



PROJECT COMPLETION REPORT

(February 2008 to September 2009)

Project Title: Improving the detection and prevention of illegal logging and illegality in shipment and trade of wood products in Guyana

Project Number: PD 440/07 (M,I)

Required Submission Date: 17th December, 2009

A. Project Identification

Title:	Improving the detection and prevention of illegal logging and illegality in shipment and trade of wood products in Guyana
Serial no:	PD 440/07 (M,I)
Executing Agency:	Guyana Forestry Commission
Host Government:	Government of Guyana
Starting Date:	February, 2008
Actual Duration (months):	20 months
Actual Project Cost (US\$):	US\$697,167

Part 1: Executive Summary

1. Background Information about the Project

There are no official statistics on the level of illegal logging or other illegal activities on the forestry sector in Guyana. Anecdotal evidence suggest that while illegality does exist the proportion of total production of wood products from illegal sources is not as high as has been reported for some other countries where rates of over 50% have been given. Nevertheless, illegal activities are occurring and if detection and prevention are not improved negative impacts may become increasingly significant.

The negative effects of illegal logging can be felt in many areas. First the national economy loses out on royalties due when wood is clandestinely produced and undeclared. In addition, acreage fees are also foregone where logging occurs on areas where concessions have not been allocated.

Compounding this is the loss of potential foreign exchange earnings where certain international markets are closed to Guyana's wood exports in the cases where legality cannot currently be assured.

The root causes of illegal logging have not been properly investigated in Guyana, though there are studies elsewhere that can be informative. Poverty or commercial gains are common drivers for illegality which are facilitated when the regulatory framework and law enforcement are weak.

It has been recognized that Guyana has a relatively advanced governance, policy, and legal framework in the forest sector. It also has a log-tracking system that is overseen by the monitoring division of the GFC. However, the forest resource is relatively large and remote and the resources do not exist for effective on-the-ground monitoring of the whole forest estate. At the same time, the log-tracking system is a manually-based method which means that errors can be introduced and data management is slow and cumbersome.

There is currently no effective central server that can act as a focal point for a legality database that tracks wood products through the system or records illegal activities that are detected. As one consequence, data is not readily available through the system and feedbacks from central headquarters to field stations or those in the private sector are virtually non-existent. This in part facilitates certain illegal activities such as the misuse of the timber tags.

GFC currently houses a GIS unit that provides a good mapping service to the public and private sectors. However, this Unit does not currently have the physical or human capacity to acquire or analyze satellite imagery or to integrate satellite imagery into a dedicated GIS for monitoring forest concessions. Also, the unit does not have a direct role in detection and prevention of illegal activities.

A general definition of legality is used in Guyana which defines such acts as those that contravene the relevant laws, regulations or codes. However, a more detailed definition of illegal activities is not used and as such there are no practical indicators for use in detecting and preventing illegal activities using remote sensing with associated ground checks.

Though two of the largest private concessionaires are developing their own chain of custody systems there are no national protocols or guidelines to support the tracking of wood products throughout the supply chain to final point of sale or export.

Intended situation after Project completion

The 5 outputs of the project will operate synergistically to create an outcome environment where detection of illegal logging and other non-compliant activities will be dramatically improved in the forest, in transit and at point of sale. This scenario will see improved detection of illegal activities acting as an effective deterrent resulting in a marked reduction in the incidence of illegal activities. The beneficial direct effects of this will be registered in the national economy, local communities and the forest environment.

Other regulatory agencies and interested observers around the world will also benefit from the project which will provide a model for similar initiatives elsewhere.

Development Objective

The Development Objective of the project is to increase the contribution of the forest sector to the national economy by means of higher remittances to the consolidated fund and increased foreign exchange earnings as a result of increased detection and prevention of illegal activities

Specific Objective

The Specific Objective of the project is to improve the detection and prevention of illegal logging and illegality in shipment and trade of wood products in Guyana.

Outputs

Output 1: Dedicated GIS (including satellite image analysis and legality database)

Output 2: Barcode Timber-Tracking system

Output 3: Central monitoring and detections database

Output 4: Wide-area computer network (WAN) and report dissemination procedure

Output 5: Legality and Monitoring Extension Unit

Project strategy

The essential project strategy, guided by the analysis of objectives (Annex D), is two-fold:

- First, to establish the necessary technological framework to undertake the tasks to tackle the identified causes of the problem and achieve stated objectives
- Second, to provide the necessary training, development and extension to ensure that new systems are properly implemented by the regulatory agency and, as appropriate, by the private sector

Satellite images will be acquired and analyzed at medium resolution for the whole country and high resolution for certain “hot-spots”. Indicators for identifying and monitoring illegal logging will be developed and resulting images and database integrated into a customized GIS of forest concessions. A barcode tracking system will be developed that will integrate into and provide data for a central legality and tracking database.

A legality monitoring and extension unit will be established within GFC that will have overall responsibility for directing legality-related work of the GFC, maintaining databases and providing extension services in areas of law compliance to the sector as appropriate.

Training will be provided in all technical areas related to the project. An important element of the project will be the fostering of human resources with skills and expertise in such areas as operating monitoring tools (updating information and checking indicators) and information handling (GIS and image analysis, data collection, database management) who will work as leaders in central locations and in the actual regions.

