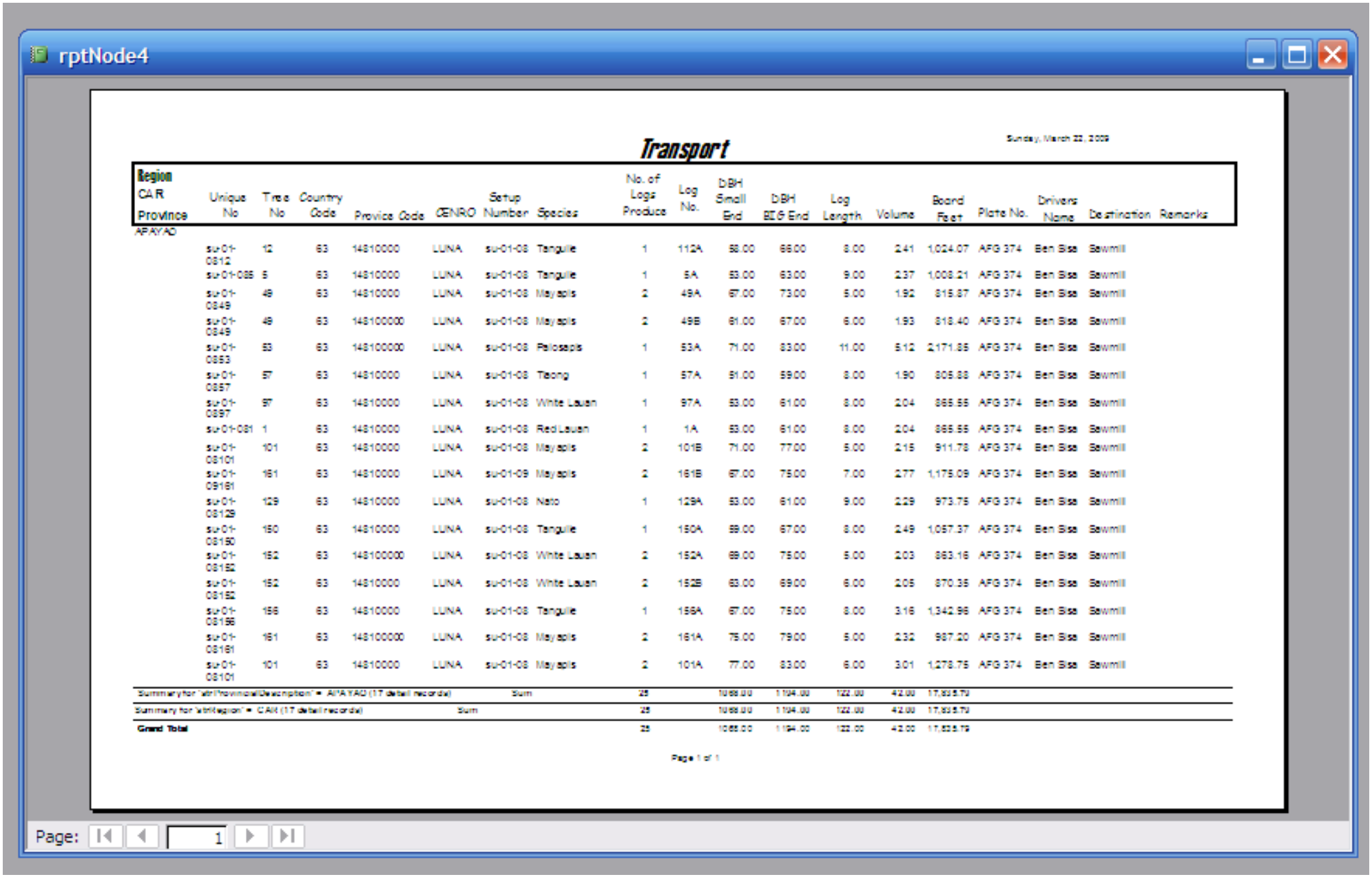


Figure 9. Report Generated from Node 4 "Log Transport"

