





# Forest Information Management System

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### **About Helveta**

# Helveta is the ONLY PROVIDER of commercially available s/w Solutions for Chain of Custody Management and Verification of Legal Origin.

- Helveta is a privately held company founded in 2004
- Corporate Headquarters near Oxford, England
   Regional offices in China (Hong Kong), France, Malaysia, Singapore and the USA
- Funded through private placements
   Investors include Oxford Capital Partners & Close Ventures
- Developed and deployed s/w solutions for resource mapping, asset tracking and Chain of Custody management

#### In the News



February 2008

BBC Television & Radio News

Detailed profile of Helveta technology



March 2008

The Economist Magazine

Helveta technology feature



Timber Trade Journal Environmental

Achievement Award 2006



### **Principal Business Segments**

# Helveta focuses its activities on s/w solutions facilitating Chain of Custody and information management to the forestry, agribusiness and food industries



ur solutions help address issues with

- roduce provenance
- ogistical challenges with transit and storage conditions, transfer of control
- abor rights of workers and working conditions



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### **Principal Business Segments**

Helveta focuses its activities on s/w solutions facilitating Chain of Custody and information management to the forestry, agribusiness and food industries

n the forestry sector, Helveta's Control Intelligence ("CI") suite of products enables a complete Forest Operations Management Information System

that can provide:

Wood Flow or Process Monitoring, Control and Optimization



Traceability and Verification of Legal Origin (VLO)



Open Platform for Information Exchange and Document Management

e can assist Forestry Departments and private operators by configuring our platform to replicate the existing **National Forest Legal Standard** as well as **industry practices** 

### **Partners and Customers**

### **Stakeholders**









### **Partners**









### **Sponsors**









### **End Users**



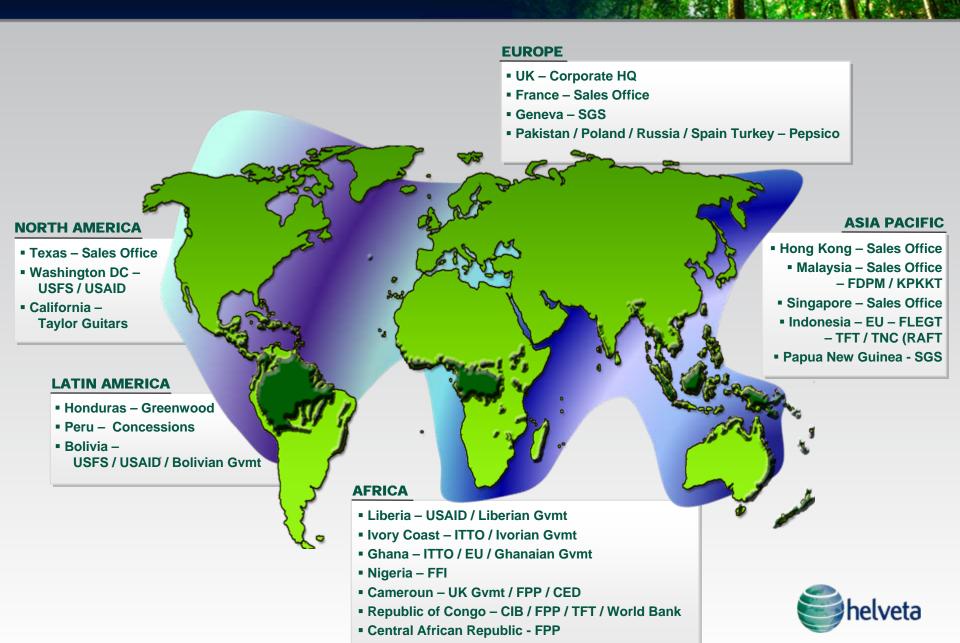








### **Global Presence**



### **Application Requirement**

## A Forest Operations Management Information System must be able to cater to the needs of:

### **National State Regulators**

- Facilitate all administrative processes related to the review, approval and management of concessions, licenses, permits, etc...
- Host and analyse, in near real time, all the data on the forestry sector
- Generate reports and controlled official documents
- Provide information management and sharing capabilities
- Assist in enforcing and auditing adherence to the Forest Law and in assessing Verification of Legal Origin (VLO) through "back to stump" traceability
- Facilitate the Forest Revenue System
- Assist in managing and controling the export of wood resources

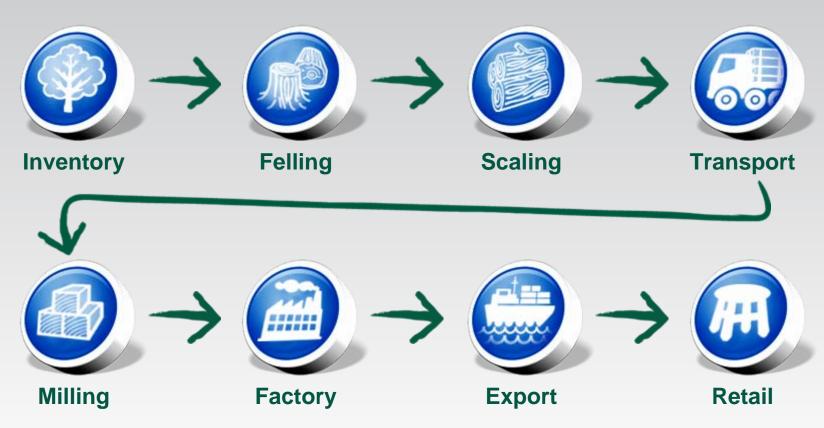
### **Companies Involved in Forestry**

- Optimize corporate operational procedures
- Facilitate audit and management control
- Provide real time feedback on all operations