Human resources leaders to-be, who will be selected through a rigorous screening process, will undergo training in various fields and be expected to be able to instruct the content of the training to other related parties as well. The progress and achievements of the projects will be compiled into a report focused on in the context of forest laws and presented to all member countries via ITTO. GFC will work with ITTO during and after the project to undertake appropriate extension activities, directed towards regulatory agencies and other interested observers, to ensure that the project serves as a model for other countries in the region and internationally.

Planned Duration

The project was planned to be executed in a period of 18 months.

Planned Overall Cost

The project was planned to be completed using an overall cost of US\$758,120 of which the GFC which is the implementing agency will receive from ITTO US\$516,575 and will contribute US\$184,019.

Target beneficiaries are identified at the local and national level, both public and private:

- Local communities are often the victims of illegal logging and other illegal activities in the forestry sector. Two key issues are the misuse of tags and documents issued to communities to conduct logging on their lands. The establishment of the barcode tracking system will eliminate the possibility of tags being re-used or being used to launder wood by identifying as coming from a spurious source. The key second issue is one of undetected poaching by unscrupulous loggers from community land. A satellite image-based monitoring system will be able to detect illegal activities in areas that are remote and only occasionally visited on the ground. Also, the negative effects of illegal and unregulated logging on the environment, particularly in water resources, will be strongly mitigated by such activities being deterred.

- A reduction in the amount of illegal wood in the local market will benefit the majority of legitimate operators who will receive a fair price for their products instead of being in unfair competition with cheaper illegal produce.
- Exporters will benefit directly by the opening up of markets requiring legal assurance that may currently be closed to them.
- National benefits to Guyana will come directly from an increase in the royalties and acreage fees currently avoided by much of illegal logging activity. Part of this income could be used to increase the human resource capability of the regulatory agency's monitoring function thereby providing a continuous beneficial effect. Indirectly, the reputation of Guyana as a country responsibly and sustainably managing its forests for maximum benefit will continue to be enhanced.

2. Project Achievement

Outputs Achieved

In **Output 1**, medium resolution satellite images were acquired, processed and analyzed formed the base layer for more in-depth analyses at high resolution to be conducted at identified "hot spot". GIS and satellite imagery processing software were purchased to enable the works that were necessary to be undertaken under Output 1 and will be very useful for future GFC activities in remote sensing and map generation. Following a switch from the Spot and Ikonos options for high resolution images, for reasons of infrequent coverage over Guyana, a contract was entered into with Formosat Satellites to supply 26 scenes with swath of 24km by 24km at a resolution of 8m colour, 2m black and white less than 10% cloud cover. Several images have been sourced but none meeting the strict (but necessary) cloud cover minimum criteria of less than 10% cloud cover. In the end, this provider was unsuccessful in providing the required images to the quality stipulated by Guyana. As such, two other providers were used to acquire the required images: CBERS, and ASTER. Secondary datasets, including 2009 radar and late 2008 optical data (ASTER 15 m and CBERS 20 m) were acquired. Overall these datasets are adequate for monitoring of change. The server was procured and the Dedicated GIS was installed. Additionally, a number of illegality indicators were developed to assist GFC in determining if the forest clearance is legal or not. A prototype decision support flowchart (decision tree) was developed. To verify changes detected by GFC's operators during Phase 1, an aerial inspection was conducted and also ground truthing was done. The legality database for the GIS system was developed and integrated within it a custom written programme (accompanied by toolbar) for change detection. The dedicated GIS developed, integrate both medium and high resolution data

for forest concessions, and was linked to the change detection system for legality monitoring. All hardware and software were procured and installed.

In **Output 2**, review of the existing timber tracking system was completed. Bar coding timber tracking procedures were developed. Equipment were acquired for bar code scanning. Testing of this system took place at both the head office and at the forest stations. The WAN was found to be fully operational and well functioning. The system documentation was field tested at both forest stations and forest concessions. Monitoring has been done both at the GFC's Head office and at the station linked to the WAN. Testing was completed on the system. Training and sensitization sessions were held with GFC forest monitoring officers so as to have them understand the new reporting features under the new system currently being designed.

In **Output 3**, central server established and all equipment installed for the database system. The Database has been tested and is functioning effectively. These systems were all connected to the WAN and file and data transfer were enabled and testing and trial run were conducted. Reports are generating the required information based on test data. This has been integrated into the system of recording production and export data as used before by the GFC and which contains historic information.

In **Output 4**, Wide Area Network was implemented with procedures set for the use of the network and key personnel identified to operate all systems. Monitoring of the performance of the WAN was done with yielded favourable results, and was fully tested when trial testing of the database was completed. Field checks were done to ensure that data security and transfer was determined as occurring as intended and efficiently.

In **Output 5**, the terms of reference for the Legality Monitoring and Extension were completed. Training sessions as well as workshops were completed with GFC staff and stakeholders. Training has been done at the Head Office of GFC on the WAN, database management and GIS and satellite imagery analyses. Key personnel were identified to for this unit and integrate skills of the monitoring unit, the audit unit, the MIS unit and the GIS section. These persons were provided with the relevant training materials and have been sensitized on how each function links to the overall management of legality. Practical demonstrations were done in executing this activity. Sessions were also conducted to determine the extent to which staff members understand the new system.

