DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
FOREST MANAGEMENT BUREAU

INTERNATIONAL TROPICAL TIMBER ORGANIZATION

ITTO Project PD 599/11 Rev.1 (M)

Development and Testing of National Forest Stock Monitoring System (FSMS) with Improved Governance Capabilities at All Levels of the Forest Administration

COMPLETION REPORT

Executed by:

Forest Management Bureau (FMB)

With the assistance of

The International Tropical Timber Organization

Philippines, 14 October 2019

Project Title	:	**Development and Testing of National Forest Stock Monitoring System (NFSMS) with Improved Governance Capabilities at All Levels of the Forest Administration**
Serial Number	:	PD 599/11 Rev.1 (M)
Starting Date	:	June 2013
Duration	:	18 Months
Project Extension:		1st – June 2015 to July 2016 2nd – July 2016 to June 2017 3rd – June 2017 to July 2018 4th – July 2018 to June 2019
Budget	:	ITTO US$ 497,930 Philippine Government US$ 290,113 **TOTAL US$ 788,043** ***(Emergency Fund from DENR US$225,470)***
Ordinal Number and Type of Report	:	**PROJECT COMPLETION REPORT**
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Published by	:	
Place and Date	:	Quezon City, Philippines 14 October 2019

TABLE OF CONTENTS

ACKNOWLEDGEMENTS

We acknowledged with sincere appreciation and gratitude to the contribution and support of numerous governments and the International Tropical Timber Organization (ITTO) as the conduit of funding organization together with other different ITTO-member governments as consumer countries, for their kind and generous support to fund this project. And for ITTO for bearing with us until the completion of this project.

The DENR leadership in 2017 for the unwavering support in providing much-need Emergency Funding support in late 2017 which was crucial and very critical in the completion of the project, when we experienced short of fund to comply with our commitment to our Systems developer or Sub-contractor. We were then unsure if ITTO's suspension of releasing its fund would be lifted. The DENR indeed lived up to its roles and support to the project.

We acknowledged with sincere appreciation and gratitude the contribution and support of other government agencies (OGAs), forest and wood industries, non-government organizations (NGOs), peoples' organizations (POs), and other different forest stakeholders, who in one way or the other participated in the nationwide consultation process of the project.

To our Systems developer and Sub-contractor, the CAI-KONEK Ventures, Inc., a home-grown local Information Technology, for painstakingly and patiently sat down with us discussed and levelled-off on the basic forestry terminologies and in translating our technical and functional specifications into a working System. The extensive deliberation and brainstorming in the identification of the technical and functional specifications of the three (3) Modules namely: 100% back to the stump traceability, Verified Legal Origin system-VLO and Multi-tiered system. Then, the conduct of User Acceptance Testing (UAT) and the debugging process of the NFSMS. Eventually, the successful development of the System consisting of three modules of the Project -- Development and Testing of National Forest Stock Monitoring System (FSMS) with Improved Governance Capabilities at All Levels of the Forest Administration, is completed.

Finally, our final thanks should go to all the technical staff who worked hard from start of the project implementation and worked harder towards the completion of the project. And for the cooperation of DENR field offices e.g. DENR Regional Office No. 4-A, PENRO-Quezon and CENRO-Catanauan; DENR Regional office No. 10, PENRO-Bukidnon and CENRO-Malaybalay and DENR Regional Office No. 13, PENRO-Agusan del Sur and CENRO-Talacogon where we conducted our pilot testing of the NFSMS. To DENR tenure instrument holders i.e. IFMAs, CBFMAs, SIFMAs and other clients i.e. sawmill permittees or wood process plant permit holders, wood importers and exporters, lumber dealers for sharing thought and insight on the project. To other government agencies including law enforcement agencies, thank you for your appreciation of the project.

And for those who have shared their insights, wisdom, during the consultation, discussion, and training, we wish to thank them all for this pioneering works in forestry in the Philippines.

LIST OF ABBREVIATIONS AND SYNONYMS

ASEAN	Association of South East Asian Nations
CBFMA	Community-Based Forest Management Agreement
CENRO	Community Environment Natural Resources Office/ Officer
CLO	Certificate of Lumber Origin
CTO	Certificate of Timber Origin
CoC	Chain of Custody
COV	Certificate of Verification
DAO	Department Administrative Order
DENR	Department of Environment and Natural Resources
DMC	Department Memorandum Circular
DMO	Department Memorandum Order
DR	Delivery Receipts
EA	Executing Agency
EO	Executive Order
FAO	Food and Agriculture Organization
FIS	Forest Information System
FLEG	Forest Law Enforcement and Governance
FLEGT	Forest Law Enforcement, Governance 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 Agreement
ITTO	International Tropical Timber Organization
ITP	Industrial Tree Plantations
LCMS	Log Control Monitoring System
MH	Merchantable Height
MRV	Monitoring Reporting and Verifications
PCTC	Philippine Center for Transnational Crime
PENRO	Provincial Environment Natural Resources Office or Officer
PD	Presidential Decree
PHP	Philippine Peso
PO	People's Organization
PTTS	Philippine Timber Tracking System
PWPA	Philippine Wood Producers Association
RENRO	Regional Environment Natural Resources Office
SIFMA	Socialized Integrated Forest Ecosystems 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
UWM	Unit of Work Measurement
VLO	Verification of Legal Origin
VLOC	Verification of Legal Origin Certificate
VPA	Voluntary Partnership Agreement

EXECUTIVE SUMMARY

The ITTO Project described PD 599/11 Rev.1 (M) entitled "Development and Testing of National Forest Stock Monitoring System (FSMS) with Improved Governance Capabilities at All Levels of the Forest Administration" was implemented by the Forest Management Bureau (FMB) as Executing Agency since May 2013 as per record of the ITTO. A 40-plus month extension without additional funds has been granted by ITTO in order to fully complete the execution of all the project activities.

The National FSMS is composed of the study, development and field testing of a system that will help the government to plan, monitor, and control the trade of Philippine timber resources in accordance to its existing laws and regulations with internationally accepted standards.

Hence, the Forest Management Bureau (FMB) provided guidance in defining the terms of reference for the development of a web-based National Forest Stocks Monitoring System with nationwide application, based on existing rules and regulations of timber production. This system is simply known as NFSMS. The final acronym will be included in the DENR Administrative Order or its implementing rules and regulations is prepared for the adoption of the system nationwide.

The first eighteen (18) months of project implementation was devoted for administrative procedures in search of a Service Provider through international bidding as required by Philippine laws. There were two (2) failed public biddings involving a lone international bidder as Service Provider. Then, towards the end of Calendar Year 2016, the FMB created a new Project Team to implement the project. The new Project Team develop a new set of selection criteria in the first few months. Finally, after six (6) months, FMB commissioned a local Information Technology (IT) company in the Philippines named; CAI-KONEK Ventures, Inc. by way of a contract to develop the system including pilot or field testing.

Twelve (12) months after sun-contracting systems development, the System was subjected to User Acceptance Testing (UAT). The FMB Technical staff where the ones involved in the UAT process. It was actually an internal UAT because the reviewing team were composed of FMB technical staff. In the UAT, it was tried to laymanized the System so that offices i.e. DENR clients will be able to understand the System. In other words, the System's scripts should not be technical in nature making the test scripts user or business-friendly. UAT is a process whereby bugs observed were eventually changed or corrected by the Sub-Contractor. The UAT took a little over six (6) months to be completed due to the inconsistent availability of FMB technical staff. We did not anticipate nor expect this to happened which affected the entire System's UAT process.

We experienced another critical problem in the implementation of the project in the middle of System's development when the release of project funds (Second and third tranches) from ITTO were suspended. The FMB as the EA received the first tranche of the Project Fund from ITTO. But sometime in 2017, our Second tranche was held in abeyance due to an internal problem by ITTO. We were advised that releases of project funds were suspended with uncertainty as to when to lift the suspension. This situation caused alarm from within the EA because we have a Service Provider that we had contracted and we were under obligations to pay them ones their deliverables are sufficiently or satisfactorily completed. Thus, we have took extra efforts to seek additional fund from the DENR Central Office to augment or supplement our funds. We were thankful then that the DENR leadership in 2017 understood our situation and truly appreciate the importance of the System that was being developed. Hence, we obtained a Emergency or Supplemental Fund amounting to PhP 9,429,176.30 (US$225,470.00). This allowed us to the completion.

The approved project document provides that the system's Pilot or Field Testing supposedly in the CARAGA Region (Southern Philippines). However, when the System was ready for field or pilot

testing in CARAGA region, the FMB Project team was not allowed to travel to Mindanao due to the on-going armed conflict. All official travels to Mindanao were confined in the urban areas and DENR field offices only while those in the country-side or mountainous areas were temporarily suspended. In the meantime, we decided to Pilot Test the System in Luzon while there was uncertainty as to when the suspension will be lifted. Thus, we had our First Pilot Test area in the Province of Quezon. As a whole, we were able to test the System from registration to issuance of transport document called Certificate of Timber Origin or CTO only. We did not finish the issuance of a Verified Legal Origin Certificate or VLO Certificate.