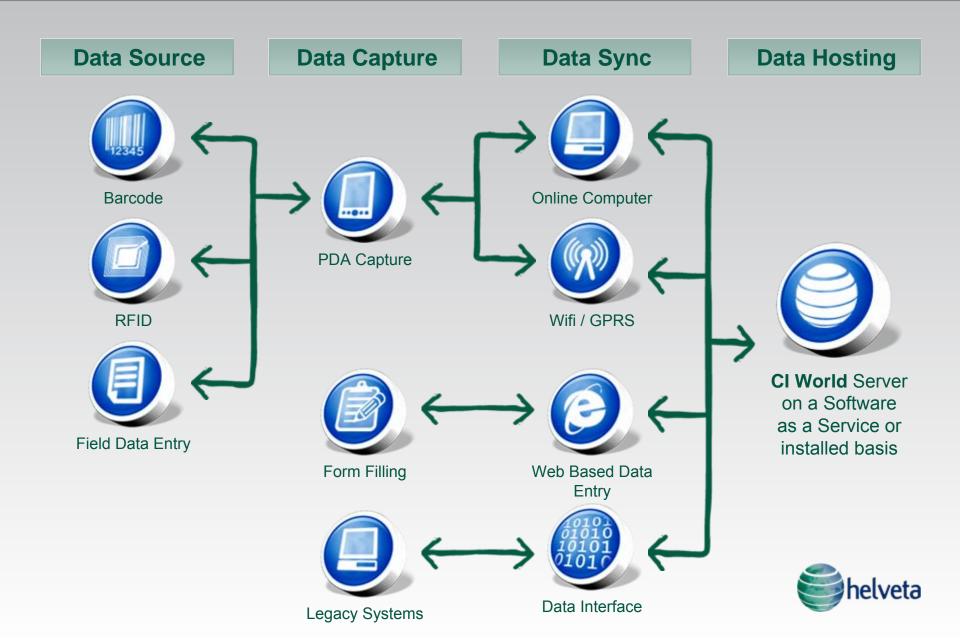
### **Customised Logical Chain of Custody**

The Forest Operations Management Information Systems replicates existing processes where timber is being processed or changes ownership





### **Control Point Data Flow**



### **Features and Capture Mode**

# CI Mobile is the field data capturing interface of CI World and can be installed on PDAs running Microsoft Windows Mobile.

#### Features of CI Mobile include

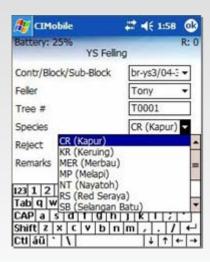
- Fully customizable capture modes
- Interface can be tailored to be icon driven
- Capture field descriptions easily translated into any language
- User ID and password protected interface
- Variable access to capture modes depending on operator User ID (more than one role can be available to one operator)
- All stored information updated upon synchronization of the PDA



**LOG-IN SCREEN** 



SELECTION



**DATA ENTRY** 



Sapture Mode

### PDA Models

### The TDS Nomad

- Rugged, Waterproof, Sand and Dust Proof
- Integrated GPS, Barcode Scanner and Camera Option
- 3rd party RFID extension module available
- 480 x 640 Pixels (VGA), 16 bit color TFT with LED backlight
- 128 MB DDR SDRAM, 30 MB reserved



### The Psion WorkaboutPro

- Integrated RFID Module (HF Module 13.56 MHz)
- 480 x 640 Pixels (VGA), 16 bit color TFT with LED backlight
- 128 MB flash, 30 MB RAM
- Optional Barcode Scanner
- Rain and Dust Proof





### **PDA Models**



**MBENDJELE PYGMIES IN THE CONGO USING THE ICON DRIVEN INTERFACE** 

### **Platform Overview**

### CI Earth<sup>TM</sup> MAPPING MODULE

Community Land Use and Planning Monitoring
Forest Inventory and Data Visualization

### Trac Elite<sup>TM</sup> CHAIN OF CUSTODY MODULE

Verification of Legal Origin (VLO)
Chain of Custody Monitoring
(CoC) in Near Real Time
Product Composition and
Ownership Determination

Automation and Process Optimization

#### **DOCUMENT MANAGEMENT MODULE**

Storing, Management and Issuance of Reports and Documents

Creation, Issuance and Monitoring of Licenses, Permits

Export Monitoring & Facilitation

Forest Revenue System Management

Reporting

#### PROCESS CONTROL MODULE

Alarm Generation and Intervention Tracking
Third Party Audit Facilitation
Process and Quality Monitoring
Data Verification and Reconciliation

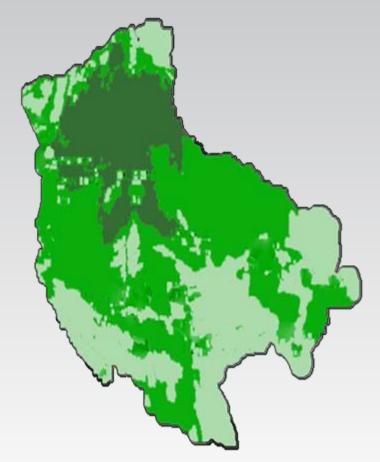


### **CI Earth - Mapping Module**

## CI Earth is a geographical resource mapping module that also allows for visualization of the data.

### The module facilitates:

- Pre-felling inventory of the cutting block.
   This involves recording of geographical information such as locations boundaries of the area, access roads, rivers, etc...
   and associated GPS coordinates
- Display of captured information using either ARC-GIS or Google Earth
- Creation of standing inventory report, map of logging license area and the production of harvesting plans
- Assist in mapping community resources and usage of the forest to assist in managing the impact of logging on local communities



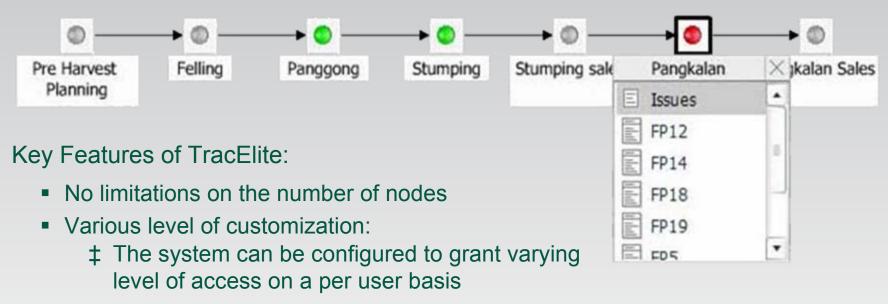


### **CI Earth - Mapping Module**



### TracElite - Chain of Custody Module

# The physical chain of custody is logically mapped onto CI World through the TracElite<sup>TM</sup> module



- ‡ At each node, a drop down menu provides access to reports, documents, and data
- The Chain of Custody can be defined at a very high level, or can be made very granular
- All processes related to the local Forest Law can be configured into TracElite