Specific Objective Achieved

The Project was successful in creating the required infrastructure, systems, and hardware and software to enable the Guyana Forestry Commission to improve the level of detection and prevention of illegal activities in the forest sector.

The use of remote sensing imagery technology allowed for a framework to be developed to enable such analyses to be conducted. Owing to the inaccessibility of some forested areas in Guyana, especially those areas that have not been allocated as forest concessions, it is sometimes challenging to conduct national level monitoring in these regions. This project has provided the necessary resources (in terms of remotely sensed images, capacity developed for conducting remote sensing analysis to determine illegal activities, as a dedicated GIS), to conduct legality monitoring at the national level.

One of the key tools used in monitoring legality in the forest sector is the national log tracking system. With the incorporation of bar coding technology in timber tracking, this system has become more efficient in tracking origin of forest produce which enables verification of legality of origin to be done. The central mentioning database and the Wide Area Network allows for this system and tracking of legality as a whole from the point of production to export to be strengthened.

The establishment of the Legality Monitoring and Extension Unit provides the mechanism to allow this initiative to be sustained into the future thereby enabling the outputs of this project to continue to improve the prevention and detection of illegal activities (in logging, transporting and shipment).

The results of the planned outputs of the project have therefore effectively satisfied the specific objective as set in the project document.

Contribution to the Achievement of the Development Objective

Like in the case of the specific objective, the development objective was also satisfactorily met with the completion of this project. Owing a stronger detection and prevention framework, a stronger system is now in place to deter illegal activities. Detection mechanism has improved and has allowed the GFC to more effectively detect occurrences of illegality in the forest sector which in effect allow for a high level of compliance by stakeholders. Over the period January to October 2009 as compared to the corresponding period of 2008, declared production levels of several categories of forest products have increased including for Sawn lumber and Splitwood, with the former recording an increase by 13.5%. This has contributed to increased revenues to

the GFC which is remitted to the consolidated fund. This is, in part, due to higher levels of legality in the forest sector.

Brief Description of Situation at Project Completion as Compared to Pre-Project Situation

The situation that is prevailing after the project completion is generally an environment where illegal logging can be detected and prevented through a more integrated, national level system, as the one that has been developed. The enhancing of the national log tracking system, to include bar coding tracking technology, has also tremendously improved the usefulness of this system in maintaining legality as well as to ensure that adequate verification of legality of origin especially, is maintained at a high level. The project has allowed for a variety of technologies to be integrated coupled with the necessary built in human capacity at the GFC to conduct such work. The situation that prevails now, is therefore one of stronger human and technical capacity to maintain legality in the forest sector. Additionally, local communities, exporters, other forest sector stakeholders as well as the national as a whole will benefit from a higher level of legality in the sector.

3. Target beneficiaries Involvement

The implementation of this project was centered at the Guyana Forestry Commission which is responsible for managing and regulating forest activities in Guyana. Some of the key stakeholders include local communities, exporters, concession holders, as well as other groups.

At present, there are 27 community logging association that have access in form of concession agreement, totalling almost 200,000 hectares. Regulation and management of these areas by the GFC of legality, has been strengthened. Resulting from this will be improved detection of any illegal activities and will deter future practices of illegal activities. Communities are there now able to enjoy enhanced benefits from their resource allocation since instances of illegality are prevented. There is thus, even reduced loss of produce owing to illegal activities. Even though the GFC's mandate only extends to the State Forest Estate, forest produce that is produced on Private Indigenous Lands are required to comply with the national log tracking system as long as they are being transported from their community. Given the fact that the national log tracking system which now integrates barcode tracking technology allows for more efficient and effective tracking of forest produce, then these communities also are able to benefit from enhanced legality in the forest sector since there will be less instances of other operators infringing on their resources.

From the perspective of forest concessionaires, this project has allowed for them to be able to also secure greater benefits from forest concession area and not to have leakage of revenues as a result of illegal activities such as poaching of others in their area. Although this was only occurring to a limited extent, the possibility existed that this situation could have developed into an untenable one if not properly addressed. When the GFC detects acts of illegality supported by the enhanced resource capacity which are available, then a more competitive environment is created for these private operators reducing the occurrence of low prices illegal produce competing with legally sources and traded forest produce.

Exporters have also benefited through this project since with higher levels of illegality in the forest sector, increasing number of markets that are legality and environmentally conscious will continue to look to Guyana as a source of forest produce. This has resulted in part to a situation where, even in the current state of financial crisis in the developed world, some markets such as the North American market have remained fairly stable in 2009.

From the perspective of the nation as a whole, the project allowed for national level data to be assessed on forest cover and has assisted in national level planning and of forest activities. Incidences of illegal activities have been identified, and the monitoring department of the GFC has investigated such cases. The GFC now has the capacity to routinely complete this task for future time period. As such this has enhanced detection at the national level. Further, the work that has been done under this project in forest areas assessment using remote sensing, has fed into Guyana's submission to the World Bank's Forest Carbon Partnership Facility where assessments of drivers of forest area change was required, of which forest activities is one such driver.