We waited for clearance for the lifting of the travel restriction in Mindanao. After almost eight (8) months, we were finally granted to travel to Mindanao to field /pilot the NFSMS. The downtime we had experienced has affected us again in terms of completing the project. Thus, our Second Pilot site was finally in CARAGA Region in a tenure holder called Private Land Timber Permit (PLTO) due to the absence of an operating tenure instrument holder in forest land. Thus, we only finish until the issuance of a transport document called CTO. The third Pilot Testing site was in the Province of Bukidnon. It was tested in a tenured area covered by a long-term agreement valid for 25 years, called Industrial Forest Management Agreement (IFMA). We finally completed that entire System in the Pilot Site from standing timber inventory until the issuance of a VLO Certificate.

The implementation of NFSMS in the country, this will ultimately improve forest governance as well as increase capabilities of the entire bureaucracy of forest administration in the Philippines. All transactions will be recorded electronically and viewed in real time. Thus, transparency will be observed.

The project has accomplished its objectives and the three output modules

i. 100% “Back to Stump” traceability for wood production.
ii. *Verifications of Legal Origin* (VLO) is a documentary verification system that ultimately result in the issuance called Verified Legal Origin (VLO) Certificate; and,
iii. Improved system environment including field data entry capabilities and online, configurable, multi-tiered access

In conclusion, the NFSMS was successfully pilot tested in three different sites. Approved project document requires the pilot testing of the system in Southern Philippines (CARAG region) either in an area covered by a Community Based Forest Management Agreement (CBFMA) or Industrial Forest Management agreement (IFMA). But there a situation in 2017 when we decided to pilot the System in Southern Luzon when we had short of funds and the impending the armed conflict in Mindanao in 2017. However, the results of the pilot testing had demonstrated the feasibility, workability and operationalization of the System. It can be used to trace wood products i.e. logs and lumbers, back from their origin. The system can be use as CoC system with traceability feature. We have tested the use and application of NFSMS from tenure registration until the issuance of VLO Certificate. Thus, the Verification of Legal Origin (VLO) is also integrated. Refinements and further enhancements can be done based on recommendations stated below and feedback of other stakeholders.

Finally, this project completion report denotes the conclusion of this project. But, we intend to revised the System for additional functionalities to cover forest products plywood, veneer, imported logs, imported lumber, etc., so that we can maximized and effectively use of the system. At the same time, the functional and technical specifications as outlined in the approved project document was formulated sometime in 2009 and 2010, thus requires thorough revision. We will carry out the additional functionalities on our own cost.

1. PROJECT IDENTIFICATION

This project was conceptualized so the DENR can help revitalized the Philippines' wood industry as well as address trade of illegally cut or harvested timber in the country. In addition, the Philippines will have its own procedures for a reliable and real time timber tracking system that could basically track the movement of logs and lumber from where they come from and where they are going to be delivered down to the retail or other downstream wood industries. We envision for an electronic system with minimal or less human intervention in the process. We do have a paper tracking system of timber and lumber through the use of transport documents called certificates. Fortunately, it was not robust enough that some data could be distorted. That is why, we first had an assessment of existing Philippine timber tracking which convinced us that we truly indeed need such a timber tracking system that is robust and reliable. Thus, this project was born. And make this system link or open for access with other existing system that the Philippines' DENR is currently using and will offer great help in making the new system that is web-based worked quickly and accurately.

1.1 Context

There are economic, environmental and socio-economic parameters that were considered in the development of this project. We started with the current situation that we were back in 2009 or 2010. Then, we look at the relevant forestry laws and regulations that make up the institutional situation and what needs to done. Among them is improvement of forest governance to make all transactions transparent, established accountability, clear and transparent procedures and recorded system and consult various stakeholders. This was followed by an automated revenue collection of taxes in the form of forest charges and at the same time assist in forest law enforcement. All these parameters will be based on existing laws, rules and guidelines in the country. These have important crucial role that is 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.

Moreover, the project included the plan to access the enhanced FIS in order to provide support in monitoring the entire wood supply chain, performs VLO checks that begins with improve ans accurate standing tree or timber inventory and marking, proper scaling, log and lumber labeling that will greatly increase effectiveness in the control of operations by the System.

The project pilot site as per approved project document was in the Caraga Region (Region 13), an administrative region in Southern Philippines specifically located on the northeastern portion of the island of Mindanao. The region encompasses five (5) provinces namely; Agusan del Norte, Agusan del Sur, Surigao del Norte and Surigao del Sur and Dinagat Island, three major cities, seventy municipalities and 1,346 "barangays" or villages.

The System was ready for pilot testing in 2017. It was decided that the pilot testing of the System undertaken in Southern Luzon in the Quezon Province because of dwindling fund and the impending armed conflict in Southern Philippines that prohibited us from travelling to that area. By 2018, conflict in Southern Mindanao subsided and we had System Pilot Tested in Caraga Region in the Province of Agusan Del Sur. Then, the Third Pilot Testing Site was undertaken in Region 10 (Northern Mindanao) in the Province of Bukidnon.

Caraga's majority wood production come from private plantations in private lands. These are fast growing exotic timber species. The transport document issued is called *Self-Monitoring Form (SMF)* provided the private plantations are registered with the DENR Field Offices. Therefore, an SMFs is a transport certificate used for declaring production of planted trees removed from private lands and a registration certificate called Certificate of Tree Plantation Ownership (CTPO). Another transport document is required for natural growing trees cut or harvested in public forest lands and private lands.

The SMF was instituted in 1999 as a form of deregulation for planted trees in private lands based on existing guidelines.

As per approved project documents, the Caraga Region counts 6 large active sawmills requiring about 100k m3 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). 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). Hence, in order for the government to support and manage the forestry sector, the Forestry Code of the Philippines 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.

1.2 Project Origin and Problem

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".* 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.

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, with the assistance of the ITTO, to include such projects enumerated below:

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

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 high level, some of the key issues identified include:

(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 *Philippine 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.

The key problem addressed by this project was to address the "gaps" in the trade and market of legally harvested timber species. Unless this key problem is resolved, the prevalent illegal forest activities in the Philippines would continue.

The scope of the project is to develop and test a national forest stock monitoring system in the Philippines which will improve the governance capabilities of all levels of the administration wherein all transactions are recorded and transparent. The System will support a true "back to stump" traceability, *Chain of Custody* (CoC) management and features related to *Verification of Legal Origin* (VLO). Hence, this will require the following:

(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/Lumber Origin (*CTO)/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 greatly benefit from technical features such as 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.

Moreover, the system will to facilitate the control of timber poaching, illegal activities and associated trade that has always been a major challenge in the Philippines and are considered the main obstacles to Sustainable Forest Management (SFM). The approved project document identified the following typical scenarios involve:

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/Lumber Origin* (CTO) /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 cornerstone of forest policy in the Philippines remains the **Presidential Decree No. 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*, "*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 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 hopefully the *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)";*
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)*";

In addition, at the broader perspective, the project also supports long term policies and development goals such as the following:

(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.

2. PROJECT OBJECTIVES AND IMPLMENENTATION STRATEGY

Rationale. The Philippines has experienced hardship after the Second World War. Thus, the country has resorted to extensive logging activities to support economic growth and massive reconstruction due to the ravages of war. That was the beginning of the concession system that became more extensive during the 60s to the 70s under a *Timber License Agreement* (TLA) system allowing the harvesting of natural forest nationwide. The logging operations in mid-70 were conducted according selective logging prescriptions whereby only marked, selected and matured timber trees were cut and allowed for export as raw logs in dire need of hard currency or foreign exchange. The need for approved management plans for all timber extraction by timber concessions became a standard based on existing guideline of then Bureau of Forestry (BF) and eventually the Bureau of Forest Development (BFD) under the Presidential Decree No. 705 (revised Forestry Code of the Philippines of 1975). But, somehow, timber companies were able to harvest more than what they were allowed or authorized and even deliberately avoid paying the correct taxes in form of Forest Charges based on Timber Production Manifests. Many of the problems associated resulting to large-scale forest resource extraction and forest destruction that can be attributed directly linked to a combination of concession and land tenure issues and lack of political will to enforce forestry laws, rules and regulations.