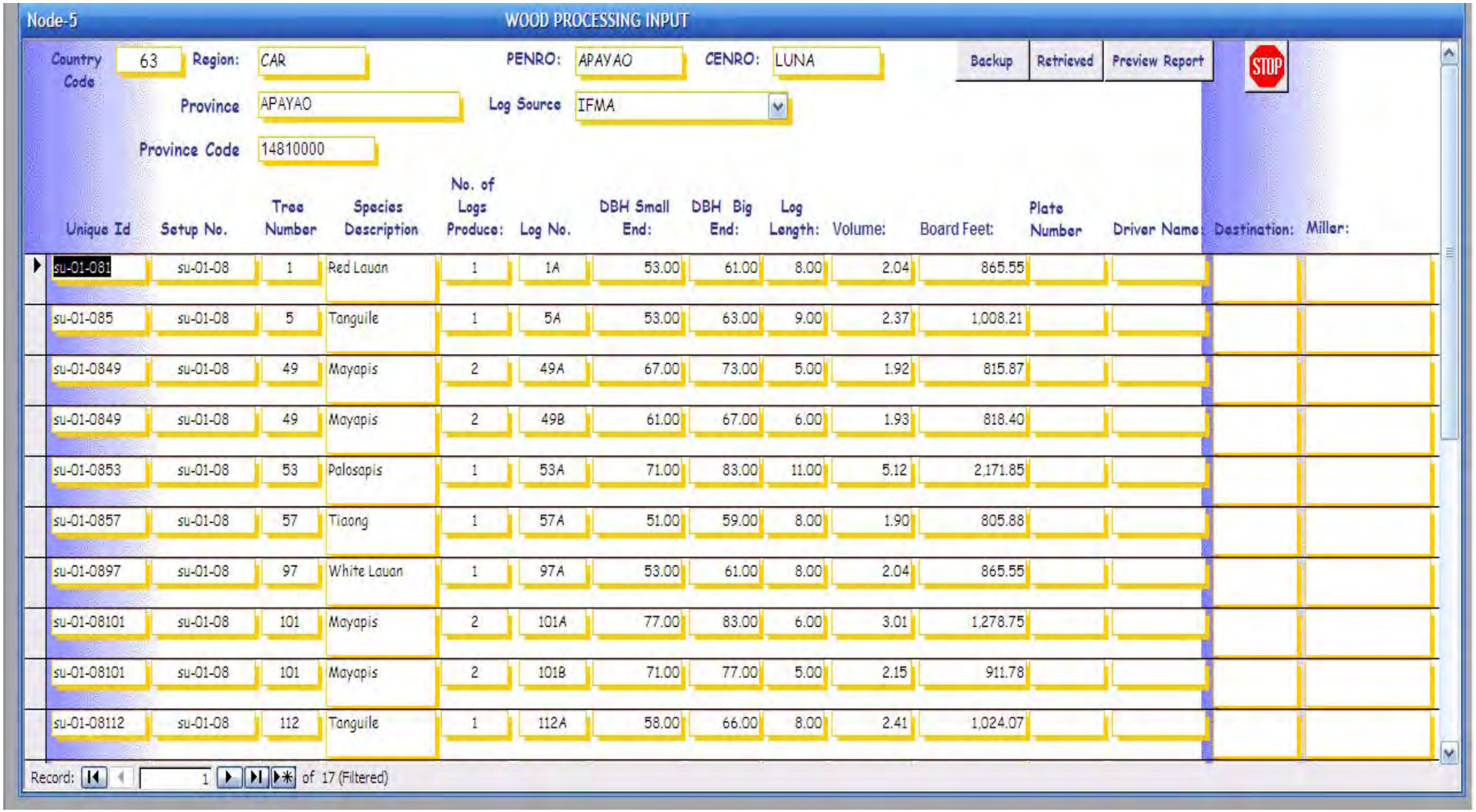


Figure 10. Data Entry Form for Node 5 "Wood Processing Input"

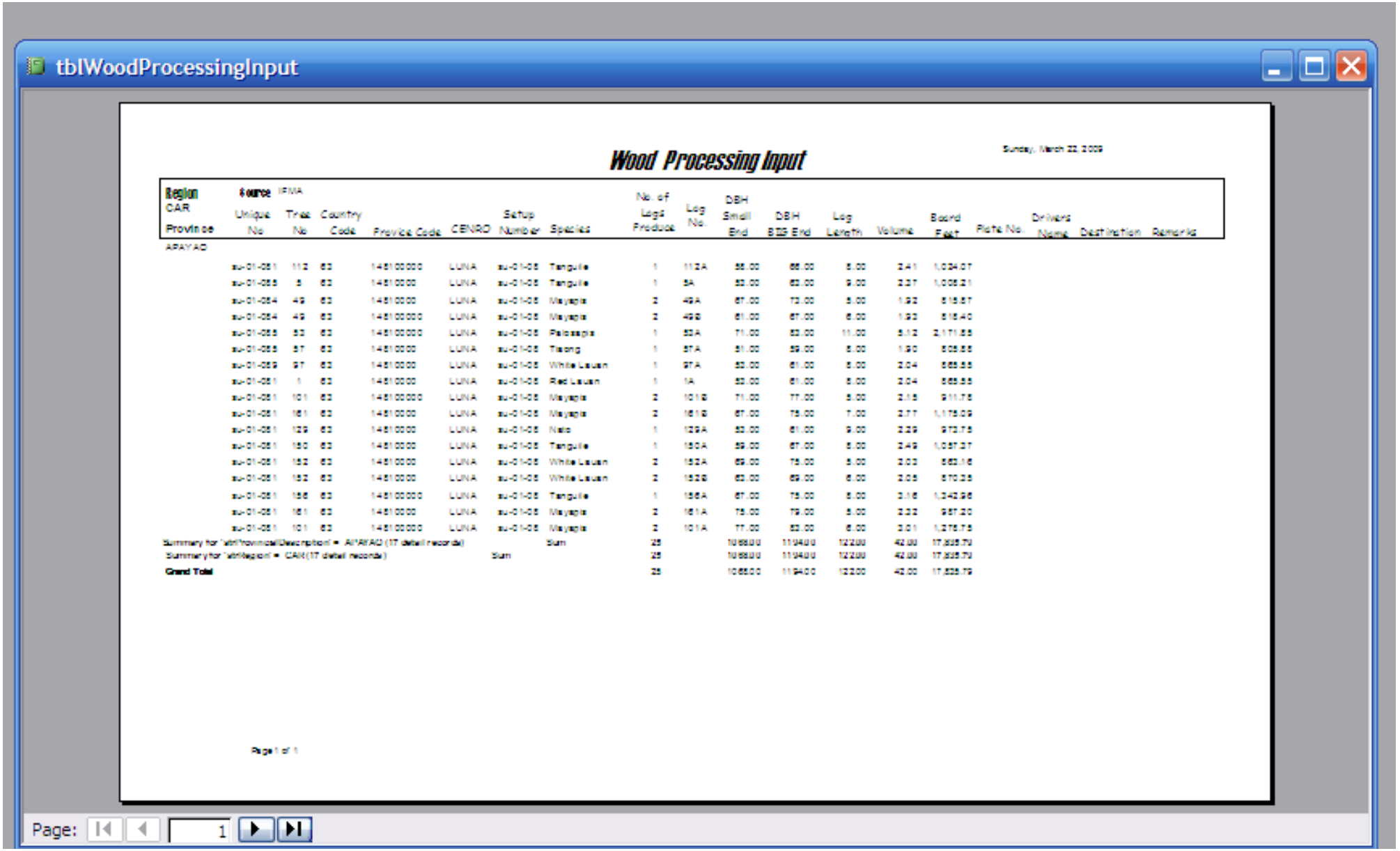


Figure 11. Report Generated from Node 5 "Wood Processing Input"