For all identified benefits to stakeholders, the benefits that this project allowed will continue in the future and the GFC, which now has the resource capacity following the completion of this project, will integrate these into its work plan of activities. The separate unit that has been set up for legality monitoring and extension work will undertake such activities, as those that have been started under this project. The same is the case of legality monitoring by the GFC, which will now be done in an enhanced way that more effectively allow for legality to be maintained.

4. Lessons Learned

Development Objective

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Developmental Lesson

Aspects of project design which most contributed to its success or failure in achieving the Development Objective

The bar coding system which is linked to the wide area network allows for real time transfer of data and this has resulted in improved detection of incidences of illegality and thus overall contributing to a greater level of compliance. Additionally, the central database allows for tracking of illegal logging incidences and thus assist the GFC in coming up with robust mechanism to deter and limit such occurrences. With lower levels of illegality, there is greater declaration of legal produce and benefits flow to the relevant stakeholders which impacts on the national contribution. These systems also enable a higher level of sustainable forest management since it also allow for annual allowable cut and quota restrictions to be better managed by operator.

The project design element that allowed the development object to be met is the full integration of all steps in the production to export chain (production, transportation, declaration, processing, export) that was used in enhancing the level of legality in the forest sector from the production level, through to processing and then to export. This approach allowed the system of detection to be comprehensive, complete and accurate.

Changes in intersectoral links which affected the project's success

There were not any changes in intersectoral links over the project execution period. Close intersectoral linkage has been an important aspect of the project strategy and continues to be the approach taken in routine implementation and monitoring.

Additional arrangements that could improve cooperation between the relevant parties interested in the project

There needs to be overall, an enhanced awareness of the importance of legality to sustainable forest management and economic sustenance of forest operations. This can be executed by more awareness session done with concession holders and a training programme that address legality, incorporated within GFC's community forestry programme.

In addition, expansion of the Wide Area Network to include additional forest station and thus enabling wider coverage, will strengthen the system. In this way, it will bring the technology closer to more stakeholders and will enable greater uptake of the system itself.

Detection of incidences of illegal logging will be done in close collaboration with forest concessionaires and these stakeholders will be encouraged to undertake more proactive steps in ensuring legality in areas that seem more prone to such practices. This will be informed by both remote sensing imagery analyses as well as illegal detection occurrences from the central database.

Factors which will most likely affect project sustainability after completion

The main factor is to maintain the level of skill so as to allow the continuous operation of all aspects of the system.

Additionally, stakeholder cooperation in submitting and complying with relevant aspects of the system (document submission, reporting of occurrences of illegal activity, etc), will be key to the success of the collaborative approach that is required to make the system work as intended.

Further, another factor that will affect the sustainability of the project is continued ability of the GFC to maintain all aspects of the system and also expand elements of the system as required, in particular the capital aspects, for example, scanners, remote sensing imagery, etc.

The availability of required satellite images to continually conduct national level assessment of illegal logging incidences will also determine where this activity can continue. The tropical are notoriously prone to heavy cloud cover and this can often be prohibitive to the conducting of remote sensing imagery analyses using optical images.

Operational Lessons

Project organization and management

The Project was executed by the national agency that is responsible for managing legality in the forest sector of Guyana - GFC. As such, since this organization already had the legislative authority to carry out a programme such as the one outlined in this project, it resulted in a coherent and systematic approach to be taken and one that allows for continuity and sustainability of the initiatives.

Additionally, the availability of some aspects of resources at the GFC, especially in terms of infrastructure and human resources skills sets in areas of geographic information system, and others allowed for existing capacity to be utilized and built on, these instead of starting anew.

Project documentation

The ITTO Web Monitoring tool which this project was reporting through, allowed for routine, systematic and online project documentation inclusive of progress reporting, work plan monitoring, budget assessment and other such areas. The Online system also allow for more systematic tracking of activity progress and which resulted in careful attention being placed toward ensuring that activities remain on track as planned.

Monitoring and evaluation; Quality of project planning

The project planning framework allowed for a sharing of experiences with other similar ITTO Projects and offered room for technical support from the Project Technical Committee. This allowed for needed expert guidance to be given to the project activity planning and overall effective monitoring and evaluation.

A main lesson learned is that activities that depend on satellite providers, the service of which does not often lend itself to a high level of predictability especially in terms of quality and coverage, should planned for in such a way to provide for these eventuality. The experience of this project is that the poor quality of satellite data by the high resolution image provider resulted in the delay in Output 1 being completed on time.

Also, in cases of new system design including database development, the process would usually entail a lengthy process of development, testing and implementation. In this project, the planned two month to develop the bar code tracking system and the planned three months to develop the central server were too short. Such activities should be give more time in the planning phase in future project planning.

Definition of the roles and responsibilities of the institutions involved in the project implementation

The implementation agency that was responsible for this project is the Guyana Forestry Commission. The GFC was responsible for all project management functions inclusive of project activity implementation, monitoring of progress and completion of quality outputs, financial management and reporting and in maintaining feedback mechanism with ITTO.