By 1987, there was a radical reform that took place preventing the continued proliferation of the timber concessions when the 1987 under the Philippines' Freedom Constitution, it has literally abolished the concession system and migrated to a more people-oriented and community-based scheme requiring for production sharing, co-production and joint venture system and likewise drastically reducing access to the old growth forest and virgin forests that can be authorized or allocated for commercial timber extraction. Existing TLA holders, however, were allowed to continue to operate until the expiry date indicated in the original agreement, subject to certain new requirements. Subsequently, shifting in timber harvesting from the old-growth forests also known previously as virgin forests to second-growth forests to prevent the further loss of old-growth forests, pursuant to DENR Administrative Order No. 24 of 1991. Then, the birth of the *Industrial Forest Management Agreements (IFMAs)* with a maximum area of 40,000 ha, the *Socialized Integrated Forest Management Agreements* (SIFMAs) with a maximum area of 500 ha, and the *Community-Based Forest Management Agreements* (CBFMAs), all of which involved responsibilities to protect the natural forests and encouraged investment in maintaining the forest growing stock and new plantations. These new instruments took cognizant of the rights of indigenous peoples (IPs) by virtue of the Indigenous People's Rights Act (RA No. 8371), according the IPs the legal rights over their ancestral lands, including resource extraction. Under the 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. For the last two decades, control illegal activities in forest lands remains a major challenge and an obstacle to the overall sustainable forest management in the country.

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 by virtue of Executive order No. 192 of 1987. The DENR has opted to practice stakeholders' consultation in the management of forest lands based on forestry science as well as encourage private sector participation, involvement of local communities and civil society organizations. At the local level, the DENR has the *Community Environment Natural Resources Offices* (CENRO) responsible for land management, forestry and protected areas, with the forestry sector accounting for 70-80% of their activities. The CENROs oversee law enforcement activities for environment and natural resources laws and regulations not just forestry sectors laws, manage tenured areas or those under forest agreements, collect production data and forest revenues including forest charges for natural grown trees (including the issuance of transport documents called Certificates of Origin Forms (COF). There are 76 DENR provincial offices called Provincial Environment and Natural resources Offices (PENROs) and a corresponding 154 Community and Natural Resources Offices (CENROs) nationwide *(2009 figures before DENR rationalization)*. These field offices are under the supervision of the 16 DENR Regional Offices and likewise under the Office

of the Undersecretary for Field Operations at the DENR Central Office. In addition, the DENR manages various attached agencies and six Bureaus, namely the Environmental Management Bureau (EMB), Mines and Geosciences Bureau (MGB), Forest Management Bureau (FMB), Biodiversity Management Bureau (BMB) formerly the Protected Areas and Wildlife Management Bureau (PAWB), Land Management Bureau (LMB) and the Ecosystems Research and Development Bureau (ERDB).

The role of the FMB is mainly to: recommend policies and/or programs for the effective protection, development, occupancy, management and conservation of forest lands; advise the Regional Offices in the implementation of the above policies and/or programs; assist in the monitoring and evaluation of forestry development projects to ensure efficiency and effectiveness; and, 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.

Development and Specific Objectives. The high-level development objective of the project is to *"improve forestry governance, institutional law enforcement capacity, stakeholder coordination and forest sector competitiveness through improved data management".* This is translated into three (3) more concrete and specific objectives to develop and pilot the *National Forest Stock Monitoring System* (FSMS) modules supporting three major outputs listed below:

Output 1: 100% "Back-to-Stump" traceability for wood production
Output 2: Verification of Legal Origin (VLO)
Output 3: Online, configurable, multi-tiered and FSMS environment with field data entry module

Adjustments in Project implementation. First adjustment was the selection of Service Provider to develop the System due to two (2) failed pubic bidding through the Philippine Government's Electronic Procurement System (PhilGEPS). The FMB as the Executing Agency (EA) resorted in a negotiated procurement. Thus, these adjustments caused substantial delays translated in months in project implementation. The second adjustment was the movement, transfer, promotion and retirement of a substantial number of FMB personnel due to then ongoing re-organization or rationalization in the government bureaucracy starting the year 2013 that further swelled to year 2015. A new Project Team was organized and selection of project key personnel followed. The third adjustment was the formulation of selection criteria for the Service Provider that used so much time brought about by the unpleasant experience of two failed public biddings to ensure that we would then be able to finally get a Sub-Contractor. True indeed, with much perseverance and hardwork of the new Project Team was created and we were able to contract the services of a single sub-contractor competent enough for the turnkey delivery of the system. Thus, greatly simplifying overall project management and coordination. It is within this context that the FMB defined the terms of reference for the development of a web-based National FSMS (NFSMS). The CAIKONEK Ventures, Inc. was the chosen sub-contractor to developed and field tested the proposed System. The sub-contractor selection process adhered to ITTO guidelines, and the implementation strategy followed classic IT system deployment methodologies involving the simultaneous development of all the features through subsequent stages by modules.

Project Implementation Strategy. This is essentially project implementation methodology. The EA of the project is the FMB which is a staff bureau that co-opted the assistance of DENR Field Offices in the elaboration of the specifications of the system including field coordination activities during the pilot testing phase.

The implementation strategy of the project followed classic IT system development and deployment methodologies involving the simultaneous development of all the features through stages such as; a) requirement definition and survey leading to the elaboration of detailed "*Technical and Functional Specifications*" planned for 3 months; b.) systems configuration & user documentation for

6 months; c.) system testing and User Acceptance (UA) followed by a sign-off, training and roll-out planned for 2 months; and. D.) operational pilot phase, monitoring and evaluation for 7 months.

The main milestones of the project was the review and sign-off of the detailed "*Technical and Functional Specifications*" by the project team being the blueprint of the system to be developed, 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*. These were all mentioned in the project progress reports collated that were regularly submitted to the ITTO every six months. x1xxxx1x

The project methodology is closely related to the standard mechanics of software specification, configuration and deployment processes and, as can be seen in the project specific activities as well as in the work plan. The implementation strategy implies the grouping of the 3 modular outputs into a single deliverable. The activities and associated methodology were better understood when grouped together in terms of their sequences, to be performed in parallel for each module with the following:

Requirement Definition and Survey. The development phase of the project starts with understanding of the approved project document and what are the deliverables. This was followed by a run-down of the different forestry laws, rules and regulations required in the preparation of the System. Then, comes the brainstorming, levelling-off and workshops among the Project Team members together with the Sub-Contractor. The Sub-Contractor was already involved in order to be familiarized with forestry terms and terminologies which is critical in defining detailed Functional and Technical Specifications that the system should support. This shall serve as the backbone of the System. We though This phase runs roughly three (3) months. Also, the primary concern was to review of current systems that the DENR is already operating as well as detailed analysis of the international standard applicable especially that the System will be adopted nationwide. The project team played a vital rule determining the detailed system Functional and Technical Specifications that was signed-off as the blueprint of the System.

System Configuration / Documentation. Moreover, the development phase likewise goes on with the actual implementation of the system's previously defined features and functionalities. This phase, planned for five-six (5-6) months resulted in the three (3) modules configured in parallel and programmed into the FSMS. The platform configuration is split into three broad categories of systems namely; 1.) system environment, 2.) system inputs and 3.) 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.

System Testing / UAT & System Sign-Off / Roll-Out. System's or Users Acceptance Testing was carried-out in-house or by project team at FMB for several months. This posed great challenge for FMB since this was the first time that this type of activity has been implemented. The Sub-Contractor showed us patience in understanding on what the System is all about in terms of operations. Observed bugs and "flows" need to be addressed and corrected by the Sub-Contractor's systems programmers. Then, the corrected "bugs" previously observed is subjected to another series of testing. This process is repeated to the entire System. Thus, we spent more months in terms of time than it was originally planned. The EA express gratefulness to the Sub-Contractor for devoting time to the EA fully understand how the System works or operates. The deployment of the was at the DENR Central Office which housed and hosted the entire IT Server of the DENR. It was likewise deployed at the FMB Server

only as back-up. Regulations in the DENR provide and require that such system must be housed and hosted by the DENR which is categorized as safe and secured. The conduct of the UAT is critical procedures performed in order to validate that all the features and functionalities work as per the specifications. Upon successful UAT, the Project Team instead of the Project Steering Committee signs-off on the system development phase and the System is then ready for Field or Pilot Testing. The System was rolled out with its installation in the DENR Central Server. We had a back-up installed at the FMB Server. The EA were initially given and allotted an IP Address by the DENR Central Server and now we already had a Domain Address of **NFSMS**.

During the roll-out, the local administration is heavily involved in all aspect of the trial and testing, making sure that all users are 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.

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.

Identified Assumptions and Risks. The development of the System is judgement call of the FMB as the EA. But it is fully recognized that the main assumptions behind the project are that there will be continued political and financial support for the initiative at all levels of the forest administration and the wood industry though unforeseen technical difficulties are expected to arise in the entire process of developing the System. Hereunder are the major risks of the system

- 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.

The first risk involved key stakeholders that were involved in the consultation process. The stakeholders consulted in the elaboration of new guidelines for forest sector policies, and have somehow expressed agreement with the broad objectives of the project. Part of the project activity was in the execution of the project was done collaboration with these key stakeholders.