### **Process Control Module**

# The process control module processes data reconciliation algorithms as well as triggers alarms

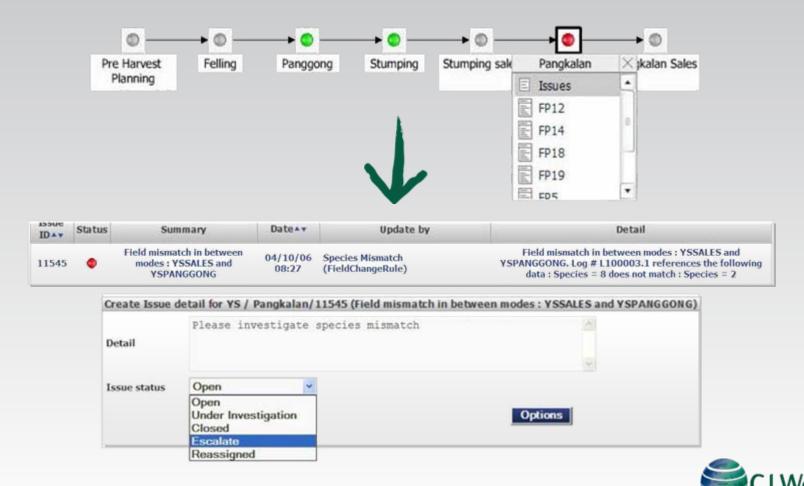
For every new set of data entered into the system, on can configure:

- Data input monitoring rules for unexpected entries or inconsistencies
- Reconciliation of data across various nodes
- Application of bespoke rules such as:
  - Logging outside cutting block
  - Log not moved
  - Change in species
  - Change of volume
  - Change in process efficiency
- Trigger and dispatch of alerts should discrepancies be identified
- Alarm management system related to verification activities & audits
- Alerts can be triggered on persistent rules breaches past a certain threshold



### **Process Control Module**

# The process control module processes data reconciliation algorithms as well as triggers alarms



### **Document Management Module**

## The document management module allows to generate and share official and procedural documentation and reports

For every new set of data entered into the system, on can configure:

- Storing & Management of Documents
- Review / Issue / Monitoring of Permits
- Waybill Issue
- Invoice Control
- Import / Export Monitoring
- Barcode Cataloguing & Issue





### **Advanced Features – Road Map**

### Other advanced features supported by the system include:

- Real Time Field Monitoring & Inspection:
  - ‡ Allows to download database information on the handheld and perform data reconciliation in the field
  - ‡ Re-entering of data as a "cross check" validating previous entries
- Field printing of "Removal Passes"
- Barcode / RFID management and audit
- RFID locking
- PDA lockdown
- Off line data entry with background synchronization
- Wizard report assistant
- PDA data preview



### **Key Benefits of the Platform**

### **Key benefits of the platform:**

- Off the shelf platform configurable to local Forest Legal Standard and Forest Revenue System
- Quality Assurance (QA)
- Longevity of the application and availability of upgrades, new features and bespoke developments
- Availability of product technical documentation and user manuals
- Availability of warranties, support and maintenance
- Support of third party interfaces
- Backward compatibility and migration path to future technical standard
- Deployable as a "hosted" or "deployed" service or both... !!!
- Can be implemented to reflect any Forest Legal Standard or Industry practices
- Full system administration features



### **Forest Solutions**

- Liberfor Liberia
- Ivory Coast
- Cameroun



### The Importance of Liberia's Forests...

- Forests cover 30% of Liberia
- Largest remaining forests in West Africa
- \$20 million of annual revenue for the Liberian Government

### **Liberfor - project timeline**

2007

2003	End of civil war
	UN Security Council ban on timber export
2006	All former forest concessions cancelled
	Enactment of new forestry law
	UN sanctions in the export of timber lifted
	2003



system for Liberian timber flows awarded to SGS & Helveta 2008 Commencement of 5-year implementation project \$1.64m US Government grant

February: system online 2008

October: commencement of legal timber operations



### **LiberFor – Contract Mandate**

The provision of a technology system that will:

- Manage a chain of custody providing traceability of forest
- Products from stump to export
- Continuously monitor timber flows in Liberia including
- Log/timber tracking system
- Monitoring of regulatory document
- Monitoring of sampled field checks
- Release timber exports on behalf of the Government of Liberia
- Invoice and monitor payments by logging companies to the GoL