The Project Steering Committee was represented by participation from the forest industry. The inputs of this participation also enabled effective activity implementation.

Actions to be taken to avoid variations between planned and actual implementation (schedules, cost, etc)

Outputs 2 and 4 should have been planned for a longer time frame. Additionally, provisions should have been made in terms of time allowance to secure high quality satellite images that are often not available for countries like Guyana.

There was no negative variation with planned and actual cost.

External factors that influenced the project implementation and that could have been foreseen

Remotely sensed optical images at medium resolution used in this project (Landsat), as is only allowed for clearings of approximately 1 hectare and greater. This is largely characteristic of all medium resolution images and only upon the use of finer resolution can smaller clearings (which are often the initial indicator if illegal logging) be detected.

As such, in this project, smaller roads and other such clearings were somewhat difficult to detect. The project design should have accounted for this and could have allowed for perhaps a higher resolution provider to be targeted at the initial stage that can give national level coverage. The only challenge that may have effected this option though would have been the cost factor as it may have still been difficult to find such a low cost high resolution image provider that provide coverage over Guyana.

External factors that influenced the project implementation and that could not have been foreseen.

Activities that depend on satellite providers should have been planned to allow for a longer period in cases of the desired quality of images not being secured in the first instance or in archives.

Owing to the delay in securing high resolution images, Output 1 was delayed in terms of conduct hot spot monitoring. However, the project timeline was still overall met.

5. Recommendation

The project was overall effectively executed both within time and budget resources allocation and have successfully fulfilled all required outputs. For future project of a similar nature, several aspects of recommendation can be made to further strengthen the effectiveness and efficiency of outputs.

These include the integration of finer resolution satellite image cover over larger areas than planned under this project, especially for countries that have fairly intact forests and there is little change from period to period.

Also, it would be more efficient if a longer time frame is planned in the work programme for the sourcing of satellite images as this can be a very complicated process when images that are sourced do not reach the quality requirements set for effective products delivery that is accurate and comprehensive.

Further, in cases of future project including elements of computerized system design and development, a bit more time than planned under this project, should be allocated upfront to allow for adequate provisions for test runs, trials and refining of systems. In this project, this aspect took a bit longer than planned and this can be an important point for future projects in terms of upfront planning of timeframe and scheduling of overall delivery of outputs.

One key recommendation is for there to be adequate and continued engagement of stakeholders throughout the process. This relates to not only consultation and awareness sessions being executed on the issue at hand, which in the case of this project was legality, but also for capacity building and training. This project was able to integrate these two elements and found that it assisted greatly in the success of the initiative.

To allow for a bit of extra time in terms of scheduling, projects that involve a remote sensing aspect as well as system design and implementation (as in the case of this project) should extend to 24 months (2 years) perhaps, instead of 18 months. This will allow for extra time to facilitate greater flexibility in terms of activity scheduling.

In terms of specific activity recommendation, it is recommended that activities such as 1.6 that have to do with the provision of hardware and software capabilities, to be done as initial activities in the relevant output. This allows for a better flow to activity implementation since these are actually precursors to the remote sensing assessment dealt with in Output 1. On the same note, Activity 4.4 should have been more effectively scheduled in the first 3 months of the project execution thus allowing the WAN to be fully functional to enable timely testing of the bar coding system. As the schedule stands, activity 4.4 was planned for the 6th month and activity 2.2 was planned for the 2nd month.

Overall, the approach taken under this project was found to be very effective in combining national level remote sensing assessment with the national tracking system to improve prevention and detection of illegal logging in a country.

Part II. Main Text

Project Content

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Compliance with ITTA 1994 Objectives

This project is consistent with the following ITTA objectives:

- (c) To contribute to the process of sustainable development;
- (d) To enhance the capacity of members to implement a strategy for achieving exports of tropical timber and timber products from sustainably managed sources by the year 2000;
- (e) To promote the expansion and diversification of international trade in tropical timber from sustainable sources by improving the structural conditions in international markets, by taking into account, on the one hand, a long-term increase in consumption and continuity of supplies, and, on the other, prices which reflect the costs of sustainable forest management and which are remunerative and equitable for members, and the improvement of market access;

(h) To improve market intelligence with a view to ensuring greater transparency in the international timber market, including the gathering, compilation, and dissemination of trade related data, including data related to species being traded;

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

Compliance with ITTO Action Plan

This project is consistent with the Yokohama Action Plan and is compliant with the following strategies, goals and actions:

Key Strategies for Implementation

One of the major focuses of ITTO and its members during the term of this Action Plan is accelerating progress towards the fulfillment of ITTO Objective 2000. This requires (inter alia):

Shifting focus from the development of national forest policies and legislation toward implementation on the ground, especially at the forest management unit level. This would include, for example: supporting efforts to strengthen forest law enforcement; more training and capacity building; wider application of reduced impact logging (RIL), and strengthening timber tracking to improve the accuracy and transparency of information on timber products and trade.

Economic Information and Market Intelligence

Goal 1: Improve transparency of international timber market.

Action 3. Where feasible and in cooperation with relevant organizations, fill key data gaps through regular assessments and special studies, including the collection and analysis of information on forest law enforcement, sustainable timber harvesting, illegal trade, secondary products, substitution, plantation timber, and certified products.

