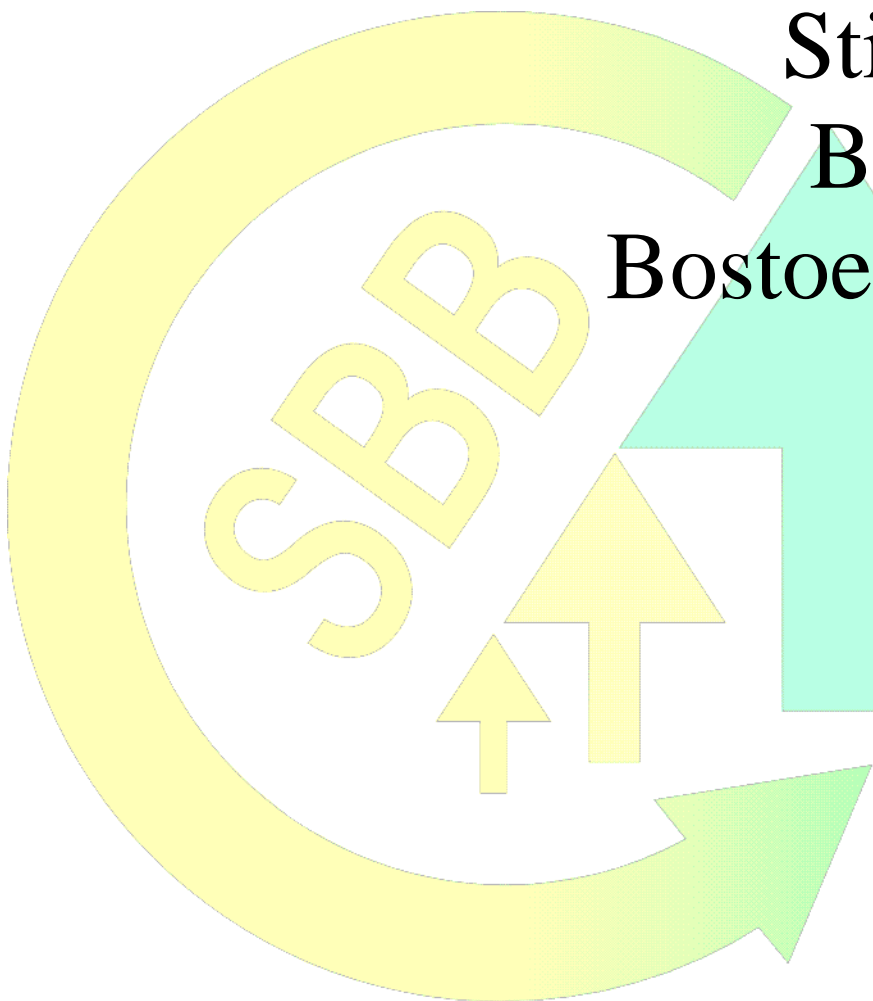# LogPro

Log Production
Management Information System

Stichting voor Bosbeheer en Bostoezicht (SBB)

Foundation
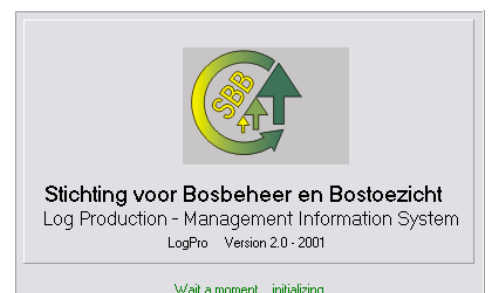for Forest Management
and Production Control

Suriname
2010

Introduction

By changing the Forest Law in 1991 the Surinamese government has irreversibly initiated a process to assure sustainable exploitation of the Surinamese forest. In 1998 the Foundation for Forest Management and Production Control (SBB – Stichting voor Bosbeheer en Bostoezicht) has been established as part of a FAO project financed by the Dutch government. The first goal was to bring both the export and domestic producers under control and to ensure that in the future forest production comes from sustainably managed sources. At a very early stage forestry experts involved in SBB put down clearly that the SBB replacing the archaic Forest Service (LBB) should be a modern institute using up-to-date information and communication technology to reach its targets.

So, to ensure fast action in case of noncompliance with the forest regulations and the production plans an automated system has been set up to support the collection of data in the field, to enable fast processing and to cross-check log data in a efficient and effective manner. The Log Production Management Information System (LogPro) was born and after 8 years proven the best investment that SBB could have made in its strive to bring the Surinamese forest production under control. LogPro was initially developed as a client-server database system but gradually has become a fully integrated system linked to the Geographical Information System (GIS) of Production Areas and Forest Classification.