In the process of developing the system or during project implementation, recent and available technological solutions available for addressing illegal activities such as timber flow control and product tracking have been briefly reviewed. This will minimize the risk of introducing inappropriate technologies or systems for the country and the industry. Other related elements of risk also include the following possibilities listed below:

(a) That the FMB could recommend and the DENR could decide not to pursue the project for budgetary or political reasons and withdraws its support for the initiative;
(b) That a new timber tracking framework entails additional costs deemed too burdensome by the industry;
(c) That the chosen IT sub-contractor fails to deliver a working solution within the budgetary envelope and timeline set for the project;

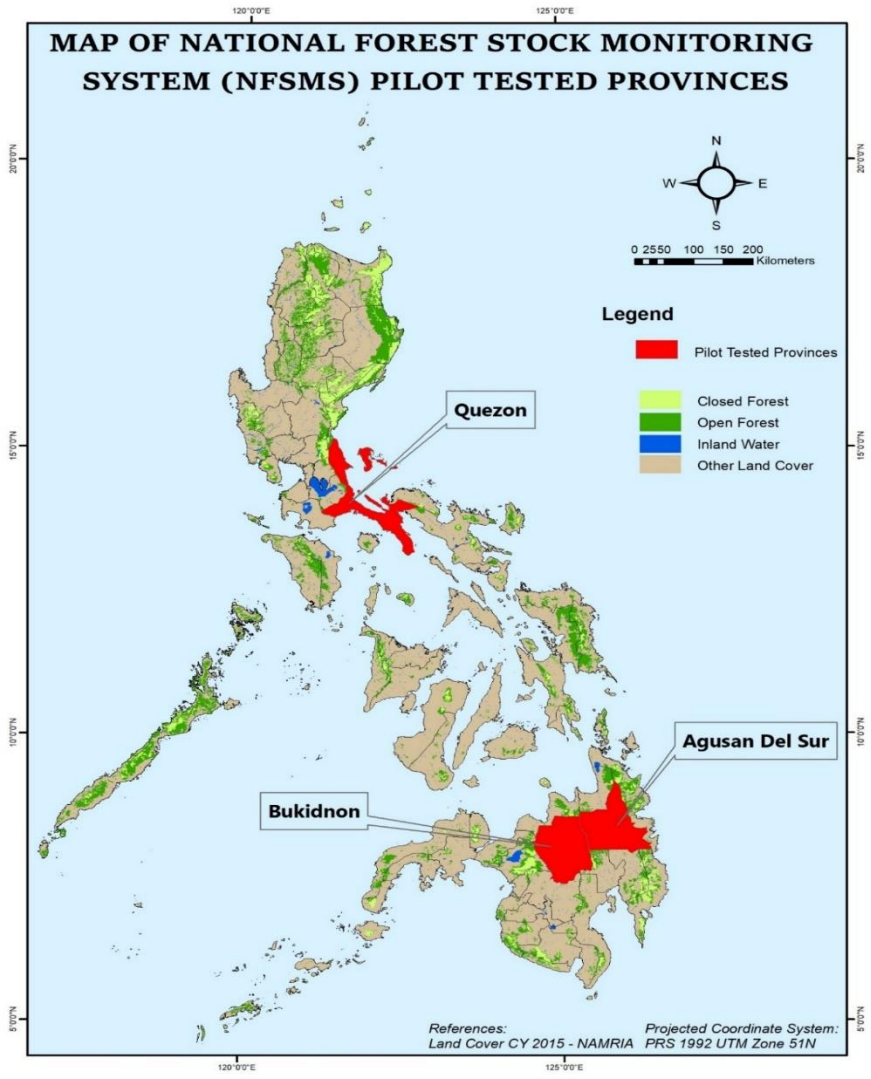
(d) That the various stakeholders cannot agree on a set of Functional and Technical Specifications required for the system modules; and

(e) 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) 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.

All these risks have been hurdled upon completion and after pilot testing the System in three (3) pilot sites instead of just in one area as per approved project document. The passage of new law in forestry such as the proposed *Sustainable Forest Management (SFM) Bill* already pending in the Philippine Congress or any other proposed law to that matter that will replace the Presidential Decree No. 705 will completely complement its national adoption and implementation. The FMB or DENR is well prepared and believed that there is wide support for a range of changes in the forestry sector, including improved Chain of Custody procedures (CoC) management.

As a whole, the System has undergone rigorous testing in three pilot sites resulting in satisfactory as testing. It was successfully demonstrated in Luzon (Quezon Province under DENR Region IV-A) and Southern Philippines in Mindanao (Agusan Del Sur under DENR Region XIII, and Bukidnon Province under DENR Region X, that enable us to trace the origin of logs and lumbers transported to and from the WPP.



Moreover, FMB facilitated the conduct of the DENR Regional Orientation and National Stakeholders Consultation Meeting of NFSMS that was conducted by clusters nationwide; Luzon Cluster A (San Fernando, Pampanga : March 6-8, 2019), Luzon Cluster B (Quezon City : March 28-29, 2019), Visayas Cluster (Cebu City : March 13-15, 2019) and Mindanao Cluster (Davao City : March 20-22, 2019). These were authorized under DENR Special Order No. 2018 dated December 05, 2018 and FMB Memorandum dated January 22, 2019.

Below is the **Table 1** showing some of the Risks of the project and their corresponding impacts and actions taken identified from the start of the project up to UAT process by the System's developer.

Risk ID	Risk Summary	Probability of Occurrence	Impact	Action Plan
1.	Unavailability of UAT tester(s) due to lack of dedicated project technical personnel	Likely	Schedule slippage; incomplete testing & overlapping schedules	Coordinate with FMB project coordinator for regular attendance of UAT team. Inform involved personnel of schedule ahead of time and importance of their participation.
2.	Delay of feed-back/information from external systems which interface with NFSMS i.e. FSTS	Likely	Schedule slippage; incomplete requirements, & testing	PM to manage interactions with contracts from external system to ensure timely and accurate feedback Availability of contact person in DENR as coordinator to Pointwest.
3.	Re-assignment and/or transfer of some project team members	Possible	Unable to complete key deliverables Delayed Project completion	Emphasize the importance of the NFSMS Project. Ensure that Succession Planning is in place to allow for skills to be transferrable
4.	Significant change to the requirements	Almost Certain	Schedule slippage, poor quality & increase cost	Ensure that due diligence is conducted particularly that user requirements are agreed upon before software development start
5.	Volume change requests after testing	Likely	Delay in schedule	Agree on the specifications based on existing DENR rules & regulations. Agree on priorities.
6.	Incomplete user requirements	Likely	Increase in cost. Failure to meet minimum requirements & achieve business benefits. Rework required for the solution after UAT or deployment	Focus on user requirements documentation at the start of the project and secure sign-off from the user
7.	Inadequate training for the users of the new system	Possible	Users unable to use the new system properly	Ensure training staff are involved from the start of the project
8.	Poor quality of data	Unlikely	Users will find the new system difficult to use Failure of user acceptance test	Data clean up that will involve correction and removal of duplicates
9.	Poor business processes	Possible	A system that is based on complicated and badly engineered business processes.	Coordinate with FMB project coordinator for regular attendance of UAT team. Inform involved personnel of schedule ahead of time and importance of their participation

10.	Loss of power or connectivity at deployment, key event or training	Possible	Users will not embrace the product if it failed demos, pilot	PM to manage interactions with contracts from external system to ensure timely and accurate feedback Availability of contact person in DENR as coordinator to Pointwest.
11.	Environment and Infrastructure problems (such as power outage, internet downtime, hardware failure) during UAT or Training	Unlikely	Schedule delays	Emphasize the importance of the NFSMS Project Ensure that Succession Planning is in place to allow for skills to be transferrable

Below is **Table 2** showing the major Technical Issues identified on the entire duration of the project and the periods they were closed or addressed, as observed by the System's developer.

Issue ID	Summary of Issues	Resolution	Date Issue is Closed
1.	Testers performing the UAT are staffs personnel. Lacking of competent Technical staff & their availability, or senior staffs/Technical Working Group (TWG) performing or overseeing the testing. We might be lacking the expert opinion and feedback from them.	Only Project Technical Staff were involved in the UAT. Issue resulted to late feedback and missed requirements are given after field testing. Mitigated risk fast development and minimizing impact of changes.	Jan. 27, 2017
2.	Availability of UAT team or dedicated project staff assigned in the project. An average of only 4 testers are performing UAT. The planned Number of people (approx. 10) and schedule are not being followed.	UAT Team are not always complete or present. UAT before pilot testing took more than three (3) months as planned (July – September, 2016). Testing of unclosed non-critical UAT items and newly coded field-testing observations took another 3 months (November – January, 2017)	Jan. 27, 2017
3.	UAT staffs having issues following the test scripts following the test scripts because of the changes being introduced	Revised approach to user stories	Aug. 30, 2016
4.	Negative scenarios not yet executed (completing the happy path first, but there are introduced changes)	Revised approach to user stories	Aug. 30, 2016
5.	Late feedback and missed requirements are given after field testing	Developed impact analysis and implemented in the system missed requirements together with post finding observations. Change Request was put in place to cover for missed requirements pertaining to additional features	Mar. 24, 2017
6.	Label paper, adhesive, ink supplier not yet sourced out	CAIKONEK Ventures, Inc. contacted supplier	Aug. 17, 2016

7.	Label does not stick to freshly cut lumber	CAIKONEK Ventures, Inc. to assess and source out other labels. Option to contact Forest Products Research & Development Institute (FPRDI) at Los Baños, Laguna.	Apr. 19, 2017
8.	Wastage of labels on every first start-up of printer	CAIKONEK Ventures, Inc. to discuss with printer supplier	Apr. 19, 2017

3. PROJECT PERFORMANCE

The development objective of the project is to improve forest governance, institutional law enforcement capacity, stakeholder coordination and forest sector competitiveness through improved data management.