**CI World** Server



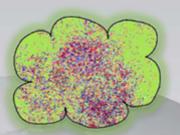


INDAESS 200P

INCHESCABLE 185 Discome







**Public Network** 











**Forest Operation** 



**Transformation** 



**Export** 



**Transport** 



**Communities** 









Central Bank of Liberia



### **Liberia Case Study – Core System**

### **CI Earth – Mapping**

Block maps

Stock surveys

Plantation compartment maps

### **TracElite – Chain of Custody**

Tree felling

Cross-cutting, dressing & log registration

Transport of logs & wood products

### **Performance Management**

Data reconciliations

Data verifications

Random samplings & inspections

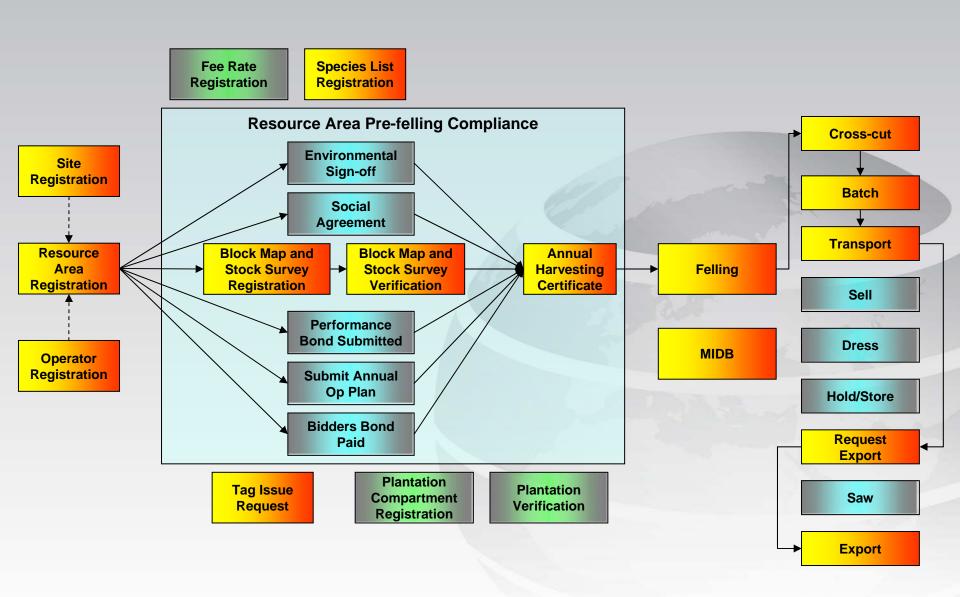
### **Document Management**

Concession registrations
Invoicing & regulatory document
Management tag control

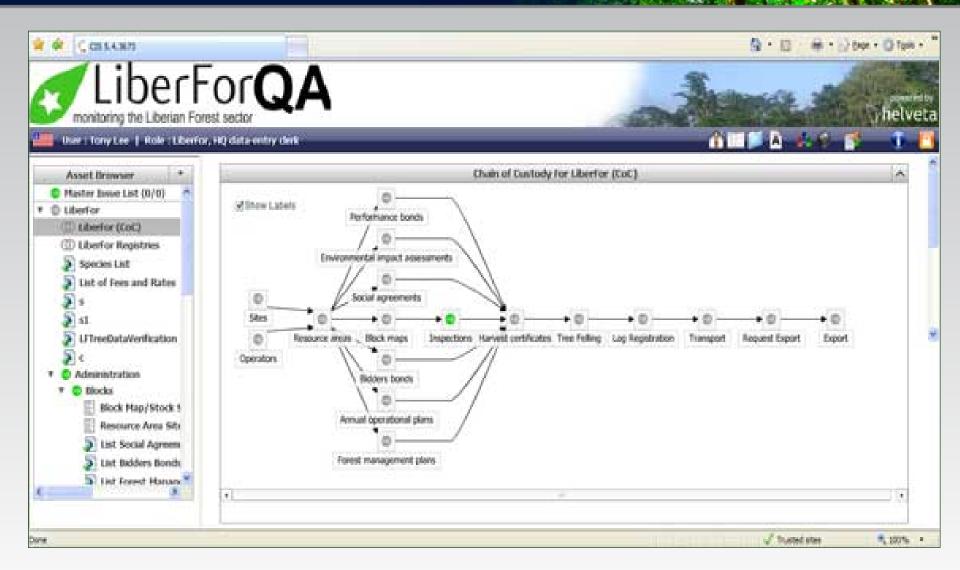




### **Liberia Case Study – Liberfor Workflow**



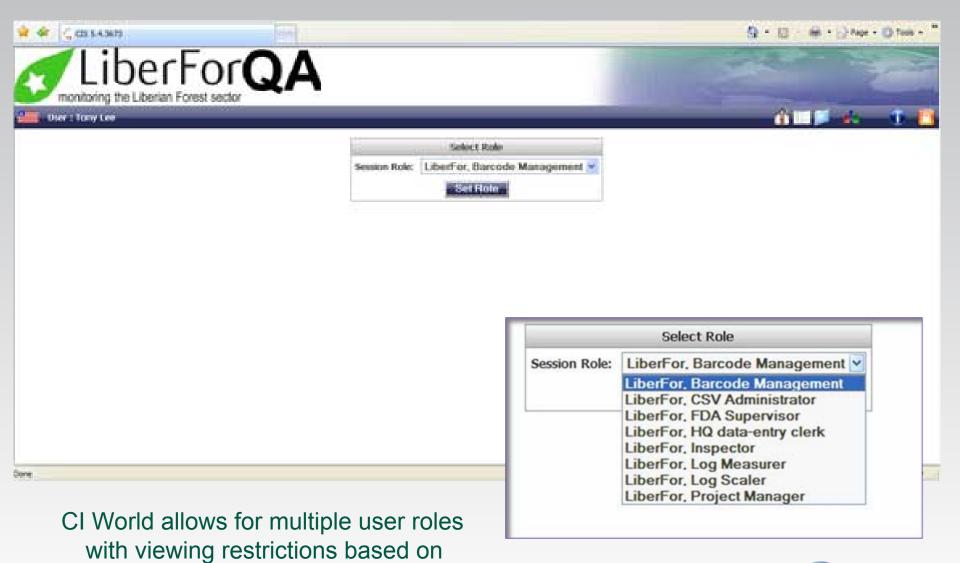
### **Liberia Case Study – Liberfor Online Interface**





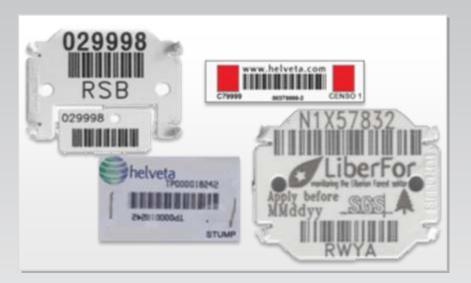
### **Liberia Case Study – Role Definition**

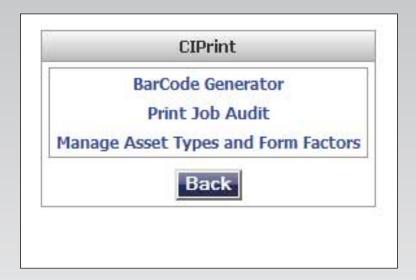
user role





### Liberia Case Study – Barcode Management



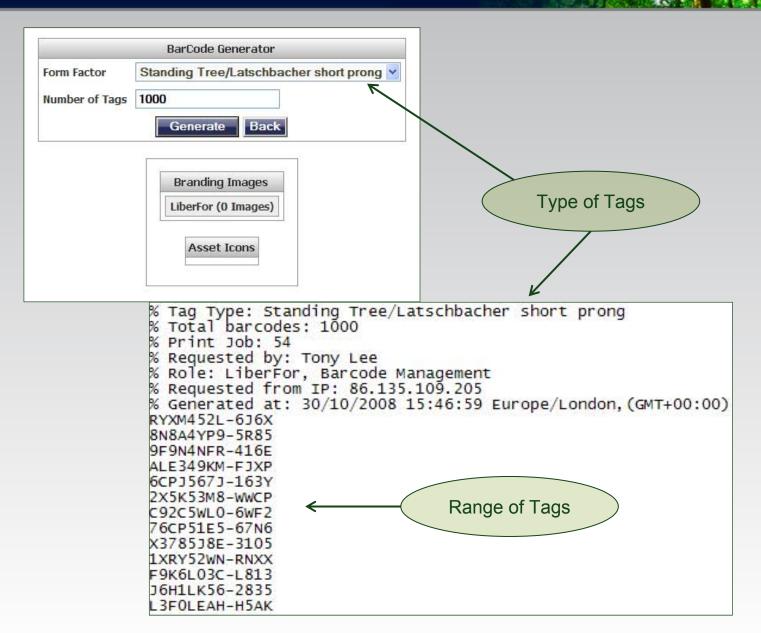


### CI Print can also:

- Generate Barcodes for printing
- For security purposes barcodes can be date sensitive
- Catalogue barcode batches
- Allow for creation of tag templates to suit different types of tag