This document contains a short description of the so-called Log Production Control Management Information System (LogPro-MIS) and how it is linked to the forest management and production control activities of SBB.

Log Production Control

As all organizational processes the Forest Management and Production Control process has inputs, processing of these inputs and other data and a targeted output. As inputs can be recognized the Forest Law and other regulations, long term and yearly Policy Plans of SBB and off course financial and human resources. Processing of data with these inputs requires a set of procedures and operational guidelines. The targeted goal of the Forest Management and Production Control process is regulated and sustainable forest uses with an important sub-goal is collected retribution and other management fees.

The Production activities as undertaken by the Log Producers can be sub-divided in the following categories:
- Application for obtaining Production Areas;
- Planning of Log Production;
- Harvesting of Trees;
- Transport of Logs;
- Storage of Logs;
- Cross-cutting of Logs;
- Log Processing at a Sawmill;
- Export of Logs and processes Logs.

To ensure sustainable forest production, SBB supervises the activities of the producers and checks non-compliances with the Forest Law.

According to the Forest Law of 1991 forest producers are obligated to submit to SBB data for each production activities:

- Application for Production Areas: A business plan of the planned forest production activities has to be submitted to SBB with an overall budget of investments with a company profile and … the Chamber of Commerce.
- Planning of Log Production: The sub-mission of a Harvesting Plan for the production area is required. An important part of this plan is the 100% inventory of the Cutting Compartment in the first year and a detailed layout of skidder roads and major roads of the whole area.
- Harvesting of Trees: The Cutting Register is required. Cutting registers contain label numbers, tree specie and measurements of each log. Based on the measurement of the logs and the tree specie retribution is paid. According to the Forest Law logs can not be transported out of the production area or processed as long as the retribution has not been paid.
- Transport of Logs: For every transport of logs and other forest products a waybill is required. A copy of the waybill is submitted a road check points of SBB or at the Head Office of SBB. Transporters have to register transport vehicles (trucks, boats etc.) at the SBB.
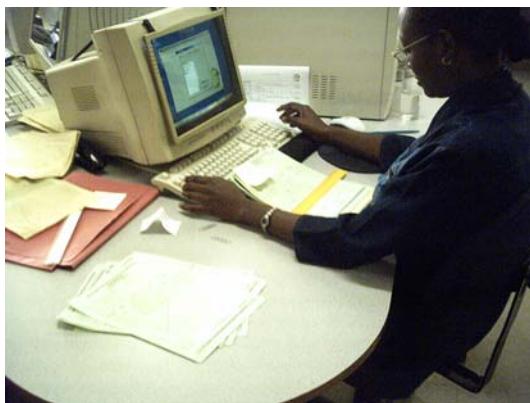
- Storage of Logs: Logs can be stored at landings, the premises of a sawmill or just along the road. Copies of Cutting registers and/or waybills had to be submitted in case of random checks of mobile forest guards.

- Cross-cutting of Logs: For cross-cutting of logs Control Forms containing data of parent and child logs has to be submitted. Labels of the parent logs are discarded and have to be submitted to SBB.
- Log Processing at a Sawmill: Sawmillers have to submit the label numbers of logs that are being processed on so-called Log Processing Forms. Before doing any log processing sawmillers have to register the Sawmill (Mark, type, production capacity etc.) at the SBB.
- Export of Logs and processes Logs: Every export of either logs of processed logs (e.g. wood) has to be approved by the SBB. Export forms has to be submitted after logs are x

SBB checks the submitted data and approves the activities and does field checks if necessary. To control these production activities SBB undertakes Forest Management and Production Control actions (sub-systems) as illustrated in the Figure:

The central part of LogPro is the Forms Processing procedures. Several Forms (e.g. Cutting Registers, Waybills, Cross Cutting Forms, Checkers Lists and Export Forms) that are collected in the field and submitted at the Head Office of SBB are processed into LogPro according to these procedures.

Each form is entered twice into the Management Information System by two independent Data Processors. The Data Manager then checks the entered data. The LogPro system checks automatically if there are differences in the data entered and highlights these errors. If necessary LogPro produces additional reports per form containing logs that did not comply with the historical data in the LogPro database (e.g. Tree specie, measurements etc.). After approval of the Data Manager the entered forms are processed into LogPro.

The processing of the forms takes place according to the next conceptual model: LogPro contains a database of logs that are not paid, that after the payment of retribution is saved to the database of paid logs. During processing of forms the system automatically checks if there are paid and/or unpaid logs.

After processing of forms producers are able to pay at the SBB Cashier. Retribution can then be paid as requested: per form, all logs produced in a certain period, all logs produced on a certain production area, logs of a certain tree specie etc.