The long-term indicators are the following: a) the Philippines' National Forest Stock Monitoring System (FSMS) is operational nationwide by 2015; b) the FSMS meets international traceability and VLO requirements (FLEGT, Lacey Act, etc…) by 2014; and c) the FSMS supports a Philippine Timber Certifications Standard by 2015.

a.) Specific Objectives. The specific objective is the 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 with outcome indicators: a) the FSMS meets "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; and c) system is available online to project stakeholders including the ITTO.

b.) Outputs and related Activities. Below is the Table showing the Project Output and Activities and their corresponding result.

OUTPUT & ACTIVITIES	REMARKS
<u>Output 1:</u> 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	***Completed.*** *Traceability and IT sub-contractor selected; current traceability gaps in FSMS analyzed; Survey of supply chain current data entry processes and procedures of supply chain based on DENR regulations; stakeholders meeting; Functional and Technical Specifications" for traceability module elaborated.*
Activity 1.2: Traceability module configuration	***Completed.*** *Development of "online" data entry and file upload interfaces (i.e. input) developed; data validation, post processing and reports; and user guide & system maintenance documentation elaborated.*
Activity 1.3: Traceability module deployment and testing	***Completed.*** *Development of System's software developed; Integration with existing FIS; and testing and acceptance. (Except) During the development and testing of the NFSMS, the FIS is undergoing enhancement.*
Activity 1.4: Field testing of traceability module	***Completed.*** *But End User training rescheduled to 3rd Quarter 2019; Field testing; Workshop on system performance & recommendations; and Planning for national deployment.*

<u>Output 2:</u> Forest Stock Monitoring System (FSMS) module to support Verification of Legal Origin (VLO) developed	
Activity 2.1: "Functional & Technical Specification" of VLO module	***Completed.*** *Current VLO processes including tax declaration analyzed, CTO and CLO; supply chain current data entry processes and procedures surveyed based on DENR regulations; "Functional and Technical Specifications" of VLO module reoriented to legality verification using the ASEAN Criteria for timber Legality.*
Activity 2.2: VLO module configuration	***Completed.*** *"Online" data entry and CTO/CLO file upload interfaces (i.e. input) developed; data validation, post processing and reports developed; and Users guide and system maintenance documentation elaborated to include legality verification using the ASEAN Criteria for timber Legality.*
Activity 2.3: VLO module deployment and testing	***Completed.*** *System software developed; integration with existing FIS; and testing and acceptance.*
Activity 2.4: Field testing of traceability module	***Completed.*** *Except on item on harvesting in Private Tree Plantation Subject to change of DENR guidelines. End users training; Field Testing; Workshop on system performance and recommendations; and Planning for End user training national deployment.*
<u>Output 3</u>: 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 & field module	***Completed.*** *End users training conducted; Field Testing; Workshop on system performance and recommended; and Planning for End user training national deployment.*
Activity 3.2: Field module and FSMS environment configuration	***Completed.*** *Field module data entry interfaces (i.e. input) configured; Field module – FSMS interface & configured, & user guide and system maintenance documentation elaborated.*
Activity 3.3: Field module and FSMS environment deployment and testing	***Completed.*** *System's software developed; integration with existing FIS; & Testing*
Activity 3.4: Field Testing of field data entry and law enforcement module	***Completed.*** *End user training; field testing; workshop on system performance and recommendations; & planning for national deployment. Subject to change pursuant to DENR guidelines on the harvesting in Private Tree Plantation*

c.) Project Starting Date and Duration. The project started in June 2013 with an original duration of eighteen (18) months. It was extended for several occasions. First – June 2015 to July 2016; Second – July 2016 to June 2017; Third - June 2017 to July 2018, and Fourth July 2018 to June 2019

d.) **Total Amount of Expenditures**. *(Annex 1. Project Financial Statement and Annex 2. Project Cash Flow Statemen, to follow ones External Auditor's Report is completed. Currently in progress).*

Initially, the total project fund received from the ITTO is US$414,251.00 *(as shown below)* out of the total of US$497,930.00. Theoretically, we have already used up or spent ITTO funds since, the DENR provided an Emergency Fund in Nov. 2016 that filled the gap of ITTO's Second and Third Tranches that were released only in July 2017 and Dec 2018, respectively. Records in our designated Bank (Land Bank of the Philippines, government bank) will show that there are still fund available from ITTO fund releases.

Fund Source	Releases / Dates	Amount (US$)	Expenditures
ITTO	First / June 2013	$ 171,000.00	$ 171,000.00
	Second / July 2017	$ 163,910.00	$ 163,910.00
	Third / Dec. 2018	$ 79,341.00	$ 79,341.00
Sub-total		$ 414,251.00	$ 414,251.00
Gov't. of the Phil. (**GOP**)/ **DENR**	Orig. GOP Counterpart/Feb. 2014	$ 149,863.00	$ 149,863.00
	Emergency Fund / Nov. 2016	**$ 225,470.00**	$ 207,609.00
Sub-total		$ 375,333.00	

4. PROJECT OUTCOMES AND TARGET BENEFICICARIES INVOLVED

Elaboration on the extent on which the Project Specific Objectives were achieved. The high level development objective of the project based on the approved project document was to "*improve forestry governance, institutional law enforcement capacity, stakeholder coordination and forest sector competitiveness through improved data management*". This is further translated into three (3) more concrete specific objectives to develop and pilot *Forest Stock Monitoring System* (FSMS) modules supporting:

Module 1. Supports 100% "Back to Stump" traceability for wood production;
Module 2. Supports *Verifications of Legal Origin* (VLO) features through automated royalty calculations based on CLO/CTO documentation; and
Module 3. Improved system environment including field data entry capabilities and online, configurable, multitiered access.

The specific objectives of the project have been completed and attained. The system developed is now described as the National Forest Stock Monitoring System (NFSMS) has already been pilot tested in three (3) pilot sites in the country instead of two (2) sites. There were three (3) supply chains involved originating from three (3) different tenure instruments issued by the DENR. These are: *Private Forest development Agreement (PFDA), Private Land Timber Permit (PLTP) and Industrial Forest Management Agreement*. These are the only tenure instrument holders that have operations in their areas at the time of the pilot testing. Sadly, there was holder of a *Community-Based Forest Management Agreement (CBFMA*) in the CARAGA region during the scheduled pilot testing. Thus, the three modules are now working and currently being used for training and capacity building of the DENR field personnel for familiarization. Further training shall be conducted in 2020 through actual hands-on and direct coaching of prospective users.

Enumerated below are some of the general projected benefits of NFSMS:

a.) A system that will help the government to plan, monitor and control the Philippines' timbers in accordance with internationally accepted standards;
b.) Centralized database of forestry inventory of trees, logs and lumbers that can be use by forest managers and the forest industry for proper management of the wood supply chain;
c.) Initial step on automated processing and issuance of Verification of Legal Origin (VLO) Certificate for timber traders as initial step in the part of the government to follow international standards of legal timber trade and for opportunity for traders to market products in the international market;
d.) Computation of forest charges for logs harvested from publicly owned forest lands based on species, volume and origin that could help the government to account and duly collect income from the utilization of timber resources;
e.) Traceability of logs and lumbers from origin or back-to-stump to curb illegal logging; and
f.) Serves as Chain of Custody (CoC) system for the government.

Situation Existing at Project Completion Compared to Pre-project Situation. (OK) The Presidential Decree 705 was enacted in May 1975, (as amended) remains the cornerstone of the Philippine forest policy. The PD 705 is still the basic forestry law of the Philippines until today. While most of the provisions of PD 705 are still relevant and operational, there are already provisions that have been transferred to other sector of the DENR outside of the forestry sector. But, the commercial timber harvesting of timber trees in both public lands or timberlands and private lands, are still well addressed by PD 705 making it relevant. Its original intent of the Philippine "selective logging system" (SLS) in the natural forests remains unchanged. One major radical change was the prohibition of commercial timber harvesting in the virgin forests in the early 1990s or the old-growth forests in mid 1990s. Within the same period, there was already a regulation banning the cutting of trees in the wilderness areas or forests with elevation of 1,000 meters above sea level (ASL). The SLS is actually an early version of the sustainable forest management (SFM) also known as responsible forest management that became the by-word that leads to forest certification. Considered a recent change in the forest policy while ITTO was looking for project funds to sponsor this project in 2011, the Office of the President issued Executive Order No. 23 in February 2011 that bans the cutting of trees in all the natural and residual forests nationwide. Until today, such law remains effective except in areas that privately owned and are covered by land titles.