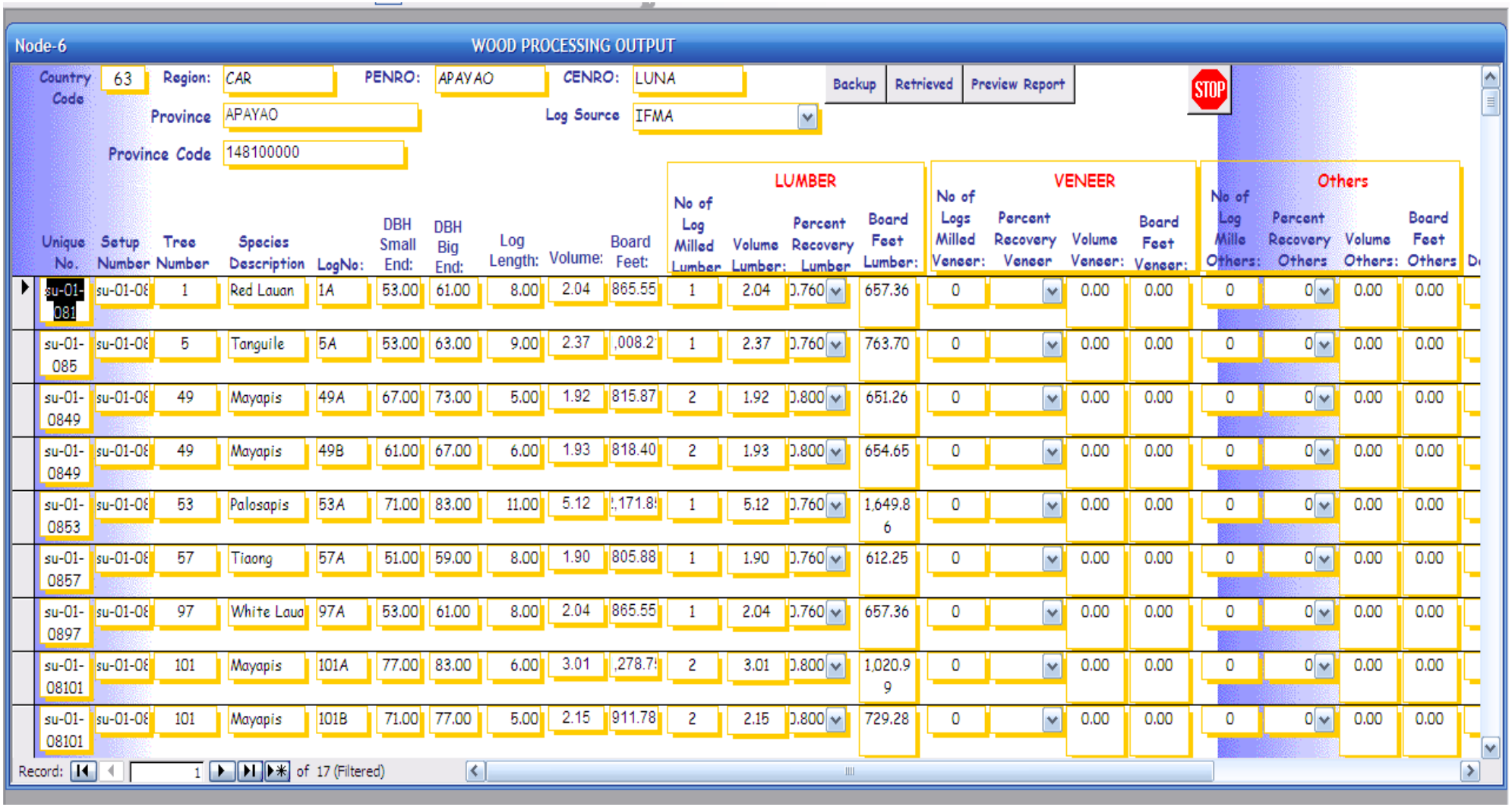


Figure 12. Data Entry Form for Node 6 "Wood Processing Output"

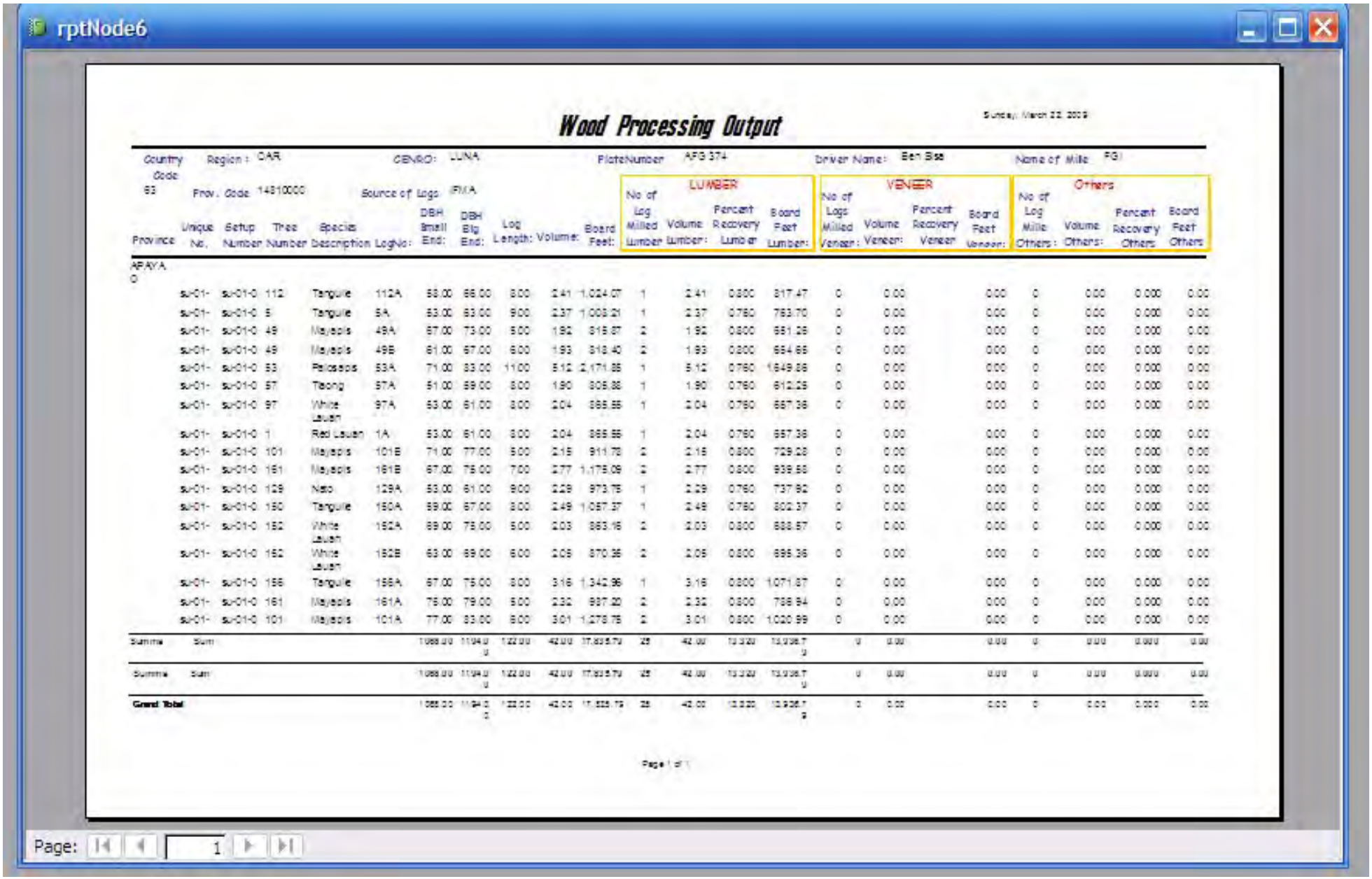


Figure 13. Report Generated from Node 6 "Wood Processing Output"