Goal 2: Promote tropical timber from sustainably managed sources.

Action 2. Provide a forum for discussion on non-discriminatory trade, subsidies for competing products, shortcomings in enforcement of forest law and regulation, and other factors that may affect the marketability and access of tropical timber products.

Reforestation and Forest Management

Goal 1: Support activities to secure the tropical timber resource base

Action 1. Support the effective enforcement of forest laws and regulations that ensure sustainable forest management and secure the production base.

Action 7. Identify shortcomings in enforcement of forest laws and regulations, and overcome them

Project Context

The Guyana Forestry Commission (GFC) was created in 1979 out of the pre-existing Forest Department that had its origins in 1925. The GFC is responsible for advising the responsible Minister and making submissions on issues relating to forest policy, forestry laws and regulations. The Commission is also responsible for administration and management of all State forestland. The work of the Commission is guided by a national forest plan that has been developed to address the forest policy. The Commission also develops and monitors standards for forest sector operations, develops and implements forest protection and conservation strategies, oversees forest research, and provides support and guidance to forestry education and training.

The GFC is responsible for the management of an area of 13.3 million ha classified as State Forest. The remainder of the forest is either: State Land; Amerindian Land; or other private property. Forest Concessions are allocated in three categories based on area and contractual length (see above), All operations are strongly encouraged to follow best practice as set out in the Code of Practice for responsible forest operations (though this will not become mandatory until the passage of the new draft Forests Act).

The President of Guyana is the ultimate authority for Forestry (and the Environment and Natural Resources) though the Minister for Agriculture/Fisheries, Crops and Livestock currently has the responsible mandate. There are two statutory bodies responsible for co-ordinating developments in the natural resources sectors:

- Cabinet Sub-Committee on Natural Resources and Environment. This Committee discusses all matters requiring policy decisions before being presented to the full Cabinet.
- Natural Resources and Environment Advisory Committee (NREAC) which includes the Commissioners of Forestry, Geology and Mines, and Lands and Surveys, the Head of the Guyana Natural Resources Agency, the Heads of the Energy Agencies, the Land Use Planning Unit, the Institute of Applied Sciences and Technology, the Hydromet Department and the Director of the Environmental Protection Agency. This committee

meets every week and is chaired by the Presidential Adviser on Science, Technology and the Environment

Revised forestry legislation has been drafted to address, inter alia, conservation and protection, sustainable utilisation of the forest estate and Amerindian land rights. The draft is currently with Cabinet for approval.

The Environmental Protection Agency (EPA) was established in 1996 to provide for the management, conservation, protection and improvement of the environment, the prevention or control of pollution, the assessment of the impact of economic development on the environment and the sustainable use of natural resources. The EPA has entered into a Memorandum of Understanding with the GFC that provides for co-operation in the assessment and monitoring of Environmental Impact Assessment. Before any operation can commence in a forest concession, the company must submit an Environmental Impact Assessment for approval by the EPA and the GFC. The GFC has also established an Environmental Monitoring Unit to monitor all environmental matters pertaining to forestry.

The Forest Producers Association is an NGO formed in 1944 by the forest industry to promote and develop the interests of the forest sector and to collaborate on activities such as training, information, public awareness and institutional development. Membership is open to all individuals or companies engaged in any aspect of the business of forest products and it currently has over 60 members. The Association does not receive a subvention from any source and relies on membership fees to conduct its business. This being so the only paid members of staff it employs are an executive director and a personal secretary. The Association is currently receiving some support from multi-lateral international bodies to conduct sectoral training and to develop a strategic plan. The association is a member of the Public Sector Commission.

The Guyana National Forest Policy Statement of 1997 recognises that sustainable forest management can be attained only if there is the availability of sufficient basic information on which planners and forestry practitioners might draw for the formulation and implementation of policies and strategies. In addition, the Policy highlights the importance of a level of control over all harvesting activities, sufficient to provide adequate protection of biodiversity and to ensure sustainable production; and the creation and maintenance of an efficient database, containing up-to-date information which is freely available to all, without compromising confidentiality, on national forest resources, their productivity, management potential, and their ecology and dynamics; and the development of an environmental management system for the forestry sector which would address the environmental and social impacts of any activity within the forest and build strategies to minimize them. The Policy further outlines the importance of sustainable forest management and management of forest concessions issues to ensure the legality and sustainability of forest activities.

The Guyana Draft National Forest Plan of 2001 refers to the Policy Statement and identifies the importance of forest enforcement and governance in the Forest Resources Management and Forest Industry sub-sections. The main areas dealt with under the Plan are compliance with the forest law enforcement, and management of the State Forest to ensure sustainable forest management. It is envisioned that through this programme, the support will be provided to ensure the success of the proposed initiative.

The Guyana Draft National Development Strategy (1996) has amongst its objectives to monitor the forest resources under its control (State Forest) to ensure that the policies and procedures of the GFC in relation to sustainable forest management and law compliance are adhered to. The Strategy makes a strong case for information to be provided in an efficient and effective way to facilitate this recommendation.