LogPro Modules

LogPro User Interfaces

The user interfaces of LogPro are modular: every user interface is included in a Dynamic Link Library (DLL) and can be executed from every application that uses a macro language such as Visual Basic. This has several advantages:
- Changes in functionality can easily be adapted while the clients runs on the 'old' user interfaces;
- New user interfaces can be in development while that part that has already been implemented can run independently. This has as consequences that parts of the organization can already use automated sub-systems while the other part is still functioning 'manually.
- The user interfaces can be 'called' or opened from any application using Visual Basic as a macro language, such as the Microsoft Office applications (Word, Excel, etc.) and Esri ArcGis.

The integration of LogPro with other application has been very easy. While the SBB organization develops on a higher level, integrating LogPro with for example the ArcGIS is just a matter of defining the right macro's.

In principle LogPro the user interfaces can be divided into 4 modules:
1. Production Planning modules (ProdPlan).
2. Production Control module (ProdCon).
3. Financial module.
4. Systems Management module.

Production Planning modules (ProdPlan)

The LogPro module Prodplan contains the following user interfaces:
1. Contacts: for registration of contacts of each registered companies. A contact can be related to more companies.
2. Companies: to register companies into the SBB company register. Companies that want to participate in Forest Production has to register at SBB first according to the Surinamese Forest Law.
3. Production Area: To register the data of each production area.
4. Licenses: for registration of each issued license on a production area. The history of licenses on a production area is saved in LogPro. The production on a certain production area is registered on a license.
5. Means of transport: for registration of transport vehicles such as boats and trucks.
6. 100% inventory: to register the 100% inventory as part of the Annual Harvesting Plan.
7. Export licenses: to register export licenses that are issued by the Ministry of Commerce and Industries.

The Production Area interface can be linked to ArcGis and data of Production Area and issued licenses on chosen Production Areas can easily accessed from ArcGis with one press on the button.

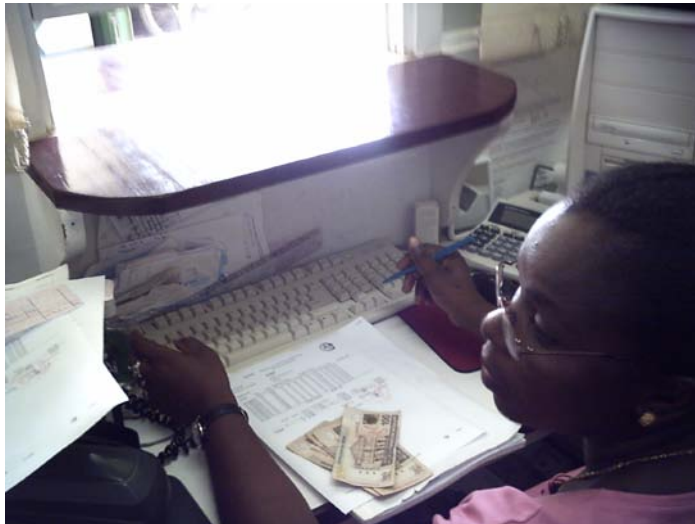## Production Control module (ProdCon).

The Production Control Module contains the following user interfaces:
1. Cutting Registers: for processing cutting registers into LogPro. There are separate interfaces for Data Processors and Data Managers.
2. Waybills: for processing waybills with separate interfaces for Data Processors and Data Managers.
3. Cross-cutting Forms: for processing cross-cutting forms by Data Processors and Data Managers.
4. Sawmill Inpection Forms: for processing Sawmill Inpection Forms by Data Processors and Data Managers.
5. Quality Inspection and certification: for processing of Quality Inspection forms for export of logs ("keuringslijsten") by Data Processors and Data Managers.
6. Export forms: for processing of export forms by Data Processors and Data Managers.
7. Processed Logs Lists: for processing lists of Sawmill processed Logs.
8. Checkers lists: for processing of checkerslist during the export of logs.
9. Seizure of logs: for processing of the Seizure of logs by Data Processors and Data Managers.
10. 100% Inventory Lists: for processing of 100% Inventory Lists by Data Processors and Data Managers.
11. Export licenses: for registration of export per registered export license. Per license more than one exports are possible.
12. Forms management: for the registration of forms that are submitted at Forest Guards. This interface is used by Forest Guards (collect the forms), Supervisors (check the forms) and Data Managers (process and archive the forms).

Financial module.

The Financial Module contains the following user interfaces:
1. Log Retribution: for the collection of retribution by the Cashier.
2. Sale of labels: for registration of sold labels to log producers.
3. Quality Inspection Fees: for registration of Quality Inspection fees paid by exporters.
4. Transaction Fees: for registration of Transaction Fees that are paid by producers after the seizure of logs in case of non-compliances with the Forest Law.
5. Control of debtors ledger: a modules to present retribution debts of producers and print payment reminders.