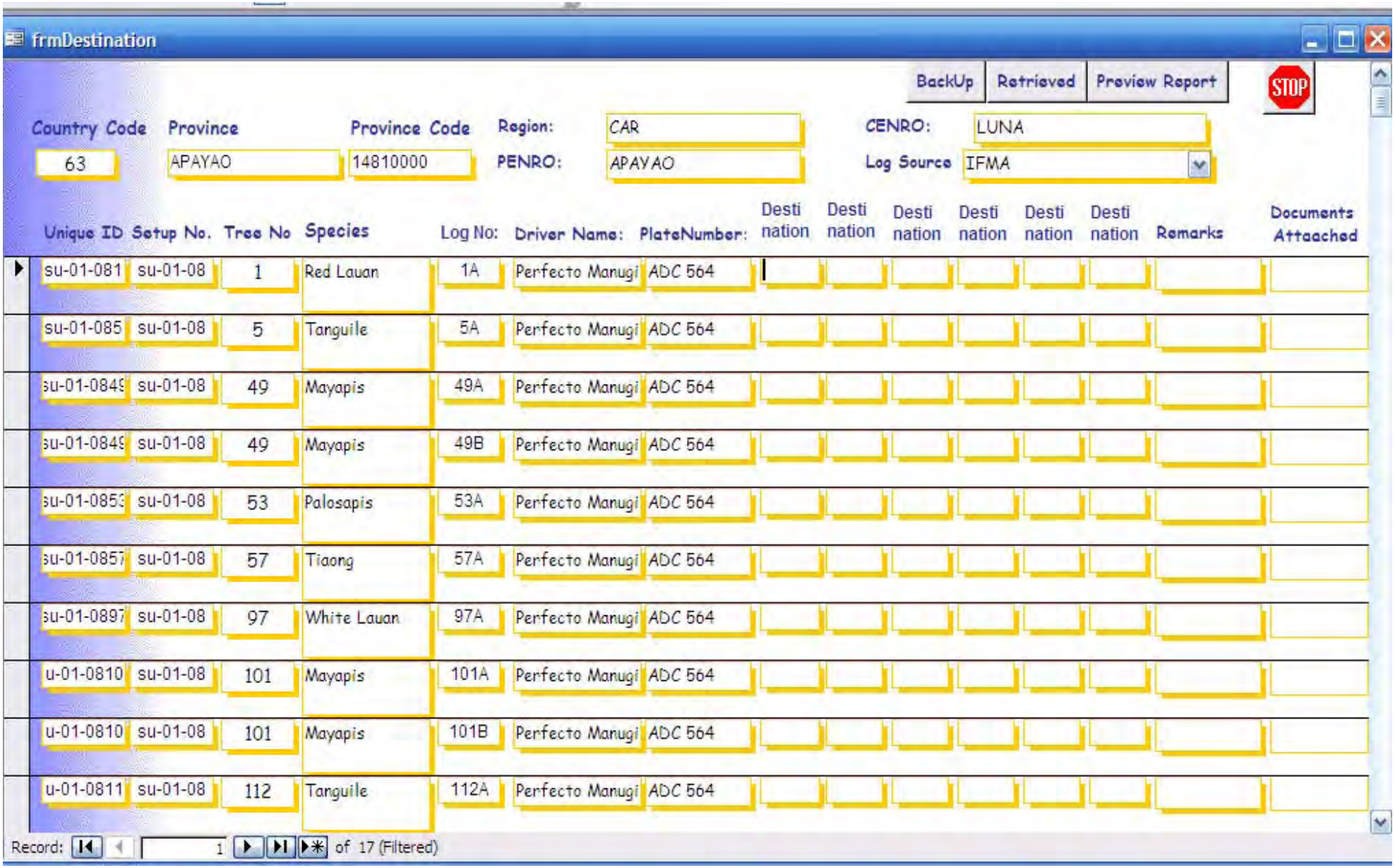


Figure 14. Data Entry Form for Node 7 "Processed Wood Destination"

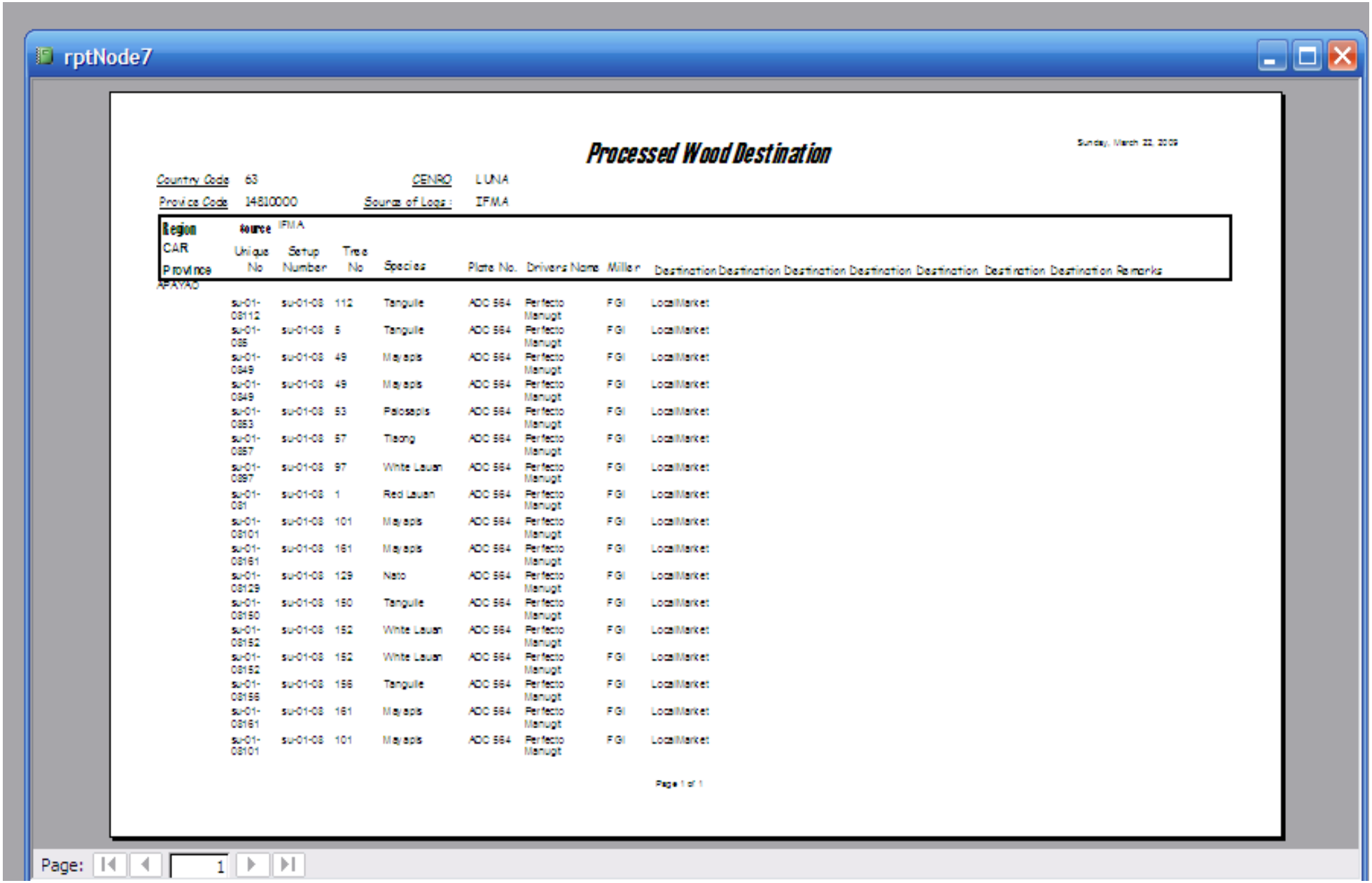


Figure 15. Report Generated from Node 7 "Processed Wood Destination"

ANNEX 4.