Described participation of project beneficiaries (stakeholders' involvement). The primary stakeholders of the system will be the holders of tenure instruments issued by the DENR within forest lands or timberlands. These are holders of long-term permits better described as Agreements with a duration of 25 years, pursuant to the provisions of the PD 705 (as amended) and the 1987 Philippine Constitution. Examples of these tenure holders are: *Industrial Forest Management Agreement* (IFMA), *Socialized Industrial Forest Management Agreement* (SIFMA), *Community Based Forest Management Agreement* (CBFMA), etc.

The other short-term permits issued by the DENR are those within private lands or titled properties are called *Special Private Land Timber Permits (SPLTP)* with natural growing premium timber tree species and *Private Land Timber Permits (PLTP)* with ordinary natural growing timber tree species with duration of several months to about a year depending on the allowed volume to be cut.

On the otherhand, other primary stakeholder of the system are holders of wood processing plant permit or WPP permittee with varied duration or validity. These WPP permit holders are currently limited to those processing round or even squared timber into lumber. But, with the Additional Functionalities of NFSMS in the pipeline, other timber products such as veneer, plywood, imported logs and lumber will be eventually covered by the System.

Other stakeholders are those government agencies involved either in handling, movement and trading of wood and wood products are the Department of Trade and Industry (DTI), Export Management Board (EMB), Local Government Units (LGUs), Bureau of Customs (BoC), National Commission on Indigenous Peoples (NCIP), , Philippine law enforcement agencies i.e. Philippine National Police (PNP), National Bureau of Investigations (NBI), National Central Bureau of the Interpol in the Philippines, as law enforcement agencies

As a whole, the majority of the stakeholders from the side of the private sector initially have preservations on the applicability of the system. But after the consultation process, they all became believers of the system that it will work for the advantage for them and hopefully it will eventually cut time of processing forestry documents i.e. stand and stock table, tally sheets, transport certificates, etc. At the same time, they are hopeful that it will result in substantial reduction of transaction costs from

the current transaction cost. Therefore, forest governance will be enhanced and improved with clear transparent procedures, accountability and responsibility fully established and consultation is considered.

While all stakeholders from other government agencies finds the system practicable, acceptable and hopeful that it will finally resolve issues and problems involving illicit movement of timber and timber products. They are positive that this system will make law enforcement for forestry more

Originally, 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, 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 peoples, private sector operators, non-governmental organizations, and the academe. Other stakeholders such as banks and financial institutions were not included in the consultation process of the system. But, we expect financial institutions will come in and find the system workable and feasible with improved business process and documents processing help business sector reduce transaction cost.

Project Sustainability. When the project was conceptualized and submitted to ITTO for funding, it was expected that the DENR will be the primary user of the system and will be the major beneficiary. With the assumption that the System is ready for nationwide adoption after thorough field / pilot testing. We see to it that the System was prepared based on existing forestry laws, guidelines, rules and regulations. Thus, we are quite ready to use the System when completed. The system when used in the country, it was meant to use for the electronic issuance of a transport document called a Certificate of Timber Origin (CTO) or Certificate of Lumber Origin (CLO). In order to be used as System by DENR field offices, it has to be covered by an implementing rules and regulation (IRRs) in the form of DENR Administrative Order (DAO) that must be duly signed by the DENR Secretary. But, there are other considerations that DENR has to decide when adopting the System. First consideration is who will borne the cost of the RFID nailtags.

Furthermore, with the infusion of Emergency Fund (about US$225,470.00) from the DENR Central Office in November 2017, was a guarantor that the DENR really mean business in pursuing the completion of the Project even with the suspension of release of Project Fund (Second & Third Tranches). This also showed that the DENR has the full intention to sustain the project through nationwide adoption of the NFSMS.

On the other hand, we have no prior arrangement with our stakeholders. Actually, our major stakeholders of the system are holders of DENR tenure instruments or holders of long-term agreement. Such arrangement with stakeholders are actually not needed since these tenure holders or the entire wood industry must eventually comply when country's forestry rules and regulations.

The system or NFSS shall be the backbone of the Philippines' timber legality assurance system or (TLAS) whose criteria is anchored on the six (6) ASEAN Criteria for Timber Legality with equal number of indicators. The project's second Output which is a VLO system shall addressed the timber legality assurance requirements of the country. In ASEAN region, ASEAN member states (AMS) are responsible of developing their own legality assurance system both at the second (by the government) or the third levels (third party or non-government). The 6 ASEAN Criteria for Timber Legality has been approved in ASEAN in 2008 and remains unchanged though it is slated for review AMS.

5. ASSESSMENT AND ANALYSIS

Project Rationale and Identification Process. The Philippines' Forest Management Bureau (FMB) together with the International Tropical Timber Organization (ITTO), has progressively implemented a centralized FIS to assist with national management of forest inventory and production. Another system, the Forest Stock Monitoring System (FSMS) module covers activities ranging from pre-harvest inventory and log marking to felling, bucking and transport to primary wood processing plant and residual inventory. These six (6) modules dealt essentially with forest management agreements registration for various tenurial instruments.

The current configuration of the FSMS however presents "gaps" that need to be addressed in order to ensure that the **system fulfils 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. The completed System has addressed this gap for logs and lumber. Thus, in terms of stakeholder identification, this was also addressed in the newly developed system. But stakeholders' participation in the System was limited when the same was already completed and ready for field or pilot- testing. Their perception and reception of the System is positive such that they are willing to subscribed to it as long as the long the costs are not passed on them or at least the cost is minimal with minimal effect on production cost. The specific stakeholder i.e. the wood processing plants or sawmills are worried more on the down-time in the process of breaking logs into lumber mixing of unmarked logs will be accepted by the allowed. The System will only allow the processing of marked logs and must be covered by a system generated Certificate of Log Origin. So, far this is minor concern of sawmills.

The Problem Addressment, Project Design and Implementation Strategy. The Philippines tried its best to sustainably redevelop its forestry sector starting from selective logging system for the country's natural forests from the mid 60's up to the mid-80s. Fortunately this did not worked or responded well with the country's forest management practices. The increasing demand for wood-based products in the local and international markets simply dictate the demand for more log or timber in raw form for export. Thus, the need to put in place stronger monitoring as well 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 Northern Sierra Madre Mountain Range, 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 the old aspiration of simple forest conservation and now the Sustainable Forest Management (SFM). These typical scenarios involve and identified in the project document listed below will be addressed by NFSMS at least for logs and lumber products:

Described below were concrete actions and efforts in the form of forestry regulations to streamline forest management in the country. This includes the development and implementation of DAO No. 1996-04, (dated February 13, 1996), adopted the use of a Log Control Monitoring System (LCMS) as a means to systematically track logs and timber flows from source or cutting area up to the wood processor. This was supplemented by DMO No. 1996-06 (February 28, 1996) which 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. This was followed by another guidelines (DMO No. 1996-08, March 22, 1996), which mandated the full Implementation of the LCMS in Region XIII (Caraga Region).

The LCMS in 1996 developed on Dbase IV computer program developed was inflexible and complicated to use, especially in the field. provided very limited tracking of transport and shipping documents for timber, lumber, and lumber products, and the bespoke

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) remains practically and 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 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".

Critical Difference and Time and Project Inputs. The most critical factor that totally affected the implementation of the project based on the approved project document was the selection a Service Provider through international bidding process. We did anticipate that this process will be our first cause of delay. It is also disappointing to note that the supposed winner of the international bidding process could not fully comply with the requirement of Philippine laws and regulations, specifically the Securities and Exchange Commission (SEC). The time lost in complying with the requirement was critical for the EA. Thus, the critical difference between the planned and actual project implementation was completely changed from a planned of just a few months, it has turned into almost two years or twenty-four months. Thus, the EA sought permission and eventually authorized to pursue a negotiated bidding for a local Service Provider. This likewise resulted the EA to seek several extensions from the ITTO as the funding agency.

The administrative procedures and formalizing the agreement also took a toll in the implementation of the project. The project was approved in 2011 at the 47th ITTC Meeting, but the project agreement was signed one-year later in October 2012. With on-going preparatory works, the first project fund release by ITTO was in June 2013 which was six months after agreement signing.

Then comes Calendar Year 2015, there was an on-going government rationalization or similar to a reorganization whereas the entire government bureaucracy is affected. All office and field personnel are trying their best get promoted. Hence, field operations were somehow affected that included our project. This was also critical for the EA since very little is achieved for the said period.