Systems Management module

The Systems Management module contains the user interfaces to maintain so-called systems tables such as tree species, soil types, topography, forest guards, types of forms, banks etc. There are also interfaces that are used to perform certain tasks as systems managers:

1. Label management: for registration of printed labels. Labels can not be sold or entered into the system if printed labels are not registered into LogPro.
2. Archive: for registration of archived forms into numbered boxes.
3. Reset forms: In case of special cases resetting of processed forms is needed.
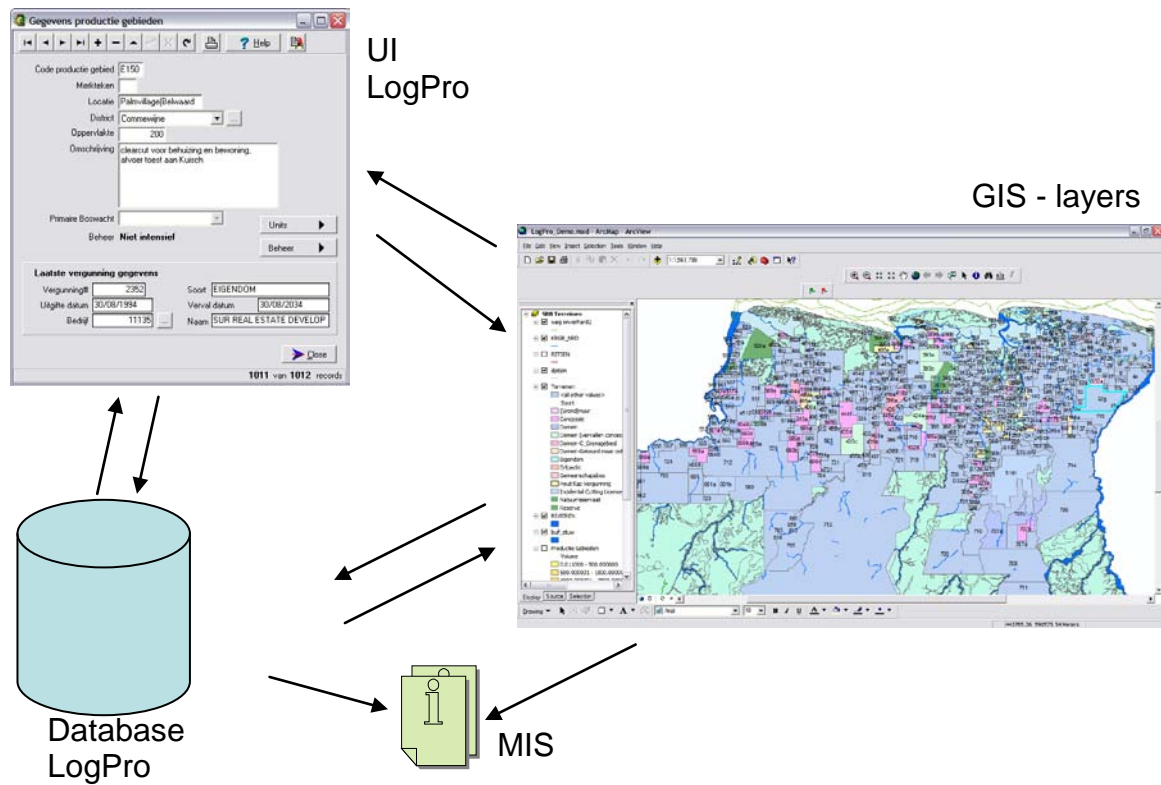
LogPro MIS

The LogPro system generates general Statistics and Management Information Reports. General statistics concerns statistics on Log producers and exporters, issued production licenses, issued export licenses, area under production, produced logs grouped to tree specie - production area - producer, blocked logs, processed logs.

The LogPro system generates several Management Information Reports:

1. Log Tracking: the tracking of log labels and log data related to the label.
2. Forms tracking: the tracking status of forms.
3. Processed forms related to forms submitted to SBB.
4. Received retribution over a period.
5. Received transaction fees over a period.
6. Overview of receivable retribution per producer.

LogPro GIS

As described, the LogPro is a client-server application with Microsoft SQL Server as back-end and the User Interfaces of LogPro in Dynamic Link Libraries developed in Delphi/Codegear development environment. Linking LogPro to a GIS such as ESRI ArcGis is very easy and is implemented. Geagraphical Information are produced such as geographical distribution of production and geographical locations of areas under production.

UI
LogPro

GIS - layers

Database
LogPro

MIS

Future Developments

Future developments are planned to distribute production statistics and other information via the World Wide Web. Also the processing of data will be made easy by having the several forms submitted by producers digitally.