FIELD TRIP REPORT

**Pilot Test of proposed PHILIPPINE TIMBER TRACKING SYSTEM (PTTS)
Integrated Forest Management Agreement (IFMA) No. 2002-01 area of
Star Veneer Manufacturing Corporation (SVMC) in Luna, Apayao
March 03-07, 2009**

A. OBJECTIVES:

- Evaluate adequacy of field procedures to generate data per node
- Assess the computerized system for entry, report generation, and server compilation
- Test timber tracking forward and backward
- Determine any illegal timber flowing in system
- Check custody and origin
- Evaluate legal documents
- Conclude lessons learned
- Recommend changes and refinements

B. TEAM MEMBERS:

Emerito M. Evangelista, Luis P. Gonzaga, Alexis Lapis, Rene S. Siapno,
Bernardo D. Agaloos, Jr., Feliciano T. Opeña, Celso G. Versoza, Jr.

C. PILOT TEST AREA FOR TIMBER TRACKING

The project area selected to pilot test the proposed Philippine Timber Tracking System (PTTS) and the proposed chain of custody procedure is the Industrial Forest Management Agreement (IFMA) No. 2002-01 area of Star Veneer Manufacturing Corporation (SVMC) in Luna, Apayao since it has approved Comprehensive Development Management Plan (CDMP).

The IFMA of SVMC (formerly Nagan Agro-Forest Development Corporation) was perfected on July 03, 2002 and approved for twenty-five (25) years period until July 02, 2027. It has a total area of 13,658 hectares more or less, located within Barangays Salvacion, Cagandungan and Bucao (Marag); Municipality of Luna; Province of Apayao. Likewise, a Comprehensive Development and Management Plan (CDMP) was approved by then Secretary Alvarez on December 09, 2002.

Description of the Pilot Test Area

1. Basic Information

IFMA Permit	No. 2002-01
Date Issued	July 03, 2002
Expiry Date	July 02, 2027
Location: Barangays Salvacion, Cagandongan & Marag (Bucao), Luna, Apayao	
Total Area	13,658 Has.
Forest Cover:	
a) Old Growth Forest	1,883 Has.
b) Operable Residual Forest	10,216 Has.
c) Sub-Marginal Forest	766 Has.
d) Mossy Forest	661 Has.
e) For Plantation Forest	132 Has.
Total	13,658 Has.
Annual Cutting Area	292 Has.
Annual Budget Cut	= > 10,000 cu.m.

Source: SVMC Profile (Project Description) CY 2008

2. Timber Resources

Based on timber resources inventory conducted by the company, under the supervision of DENR field officers, the economic potential of IFMA project would provide significant volume of harvest from the available mature timber with dbh measurement from 60 cm (50%) and 70 cm & up (100%). Tabulation of estimated timber data per hectare in the IFMA area shown on the following page.

SPECIES GROUPS	DIAMETER CLASSES						TOTAL	
	20-50 cm		60 cm		70 cm & up			
	T/ha	V/ha	T/ha	V/ha	T/ha	V/ha	T/ha	V/ha
Common Hardwood	116.12	69.66	11.38	25.10	10.73	38.48	138.13	133.24
Const. & Furniture	48.32	12.33	0.53	1.05	0.53	1.30	49.88	14.68
LKS/LUS	3.69	1.27	0.13	0.27	0.07	0.30	3.89	1.87
Light Hardwood	4.41	0.94	-	-	0.07	0.37	4.48	1.31
Premium Species	14.20	2.96	-	-	0.07	0.14	14.27	3.10
TOTAL	187.24	87.76	12.04	26.42	11.47	40.62	210.75	154.20

Source: SVMC Profile (Project Description) CY 2008

Following the guidelines of DENR Adm. Order No. 12, Series of 1992, the estimated minimum Annual Budget Cut for the production residual forest of IFMA No. 2002-01 is determined as follows:

Formula: AAC = Cutting Area x Vr x f1 x f2
Where: AAC = Annual Allowable Cut
Vr = Harvestable volume in cubic meters per hectare based on the result of Sampling Inventory based on this equation (excluding premium species)
= 50% of 60cm + 100% of 70cm & Up (dbh)

f1 = 70% Utilization Factor

AAC = 292 has x 53.69 cum/ha x 70%

= 10, 974 cubic meters / annually for 25 years

Or Total = 274,350 cubic meters

D. DAILY ACTIVITIES / ACCOMPLISHMENTS SUMMARY:

Date	Places visited	Activities
Mar 03 Tues	Residence to RED's Office, DENR CAR, Diego Silang St., Baguio City	Land travel of Team to Baguio City, courtesy call on RED Primitivo C. Galinato, Jr. Late evening (10:30PM) travel to Apayao with CAR Regional Office representative (Forester II Emiliano C. Casi) & PENRO Apayao Specialist (Danny).
Mar 04 Wed	PENRO Office, San Isidro Sur, Luna, Apayao; CENRO Office, Payanan, San Gregorio, Luna, Apayao;	Arrived PENRO, San Isidro Sur, Luna, Apayao 7:30 AM. Met with PENRO Joseph A. Insigne & some staff, conducted informal briefing. Met with Star Veneer Manufacturing Corp (SVMC) President cum Furniture Group Inc. (FGI) Forest Management Operations Consultant, Perpetuo B. Maningas. Proceeded to CENRO Office, met with CENRO Candido J. Tuscano, PhD. and Staff. Formal Briefing/Lecture conducted by F.T. Opeña on how the proposed timber tracking system and chain of custody procedures works and the various data to be entered into the system, among others.