Project Design and Organisation

This project was found to have been appropriately identified from the project proposal conceptualisation stage, in terms of identification of the problem and formulating a strategy to address these. The project was well defined and the project strategy was effective in addressing the problem.

The conceptual foundation of the project was also found to be well executed with the project rationale, perception of both internal and external influences appropriately documented in the logical framework matrix and also throughout the project formulation.

The planned time line of the project was a bit shorter than the project execution team would have, in retrospect preferred, by about 3 months more needed in project execution time.

The roles and responsibilities of the executing agency, technical committee, consultants and other stakeholders were adequately and appropriately defined and this lent to the smooth execution of the project.

There was effective participation and inclusion of beneficiaries in the project implementation and this also led to the success of the project. This included both the Forest Products Association representative as well as representative from the Government.

Project Implementation

The Project was implemented within planned budget and time frame. The outputs as planned, were also achieved across the five identified outputs.

The assumptions made were appropriate and risks identified were adequately mitigated. The assumptions for Output 1 has been favourable fulfilled with qualified persons in the areas of GIS and remote sensing, network management and forest monitoring being available for training. The assumptions identified under outputs 2 and 3 have similarly been satisfied with support being given to the project by the main stakeholder industry body, the Forest Products Association. The assumptions under Output 4 have seen very clear indication of accomplishment with several private sector companies expressing interest in chain of custody system which would utilize and benefit from the timber tracking and bar coding mechanism, which this project is addressing at the national level. Additionally the presence of broadband technology in Guyana, allows for real time data transfer and the setting up of an efficient and functioning wide area network as has been done. The achievement of a significant percentage of the activities under Output 4 favourably supports this assumption. The assumptions under Output 5 have been realized with general interest shown in the system and key leaders identified for the Legality Unit including identification of the report authority and role of other Divisions of the GFC in this process.

The assumption, on which the Specific objective is based, has also been fulfilled, with the support from relevant Government agencies and bodies, and measures taken such as legal verification, to improve legality. There was been wide support of this project by the Ministry of Agriculture with responsibility for forestry and other relevant Government bodies, including the private sector companies. Additionally, Guyana's legal verification system, which has been recently finalized, uses to a large extent, the log tracking system as a means of verifying legal origin of forest produce.

The outputs of the project have been integrated into the actual work programme of the GFC thereby allowing for the continued sustainability of the activities in the future. The conceptualisation of the project actually took this unto consideration in identifying for the Legality Monitoring and Extension Unit. This unit has been established and will continue the work under this project on a routine basis.

The project inputs, both in terms of quality and quantity were found to be sufficient and appropriate.

Project Results

At the completion of the project, the 5 outputs of the project have been fulfilled and the system is now operational to improve the detection and prevention of illegal logging and illegal in shipment and trade of wood products. The log tracking system which was manually operated previously and lent to the lack of the full potential of this system being realised, is now integrated with bar coding technology to allow for greater ease and effectiveness in operation and implementation. Additionally, the GFC now possess resource capacity to conduct national level legality assessment of illegality using remote sensing imagery analyses. Further, the centralised database to track illegality activity facilitated by the Wide Area Network has aided the coordination of information and data flow in a real time way which is important to enhance prevention and detection if illegal activities. Importantly, the Legality Monitoring and Extensions Unit has provided the means through which these results have been operationalized in a sustainable manner. The level of illegal activities will continually be monitored to assess the effectiveness of this system in deterring illegal activities on the whole.

These results have continued to the successful fulfilment of the Specific Objective as well as impacting positively on sectoral programmes, the physical and social environment, as well as target beneficiaries. There has been a noted impact on improved capacity to detect and prevent illegal activities. The outputs of this project have been a deterrent to illegal activities and will thus benefit the environment as a whole and communities that depend on the forest. Forest concessionaires have also benefited by having the national forest management system strengthened in terms of legality and as such will enable them to better secure the forest resources in their concessions from illegal act, and thus have full value of such resources flow to their operations.

Synthesis of the Analysis

Criteria	Assessment
<i>(a) Specific Objective Achievement</i>	Realised
<i>(b) Outputs</i>	Realised
<i>(c) Schedule</i>	On time
<i>(d) Actual Expenditures</i>	Below Planned (not significantly)
<i>(e) Potential for Replication</i>	Significant Potential
<i>(f) Potential for Scaling Up</i>	Significant Potential

Part III: Conclusions and Recommendations

The main development lessons learned were:

- The project design element that allowed the development object to be met is the full integration of all steps in the production to export chain (production, transportation, declaration, processing, export) that was used in enhancing the level of legality in the forest sector from the production level, through to processing and then to export. This approach allowed the system of detection to be comprehensive, complete and accurate.
- Close intersectoral linkage has been an important aspect of the project strategy and continues to be the approach taken in routine implementation and monitoring.
- There needs to be overall, an enhanced awareness of the importance of legality to sustainable forest management and economic sustenance of forest operations.
- Stakeholder cooperation in submitting and complying with relevant aspects of the system (document submission, reporting of occurrences of illegal activity, etc), will be key to the success of the collaborative approach that is required to make the system work as intended.
- Further, another factor that will affect the sustainability of the project is continued ability of the GFC to maintain all aspects of the system and also expand elements of the system as required, in particular the capital aspects, for example, scanners, remote sensing imagery, etc.