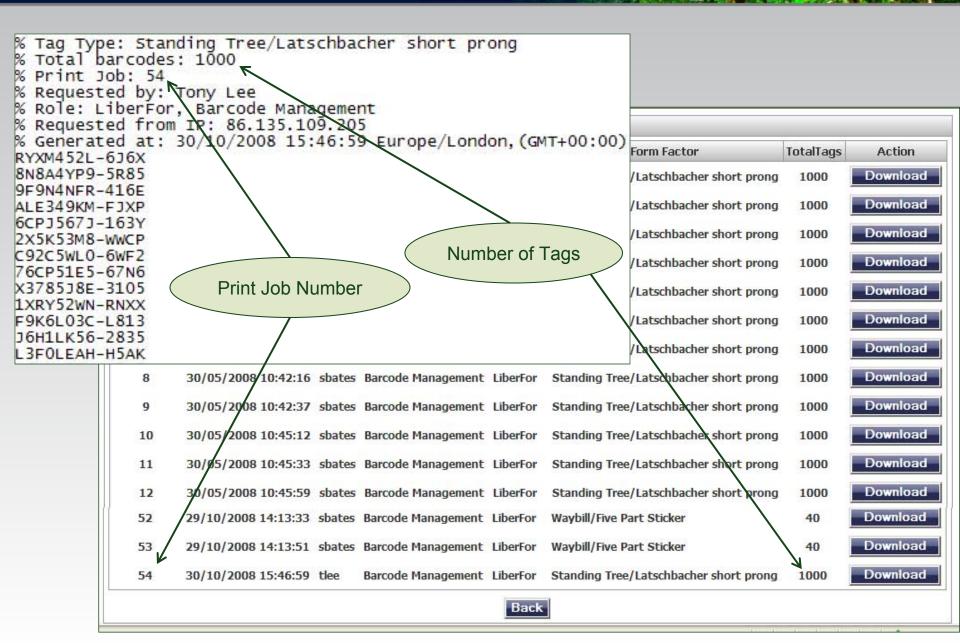


### **Liberia Case Study – Barcode Management**





### **Liberia Case Study – Barcode Audit**



### **Liberia Case Study – Species List**





### Species List

FDA Regulation Number: 107-07

Effective Date: 06/01/2008

Date entered into CoCSIS: 06/01/2008 Entered By: sbates

Date Checked: 06/01/2008 Checked By: Nuno Chagas

Abbrev			Fee Class		
	Botanical Name	Local/Trade Names Liberia	Stumpage	Forest Product	
AFZ	Afzelia spp (bella africana)	Doussie (Afzelia Apa)	A	Α	
ALS	Alstonia boonei	Emien	С	С	
AMP	Amphimas pterocarpoides	Lati (Bokango)	С	c	
ANH	Anthonotha fragrans	Anthonotha (Kibokoko)	С	C	
ANI	Anigeria robusta	Aningre (Annegre)	Α	Α	
ANO	Anopyxis klaineana	Kokoti	В	В	
ANT	Antierie africana	Ako	D .	В	

### **Liberia Case Study – Fee Rate Registration**

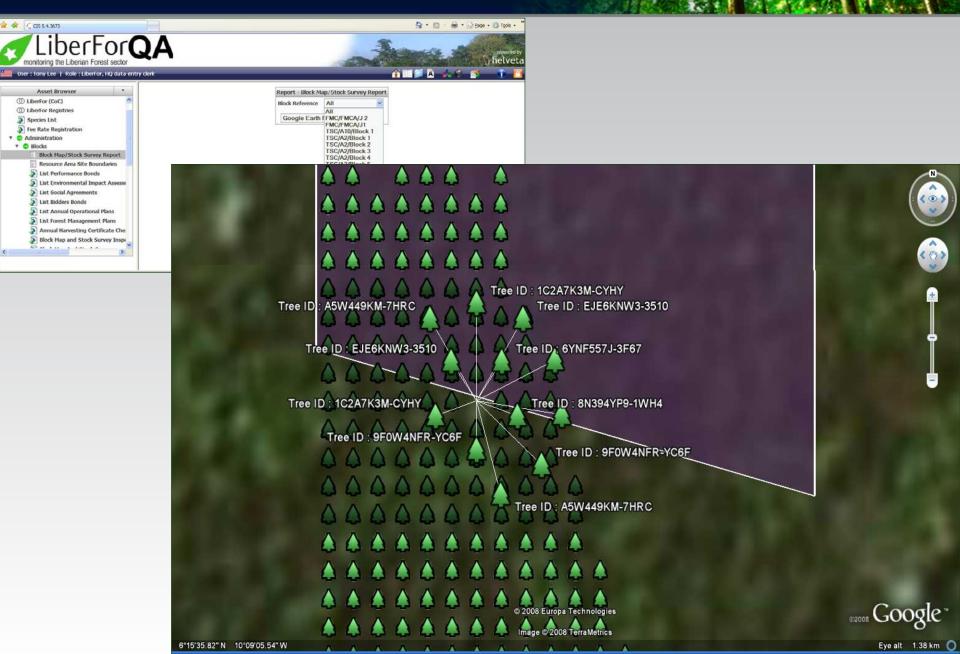




### Fee Rate Registration

A. FROM Regulation	107-07			Vali	d From		09/26/2008		
1. Stumpage Fees	Class A Species	Class B Species	Class C Species	Class D Species	Class E Species	Class F Species	Class G Species	Class H Species	Class I Species
Percentage of FOB Value	10.00%	5.00%	2.50%	%	%	%	%	%	%
Private Plantation	5.00%	2.50%	1.25%	%	%	%	%	%	%
State Plantation	%	%	%	%	%	%	%	%	%
Community Terms	% 30	M % ()	%	%	%	%	%	%	%
2. Contract Admin Fed	os		F	US \$ 1,00	0.00 per	/ear	7		
3. Areas Fees			FMC's TSC's	US \$ 2.50 US \$ 1.25		per year per year	1		
4. Annual Coupe Insp	ection Fee			US \$ 50.0	00 per 100	ha block	mapsubmi	tted	
5. Way Bill Fees			-0	US \$ 150	.00 per 10	) waybills			
6. Timber Export Lice	nce		LIL	US \$ 150	.00 pere	port shipn	nent		
7. Export Fees	Class A	Class B	Class C	Class D	Class E	Class F	Class G	Class H	Class I