	Furniture Group Inc. (FGI) Sawmill, San Gregorio, Luna, Apayao	Attendees of Briefing /Lecture on the proposed PTTS: 1. PENRO Joseph A. Insigne 2. OIC-CENRO Candido J. Tuscano, PhD. 3. SVMC President, Perpetuo B. Maningas 4. Danny… FMS, PENRO 5. Noralyn G. Piano, CBFM In-Charge 6. Asari L. Costanza, Administrative Asst. II 7. Arsenio Masayaro, Forester 8. Dexter F. Dascil, Forest Ranger 9. Francisco D. Tablit, Forest Ranger 10. Jose D. Wing-Nga, Forester II 11. Henry D. Lasuden, Forester II / OIC-FMS 12. Eduardo T. Wasin, Forester II / FPO 13. Ruben A. Rumingquet Forester II / TMA 14. James B. Tacas, Forest Ranger / FIS 15. Emiliano C. Casi, Forester II, FMS, DENR-CAR 16. Emerito M. Evangelista, FMS II FMB 17. Rene S. Siapno, SFMS, FMB 18. Luis P. Gonzaga, SFMS, FMB 19. For. Celso V. Versoza 20. For. Feliciano T. Opeña 21. For. Bernardo D. Agaloos, Jr. After the briefing, the FMB Team visited the FGI Sawmill, accompanied by the SVMC President who is also currently FGI's Consultant for Forest Management Operations. The Team was introduced to Josue Y. Yadao, FGI Company Forester. The Team then proceeded to the R.P.Vinagrera Lodging House in Libertad, Abulug, Cagayan. A brief of the presentation proceedings is presented below, including the issues & concerns raised, as well as comments and suggestions to improve the proposed PTTS. (see photos & captions)
Mar 05 Thurs	CENRO Office Cutting Area, Set-up No.1	Gathering of needed documents & Pre-site visit briefing w/SVMC president & concerned PENRO/CENRO personnel, Trip to Cutting Area, SVMC Veneer Plant etc. (see photos & captions)
Mar 06 Fri	CENRO Office	Post-site visit discussions with SVMC rep etc (see photos & captions) Late evening travel to residence

Informal Briefing w/ PENRO Apayao & some Staff

- Team's mission is to Pilot Test the proposed PTTS
- It is funded by ITTO as part of its effort to promote Timber Tracking Systems in producer member countries, as a positive step leading to Timber Certification
- The PTTS builds upon a Project started by former FMB Director R.T. Acosta, the LCMS which was followed by FSMS.
- Makes use of existing DENR procedures & guidelines with respect to Timber Inventory, Tree & Log Marking, Felling, Bucking, Log Transport, Wood Processing & Export, etc.
- Incorporates the use of personal computers, software & advances in Information & Communication Technology where applicable, to make existing manual & computer based systems more efficient.
- Allows forward & backward tracking of the flow of timber within the chain of custody (7 Nodes).

Proceedings, March 04 briefing / lecture on the proposed PTTS by F.T. Opeña

- The 3 Project Objective were presented (assessment of LCMS/FSMS as previously pilot tested to determine gaps on tracking timber, to develop an improved/expanded FSMS to include chain of custody, to build upon and enhance existing traditional procedures in timber tracking and the computer systems already developed)
- The terms *"Chain of Custody" & "Timber Tracking"*
- The Proposed Chain of Custody and its 7 Nodes from the Inventory, Felling, Bucking, Transport, Wood Processing Input, Wood Processing Output including the new nodes on Export/Consumers to complete the chain.
- The seven main lessons from the FSMS
- Brief discussion of the proposed PTTS, including its database and proposed PTTS Website with its Database
- The Nodes were then discussed in more detail with a demonstration on the use of the software and the entry of sample data

Summary: Comments/Clarifications/Issues/Points raised during/after the briefing/lecture:

General: Many of the attendees have undergone training / attended workshops / are aware of the earlier LCMS and its enhanced version the FSMS. All were in agreement that the proposed system is very much better, more user-friendly & flexible. That there are more computers in the field offices and many of the field personnel are now computer literate, the internet though is not a standard facility in the PENRO/CENRO[1]**.** There was the usual concern about the lack of internet facilities, power failures. Also the lack of man-power in both the DENR & the Private sector during the timber harvesting season in the Apayao IFMA area, where there is a very short window of only 3 months to harvest and haul the logs (during actual operations, there are many set-ups, but very few tree markers/scalers). The need for hands on training in the use of the system as very important, was pointed out, also additional man-power during the short harvest season. The private sector representative also pointed out that the use of the Computer Generated CTO/CLO Forms under DAO 2007-31 takes a lot of time and causes delay, and adversely affecting operators in areas where the harvest season is short. The private sector representative also mentioned that he understands the Timber Tracking System well having experienced its implementation together with the strict SGS implementors when he worked in Papua New Guinea for several years, and he is aware that the system is an initial step towards Timber Certification, and the PTTS could also be used by them as a management tool to measure the efficiency of their harvesting & processing operations & their personnel as well, among others. *Floated questions:* Is the recording system accurate? What documents are to be scanned /attached after data entry in each Node?

Node 1: Timber Inventory. On marking goal (trees to be cut/ trees to be left), existing guidelines (DAO 1992-12 on Annual Allowable Cut Computation & Tree Marking Goal Determination in the 2nd Growth Dipterocarp Forests) should be considered and not 100% inventory of all trees.

Node 2: Felling. What about tops & branches, and the inclusion of damaged residuals & trees cut during road construction/ rehabilitation? On computation of Forest Charges -- in what node, gross or net volume, how do you allow for defects, how to consider defective trees found only during bucking, what policy guidelines exist on these? To maximize recovery, even defective trees are harvested, and trees are cut as close to the ground as possible which does away with "DBH" What is breast height now, under present circumstances. How does the system help in the computation of Forest Charges and in what Node is this facilitated? What happens when some trees to be cut are not felled when defects are found by the feller? What about trees to be left which are accidentally damaged & felled? What about trees felled during road construction/ rehabilitation, and in allowable clearings, skid-ways etc.?

Node 3: Bucking In practice logs not always bucked in 5-m lengths. Software considers a perfectly round log, in reality logs are oblong, squared etc., is the use of average diameter fair & accurate? Does the program factor in defects in its volume computation? The full length of the tree / log is not maximized on actual practice.

[1] Given available resources, satellite based internet facilities can now be made available in any remote area nationwide, and it is only a matter of time when the entire country and practically all DENR Central, Regional, Provincial & Community Offices would be inter-connected given the ever growing network of ISPs, advances in Information & Communications Technology, and the downward trend in the cost of these services & attendant hardware /software.

Node 4: Transport Can you use body# instead of Plate# of the truck/hauler? How do you address minor & major transport, necessary in some areas to reduce operational costs? In actual practice depending on area, Nodes 2 to 3, and even 4 done in sequence & scaling done at the log-pond/log-depot.

Node 5: Wood Processing Input. Depending on the logs, recovery factor is from 75-90%. For the FGI Sawmill, grading is not a factor as all logs are sawn regardless of quality/species.

Node 6: Wood Processing Output. Where a truckload of lumber brought to a buyer in Manila from Apayao is not accepted by the buyer due to the sudden lack of funds, can the shipper look for another buyer in Manila so as not to truck the lumber back to Apayao (14 hours travel by land)? How will this be recorded and what documentation will be needed under existing rules & regulations?