The selection process for a Service Provider through negotiation took another turn when the EA was reminded to craft a new set of criteria. The entire process including contracting e Service Provider took almost eight months which eat up again project time.

Finally, when the project was ready for pilot testing, we could not fly to Mindanao where our pilot site was located based on approved project document because we have very little fund left from the first release. This was the time when ITTO decided to suspended the release of project fund (Second and Third Tranches) due to an internal problem within ITTO. Hence, the EA was push to pilot test the system in Southern Luzon in the Province of Quezon. This was our back-up plan just in case the ITTO unceremoniously decided to totally withheld all our project fund. The EA was in very difficult situation because we had a valid and existing contract with a local Service Provider to develop the System. That was when we decide to seek help from the DENR Central Office for Emergency Fund. This was not part of our counterpart fund or GOP fund (Government of the Philippines). This was last ditch effort to save and complete the project even with uncertainty of fund to be release to the EA by the ITTO. Thus, these events were critical for the EA in the completion of the project.

Altogether, unforseen circumstances, bureaucratic processes, time and project inputs have contributed in the implementation of the project on a regrettably a very delayed project implementation. This did not dampen our spirit to finish the project.

External Influences. There are assumptions and risks in the development of this project. Even before the implementation of the project, such assumptions and risks are already present. There is also a risk from within DENR that may not recommend for its adoption due to funding requirement or simply cost, logistics, etc etc. Possibilities of the risk based on the approved project document is listed below.

- 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.

Therefore, the EA has not yet discounted the possibility that stakeholders will reject the system.

But after the National Stakeholders Consultation Meeting in the first quarter of Calendar Year 2019, all other government agencies (OGAs) who participated in the consultation process found the System useful and could enhanced and assist law enforcement works. They have positive feedback on the System such that, OGAs will also benefit from the system. On one hand, other stakeholders such holders of tenure instruments issued by the DENR likewise find the System acceptable and they are willing to follow the system for certain conditions as long as the cost will not be passed on to them.

Project Beneficiaries. The primary beneficiary of the project will be the Philippines's DENR. The DENR Head Office will host the Server pf the System. Then, the DENR Field Offices comprising sixteen (16) Regional Offices, seventy-seven (77) provincial offices and one hundred sixty (160) community offices *(2019, after DENR Rationalization in 2015)*. All tenure holders or recipients of long-term agreement or contracts of 25 years e.g. wood processing plants or sawmill will certainly benefit in using the system. For emphasis, DENR field offices are considered frontline service providers of the DENR since the DENR is mandated by law to manage and develop the country's forest resources. The DENR's field offices in terms of field operations will be improved by increasing its efficiency and effectivity with the transfer from a purely paper-based office transactions to an electronic and majority paperless transactions from permit to transport certificates issuances. This will also enhance the capability of the DENR law enforcement and monitoring activities. This will ultimately improve forest governance, practiced transparency and accountability and with well-established office procedures.

Project Sustainability. The DENR intends to adopt the newly developed System as project sustainability. The system or NFSMS shall be the backbone of the Philippines' timber legality assurance system or (TLAS) whose criteria is anchored on the six (6) ASEAN Criteria for Timber Legality with equal number of indicators. The project's second Output which is a VLO system shall addressed the timber legality assurance requirements of the country. In the ASEAN region, ASEAN member states (AMS) are responsible of developing their own legality assurance system both at the second level (by the government) or the third level (third party or non-government). The six (6) ASEAN Criteria for Timber Legality has been approved in ASEAN in 2008 and remains unchanged though it is slated for review AMS.

As proof of intent to adopt the system developed by the project, the EA is currently conducting a nationwide capacity building or training of DENR field personnel from August-November 2019 by clustering the DENR regional offices. This is authorized by virtue of DENR Special Order NO. 2019-

498 dated July 22, 2019 and FMB Special Order No. 2019-319 dated August 15, 2019. The EA is also drafting a new implementing rules regulations (IRRs). This IRRs will be in the form of an DENR Administrative Order to be signed by the DENR secretary which we hoped to finished by the end of Calendar year (CY) 2019. In addition, by the start of the Second Quarter of CY 2020, we planned to undertake a much more direct training through tutoring of DENR field personnel at the PENROs (provincial offices) and CENROs (community offices) levels. This will take about three (3) months to complete the training for the sixteen (16) regional offices of the DENR nationwide. Finally, another proof on the sustainability of the project after its completion, the DENR has already earmark last Calendar Year 2018 substantial funds for all DENR field offices to procure scientific forestry equipment that are necessary in operationalizing NFSMS. These sets of equipment are now being used in capacity building and training session for DENR field personnel.

Therefore, while the country is in the process of moving towards forest certification, the legality assurance system that will be catered by the NFSMS, will be our mechanism to support our wood industry that the trading timber and wood products nationwide are indeed legally-sourced or legally-harvested. There is

Institutions Involved in Project Implementation. The implementation of this project is in compliant with the objectives of the ITTA (2006), to promote the expansion and diversification in international trade of tropical timber originating from sustainably and legally managed forest operations. The EA was able different government agencies in four (4) national stakeholder consultations conducted nationwide, both representing the national governments and regional offices. These are the following: Department of Trade and Industry (DTI); Department of Interior and Local Governments (DILG); Bureau of Customs (BoC); Philippine National Police (PNP); Philippine Center for Transnational Crime (PCTC); and the Local Government Units (LGUs) in some provinces and municipalities.

The government institutions fully appreciate on the advantages of the Systems if adopted by DENR. They are even thankful what the DENR is doing using systems to improve our efficiency and effectiveness in law enforcement. The PNP, PCTC, and BoC were thankful to the DENR such that if this system becomes operational, their task on law enforcement will be made easier.

The DENR and DTI hoped that improved timber trade data of lumber exports as well as log imports. Finally, DENR's forest law enforcement and governance will improve, and eventually address illegal logging. The EA is now contemplating The System will promote limited access to the System by all stakeholders who are into wood production. They will be given accounts to be issued and controlled by the DENR.

6. LESSONS LEARNED

Project Identification, Design and Implementation. The use of a Tree Problem Analysis is the first step towards validating the existence of a problem. This is a well-recognized tool by international funding agencies including inter-governmental organizations in project preparation because this tool truly identify and analyzing a problem through what is described as cause-and-effect approach. It allows one come up with the major problem out of the many problems initially identified. After the problem analysis, another tool can be derived which is the objective analysis using or generating using exactly the same problem data and re-instating their problem statement into objective statement.

Attaining specific project objectives is a result of close coordination with the Service Provider. But achieving the development objective to improve forest governance can be measured only after its adoption and several year years of implementation.

It is a common knowledge that different stakeholders have varied interests. Hence, involving them from the very start of the project implementation will tend to inculcate a sense of ownership to the system. On one hand, other government agencies tend to look at the system as a tool that will improve their respective mandates and how to complement each other being public entities or organizations.

The home country of the EA has its own internal rules and regulations in looking for international bidders that some time does not match with the expectation of international funding agencies for a quick and fast public bidding process. Obviously, such internal rules cannot be set aside or ignored since project implementors may face sanctions or even criminal proceedings if internal rules are not followed. This is where lost time, people and resources occurs and affect the project duration. When project duration is affected, all other activities of the project are also affected.

Project sustainability is an issue if and when EA is not sure of using or adopting it on a national scale. But, if the EA anticipates its applicability and intended use in the future, there shall be no issue at all in sustainability. Sustainability of the project must be the primary consideration when the project was still at its inception stage or project formulation.

Operational Matters. Our project organization and management skills were not that good as shown by our slow start and lack of complete grasp on what the project was all about. It was our biggest challenge in implementing the project of which we were supposed to be knowledgeable of. The conduct of internal UAT from among our project staff was one of the biggest challenge wherein not all project technical personnel were always present nor willing to sit in the UAT. But we finally finish UAT after so much push from our Service Provider. Below is Table showing the lessons learned from the Service Providers perspective for reference purposese.

Flow of fund from the funding agency i.e. the ITTO was very big issue because of our standing commitment to a Service Provider. But, when the EA was able to obtain an Emergency Fund from the DENR Central Office, this offers a quick fix and the rest is just normal.

Roles and responsibilities of different institutions differ. But being in the same boat as that of being government institutions, public interest and public service will prevail.

We have no issue regarding project documentation since these standard practice and requirements in order to monitor the progress implementation. The same is with project monitoring and evaluation which differs only on the frequency or number they are carried out.

Finally, for external factors such as having out own timber legality assurance system gave us a final push and the was defining moment towards the completion of the project. Though we had faced the problem of not having a project fund if the suspension of the fund releases did become a reality, we became more resourceful and diligent in looking for other sources of fund to finish the project. It was an inspiring moment for us because we were able to complete the project even way beyond the target period originally project duration of 18 months to almost 42 plus months. We finish the race even it was already night time but we value the journey in completing the project.