#### Liberia Case Study – Block Map & Stock Survey



#### Liberia Case Study – Block Map & Stock Survey





# Block Map/Stock Survey Report

Site Type and Reference

TSC/A2/J2

**Owner TIN** 

407034007

Company

Tarpeh Timber Co.

		Easting	Norming
UTM Coordinates	Origin (0 meter, 0 meter)	372279	692563
	Anti-clockwise from origin	373290	692563
The same of the sa	Anti-clockwise from previous	373290	691917
	Anti-clockwise from previous	372279	692180
	Compass Bearing of Baseline	98.00	

Survey Line Number	Distance Line Number	Tree ID	Species	Diameter
/ 1 m	1	C6N91EHX-1P0C	PAR	0.40
1	1	731W1LX3-CP0H	PAR	0.50

#### **Liberia Case Study – Inspection Reports**

# Block Map/Stock Survey Inspection Schedule

Block Reference TSC/A2/J2

Owner TIN 407034007

Company Tarpeh Timber Co.

- O H	Northing	Easting
Origin	692,563	372,279
Top Left	692,563	373,290
Top Right	691,917	373,290
Bottom Right	692,180	372,279
Baseline	98	Degrees

Cell Reference					
Survey Line Distance Line					
8	18				
9	15				
10	2				
12	19				
13	4				
/// /// 13	19				

#### Liberia Case Study – Stock Survey Verification

## Block Map and Stock Survey Verification

Concession and Block:

TSC/A2/J2

Owner TIN:

407034007

Company:

Tarpeh Timber Co.

Check on Locations	Pass/ Fail	Qty wrong	Qty checked	% correct	Variance
The starting point of the Base Line is within +/- 5.00m of the starting point given on the block	8				Baseline not verified
The starting point of each and every Survey Line is within +/- 10.00m of the starting point given	1	0	0	0	No survey lines verified
The centre point of each and every Cell is within +/- 10.00m of the cell centre point given on the block map	RI	0	0	0	No Cell Centre Points verified
Check on Trees and Barcodes	Pass/ Fail	Qty wrong	Qty checked	% correct	Variance
100% of Tree Barcodes are correct		0	0	0	
90% or more of Trees are in the correct cell		0	0	0	(A)
90% or more of Trees above 40cm dbh are tagged and included in Stock Survey	-	0	0	0	No Barcodes
90% or more of Trees have Species correctly identified	51	0	0	0	No Barcodes
90% or more of Trees are in the correct 10 cm Diameter class	No	0	0	0	No Barcodes
No Barcode duplicates on Stock Survey	No	6			No Barcodes
No Barcode duplicates on Stock Survey Verification	No	0			No Barcodes

#### Liberia Case Study – Stock Survey Error Check

## Block Map and Stock Survey Error Check

Block Reference: TSC/A2/J2 Owner TIN: 407034007

Company: Tarpeh Timber Co.

Enumerator: Sam Date Surveyed: 10/11/2008

Supervisor: Date

HQ Data Entry Clerk: sbates CoCIS Entry Date: 10/29/2008

Check performed	Pass/Fail	Reason
TSC/FMC reference matches TIN	Pass	N. State of Control of
All 4 corners and the entire area of the Block Map fall within the gross area of the Concession	Pass	
All Barcodes are correct	Fail	See list below
No Barcode duplicates on Stock Survey	Fail	See list below

#### TREE BARCODES IN ERROR

Barcode	Barcode	Cell	Barcode Allocation		Barcode Type	Barcode
		TIN	Concession		Expired	
04JHXAXR-4RLE	2,6	Unknown	Unknown	Unknown	Unknown	
05634E06-22CP	4,8	Unknown	Unknown	Unknown	Unknown	
05674E0C-F8PM	10,6	Unknown	Unknown	Unknown	Unknown	

#### Liberia Case Study – Annual Harvesting Certificate

# **Annual Harvesting Certificate Check**

Resource Area Owner TIN

Contract Signing Date Company

	Pass/Fail		Pass/Fail
EIA approval by EPA	ero, grant	Signed Social Agreement	70
AOP approval by FDA	RE,	FMP approved by FDA	
Performance Bond Lodged		Bidders Bond Paid	
Contract Admin Fee Paid	. 0	Annual Area Fee Paid	7
Land Rental Bid Fee Paid		Annual Coupe Inspection Fee Paid	0.7
Stumpage From Previous Year Paid	9 9	Export Fees From Previous Year Paid	
Chain of Custody Fee From Previous Year Paid	9 0		\ \

Reason For Failure				
			7	S
CoCIS Accountant	 Date (	Checked	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
Signature	BLT BUI			

Date Checked

#### **Ivory Coast Case Study**

#### Pilot project background:

- ITTO funded
- Implemented by SGS
- Utilizing Helveta technology
- Operated by « Ministère de l'Environnement, Eaux et Forêts » (MINEEF)





#### Pilot project objectives:

- Testing a specific traceability technology
- Allow for tracing of forest products at every stage of the supply chain
- Clear & secure identification of logs & sawn timber during processing operations
- Provision of 'back-to-stump' traceability for logs and sawn timber
- Collection and analysis of data on production of logs and sawn timber



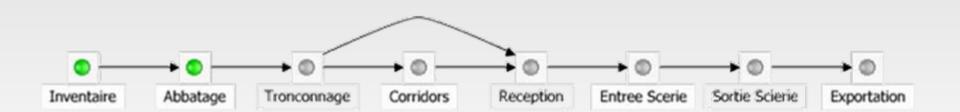
#### **Ivory Coast Case Study**

#### Pilot project scope:

- 3 operators
- 3 separate supply chains
- 8 control points
- 3 rules
  - species comparison
  - diameter comparison
  - barcode comparison
- 12 reports