Gathering of Needed Documents & Pre-Site Visit Briefing of SVMC Set-up# 1 at CENRO Office, 05 March 2009

Node 1 - Inventory Record.
Prior to pilot testing the proposed PTTS at Set-up #1 of SVMC, the team gathered relevant information at the CENRO Office such as the map indicating the boundary of the IFMA area of SVMC, timber inventory records in Set-up #1, tree and log markings, for the purpose of ensuring that the available data/ information under actual field conditions, are consistent with the data structure of the PTTS program, and that entry fields could be added/revised made if necessary information are lacking or not consistent with the structure of the program. The team noted that there are about 192 trees marked to be cut & over 900 trees to be left. For purposes of pilot testing the proposed PTTS, the team recorded a total of 13 trees to be cut and 10 trees to be left in Set-up #1 of SVMC in filling up the form designed for Node 1- Inventory Record.

The indicative location of the logging Set-up #1 was inputted to a hand-held GPS, and waypoints that would lead to the exact location of the cutting area were determined in preparation for the .

Field Procedures during Pilot testing the PTTS at Set-Up No. 1 of SVMC, 05 March 2009

Node 2 - Felled Logs
The team proceeded to the cutting area (Set-up #1) of SVMC located some 16 kilometers from the sawmill site. In the absence of appropriate Information & Communications Technology infrastructure (internet access) in the cutting area, the team tracked and manually recorded the 13 trees to be cut and 10 trees to be left in the cutting area in the form designed for Node 2- Felled Logs.

Node 3 - Bucking.
The felled logs were dragged/skidded to the temporary log landing about 3 kilometers from the cutting area (near the road) and cut (bucked) into appropriate lengths. A total of 17 logs of various lengths were produced. The team recorded the said 17 logs into the form designed for Node 3.

Node 4 - Log Transport.
The 17 logs produced from the 13 cut trees were brought to the sawmill site of SVMC. These were tracked and recorded in the form designed for Node 4.

Node 5 - Wood Processing Input.
The 17 logs tracked to the sawmill were subjected to the sawmilling process. These logs were recorded by the team in the form designed for Node 5, indicating some of the relevant data/information.

Node 6 - Wood Processing Output.
All the 17 logs tracked to the sawmill were processed into lumber with varying recovery factors. For log-lengths of 5 meters or less, the recovery was about 76%. For log-lengths over 5 meters, the recovery was about 80%. The output volume of lumber produced was calculated by the proposed PTTS system using the said recovery factors. The team recorded the output volume of lumber produced in the form designed for Node 6.

Node 7- Market/Customers.
The team noted that all the lumber outputs were being sold /delivered to the local market and shipment points. As such, the team recorded the lumber volume, plate number of the delivery truck and driver's name, and other relevant information in the form designed for Node 7.

Post-Pilot Testing discussions at CENRO Office, 06 March 2009

The manually filled-up forms for Nodes 1-7 were compiled at the CENRO Office in Luna, Apayao and entered into the computer systems using the loaded PTTS program. During data entry into the system, it became quite apparent that further improvement /enhancement of the proposed system would have to be done. These include the module for data entry in each node, and the interfacing and compiling of all the nodes in the chain of custody in order to produce an integrated report that will provide the necessary / required information to track timber along the chain.

It was suggested that the system should consider inputting the net volume of logs (that is after scaling) so that the appropriate forest charges would also be computed automatically for easy monitoring and evaluation of fees paid / to be paid.

Recommendations:

The proposed PTTS should be further refined, and should consider, among others, the suggestion of inputting the net volume of logs into the system for easy computation, monitoring and evaluation of necessary forest charges and other fees paid / to be paid by concerned permitees/licensees.

The PTTS could also be used to "sanitize" the timber harvesting operations. The proposed PTTS should incorporate safeguards to avoid this possibility.

Given the general lack of internet access at the operations area, it is important to devise a cost-effective mechanism to transmit data in Nodes 2 & 3, since these nodes are very crucial in the tracking system, where errors in log marking and encoding/recording of data could easily take place. It is crucial that data in these nodes are current / up-to-date and should be passed on to the next Node/s (if possible) before any further movement of the tracked logs to other nodes in the chain of custody.

In the encoding of data: UTM Block Code, Set-up No., Timber / Log Tracking Codes and Timber / Log dimensions, should be reduced to the barest minimum in order to reduce data entry errors and encoding time. Repetitious data should also be provided with key board shortcuts or pull down selection.

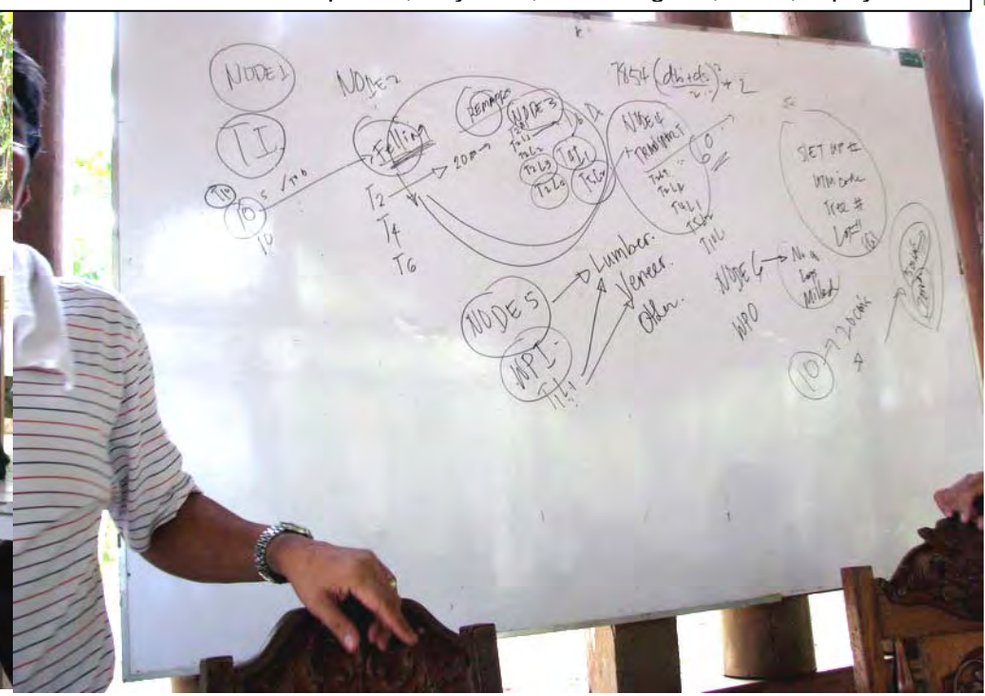
FIELD TRIP REPORT – Pictorial
Pilot Test of proposed PHILIPPINE TIMBER TRACKING SYSTEM (PTTS)
IFMA No. 2002-01 of SVMC, Luna, Apayao. March 03-07, 2009