Below is a **Table 3**, a matrix showing summary and brief descriptions, Outcome and Impact of every Lesson Learned on the eyes of the System's developer or Sub-Contractor, considered from the start of the project until the closure.

Lesson Learned	Situation Description	Outcome	Impact
1. List of the additional changes should be documented together with the impact analysis on additional time needed. -Decision-maker at the customer side should be aware of these changes and be able to decide and accept the impact (additional cost/ schedule slippage) -Team members should be prepared on the changes by constant communication. Good team relationship should be established for faster task completion.	Requirements & features changes even after design	Coding and testing of the new changes, impact and regression test took additional time in the project	Schedule slippage
2. Identify and deliver early major components of the system	Users are able to test and have hands on experience in using the system	User has definite idea of how the system works and how it meets or not their envisioned requirements	Users are able to provide early feedback which give the team time to adjust accordingly
3. Building/PEZA authorization on equipment to bring outside (for pilot testing) should be prepared	Building authorization to bring equipment outside was forgotten to be prepared	Office management/ purchasing manager needs to be contacted very early in the morning to settle the issue with the building administrator	Unnecessary stress resulted and a possibility of not getting the equipment out of the building on time
4. If customer requires User Acceptance Testing scripts, the scripts should not be technical in nature, that is like system's test scripts but should be business-friendly. Advice customer to have their own test scripts early on if possible	Happy path and negative scenario scripts used in internal systems and integration tests were provided to the customers as UAT scripts	UAT personnel are just performing like internal testers and are having difficulty cycling all the scripts	UAT just replicates the test that are done by internal testers and is not in "layman" terms that can be easily understood by customers. Difficulty of repeating the test if changes are incorporated to the previously working functionalities.
5. Customer should have the will, commitment and influence within the customer's organization to bring the project to closure	Customer's project owner and decision maker works actively with the team	In spite of some challenges with the requirements and availability of UAT team, project is able to complete and closed	Be able to put on major features wanted by customer and close the project.
6. Create documents as needed by stakeholders at just the right time. Document stable things at high-level	Difficulty of keeping	Wasted documentation	More time spent on documentation by the team

especially if the contained information is sufficient at the time the document is needed, e.g. System Architecture, System Overview, etc. Detailed program specifications might not be documented while codes are still unstable. If possible, requirements specification should also serve as customer acceptance test.	documentations up to date	effort or rework as the system evolves	

6. CONCLUSION AND RECOMMENDATIONS

The conclusion and recommendation on the completion of the project have value to the DENR as the regulatory agency responsible for the management development of the Philippines' forest resources and ensures that such resources such as timber and associated timber products are legally har vested and hopefully sustainable managed.

It is concluded that the project **identification** and **design** were not completed due policy changes before and during the implementation. One major policy change was the issuance in February 2011 of Executive Order No. 23 which prohibits the harvesting or cutting of trees in the natural residual forests. This same law is still valid until this Calendar Year 2019. In terms of design, the NFSMS has a module supposed could perform automatic collection of taxes or levies in the form of forest charge. The Philippines does not have yet an automatic or electronic issuance of Official Receipts which is the only of proof of payment of taxes. But, we made it more responsive by diverting the module into a CVLO certificate whereby, all timber and lumber production when subjected into the system could eventually be covered by NFSMS issued certification that the same forest products. Thus, flexibility plays a key role to complete the project.

As a whole, the NFSMS was successfully pilot tested and had demonstrated to be feasible which can be used to trace wood products – currently logs and lumbers, by going back to their origin. The system can be use as Chain of Custody system with traceability feature. While the Verification of Legal Origin (VLO) has been integrated to ensure that shipment of timber and lumber that were subjected to the System can be ultimate issued with a certificate called VLO Certificate certifying that such shipment of timber or lumber are legally sourced harvested or from verifiable sources.

Moreover, the System is an online and available over the web, we though that it will be critical to have reliable and stable internet connection that must always be present at all the DENR Field Offices nationwide i.e. the DENR Central Office, Forest Management Bureau, Regional Offices, Provincial and Community Offices, which will not be at the control of the DENR, since this is Service Provider dependent.

On the **implementation** side by the FMB, it is concluded that project implementation is ensured if the executing which is the FMB has fully complied with the requirements of the project as conceptualized and approved. Thus, implementation the project requires competent and dedicated technical personnel that will lead in the implementation of the project. We were finally able to complete the project even over several extensions from months eventually into years.

On the **organization and management** aspects, the FMB as the EA diligently sought assistance from the DENR Central Office by requesting supplemental and emergency fund to continue funding the development of the System when the project funding support was suspended by ITTO became uncertain. The DENR Central Office quickly responded seeing our commitment to complete the project.

And the DENR also saw the importance of the project that will be opt for adoption when completed as the national timber tracking system for the Philippines.

The completion of the project boosted the confidence to present this system to the top management of the Department and eventually prepare for its adoption on the national scale to ensure that timber and other timber products are indeed legally sourced and/or legally harvested/cut, transported, processed and marketed. At this time, the required tax on harvested natural grown trees in every tree cut in the form of forest charges are exactly, accurately collected and recorded,

Thus, forest governance will be enhanced and practiced when the System becomes operational. All transaction in the System will be transparent, accountability of forest officers is fully established, procedures are well documented, recorded and known. This enhances responsible forest officers in the use and adoption of the System. Finally, the movement of timber and lumber products can be closely monitored. This will require capacitating DENR personnel who will use the system.

The system is considered a stand-alone System that could satisfy the requirement for legality of timber and lumber using the six (6) ASEAN Criteria for Timber Legality developed by the government and likewise implemented by the government as a second level of verification. The system has feature for check and balances to ensure the ASEAN timber legality criteria is strictly observed, fully checked and carefully verified but logs and lumber as per approved project document

The next step for the system is to improved its use and coverage by adding several features or functionalities that will include other timber associated products e.g. plywood, veneer, pulpwood, imported logs and imported lumber. The EA also wants to increase the System's coverage and effective use as a reliable tracking system for timber and lumber products. We do not see any reason for the to replicate the NFSMS. But we see the need to for scaling up of the system don n

There is need for an improved internet performance, internet speed and availability nationwide so that DENR field offices can be reached anytime, anywhere and on real time. The NFSMS as a web-based system requires stable and usable internet connection that could speed office transactions, increase efficiency and more effective in forest law enforcement.

Responsible for the Report:

Name : Raul M. Briz Position held : Supervising Forest Management Specialist
Assistant Project Coordinator
ITTO Project PD 599/11 rev.1 M

Date :

ANNEX 1. PROJECT FINANCIAL STATEMENT

(filled-out table of the Project Financial Statement to follow when External Audit is completed)

ANNEX 2. PROJECT CASH FLOW STATEMENT

(filled-out table of the Project Cash Flow Statement to follow when External Audit is completed)

ANNEX 3: SCREENSHOTS OF NFSMS PROCESSESS

(we thought these screen shots of the system are relevant, hence we decided to add them here in the Project Completion Report)

ANNEX 1: PROJECT FINANCIAL STATEMENT

STATEMENT OF ACTIVITIES

From (insert date)

PROJECT FINANCIAL STATEMENT (in US Dollar)

Project No. PD 599/11 Rev (M) Period ending on: _____

Project Title: Development and Testing of National Forest Stock Monitoring System (FSMS) with Improved Governance Capabilities at All Levels of the Forest Administration

Component	Original approved budget	Modified budget (A)	Expenditures To-date			
			Accrued (B)	Expended (C)	Total (D) {B+C}	Available Funds (E) {A-D}
I. Funds Managed by Executing Agency						
Project Personnel						
Sub-contracts						
Duty Travel						
Capital Items						
Consumable Items						
Miscellaneous						
National Management Cost						
II. Fund Retained by ITTO						
Project Monitoring and administration						
Total project monitoring and administration						

ANNEX 2: PROJECT CASH FLOW STATEMENT

~~PROJECT CASH FLOW STATEMENT~~

From (insert date)

Project No. : PD 599/11 Rev (M) Period ending on: _____

Project Title: Development and Testing of National Forest Stock Monitoring System (FSMS) with Improved Governance Capabilities at All Levels of the Forest Administration

Component			Reference	Date	Amount	
					In US$	Local Currency (in Php)
A.	Funds received from ITTO:					
	1.	First installment				
	2.	Second installment				
	3.					
	4.					
		Interest earned				
		Bank charges				
Total Funds Received						
B.	Expenditures by Executing Agency:					
	Project Personnel					
		Component Total:				
	Sub-contracts					
		Component Total:				
	Duty Travel					
		Component Total:				
	Capital Items					
		Component Total:				
	Consumable Items					
		Component Total:				
	Miscellaneous					
		Component Total:				
		Total Expenditures To-date:				
		Remaining Balance of Funds (A-B)				
		Remaining in Bank				