#### **Control Points**

- Inventaire (Inventory)
- Abbatage (Felling)
- Tronconnage (Log Pond)
- Corridors (Checkpoint)
- Reception (Reception)
- Entrée Scierie (Sawmill Entry)
- Sortie Scierie (Sawmill Exit)
- Exportation (Export)







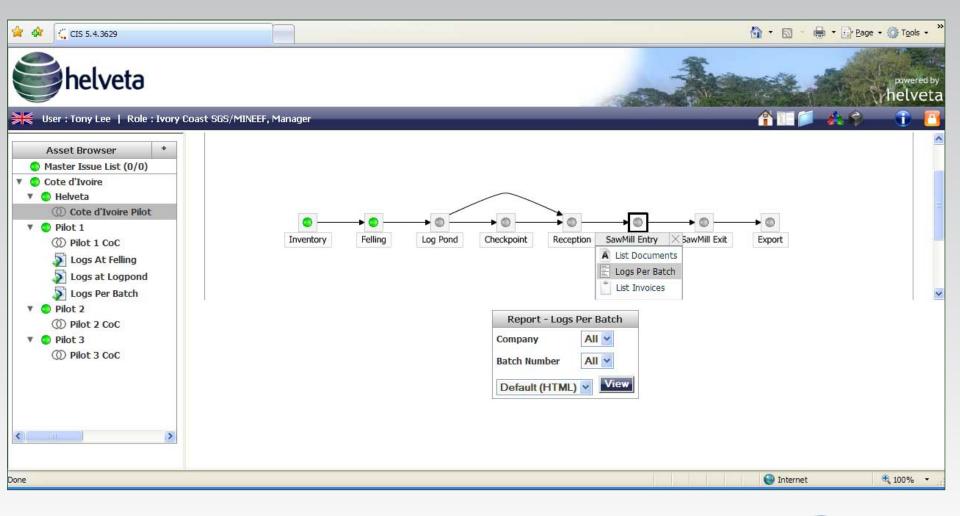
# helveta Logs per Batch

Date: 11/01/2008

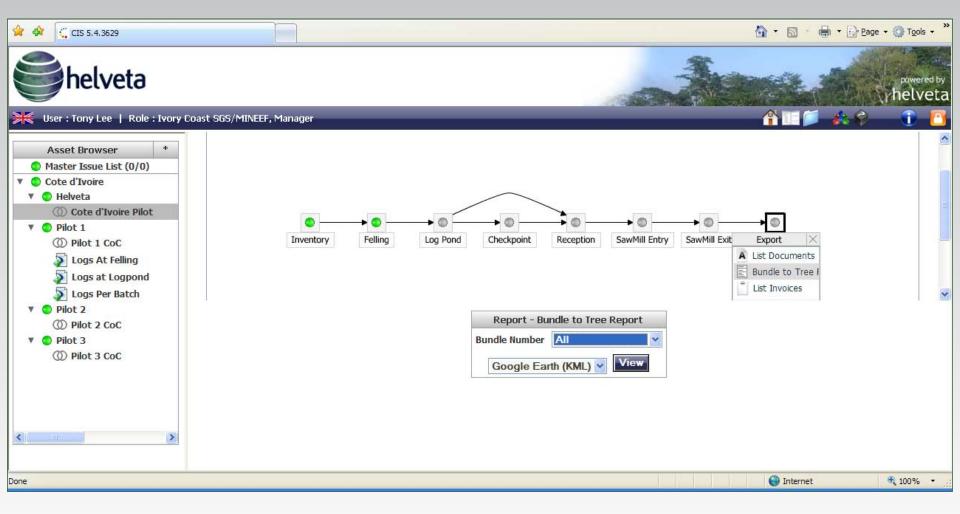
Company : Pilot 1 Batch : contract

Log Barcode	Species	Date	Volume sq meters	Length	Max Diameter Top/Bottom	Min Diameter Top/Bottom
H3EJCP80-N 050	Fromager	06/11/2008	4.07	8.10	0.80	0.80
					0.91	
82N7H7E3-K48L	Fromager	06/11/2008	7.11	5.40	1.29	1.30
					1.13	
79628XJC-8 0FF	Fromager	06/11/2008	6.87	10.80	0.90	0.90
					1.06	
8N3YPY99-6H6J	Fromager	06/11/2008	13.38	8.10	1.40	1.50
					1.24	
C6NOXEXX-HJ9A	Fromager	06/11/2008	10.18	8.10	1.23	1.30
					1.30	
6YNOJ6MJ-CJEP	Fromager	06/11/2008	6.27	10.80	0.89	0.83
1					1,16	
4KEK67XE-RM89	Fromager	06/11/2008	4.41	5.40	1.02	1.02
					1.11	
24641Y54-M2L2	Fromager	06/11/2008	7.77	8.10	1.15	1.06
	(1) 100 NOTS (1)				1.20	7

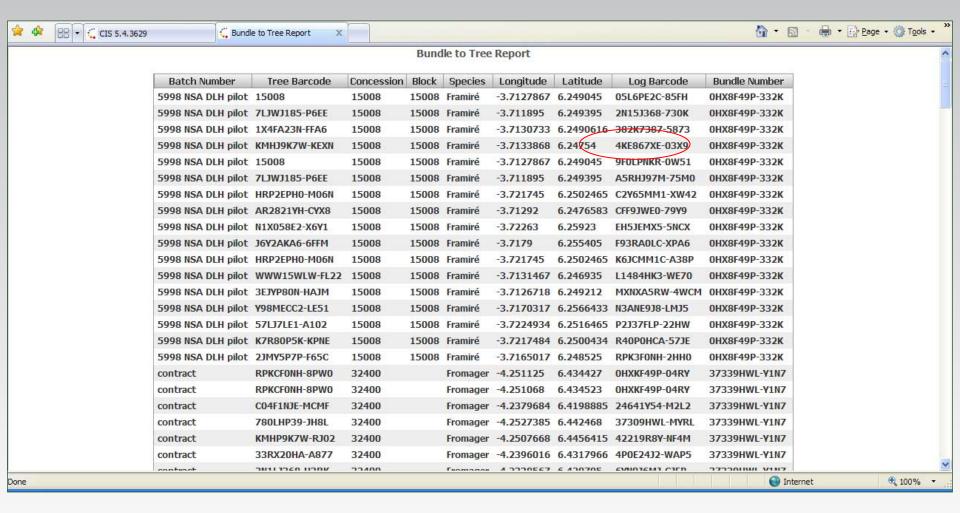














#### **Ivory Coast Case Study**

#### **During the pilot CI World:**

- Identified and mapped standing trees in the forest
- Recorded details relating to the felling of those trees
- Tracked the trees through the supply chain, identifying & recording
- Their transformations into logs and batches of sawn timber
- Reconciled data between control points and identified errors
- Reconciled batches of sawn timber with original standing trees
- Reconciled goods for export with original standing tree
- Locations/stumps
- "Logs in the Pilot" report