PENRO Office, San Isidro Sur, Luna, Apayao

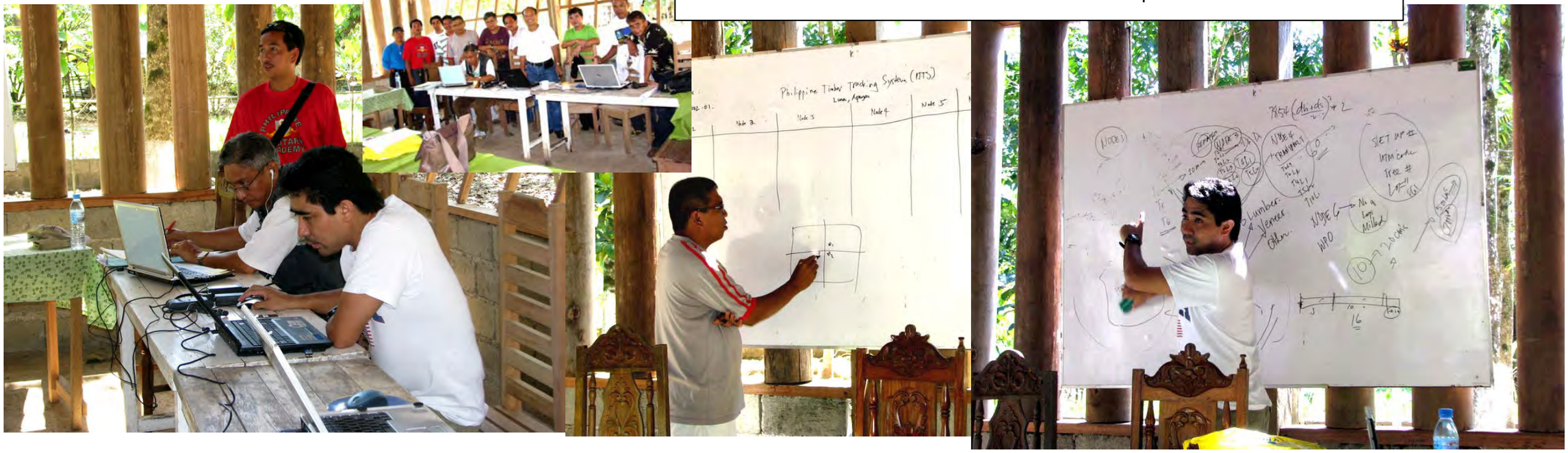
CENRO Office, Payanan, San Gregorio, Luna, Apayao

Initial informal meetings of Team with CENRO C. Tuscano / Staff and with SVMC Pres. P. Maningas at the CENRO compound, Payanan, San Gregorio, Luna, Apayao

Formal Briefing / Lecture with PENRO/CENRO Staff & SVMC President, on how the proposed timber tracking system and chain of custody procedures works and the various data to be entered into the system. Conducted at the CENRO compound, Payanan, San Gregorio, Luna, Apayao



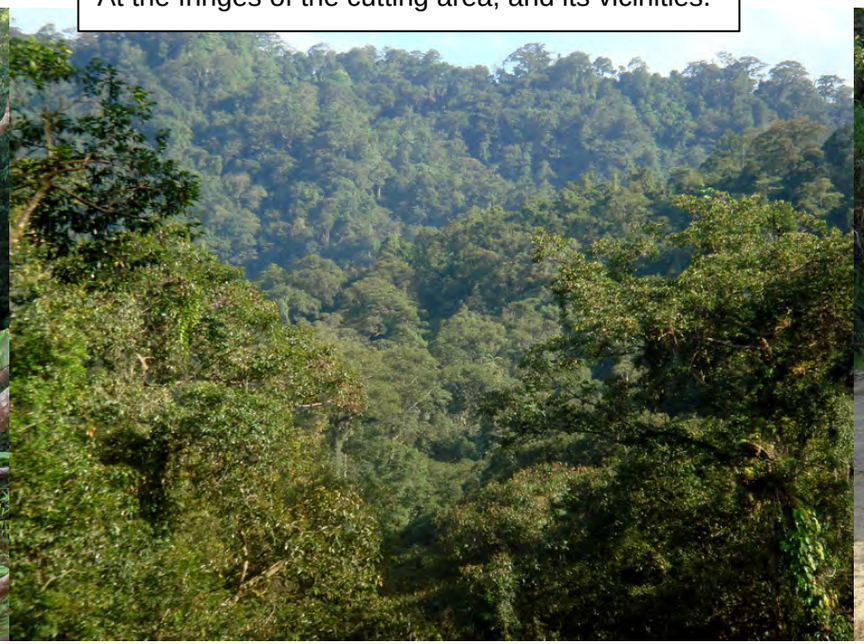
Pre-site visit discussions / consultations with CENRO personnel & SVMC President



Visit to the operations area, IFMA 2002-01 of SVMC, Logging Set-up No.01

Current conditions of the cutting area, where standing trees to be cut and to be left, were marked.

At the fringes of the cutting area, and its vicinities.



The SVMC Processing Plant

Logs are processed into Lumber and trucked to the Local Market / Shipment Points









Aerial view of the IFMA Area— and classic example of tracking timber through the Chain of Custody, from Timber Inventory, Felling, Bucking, Loading, Scaling, Log Transport, Mill Site, Wood Processing Input, Wood Processing Output, and Trucking to the local Market /Shipment Point



ANNEX 5. **Project Completion Status**

Assessment of Existing Philippine Timber Tracking System and the Development of the Chain of Custody Procedures (PP-A/39-170)

	ACTIVITIES	***Percentage executed***
1	*Pre-project implementation and preparatory activities, project team organizing, planning and strategizing*	*100%*
2	*Document existing policies and procedures on log control monitoring system (LCMS)/Forest Stock Monitoring System (FSMS)*	*100%*
	2.1 Collate other relevant policies on timber tracking	*100%*
	2.2 Identify the salient features of LCMS and FSMS	*100%*
	2.3 Evaluate and determine the gaps between the LCMS and FSMS from theoretical and practical applications	*100%*
	2.4 Documentation and initial report preparation	*100%*
3	*Field consultation meetings*	*100%*
	3.1 Identify field staff for coordination and interview	*100%*
	3.2 Determine plot areas to be determine	*100%*
	3.3 Stakeholders consultation meetings and focus group discussions (FGDs)	*100%*
	3.4 Documentation	*100%*
4	*Enhancement / Improvement of FSMS as an effective system for Timber Tracking and chain custody procedures*	*100%*
	4.1 Determine the lessons learned from Activity 3	*80%*
	4.2 Enhanced / Improved FSMS as effective Timber Tracking for the Philippines	*100%*
	4.3 Develop a Chain of Custody Procedure in the Philippines	*100%*
5	*Field testing of an enhanced/improved FSMS as an effective Timber Tracking System and the developed chain of custody procedures.*	*100%*
	5.1 Identification of areas to pilot test the enhanced/improved Timber Tracking System and the newly developed Chain of Custody Procedures	*100%*
6	*Report on the Philippine Timber Tracking System and the Chain of Custody Procedures*	*100%*