The main operational lessons learned were:

- Having the national agency that is responsible for managing legality in the forest sector of Guyana – GFC, be the main executing agency for this project, resulted in a coherent and systematic approach to be taken and one that allows for continuity and sustainability of the initiatives.
- Additionally, the availability of some aspects of resources at the GFC, especially in terms of infrastructure and human resources skills sets in areas of geographic information system, and others allowed for existing capacity to be utilized and built on these instead of starting anew.
- The Online system also allow for more systematic tracking of activity progress and which resulted in careful attention being placed toward ensuring that activities remain on track as planned.

- The project planning framework allowed for a sharing of experiences with other similar ITTO Projects and offered room for technical support for the Project Technical Committee. This allowed for needed expert guidance to be given to the project activity planning and overall effective monitoring and evaluation.
- A main lesson learned is that activities that depend on satellite providers, the service of which does not often lend itself to a high level of predictability especially in terms of quality and coverage, should be planned for in such a way to provide for these eventualities. The experience of this project is that the poor quality of satellite data by the high resolution image provider resulted in the delay in Output 1 being completed on time.
- Also, in cases of new system design including database development, the process would usually entail a lengthy process of development, testing and implementation. In this project, the planned two months to develop the bar code tracking system and the planned three months to develop the central server were too short. Such activities should be given more time in the planning phase in future project planning.
- The Project Steering Committee was represented by participation from the forest industry. The inputs of this participation also enabled effective activity implementation.
- Outputs 2 and 4 should have been planned for a long time frame. Additionally, provisions should have been made in terms of time allowance to secure high quality satellite images that are often not available for countries like Guyana.
- The project design should have accounted for this and could have allowed for perhaps a higher resolution provider to be targeted at the initial stage that can give national level coverage. The only challenge that may have effected this option though would have been the cost factor as it may have still been difficult to find such a low cost high resolution image provider that provide coverage over Guyana.
- Activities that depend on satellite providers should have been planned to allow for a longer period in cases of the desired quality of images not being secured in the first instance or in archives.

The main recommendations for future projects are:

Identification:

- Overall, the approach taken under this project was found to be very effective in combining national level remote sensing assessment with the national tracking system to improve prevention and detection of illegal logging in a country.

Design:

- It would be more efficient if a longer time frame is planned in the work programme for the sourcing of satellite images as this can be a very complicated process when images that are sources do not reach the quality requirements set for effective products delivery that is accurate and comprehensive.
- Further, in cases of future project including elements of computerized system design and development, a bit more time than planned under this project, should be allocated upfront to allow for adequate provisions for test runs, trials and refining of systems. In this project, this aspect took a bit longer than planned and this can be an important point for future projects in terms of upfront planning of timeframe and scheduling of overall delivery of outputs

Implementation:

- The project was overall effectively executed both within time and budget resources allocation and have successfully fulfilled all required outputs. For future project of a similar nature, several aspects of recommendation can be made to further strengthen the effectiveness and efficiency of outputs. These include the integration of finer resolution satellite image cover over larger areas than planned under this project, especially for countries that have fairly intact forests and there is little change from period to period.
- In terms of specific activity recommendation, it is recommended that activities such as 1.6 that have to do with the provision of hardware and software capabilities, to be done as initial activities in the relevant output. This allows for a better flow to activity implementation since these are actually precursor to the remote sensing assessment dealt with in Output 1. On the same note, Activity 4.4 should have been more effectively scheduled in the first 3 months of the project execution thus allowing the WAN to be fully functional to enable timely testing of the bar coding system. As the schedule stands, activity 4.4 was planned for the 6th month and activity 2.2 was planned for the 2nd month.

Organisation:

- One key recommendation is for there to be adequate and continued engagement of stakeholders throughout the process. This relates to not only consultation and awareness sessions being executed on the issue at hand, which in the case of this project was legality, but also for capacity building and training. This project was able to integrate these two elements and found that it assisted greatly in the success of the initiative.

Management:

- To allow for a bit of extra time in terms of scheduling, projects that involve a remote sensing aspect as well as system design and implementation (as in the case of this project) should extend to 24 month (2 years) perhaps, instead of 18 months. This will allow for extra time to facilitate greater flexibility in terms of activity scheduling and overall management.

Responsible for the Report

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Date: 17th December, 2009

Annex

	Activity 2.4	Activity 2.6	Activity 5.3	Activity 5.4
<i>Trainers trained</i>	15	10	10	12
<i>Trainees trained</i>	80	90	35	85
<i>Workshops held</i>	6 regional sessions, 1 central session	3 sessions	3 sessions	3 sessions

List of Manuals/Training Materials Developed

1. Systems Requirement Document for Central Database and bar coding System
2. Chain of Custody Report
3. Terms of Reference for Legality, Monitoring and Extensions Unit
4. Training Manual 1 for Central database, legality monitoring and bar coding
5. Training Manual on GIS and Remote Sensing System
6. Training Manual 2 for Central database, legality monitoring and bar coding