#### Cameroon Case Study – EU / FLEGT Initiative

#### Pilot project background:

- British Government funded project
- Community monitoring of forest usage
- Basis for supporting VPA process
- Conflict avoidance mechanism
- Forest products traceability
- Access to markets
- Commenced December 2007
- Partners:

British FCO
Cameroon Ministry of Forestry
CED



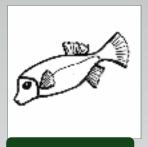






## Cameroon Case Study – Icon Based System

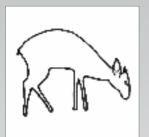












Hunting

Fishing

Gathering

Agricultural

Cultural & Religious

Ground Dwelling



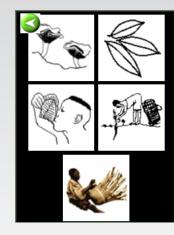
Tree Dwelling



Drinking Water



River Heads

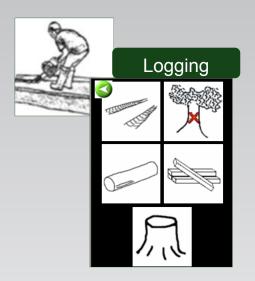


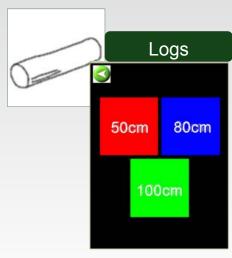


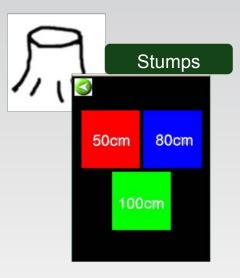


# Cameroon Case Study – Community Monitoring











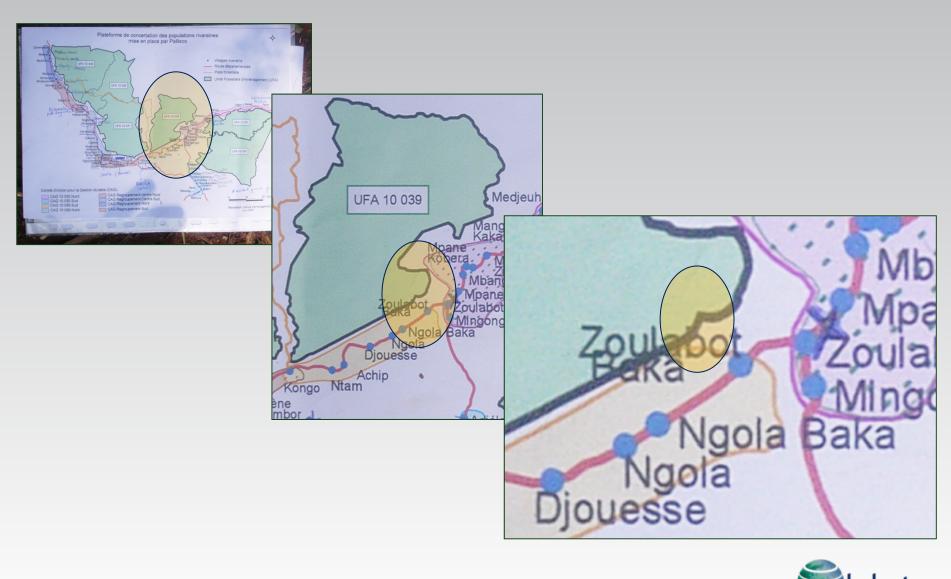
## Cameroon Case Study - CI World Benefits

- 100% traceability, 100% online verification
- Compliance with EU FLEGT, US Lacey Act & Free Trade requirements
- Access to premium markets
- Access to governmental procurement channels
- Improved recovery, improved conversion
- Rapid deployment, rapid returns
- Next steps



# **Cameroon Case Study**

#### **Cameroon Case Study – Conflict Resolution**





# Cameroon Case Study – Conflict Resolution



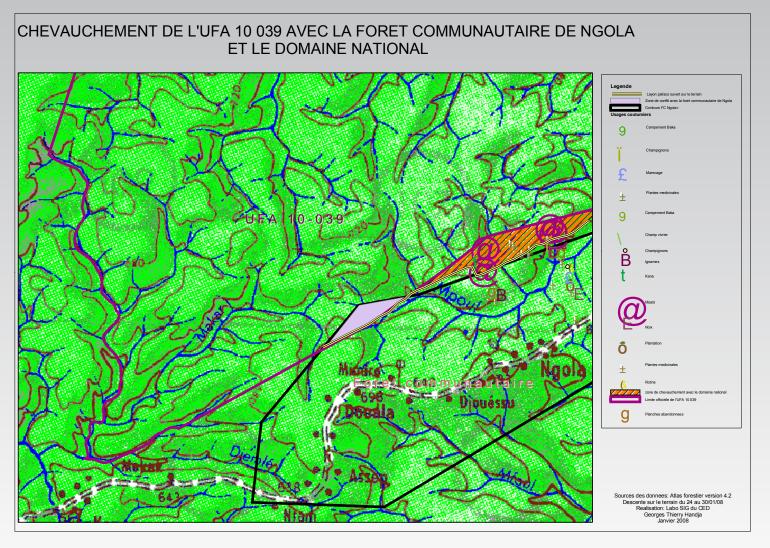


#### **Cameroon Case Study – Conflict Resolution**





#### **Cameroon Case Study**











# Thank You!

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